Legal Department

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January 22, 201922, 2019

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

Re: PUCO Case No. 19-0043-EL-BLN
In the Matter of the Letter of Notification for the
Gristmill-Gemini 138 kV Transmission Line Project

Dear Chairman Haque,

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

A copy of this filing will also be submitted to the executive director or the executive director's designee. A copy will be provided to the Board Staff, including an electronic copy.

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

Respectfully submitted,

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

Counsel for AEP Ohio Transmission Company, Inc.

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

Letter of Notification Gristmill-Gemini 138 kV Transmission Line Project

PUCO Case No. 19-0043-EL-BLN

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

Submitted by:
AEP Ohio Transmission Company, Inc.

January 22, 2019

Letter of Notification

AEP Ohio Transmission Company, Inc. (AEP Ohio Transco)
Gristmill-Gemini 138 kV Transmission Line Project

4906-6-05

AEP Ohio Transmission Company, Inc. ("AEP Ohio Transco") provides the following information in accordance with the requirements of Ohio Administrative Code Section 4906-6-05.

4906-6-5(B) General Information

B(1) Project Description

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

AEP Ohio Transco proposes the Gristmill electric power transmission Substation, the Gristmill-Gemini 138 kV Transmission Line, and the Southwest Lima-Miami 345 kV Extension Project ("Project"), which is located in Auglaize County, Ohio. The Project involves building the Gristmill Station, approximately four miles of 138 kV transmission line, and approximately 0.25 mile of 345 kV transmission line to provide power to the Gristmill Station and connects the Gristmill Station to the Gemini Station. Gemini Station is reported individually under separate cover in a stand-alone Letter of Notification ("LON", Case Number 18-1637-EL-BLN).

The Project consists of building the new 138 kV transmission line using entirely new right-of-way ("ROW") between Gristmill Station and Gemini Station. The Gristmill Station will be a new greenfield substation constructed on property currently owned by John L. Schwarck, located along Wapak Fisher Road, between Brown Road and Townline Lima Road. The property is comprised of agricultural land, approximately 79 acres in size. The portion of the property to be purchased by AEP Ohio Transco is approximately 17 acres. The 345 kV transmission line will be located within existing ROW and land to be purchased by AEP Ohio Transco for the Gristmill Station. Maps 1 and Maps 2A-2E in Appendix A shows the location of the Project in relation to the surrounding vicinity.

The Project meets the requirements for a LON because it is within the types of projects defined by item 1(d) (ii) and 3 of Ohio Administrative Code Section 4906-1-01 Appendix A of the Application Requirement Matrix For Electric Power Transmission Lines:

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

(d) Line(s) primarily needed to attract or meet the requirements of specific customer or customers, as follows:

(ii) Any portion of the line is on property owned by someone other than the specific customer or applicant.

(3) Construction a new electric power transmission substation.

The Project has been assigned PUCO Case No. 19-0043-EL-BLN

B(2) Statement of Need

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

Greenfield transmission facilities in the Wapakoneta, Ohio area need to be constructed, and existing transmission facilities need to be modified in order to accommodate a new delivery point (Gemini Station) to an existing wholesale customer (City of Wapakoneta) who is expecting up to 127MW of new system load as new customers of the City come online over the next several years. To serve this new load at the delivery location specified by the customer, AEP Ohio Transco will construct the Gemini Station, the Gristmill Station, and approximately 4 miles of 138kV line that will connect Gemini and Gristmill Stations. Gristmill Station will be a 345/138kV stepdown station with new connections from the existing Southwest Lima – Miami 345kV Line. Gemini Station property is being acquired in cooperation with the City of Wapakoneta. Gristmill Station and transmission line ROW are being acquired by AEP Ohio Transco. Gristmill Station and Gemini Station are referenced on page 1 of the 2018 AEP Ohio Transco LTFR Form FE-T10. The Gristmill – Gemini 138kV Line is on page 32 of the 2018 AEP Ohio Transco LTFR Form FE-T9. AEP Ohio Transco will provide the PJM reference number to the Ohio Power Siting Board (OPSB) once it has been assigned. The needs statement was submitted to PJM on October 11, 2018 and was discussed during the October 26, 2018 PJM Western Sub-Regional TEAC meeting. The solution statement for the customer needs were discussed in a follow up meeting on January 11, 2019 per the PJM process.

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.

Map 3 shows the location of the Project in relation to existing transmission lines and the electric power transmission substations. The proposed Gemini Station site is also provided. The Project directly impacts the following existing facilities:

- Southwest Lima-Miami 345 kV Transmission Line

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.

Refer to Sections 1.3 through 3.0 in Appendix B, the Substation Siting Study, for information on alternatives considered for the Gristmill Station site. The proximity to the existing transmission line was a significant consideration in the identification of the proposed location for the Gristmill Station site. The site is topographically flat and will require minimal grading. Also, after preliminary discussions, it was

determined that the proposed location had a willing landowner that would sell the property and easements necessary to construct the Project. The relative lack of environmental, cultural, and land use constraints confirm it as a suitable site and it appears the proposed location is the most feasible of the project alternatives from a system planning, engineering, siting, permitting, and acquisition perspective.

Refer to Sections 3.3 through 5.0 in Appendix C, the Siting Study, for information on alternatives considered for the Gristmill-Gemini 138 kV transmission line. The proposed route balances the use of open agricultural land to avoid residences and other potential building encroachments and existing road corridors where these obstacles are not present. This route avoids the residences and outbuildings in close proximity along Weimert School Road by bisecting the agricultural field to the south and is the most direct route between the two proposed station locations and requires the least amount of tree clearing. Additionally, the proposed route best responds to public and stakeholder input concerning avoiding proximity to residences and minimizing impacts on agricultural drainage tiles and field operations. Collectively, the Siting Team believes that the proposed route meets the goal of minimizing impacts on land use, and the natural and cultural resources along the route, while avoiding circuitous routes, extreme costs, and non- standard design requirements.

B(5) Public Information Program

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

AEP Ohio Transco informs affected property owners and tenants about its projects through several different mediums. AEP Ohio Transco hosted a project open house for the overall Wapakoneta Improvements Project in July 2018 and invited all property owners and tenants in the project area to attend. Within seven days of filing this LON, AEP Ohio Transco will issue a public notice in a newspaper of general circulation in the Project area. The notice will comply with all requirements under O.A.C. Section 4906-6-08(A)(1-6). Further, AEP Ohio Transco mailed a letter, via first class mail, to affected landowners, tenants, contiguous owners, and any other landowner AEP Ohio Transco approached for an easement necessary for the construction, operation, or maintenance of the facility. The letter complies with all the requirements of O.A.C. Section 4906-6-08(B). AEP Ohio Transco also maintains a website (http://aeptransmission.com/ohio/) which provides the public access to an electronic copy of this LON and the public notice for this LON. A paper copy of the LON will be served to the public library in each political subdivision affected by this proposed Project. Lastly, AEP Ohio Transco 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 the fourth quarter of 2019, and the anticipated in-service date will be July 2020.

B(7) Area Map

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

Map 1 in Appendix A provides the proposed Project area on a map of 1:31,680-scale (1 inch equals 0.5 mile), and provides the proposed station location for the Gemini Station, the proposed fence line for the Gristmill Station, and the proposed route for the Gristmill-Gemini 138 kV and Southwest Lima-Miami 345 kV transmission lines on the United States Geological Survey (USGS) 7.5-minute topographic map of the Wapakoneta, Ohio and Uniopolis, Ohio quadrangles. Maps 2A-2E in Appendix A show the Project area on recent aerial photography, as provided by Bing Maps at a scale of 1:6,000-scale (1 inch equals 500 feet).

To visit the Project site from Columbus, Ohio, take I-70 West to I-270 North towards Cleveland for approximately 9 miles. Take Exit 17B to merge onto Ohio State Route 161 West/U.S. 33 West. Follow U.S. 33 for approximately 53 miles. Turn left onto OH-720 West and follow OH-720 West for approximately 8 miles. Continue straight onto Santa Fe-New Knoxville Road for approximately 3 miles. Turn right onto Town Line Road/Town Line-Lima Road and continue approximately 2 miles. Turn left onto Wapakoneta Fisher Road. The Project site will be on the right. The approximate address of the Gristmill Station site is 17501 Wapakoneta Fisher Road, Wapakoneta, Ohio 45895, at latitude 40.53513364, longitude -84.11362632.

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.

Project Entity	Parcel ID	Easement/Agreement Obtained?
Gristmill Station	I2501200502	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2500300800	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2500301000	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2500301001	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2500301100	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2500400400	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2500400500	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2500400501	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2500400800	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2501001200	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2501100100	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2501100201	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2501100700	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2501101000	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2501200100	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I2501200502	Agreements have not been obtained yet
Gristmill-Gemini transmission line	I4500401502	Agreements have not been obtained yet

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 Gristmill-Gemini 138 kV transmission line construction will include the following:
Voltage: 138kV
Conductors: 795 kcmil 26/7 ACSR
Static Wire: 7#8 Alumoweld
Insulators: Polymer
ROW Width: 100 Feet
Structure Types:

- Double circuit (1 future circuit) steel pole deadend structure. Nine structures are needed.
- Double circuit (1 future circuit) steel pole angle structure. Two structures are needed.
- Double circuit (1 future circuit) steel pole tangent structure. Twenty-nine (29) structures are needed.
- Single circuit steel H-frame tangent structure. One structure is needed.
- Single circuit steel pole guyed angle structure. Two structures are needed.

The Southwest Lima-Miami 345 kV transmission line construction will include the following:
Voltage: 345kV
Conductors: 954 kcmil 45/7 ACSR
Static Wire: 7#8 Alumoweld
Insulators: Polymer
ROW Width: 150 Feet
Structure Types:

- Single circuit steel 3-pole deadend structure. Two structures are needed.
- Single circuit steel H-frame structure. Two structures are needed.

Gristmill Station

The equipment and facilities to be installed within the project area will include the following:
345/138/13.8kV Power Transformer – (1)
345kV Circuit Breaker – (1)
345kV Metering Circuit Breakers (2)
345kV Switches – (9)
345kV CCVTs – (6)
345kV Metering CCVTs (3)
209kV Surge Arresters – (9)
345kV Line Trap – (1)
138kV Circuit Breakers – (1)
138kV Switches – (5)
138kV CCVTs – (6)
84kV Arresters – (9)
13.8kV Station Service Transformer – (1)
138kV Station Service Power Potential Transformers (PTs) – (1)
13.8kV Potential Transformer (PT) – (3)
15.3kV Arresters – (3)
Relay Panels – (12)
Drop-In Control Module (DICM) – (1)

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.

One residence located at 14268 Short Road and identified under the parcel ID I4500401502 is mapped within 100 feet of the proposed Gristmill-Gemini transmission line. The owner is listed as the City of Wapakoneta on the Auglaize County Auditor and GIS databases.

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

i) Calculated Electric and Magnetic Field Levels

Three loading conditions were examined: (1) Normal Maximum Loading, (2) Emergency Loading, and (3) Winter Normal Conductor Rating, consistent with the OPSB requirements. Normal Maximum Loading represents the peak flow expected with all system facilities in service; daily/hourly flows fluctuate below this level. Emergency loading is the maximum current flow during unusual (contingency) conditions, which exist only for short periods of time. Winter Normal (WN) Conductor Rating represents the maximum current flow that a line, including its terminal equipment, can carry during winter conditions. It is not anticipated that either circuit of this line would operate at its WN rating in the foreseeable future. Loading levels and the calculated electric and magnetic fields (EMF) are summarized below.

GRISTMILL-GEMINI 138 KV EMF CALCULATIONS				
Condition	**Circuit Load (A)**	**Ground Clearance (feet)**	**Electric Field (kV/m)***	**Magnetic Field (mG)***
(1) Normal Maximum Loading^	601.55	22.6	0.08/1.9/0.06	15.9/87.3/22.2
(2) Emergency Line Loading^^	657.00	22.6	0.08/1.9/0.06	17.3/95.4/24.2
(3) Winter Normal Conductor Rating^^^	1690.21	30.0	0.02/1.2/0.05	40.6/148.6/54.4

* EMF levels (left ROW edge/maximum/right ROW edge) computed one meter above ground at the point of minimum ground clearance, assuming balanced phase currents and 1.0 P.U. Voltages. ROW width is 50 feet (left) and 50 feet (right) of centerline, respectively.

^ Peak line flow expected with all system facilities in service

^^ Maximum flow during a critical system contingency

^^^ Maximum continuous flow that the line, including its terminal equipment, can withstand during winter conditions

The above EMF levels are well within the limits of the specified IEEE Standard C95.6tm-2002. Those limits have been established to “prevent harmful effects in human beings exposed to electromagnetic fields in the frequency range of 0-3kHz”.

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.

Design alternatives were not considered due to EMF strength levels. Transmission lines, when energized, generate EMF. Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. However, some people are concerned that EMF have impacts on human health. Due to these concerns, EMF associated with the new circuits was calculated and set forth in the table above. The EMF was computed assuming the highest possible EMF values that could exist along the proposed transmission line rebuild. Normal daily EMF levels will operate below these maximum load conditions. Based on studies from the National Institutes of Health, the magnetic field (measured in milliGauss, or mG) associated with emergency loading at the highest EMF value for this transmission line is lower than those associated with normal household appliances like microwaves, electric shavers and hair dryers. For additional information regarding EMF, the National Institutes of Health has posted information on their website: http://www.niehs.nih.gov/health/topics/agents/emf/. Additionally, information on electric and magnetic fields is available on AEP Ohio's website: https://www.aepohio.com/info/projects/emf/OurPosition.aspx. The information found on AEP Ohio's website describes the basics of electromagnetic field theory, scientific research activities, and EMF exposures encountered in everyday life. Similar material will be made available for those affected by the construction activities for this Project.

B(9)(c) Project Cost

The estimated capital cost of the project.

The capital cost estimate for the proposed Project, which is comprised of applicable tangible and capital costs, is approximately $33,000,000.

B(10) Social and Economic Impacts

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

B(10)(a) Land Use 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 consists of building the Gristmill Station, approximately four miles of 138 kV transmission line, and approximately 0.25 mile of 345 kV transmission line to provide power to the Gristmill Station and connects the Gristmill Station to the Gemini Station. Gemini Station is reported individually under separate cover in a stand-alone LON. The Gristmill Station will be a new greenfield substation constructed on a 17-acre property. The proposed fenceline of Gristmill Station is approximately five acres. The Project is located in Pusheta Township of Auglaize County, Ohio. The City of Wapakoneta municipal boundary is adjacent to the north of the western end of the Project. The City of Wapakoneta plans to facilitate commercial and industrial development on surrounding properties in the western portion of the Project area. The Project

vicinity is currently rural in nature, and is comprised primarily of agricultural land used for row crops, and lesser amounts of old fields, forested land, landscaped areas, and scattered residences (See Maps 2A-2E). Approximately 2.03 acres of tree clearing is anticipated for the Project. Twenty-two homes were identified within 1,000 feet of the proposed Project. One residence is mapped approximately 51 feet from the proposed Gristmill-Gemini transmission line along Short Road and identified under the parcel ID I4500401502. The owner is listed as the City of Wapakoneta on the Auglaize County Auditor and GIS databases. The remaining 21 residences are mapped between 158 and 926 feet from the proposed route. There are no churches, schools, parks, preserves, or wildlife management areas located within 1,000 feet of the centerline. One cemetery, Keller Cemetery, is mapped approximately 622 feet southwest of the proposed route along Cemetery Road (Township Highway 161).

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 Auglaize County Auditor provided a list of parcels registered as Agricultural District Land in March 2018. The auditor's office was contacted again in December 2018. The Agricultural District Land parcel list is updated each calendar year. The list received in March 2018 remains accurate. The proposed Gristmill-Gemini transmission line intersects five parcels that were identified as Agricultural District Land parcels. Approximately 18.27 acres of agricultural district land cross the proposed ROW of the Gristmill-Gemini 138 kV transmission line. The Gristmill Station site and Southwest Lima-Miami 345 kV extension are not mapped on Agricultural District Land.

Overall, the proposed Gristmill-Gemini 138 kV transmission line ROW crosses approximately 40 acres of agricultural land. Approximately 2.4 acres of the Southwest Lima-Miami 345 kV Extension crosses agricultural land. It is anticipated that only the small footprint of the proposed pole locations along the 138 kV and 345 kV transmission lines will be converted from agricultural use as a result of the Project. The entire five-acre fenced area of the proposed Gristmill Station is agricultural land. This agricultural land will be converted to non-agricultural use.

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.

Phase I Cultural Resource Management Investigations for the Project occurred October through December 2018. Responses from the Ohio History Connection were received in December 2018 and January 2019, see Appendix D.

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

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

A Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHCD000005. AEP Ohio Transco will also coordinate storm water permitting needs with local government agencies, as necessary. AEP Ohio Transco will implement and maintain best management practices as outlined in the Project-specific Storm Water Pollution Prevention Plan to minimize erosion control sediment to protect surface water quality during storm events.

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

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

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

The United States Fish and Wildlife Service (USFWS) *Ohio County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species* (available at https://www.fws.gov/midwest/Endangered/lists/pdf/OhioCtyList29Jan2018.pdf) was reviewed to identify the threatened and endangered species known to occur in the Project counties. This USFWS publication lists the Indiana bat (*Myotis sodalist*; federally endangered) and northern long-eared bat (*Myotis sepententrionalis*; federally threatened). On March 2, 2018, coordination letters were sent to USFWS and the Ohio Department of Natural Resources (ODNR) soliciting responses.

Responses were received from the USFWS on March 9, 2018 and from the ODNR on March 23, 2018. The ODNR indicated that the Project area east of Dixie Highway and south of Weimert School Road is within the vicinity of records for the Indiana bat (Myotis sodalis), a state endangered and federally endangered species and that the presence of the Indiana bat has been established in the area. Therefore, additional summer surveys would not constitute presence/absence in the area. The ODNR also indicated that the remainder of the Project area is within the range of the Indiana bat (Myotis sodalis). Both the ODNR and the USFWS proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to Indiana bats and northern long-eared bats if suitable habitat occurs within the Project area.

Based on the primarily agricultural nature of the Project area and minimal amount of tree clearing required (approximately 2.03 acres of tree clearing is anticipated for the Project), no impacts to federally listed species are anticipated. Additional details regarding species are provided in Appendix E.

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.

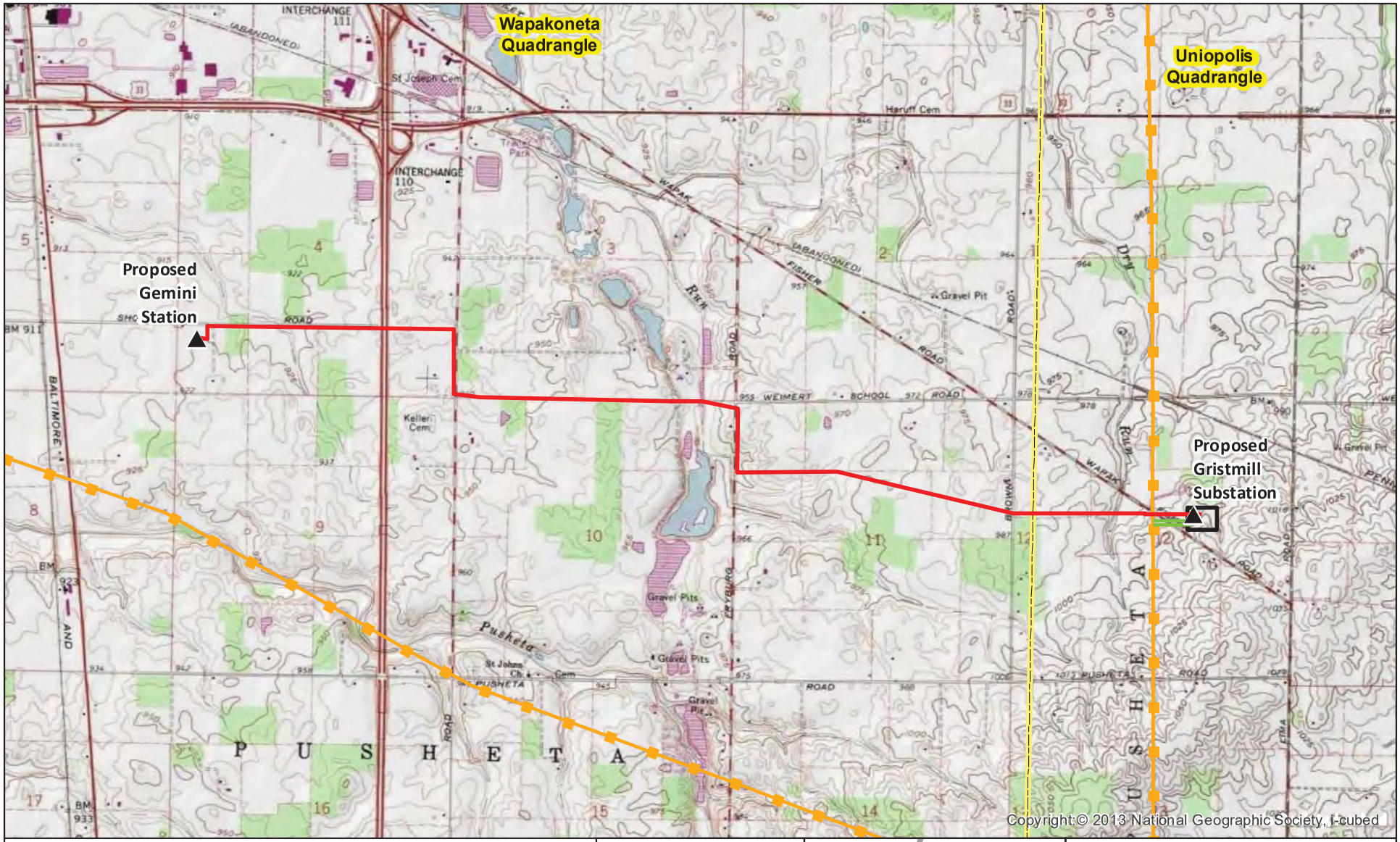
An AEP Ohio Transco consultant prepared a Wetland Delineation and Stream Assessment Report. No impacts to wetlands or streams are anticipated. Copies of the Wetland Delineation and Stream Assessment Reports for the Project are included as Appendix E. A stormwater pollution prevention plan (SWPPP) will also be prepared prior to construction.

B(10)(g) Unusual Conditions

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

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

Appendix A: Figures

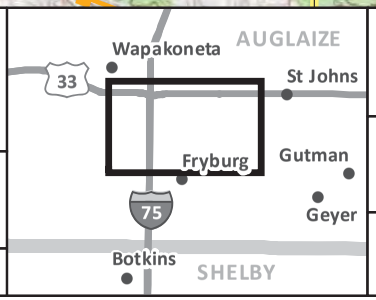


- Substation
- Proposed Gristmill Station Site
- Proposed Gristmill-Gemini 138 kV Transmission Line
- Proposed Southwest Lima-Miami 345 kV Extension
- Existing Transmission Line (345 kV+)
- USGS 7.5' Topographical Quadrangle

Data Sources: AEP (2018), USGS (2018), ESRI (2013)

Coordinate System: State Plane Ohio North NAD 83

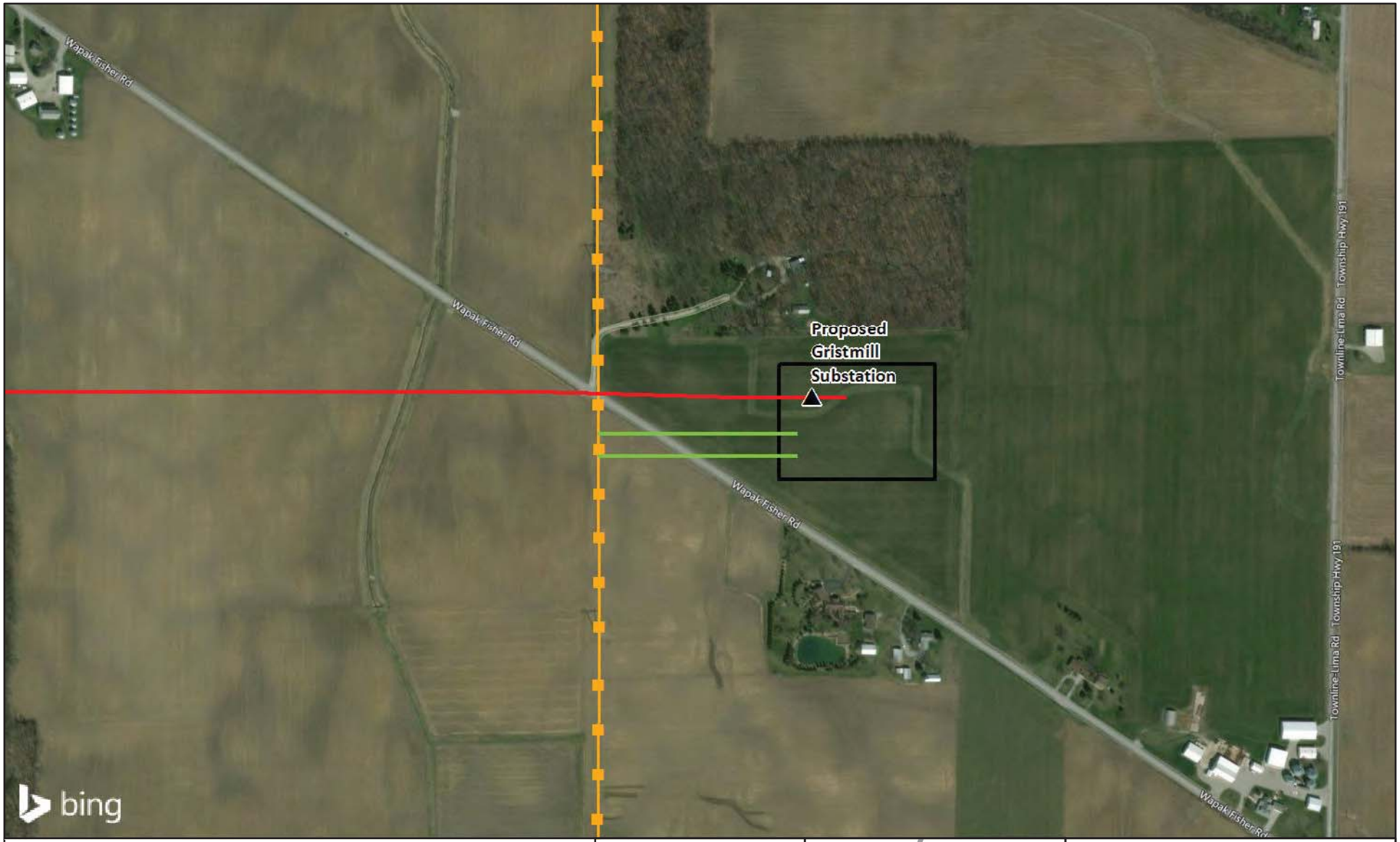
January 03, 2019



Map 1
Project Overview

Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project

0 0.25 0.5 0.75 1
Miles

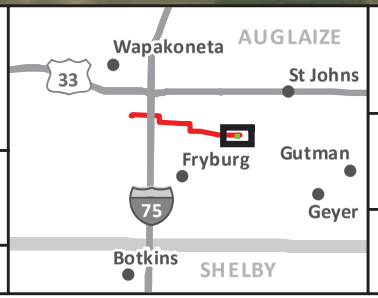


▲ Substation
Proposed Gristmill Station Site
Proposed Gristmill-Gemini 138 kV Transmission Line
Proposed Southwest Lima-Miami 345 kV Extension
Existing Transmission Line (345 kV+)

Data Sources: AEP (2018), Bing (2018)

Coordinate System: State Plane Ohio North NAD 83

January 03, 2019



Map 2A
Aerial Imagery of Project Area

Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project

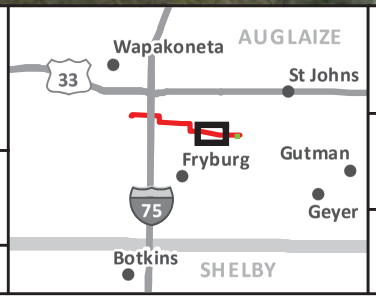
0 250 500 750 1,000
Feet

Proposed Gristmill-Gemini 138 kV Transmission Line

Data Sources: AEP (2018), Bing (2018)

Coordinate System: State Plane Ohio North NAD 83

January 03, 2019



Map 2B
Aerial Imagery of Project Area

Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project

0 250 500 750 1,000

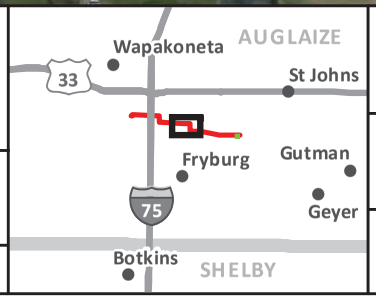
Feet

Proposed Gristmill-Gemini 138 kV Transmission Line

Data Sources: AEP (2018), Bing (2018)

Coordinate System: State Plane Ohio North NAD 83

January 03, 2019



Map 2C
Aerial Imagery of Project Area

Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project

0 250 500 750 1,000

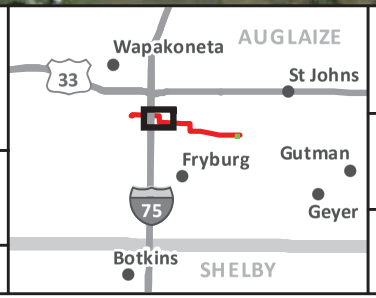
Feet

Proposed Gristmill-Gemini 138 kV Transmission Line

Data Sources: AEP (2018), Bing (2018)

Coordinate System: State Plane Ohio North NAD 83

January 03, 2019



Map 2D
Aerial Imagery of Project Area

Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project

0 250 500 750 1,000

Feet

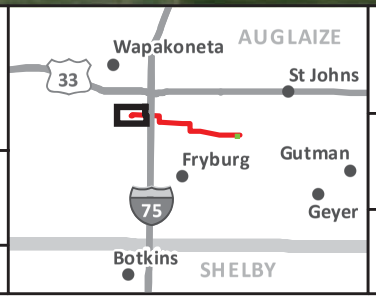
▲ Substation

Proposed Gristmill-Gemini 138 kV Transmission Line

Data Sources: AEP (2018), Bing (2018)

Coordinate System: State Plane Ohio North NAD 83

January 03, 2019

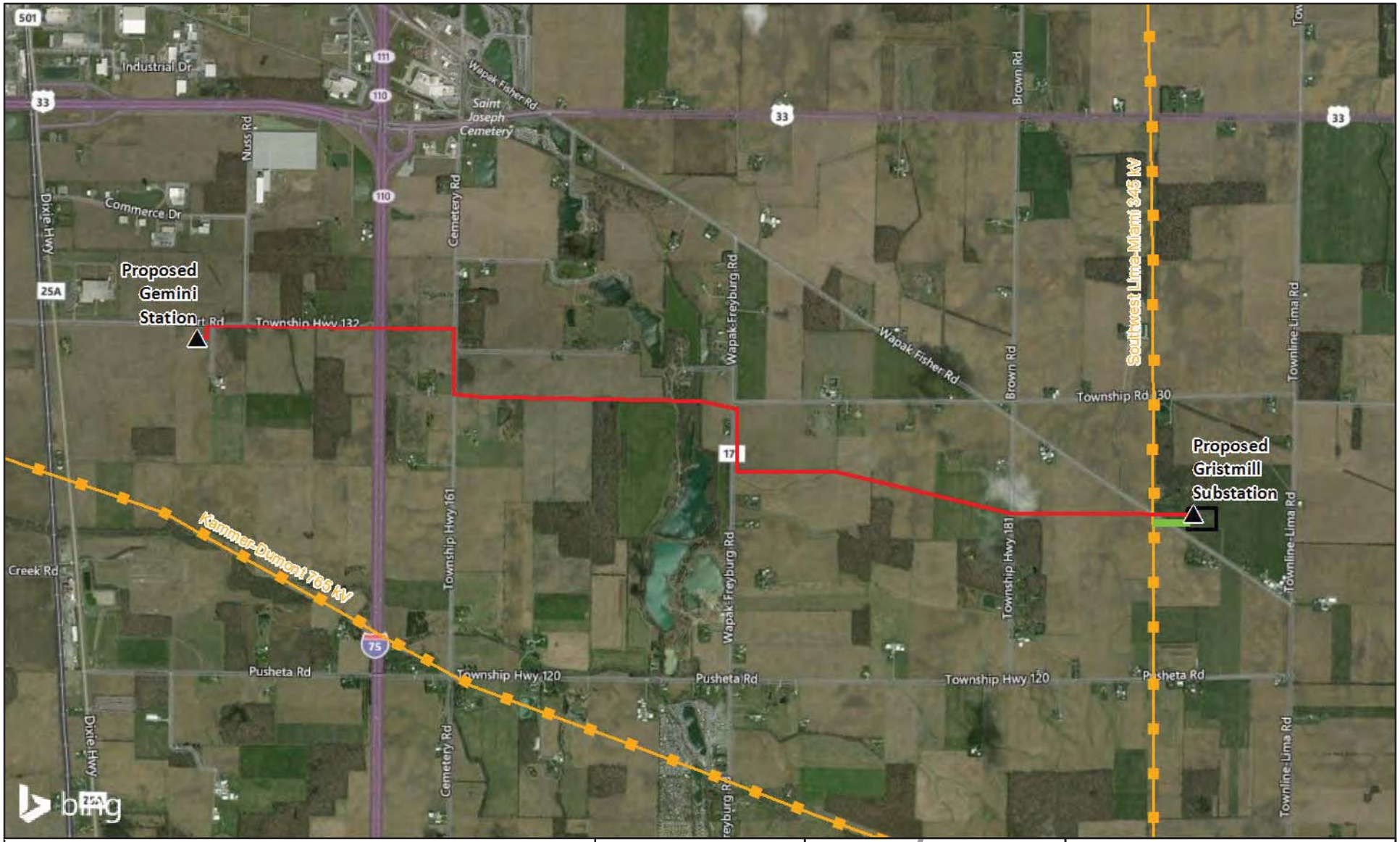


Map 2E
Aerial Imagery of Project Area

Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project

0 250 500 750 1,000

Feet

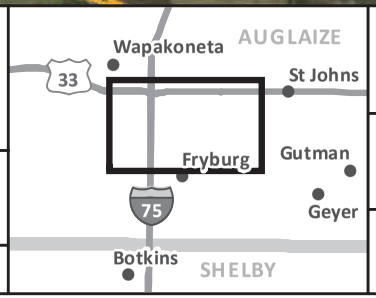


- Substation
- Proposed Gristmill Station Site
- Proposed Gristmill-Gemini 138 kV Transmission Line
- Proposed Southwest Lima-Miami 345 kV Extension
- Existing Transmission Line (345 kV+)

Data Sources: AEP (2018), Bing (2018)

Coordinate System: State Plane Ohio North NAD 83

January 10, 2019



Map 3
Existing and Proposed Infrastructure

Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project

0 0.25 0.5 0.75 1
Miles

Appendix B: Substation Siting Study

Substation Siting Study

Gristmill Station Project
OPSB Case No. 19-0043-EL-BLN

Prepared for:

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Submitted to:

Ohio Power Siting Board

Prepared by:

AECOM
525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

AECOM

January 2019

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1.0 PROJECT OVERVIEW

1.1 Project Need Summary

AEP Ohio Transmission Company, Inc. (AEP Ohio Transco), in conjunction with the City of Wapakoneta, are proposing to add an additional power source to Auglaize County, Ohio. The proposed Wapakoneta Area Improvements Project includes a new 345/138 kV Gristmill Station. This new substation will tap the Southwest Lima-Miami- 345 kV transmission line, establishing a source to provide 138 kV service to a load center approximately five miles to the west.

The Project provides an additional power source to the Auglaize County and City of Wapakoneta area's electric transmission grid and updates the infrastructure to support economic development. The modern facilities will provide local customers with greater electric service reliability.

1.2 Siting Criteria

Many of the initial siting considerations for a transmission switching station are dictated by the system planning requirements. System planning considerations typically dictate the general location of the station and the necessary transmission interconnections needed. Once key system requirements are identified, the engineers and environmental planners identify potential sites and evaluate the potential engineering obstacles, construction logistics, potential operational constraints, and potential environmental and human impacts associated with each site. The following list provides a summary of the siting criteria.

System Planning Requirements

- Electrical Load Center: Identified sites must meet the electrical need and requirements identified by the system planners and do so in an economic and reliable manner.
- Transmission Access: Proximity to the existing Southwest Lima-Miami- 345 kV transmission line that is needed as the source for the 345/138 kV Gristmill Station.

Engineering/Operations

- Space Requirements: The Site must be approximately 10 acres in order to accommodate the substation and associated stormwater controls.
- Access Requirements: Due to the heavy equipment needed at the site, consideration of bridge/public roadway weight limits is necessary. Access to the site should be via roads with a reasonable grade, length, turning radius, and line of sight. Railroad crossings and joint access to public roads with other private owners should be avoided.

- Geotechnical Considerations: Consideration will be given to soil types and soil stability. Soils with excessive restrictions on engineering and construction factors should be avoided, including areas prone to slips, slides, and large rock outcrops.
- Cost: Relative site development and construction costs are considered in the evaluation.

Natural and Human Environment Impacts

- Terrain/Slope Considerations: Excessively steep terrain should be avoided where feasible. Low-lying sites prone to flooding should be avoided or the site should be elevated above the 100-year floodplain elevation. Allowance should be provided for excavation cuts and fills, drainage and detention ponds, construction disturbed areas, and lay-down areas.
- Historic and Archaeological Concerns: Sites should be reviewed for any impact to historic or archaeological features and these impacts should be minimized.
- Public Use Facilities: Where possible, sites in close proximity to schools, churches, community buildings, and parks should be avoided.
- Recreational Areas: Recreational areas will be avoided to the maximum extent practical during site selection. Aesthetic impacts should be reviewed and considered to minimize conflicts with these uses.
- Aesthetics: Consideration will be given to the aesthetics of the area. Where appropriate and practical, vegetation screening should be considered to minimize views.
- Residential Land Use: Vacant or undeveloped lands are the preferred location for substation sites, and high-density residential areas should be avoided during preliminary site selection if possible and practical. Whenever possible, the number of individual property owners involved will be minimized.
- Utility Lines: Consideration will be given to the presence of underground gas or water pipelines, drainage easements, other utilities, and proposed adjacent development plans.
- Water Resources/Wetlands: Sites with substantial amounts of wetlands should be avoided if possible. If present, substation design should maximize avoidance and any impacts should be properly mitigated.
- Hazardous Wastes: Sites should be reviewed for the current or historic presence or use of hazardous materials, and if identified, avoided where possible.

1.3 Study Area

The Study Area must be of sufficient size to identify viable sites, but remain small enough to meet the need of the local area. Proximity to existing transmission lines typically helps to dictate the study area limits.

The proposed Gristmill Station will tap the existing Southwest Lima-Miami 345 kV transmission line. Properties adjacent or in close proximity to this line, generally within 0.5 mile east or west, are preferred. Due to the future load center south of the City of Wapakoneta and corresponding proposed 138 kV transmission line to be constructed from Gristmill Station to this load center, US-33 and Township Road 120 (Pusheta Road) form the northern and southern boundaries of the Study Area, respectively. The Study Area is approximately one mile wide by 2 miles long and encompasses nearly 1,300 acres. The Study Area is characterized by flat topography with a few wooded areas scattered throughout, and sparse residential development. It is crossed by Township Road 130 (Weimart School Road) and County Road-33A (Wapak Fisher Road).

1.4 Alternative Parcels

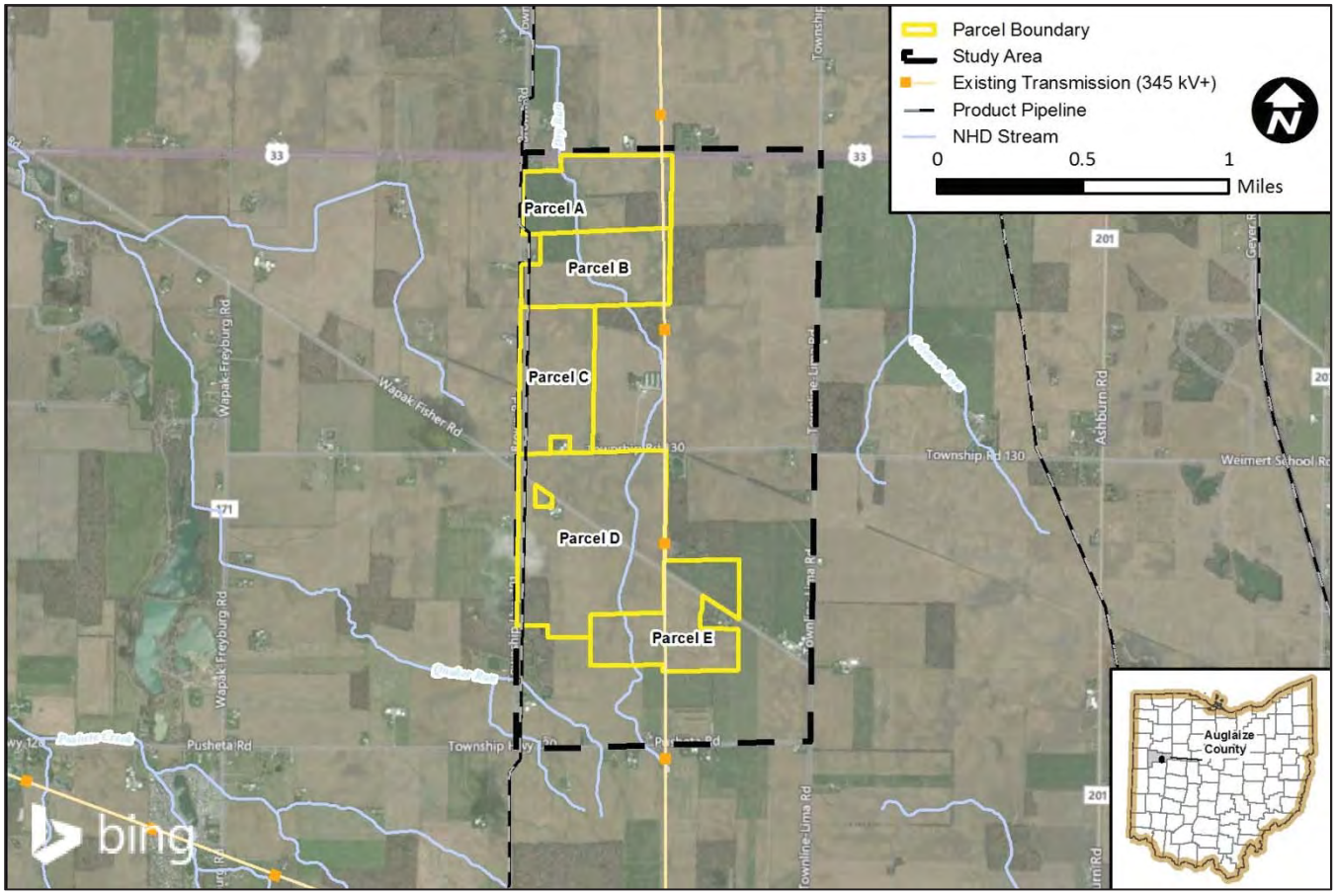
Using established siting guidelines, the Project Team identified suitable parcels within the Study Area. Each of the alternative parcels were selected to minimize the amount of tree clearing, avoid hydrologic, ecologic, cultural, and institutional features, and minimize distance to the existing Southwest Lima -Miami 345 kV Transmission Line. Additionally, property on the west side of the existing Southwest Lima-Miami 345 kV transmission line was preferred, or property directly adjacent to the east of the Southwest Lima-Miami 345 kV transmission was acceptable, as this would eliminate the need for a future crossing of the 345 kV line with a new proposed 138 kV line. Based on this information, the Project Team identified five Alternative Parcels for the Gristmill Station, as shown on Map 1. Alternative Parcels A, B, and C consist of approximately 79 acres of land. Alternative Parcel D is approximately 187 acres, and Alternative Parcel E is approximately 84 acres. Table 1 identifies the land use for each Alternative Parcel. Detailed aerial maps are presented in Maps 2 through 6.

Table 1. Alternative Parcels Considered

Site	Parcel No.	Land Use	Acreage
A	I2500100101	Agricultural	79.3
B	I2500100201	Agricultural	79.2
C	I2500100300	Agricultural	79.1
D	I2501200100	Agricultural	187.2
E	I2501200502	Agricultural	83.6

Once the list of Alternative Parcels was developed, members of the Project Team conducted field inspections of each of the parcels. These inspections involved the visual examination of the Alternative Parcels and the surrounding area from road crossings and other points of public access. Within each parcel, one to three sites were focused on as potential station locations. Individual sites were retained or eliminated based on the feasibility of constructing and accessing the site.

Map 1. Alternative Parcels



Alternative Parcel Descriptions

PARCEL A: Eliminated

Parcel A is a 79.31-acre property mapped adjacent to the east of Brown Road and south of U.S. 33 in Auglaize County, Ohio. This property is a flat farm field with a few wooded areas. The existing Southwest Lima – Miami 345kV transmission line traverses the eastern portion of this property from north to south. Based on review of National Hydrography Dataset (NHD) data, there is one named stream (Dry Run) mapped bisecting the property. Three National Wetland Inventory (NWI) wetlands are mapped in a small, wooded area on the southeast portion of Site A; these wetlands are identified as approximately 1.2 acres of freshwater forested/shrub wetlands and approximately 0.1 acre of freshwater emergent wetland.

The Siting Team identified two 10-acre sites on Parcel A, referenced as sites A1 and A2 in this report, as potential candidate locations for the Gristmill substation. A1 is located on the western portion of Parcel A, to the west of Dry Run. A2 is located on the south-central portion of Parcel A, to the east of Dry Run and to the west of the mapped NWI wetlands. Both areas are currently being used for row crop farming. The closest residences are mapped approximately 420 feet north of A1, on the east side of Township Road 181 (Brown Road), and approximately 870 feet north of A2, on the north side of U.S. 33. The closest access point for area A1 appears to be from Township Road 181 (Brown Road), which is mapped approximately 90 feet west of the site. However, if an access road was constructed from Township Road 181 (Brown Road), it would cross an Inland Corporation product pipeline (identified as transporting a hazardous liquid) that runs north to south between Brown Road and site A1. While minimal tree clearing would be required for the station site, a woodlot situated on the western end of the overall parcel constricts alignments of the 345 kV transmission lines to and from the station. Based on the wooded area and stream crossing, ecological impacts associated with the 345 kV interconnection are expected to be greater than other available sites. There is no direct access to A2. A2 is surrounded by trees to the west, north, and east, which could cause a security risk due to low visibility from the road. Some trees would also need to be cleared to construct the transmission lines to and from the station. Temporary fencing could be installed during construction at either area, which would help protect Dry Run from potential impacts.

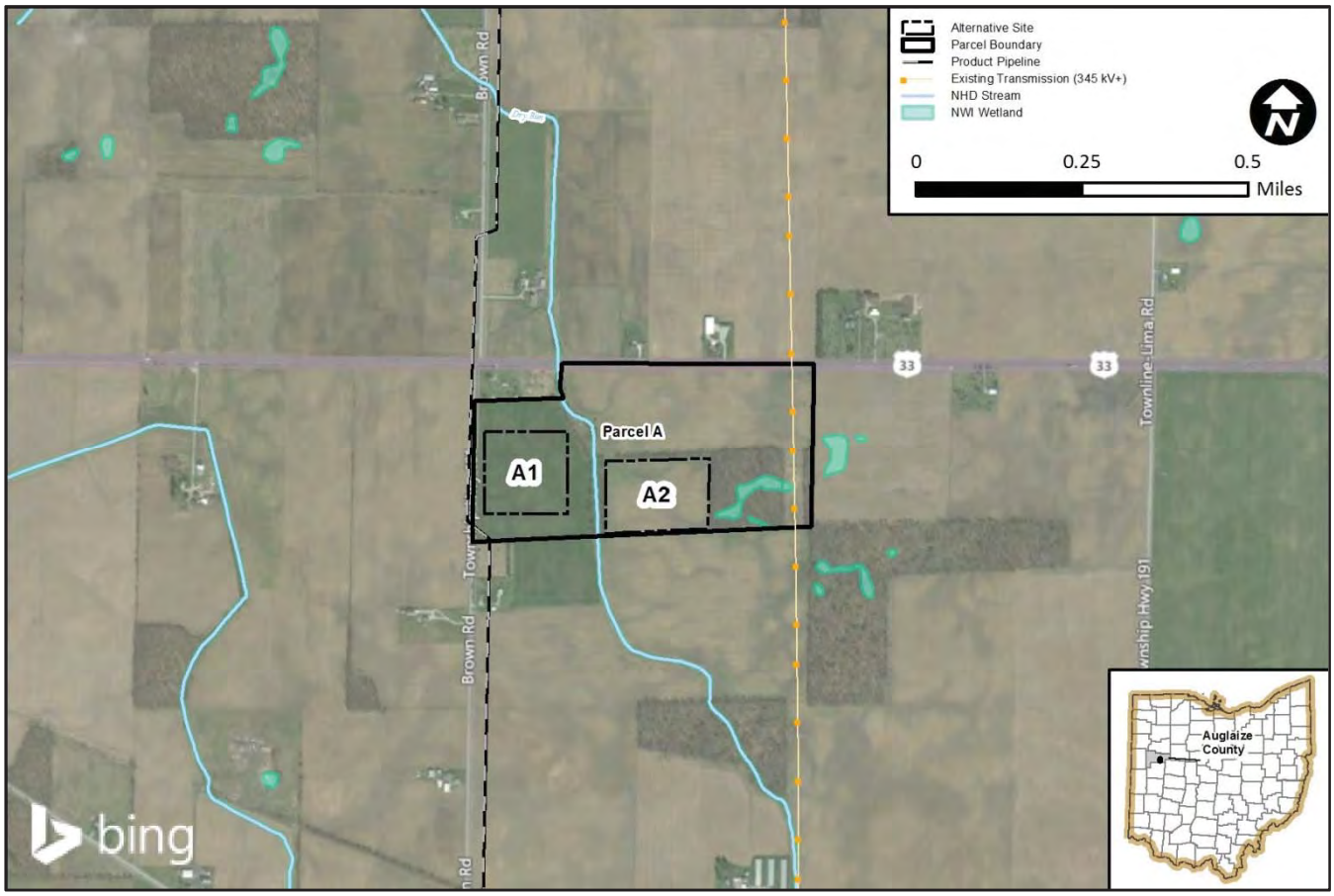
After further evaluation of all Alternative Sites, both sites A1 and A2 were eliminated from consideration as potential candidate locations for the Gristmill substation. Area A1 is not a preferred location due to distance from the Southwest Lima-Miami 345 kV transmission line, with wooded areas and a stream in between. The site was eliminated after careful consideration because better options were believed to be identified. A2 was eliminated due to limited accessibility options caused by surrounding woodlots, Dry Run to the west, and mapped NWI

wetlands to the east. Accessing the site via U.S. 33 to the north is not likely a viable option for this Project.

Photo 1. Parcel A, looking southeast from Brown Road

Photo 2. Parcel A, looking east from Brown Road

Map 2. Alternative Sites A1 and A2



PARCEL B: Retained

Parcel B is a 79.18-acre property mapped adjacent to the east of Brown Road in Auglaize County, Ohio. This property is a flat farm field. The existing Southwest Lima – Miami 345 kV transmission line traverses the eastern portion of this property from north to south. Based on review of NHD data, there is one named stream (Dry Run) mapped bisecting the property. No NWI wetlands are mapped onsite.

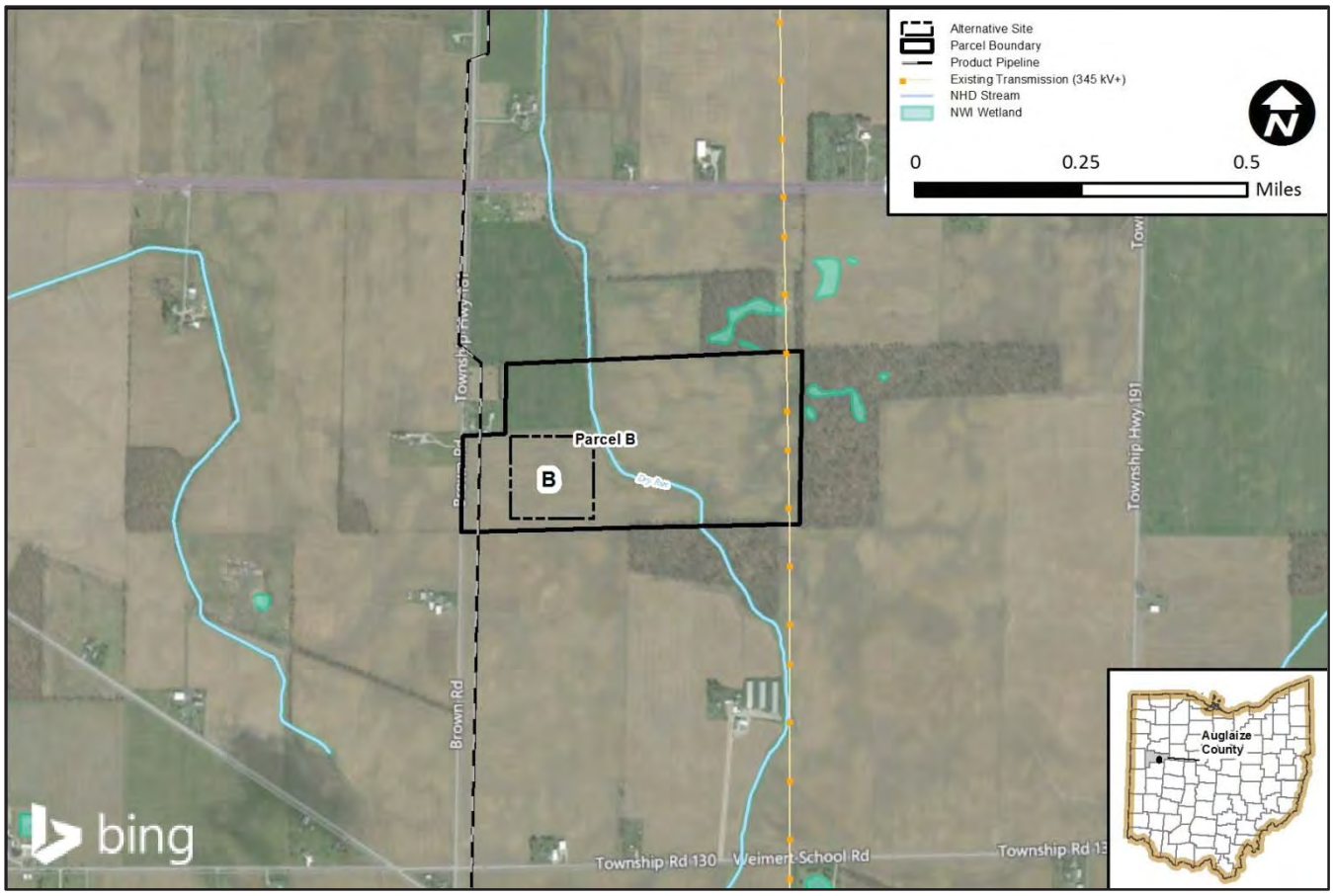
The Siting Team identified one 10-acre site on Parcel B, referenced as Site B in this report, as a potential candidate location for the Gristmill substation. AEP would purchase site B on the western portion of Parcel B. Site B is currently being used for row crop farming. No tree clearing is expected. The closest residence is mapped approximately 330 feet west-northwest of site B, on the east side of Township Road 181 (Brown Road). The closest access point appears to be from Township Road 181 (Brown Road), which is mapped approximately 375 feet west of the site. However, if an access road was constructed from Township Road 181 (Brown Road), it would cross an Inland Corporation product pipeline (identified as transporting a hazardous liquid) that runs north to south between Brown Road and Site B. Site B is not mapped adjacent to the existing Southwest Lima-Miami 345 transmission line. Additional easements would have to be obtained by AEP, exceeding the 10-acre area, to gain access to the existing transmission line from site B. Dry Run, which is mapped less than 50 feet from the northeastern portion of site B, would have to be crossed to tie into the existing transmission line. Temporary fencing could be installed during construction of this area, which would help protect Dry Run from potential impacts. Site B was wet during the windshield survey.

Site B was retained as a possible station location and offered a different property owner than the other retained parcels. It offers generally compatible adjacent uses that allow for potential expansion of the station and construction feasibility to allow the placement of structures and 345 kV line in and out of the station.

Photo 3. Parcel B, looking northeast from Brown Road

Photo 4. Parcel B, looking east from Brown Road

Map 3. Alternative Site B



PARCEL C: Retained

Parcel C is a 79.13-acre property mapped adjacent to the east of Brown Road in Auglaize County, Ohio. This property is a flat farm field. Parcel C is not crossed by the Southwest Lima-Miami 345 kV transmission line, which is mapped approximately 0.25 mile east of Parcel C. Additional property would have to be purchased to gain access to the existing line. Based on review of NHD and NWI data, no streams or wetlands are mapped onsite.

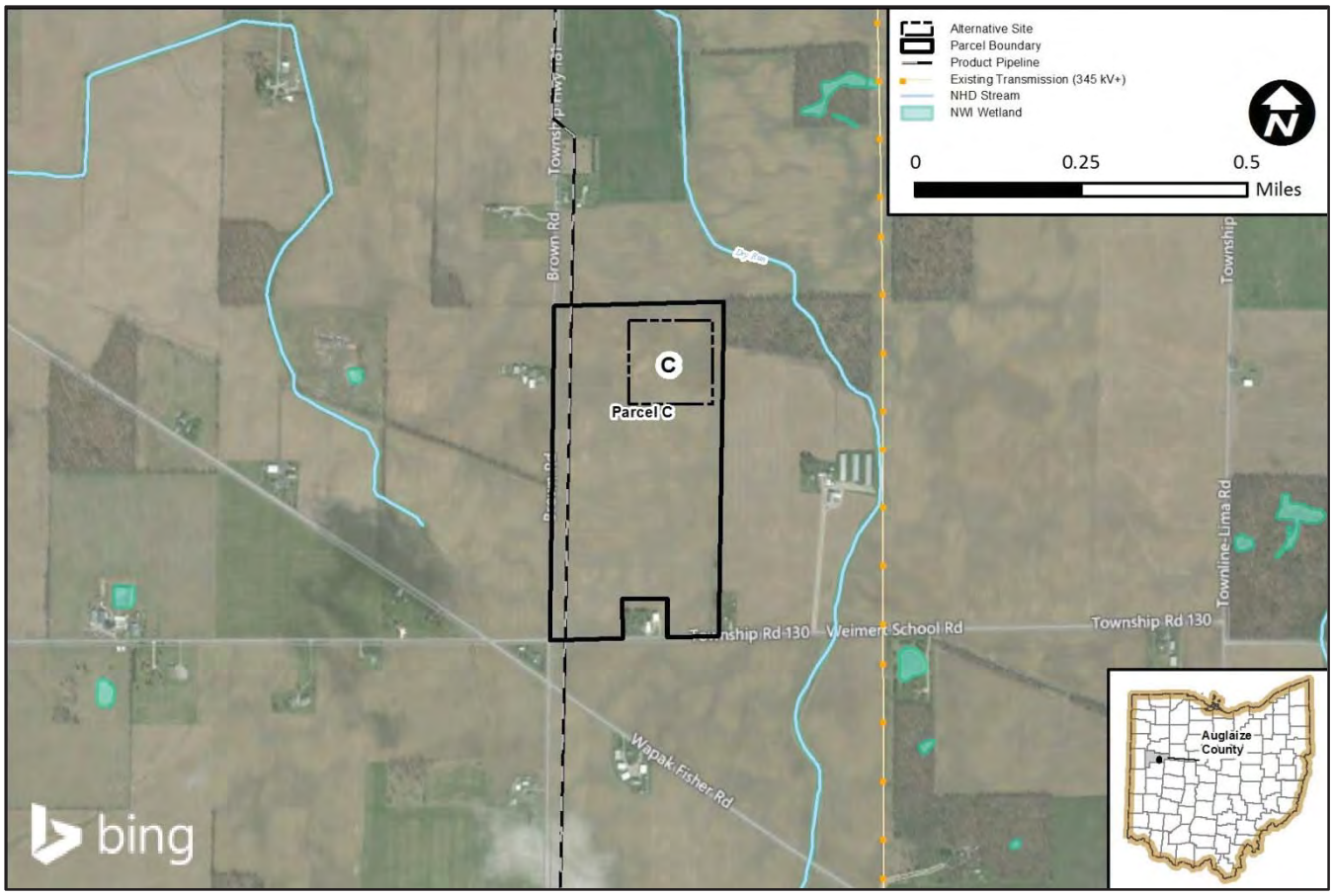
The Siting Team identified one 10-acre site on this parcel, referenced as site C in this report, as a potential candidate location for the Gristmill substation. AEP would purchase site C on the northern portion of Parcel C. Site C is currently being used for row crop farming. No tree clearing is expected. The closest residence is mapped approximately 740 feet west of site C, on the west side of Township Road 181 (Brown Road). The closest access point appears to be from Township Road 181 (Brown Road), which is mapped approximately 600 feet west of the site. However, if an access road was constructed from Township Road 181 (Brown Road), it would cross an Inland Corporation product pipeline (identified as transporting a hazardous liquid) that runs north to south between Township Road 181 (Brown Road) and site C. Site C is not mapped adjacent to the existing Southwest Lima-Miami 345 kV transmission line. Additional land would have to be purchased by AEP, in addition to the 10-acre site, to gain access to the existing transmission line from site C. Dry Run would have to be crossed to access the existing transmission line from site C. Temporary fencing could be installed during construction of this site, which would help protect Dry Run from potential impacts.

Site C was retained as a possible station location due to its proximity to residences and adjacent surrounding land use, which allows for potential expansion of the station and the placement of structures for the 345 kV line in and out of the station.

Photo 5. Parcel C, looking east from Brown Road

Photo 6. Parcel C, looking southeast from Brown Road

Map 4. Alternative Site C



PARCEL D: Retained

Parcel D is a 187.1-acre property mapped adjacent to the east of Brown Road in Auglaize County, Ohio. This property is a flat farm field. The existing Southwest Lima – Miami 345 kV transmission line runs parallel along the eastern parcel boundary of this property from north to south. Wapak Fisher Road traverses the central portion of Parcel D from northwest to southeast. Based on review of NHD data, there is one named stream (Dry Run) mapped bisecting the property. No NWI wetlands are mapped onsite.

The Siting Team identified three 10-acre sites on this parcel, referenced as sites D1, D2, and D3 in this report, as potential candidate locations for the Gristmill substation. D1 is located on the north-central portion of Parcel D, to the west of Dry Run, to the south of Township Road 130 (Weimart School Road), and north of County Road-33A (Wapak Fisher Road). D2 is located on the southeastern portion of Parcel D, to the east of Dry Run and to the south of County Road-33A (Wapak Fisher Road). D3 is located on the southern portion of Parcel D, to the west of Dry Run and south of County Road-33A (Wapak Fisher Road). All areas are currently being used for row crop farming and would not require tree clearing. The closest residence is mapped approximately 320 feet north of D1, on the north side of Township Road 130 (Weimart School Road). The closest residence to D2 is mapped approximately 850 feet east, on the south side of Township Road 130 (Weimart School Road), and the closest residence to D3 is mapped approximately 590 feet southwest, on the east side of Township Road 181 (Brown Road). Township Road 130 (Weimart School Road) and County Road-33A (Wapak Fisher Road) are both mapped between 150-200 feet away from site D1 and both provide potential access points for this area. Site D2 is mapped adjacent to the south of County Road-33A (Wapak Fisher Road), which would be the optimal access point for this area. Township Road 181 (Brown Road) is mapped approximately 650 feet west of site D3 and County Road-33A (Wapak Fisher Road) is mapped approximately 800 feet north of site D3. However, if an access road was constructed from Township Road 181 (Brown Road), it would cross an Inland Corporation product pipeline (identified as transporting a hazardous liquid) that runs north to south between Township Road 181 (Brown Road) and area D3.

Sites D1 and D3 are not mapped adjacent to the existing Southwest Lima-Miami 345 kV transmission line. Additional land would have to be purchased by AEP to gain access to the existing transmission line from sites D1 and D3. Dry Run would have to be crossed to access the existing transmission line from either site D1 or site D3. Temporary fencing could be installed during construction of either site, which would help protect Dry Run from potential impacts. However, sites D1 and D3 were retained as possible station locations because of optimal adjacent uses that allow for potential expansion of the station and construction feasibility to allow the placement of structures and 345 kV line in and out of the station.

After further evaluation of all Alternative Sites, site D2 was eliminated from consideration as a potential candidate location for the Gristmill Substation. Site D2 was eliminated because of limited space to build structures in and out of the proposed station and limited potential for future expansion due to close proximity of Dry Run to the west, the Southwest Lima-Miami 345 kV transmission line to the east, and Wapak Fisher Road to the north.

Photo 7. Parcel D, looking south from Werner School Road

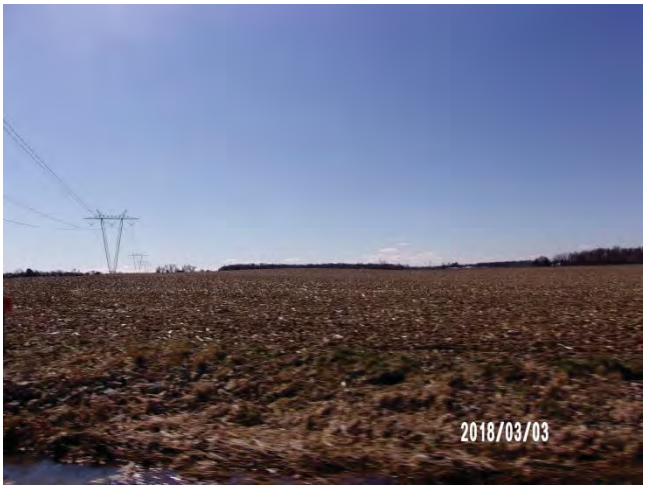
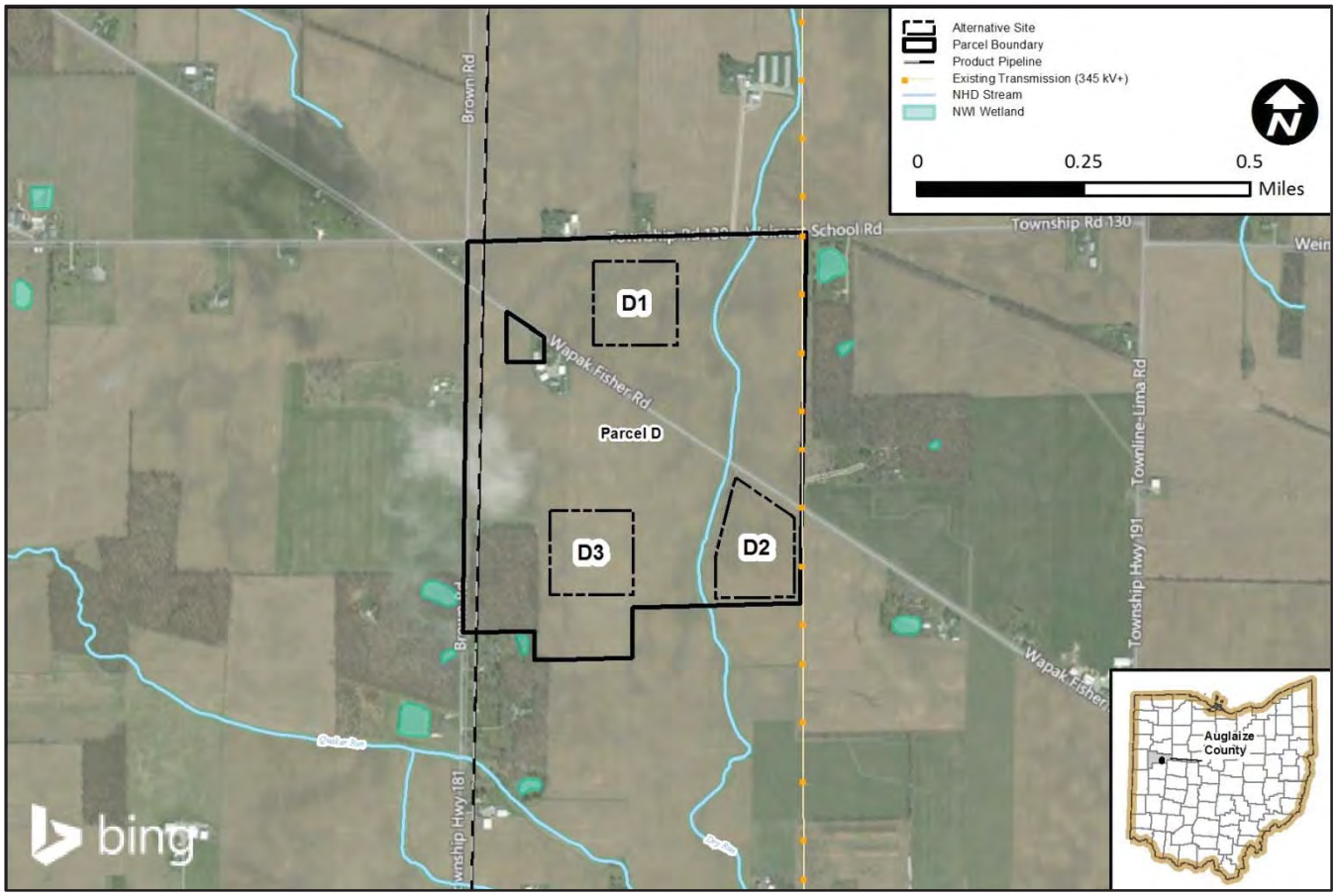


Photo 8. Parcel D, looking south from Wapak-Fisher Road

Map 5. Alternative Sites D1, D2, and D3



PARCEL E: Retained

Parcel E is an 83.61-acre property mapped crossing County Road-33A (Wapak Fisher Road) and east of Township Road 181 (Brown Road) in Auglaize County, Ohio. This property is a flat farm field with no wooded areas. The existing Southwest Lima – Miami 345kV transmission line traverses the center of this property from north to south. Based on review of NHD and NWI data, there are no named streams or wetlands mapped on the property.

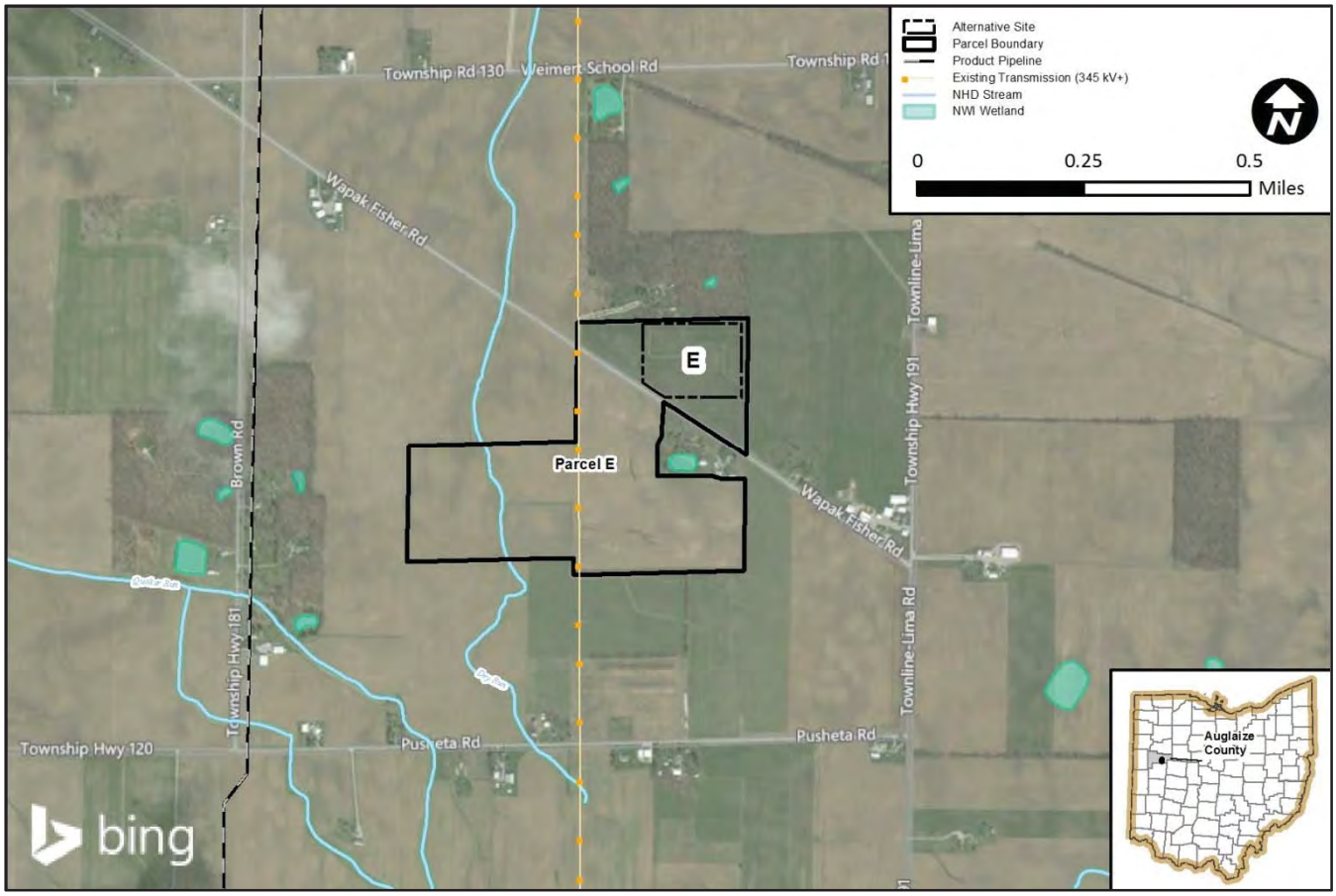
The Siting Team identified one 10-acre site on Parcel E, referenced as Site E in this report, as a potential candidate location for the Gristmill substation. Site E is located on the northeastern portion of Parcel E, to the west of Township Road 191 (Townline-Lima Road) and north of County Road-33A (Wapak Fisher Road). This area is currently being used for row crop farming and would not require any tree clearing. The closest residence is mapped approximately 270 feet north of Site E. Part of a wooded area is between Site E and the residence, which would limit the line of sight from the residence. The closest access point for Site E appears to be from County Road-33A (Wapak Fisher Road), which is mapped approximately 30 feet south of the site.

Site E is being retained as a possible station location due to optimal adjacent land uses that allow for potential expansion of the station and construction feasibility to allow the placement of structures and 345 kV line in and out of the station.

Photo 9. Looking S from northern property line

Photo 10. Looking SE from NW corner of property

Map 6. Alternative Site E



2.0 ALTERNATIVE SITE COMPARISON

2.1 Hazardous Waste Screening

AECOM ordered an Environmental Data Resources, Inc. (EDR) Radius Map Report and historic aerial photography to review the Alternative Sites and adjacent properties for current or historical hazardous waste sites. Historic Sanborn Fire Insurance mapping is also provided with the EDR package, although no maps were available in the areas of the Alternative Sites. Historic aerial maps and EDR packages were ordered to encompass the alternative sites.

This review is intended to screen the Alternative Sites for hazardous waste based on publically available information from federal, state and local databases. AECOM did not conduct a full Phase I Environmental Site Assessment (ESA). Copies of the EDR Reports can be provided under separate cover, if requested.

2.1.1 EDR Radius Report and Historic Sanborn Maps

AECOM reviewed Federal and state environmental databases for assessment of the Alternative Sites. The goal of reviewing the databases was to identify locations that have known or potential environmental conditions that may negatively impact the Alternative Sites. The databases identify sites that are located within the specified ASTM International search distance from the Alternative Sites and that are reported to have: registered fuel storage tanks; mining operations; landfills; hazardous waste generation or treatment, storage, and disposal facilities; known or suspected surface or subsurface contamination; and other conditions or uses of potential environmental concern. AECOM obtained current Federal and state standard environmental record sources as set forth by the ASTM International standard by using readily accessible websites and databases obtained from EDR. None of the Alternative Sites were identified on any of the environmental databases searched by EDR. In addition, no surrounding sites were identified within the applicable ASTM search radii for any of the Alternative Sites.

Historical Sanborn Fire Insurance Map coverage was requested for the Alternative Sites. The report provided by EDR indicated that no Sanborn Fire Insurance Map coverage is available for the Alternative Sites and vicinity.

2.1.2 Historic Aerial Review

AECOM reviewed aerial photographs for the Alternative Sites and surrounding areas that were obtained from EDR for the following years: 1952, 1973, 1981, 1988, 1994, 2000, 2006, 2011, and 2015. The scales for these aerial photographs ranged from 1 inch equals 500 feet to 1 inch equals 750 feet.

Based on review of the aerial photographs provided by EDR, it appears that all five areas have remained relatively unchanged from the current agricultural use since the early 1950s. In 1952, Site B appears to have been agricultural land with a stream visible to the east and a residence with several outbuildings visible to the northwest. Site C also appeared to be agricultural land with a woodlot visible to the east. The remaining surrounding properties appeared to be primarily agricultural land from at least the early 1950s through present-day.

Site D1 appeared to be agricultural land as early as 1952, with a stream or irrigation canal visible to the east of the site, followed by a wooded area adjacent to the east of the stream. This wooded area was converted to agricultural land by the early 1970s. Site D3 appeared to be agricultural land with a stream or irrigation canal visible to the east. A portion of this wooded area to the southwest of Site D3 had been converted to a residence with a pond by the early 1980s. Present-day Township Road 130 (Weimert School Road) was visible to the north of Site D1 and present-day Wapak Fisher Road was visible to the south and southwest of Site D1 and north of Site D3 as early as 1952. A cluster of buildings that appear to be the present-day agricultural or commercial uses was visible in 1952 on the south side of Wapak Fisher Road to the southwest of Site D1 and north-northwest of Site D3. A structure that appears to be different from the present-day structures was visible to the northwest of Site D1, on the north side of Weimert School Road, by the early 1970s. An additional structure was visible on the same property to the northwest of Site D1 by the early 1980s; these appear to have been residential or small commercial uses. The present-day residence was visible to the north of Site D1, on the north side of Weimert School Road, by the late 1980s. By the early 2000s, the present-day structures to the northwest of Site D1 were visible along Weimert School Road. The remaining surrounding properties appeared to be primarily agricultural land from at least the early 1950s through present-day.

Site E appeared to be agricultural land with Wapak Fisher Road adjacent to the south and a woodlot adjacent to the north as early as 1952. The adjacent transmission line to the west was visible by 1973. No major changes were identified between 1973 and present-day.

2.2 Constraints

A comparison of the built and natural environmental considerations for each Alternative Site is presented in **Table 2**. All calculations are based on the 10-acre site area. The calculations could change should AEP shift the location of the site boundaries within each parcel.

Table 2. Alternative Site Constraints					
Alternative Site	**Site B**	**Site C**	**Site D1**	**Site D3**	**Site E**
Site size (acres)	10	10	10	10	10
Site Development					
Length of 345 kV Transmission Line Required (feet)	1,600	1,400	1,000	1,400	500
Slopes 0 – 4% (acres)	10	10	10	10	7.5
Slopes 4 – 8% (acres)	0	0	0	0	2.5
Slopes 8 – 20% (acres)	0	0	0	0	0
Slopes > 20% (acres)	0	0	0	0	0
Pipelines on parcel (count)	1	1	1	1	0
Pipelines on site (count)	0	0	0	0	0
Natural and Cultural Resources					
NHD streams on site (count)	0	0	0	0	0
NWI wetlands (acres)	0	0	0	0	0
100-year floodplain (acres)	0	0	0	0	0
Tree clearing anticipated (acres)	0	0	0	0	0
Archaeology sites on site	0	0	0	0	0
Archaeology sites within 0.25 mile	1	0	3	0	1
Historic architectural sites within 0.25 mile	2	3	1	0	0
Historic architectural sites within 1 mile	14	13	14	10	11
Land Use					
Residences within Site	0	0	0	0	0
Residences within 100 feet	0	0	0	0	0
Residences within 250 feet	0	0	0	0	0
Residences within 500 feet	1	0	3	0	3
Schools/Daycares within 1,000 feet	0	0	0	0	0
Places of Worship within 1,000 feet	0	0	0	0	0
Cemeteries within 1,000 feet	0	0	0	0	0

2.3 Transmission Routing Feasibility

Site B is mapped approximately 1,600 feet west of the existing Southwest Lima-Miami 345 kV transmission line. The land between the proposed site B and existing transmission line appears to be primarily agricultural land. One stream crossing (Dry Run) would be necessary if the proposed substation was constructed on site B. This stream, which is mapped less than 50 feet

from site B, limits accessibility options from the east. Accessing site B from the north and west is also limited due to close proximity of a residence (approximately 350 feet from site B) and several outbuildings (approximately 200 feet from site B) along Brown Road. Access to the south of site B through agricultural land is the most feasible option due to less potential for impacts to land use, cultural, and ecological features. The land use and ecological constraints to the north, east, and west of site B also limit the possibility of expansion of the substation in the future.

Site C is mapped approximately 1,500 feet west of the existing Southwest Lima-Miami 345 kV transmission line. Additional land would have to be purchased by AEP from a different property owner, in addition to the 10-acre area for the proposed substation, to gain access to the existing transmission line. The land between the proposed site C and existing transmission line appears to be primarily agricultural land and wood lots. One stream crossing (Dry Run) would be necessary if the proposed substation was constructed on site C. Accessing site C from the east-northeast is limited due to close proximity to a wooded area. This land use constraint limits the potential for future expansion of the substation to the east. However, accessibility and potential for expansion to the north, south, and west of site C is optimal due to less potential for impacts to land use, cultural, and ecological features. These surrounding properties are agricultural uses. The closest residence is mapped approximately 740 feet west along Brown Road.

Site D1 is mapped approximately 1,000 feet west of the existing Southwest Lima-Miami 345 kV transmission line. The land between the proposed Site D1 and the existing transmission line appears to be primarily agricultural land. One stream crossing (Dry Run) for the 345 kV transmission line interconnection would be necessary if the proposed substation was constructed at Site D1. There is approximately 150 feet on all sides of Site D1 for access and potential for future station expansion with minimal impacts to land use, cultural, or ecological resources. The surrounding land is primarily agricultural land. The closest features that would limit accessibility and expansion options are Wapak Fisher Road (mapped approximately 150 feet south-southwest), Weimert School Road (mapped approximately 200 feet north), and Dry Run (mapped approximately 250 feet east). There are three residences within 500 feet to the north, northwest, and southwest.

Site D3 is mapped approximately 1,400 feet west of the existing transmission line. The land between the proposed Site D3 and the existing transmission line appears to be primarily agricultural land. One stream crossing (Dry Run) by the 345 kV transmission line interconnection would be necessary if the proposed substation was constructed at Site D3. There is approximately 450 feet to the north, east, and south of D3 for access and potential for future station expansion with minimal impacts to land use, cultural, or ecological resources. The surrounding land is primarily agricultural land. The closest features that would limit accessibility and expansion options are woodlots adjacent to the west, Wapak Fisher Road and a residence and several

outbuildings (mapped approximately 1,000 feet north and northwest) and Dry Run (mapped approximately 475 feet east).

Site E is mapped approximately 500 feet east of the existing Southwest Lima-Miami 345 kV transmission line. The land between the proposed Site E and existing transmission line appears to be primarily agricultural land. A wooded area and residence limits the potential for future expansion of the substation to the north. The location of County Road-33A (Wapak Fisher Road) to the south and the existing Southwest Lima – Miami 345kV transmission line to the west limits the potential for future expansion of the substation to the south and west. However, accessibility from the south and potential for expansion to the east of Site E is optimal due to less potential for impacts to land use, cultural, and ecological features. This property is agricultural. The closest residences are mapped approximately 300 feet to the north and south along County Road-33A (Wapak Fisher Road).

3.0 SUMMARY AND RECOMMENDATIONS

The recommended sites are those that are most likely to allow for the development of a 345/138 kV substation and associated transmission line routes that have the least impact on natural resources and human uses of the land; avoid the need for nonstandard design requirements and unreasonable costs; and are likely to facilitate the certification and permitting process.

The proximity to the existing transmission line was a significant consideration in the identification of Alternative Sites. Due to the flat topography of the Study Area, all of the Alternative Sites identified would require minimal grading. Therefore, the Alternative Sites evaluation focused on other natural resources constraints, primarily stream impacts and tree clearing. Limited residential development is located within the Study Area and was not a major constraint, although close proximity to the limited residences was considered. Permanent access roads to some of the station site requiring a pipeline crossing was also a consideration.

Based on a detailed desktop analysis and field review, the Project Team recommends proceeding with the acquisition of Site E. AECOM's ecologists conducted a wetland delineation for Site E on May 18, 2018 and found no wetland or stream features. After preliminary discussions, Site E was determined to have a willing landowner that would sell the property and easements necessary to construct the Gristmill Station. The Project Team considers Site E to be the most feasible of the project alternatives from a system planning, engineering, siting, permitting, and acquisition perspective. From a siting and constraints evaluation perspective, Site D3 appears to be an excellent alternate should additional due diligence identify critical flaws with Site E.

Sites B, C and D1—while constructible—are not recommended as primary sites. Sites B and D1 are constrained by proximity to Dry Run and both are likely to impose visual impacts on adjacent residences. Site C would require right-of-way acquisition from another property owner to connect the proposed Gristmill Station to the existing Southwest Lima-Miami 345 KV transmission line. These sites also require longer 345 kV transmission line interconnections than Site E.

The following was not conducted as part of this evaluation, and should be conducted prior to acquiring any property:

- Phase I Environmental Site Assessment
- Geotechnical borings and groundwater elevation
- Access road design and line of sight survey

Appendix C: Siting Study

Siting Study

Gristmill-Gemini 138 kV Transmission Line Project
OPSB Case No. 19-0043-EL-BLN

Prepared for:

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Submitted to:

Ohio Power Siting Board

Prepared by:

AECOM
525 Vine Street
Cincinnati, Ohio 45202

AECOM

January 2019

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Attachment B: GIS Data Sources
Attachment C: Agency Correspondence

Key Terminology **Adjust as necessary to include state-specific terms**

Alternative Routes	Assemblage of Study Segments that form routes for analysis and comparison
Conceptual Routes	Initial routes for the Project that adhere to a series of general siting and technical guidelines
Constraints	Specific areas that should be avoided to the extent reasonably practical during the route development and site selection process
Distribution Line	An electric line that delivers power from a substation to households and businesses
Opportunity Feature	Areas where the transmission line may have less disruption to area land uses and the natural and cultural environment
Project Endpoint	The Project starting and ending point(s), which may include substations or other locations defined by the Company's planners and engineers
Proposed Route	The alignment on which the applicant/Siting Team proposes to construct a transmission line. The Proposed Route (1) reasonably minimizes adverse impacts on area land uses and the natural and cultural environment; (2) minimizes special design requirements and unreasonable costs; and (3) can be constructed and operated in a timely, safe and reliable manner.
Siting Team	A multidisciplinary team of experts in transmission line routing, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, engineering, and construction management
Study Area	The territory in which line route alternatives can be sited to feasibly meet the Project's functional requirements and, at the same time, minimize environmental impacts and Project costs
Study Segments	Study Segments are partial alignments that when combined in a specific order form a complete route
Substation	Substations are facilities that transform electric power from high to low, or the reversean enclosed assemblage of equipment, e.g., switches, circuit breakers, buses, and transformers, through which electric energy is passed for the purpose of switching or modifying its characteristics
Transmission Line	An electric line that moves bulk electric power from a generating plant to a substation or between substations

ACRONYMS Adjust as necessary, only include acronyms mentioned in the document

AEP	American Electric Power
ESRI	Environmental Systems Research Institute
GIS	Geographic information system
kV	Kilovolt
MRLC	Multi-resolution land characteristics
NCED	National Conservation Easement Database
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NRCS	National Resources Conservation Service of the U.S. Department of Agriculture
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OHPO	Ohio Historic Preservation Office
OPSB	Ohio Power Siting Board
ROW	Right-of-way
SSURGO	Soil Survey Geographic Database
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 PROJECT OVERVIEW

AEP Ohio Transmission Company, Inc. (AEP Ohio Transco), in conjunction with the City of Wapakoneta, are proposing to add an additional power source to Auglaize County, Ohio. The proposed Wapakoneta Area Improvements Project consists of new greenfield transmission facilities, along with modifications to existing transmission facilities in order to accommodate a new delivery point (Gemini Station) to the City of Wapakoneta. Two new 138 kV transmission lines will be required to feed the Gemini Station, one will come from the existing West Moulton Station, while the other line, which is the focus of this siting study, will come from a new 345/138 kV station (Gristmill Station), which taps into the existing Shelby-Southwest Lima 345 kV transmission line.

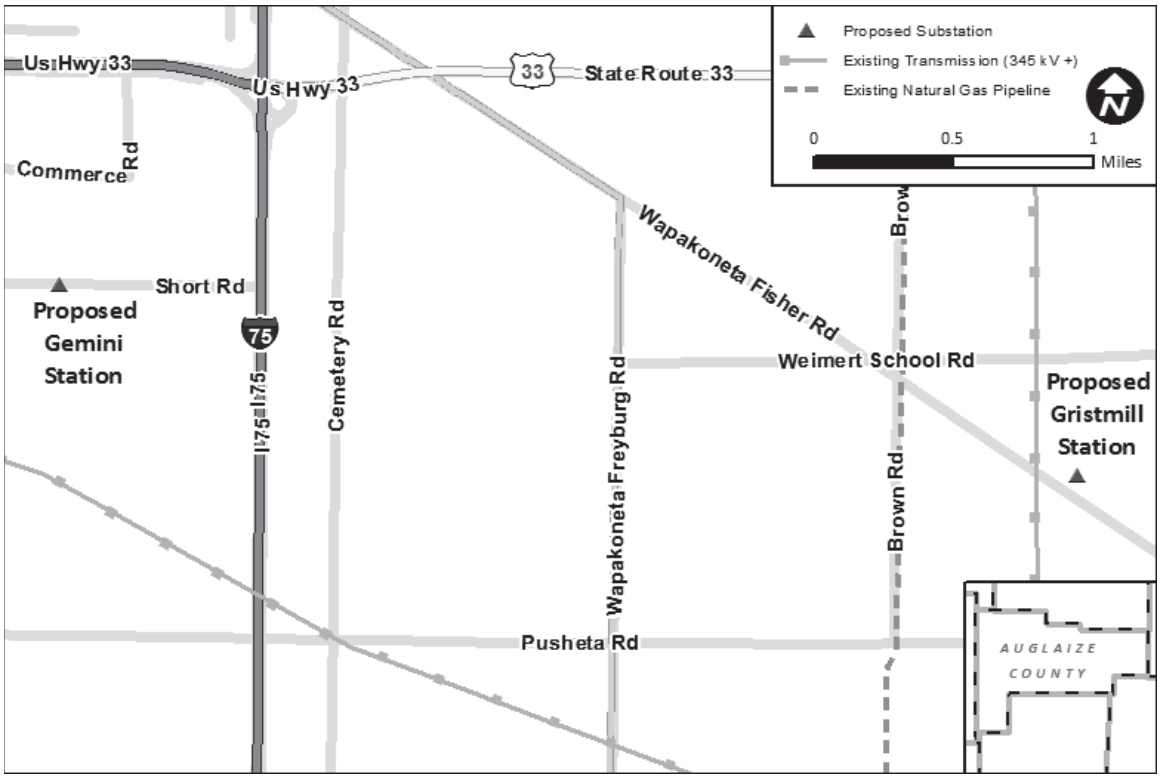


Figure 1. Project Location Map

1.1 Project Purpose and Need Summary

The Project provides an additional power source to the Auglaize County and City of Wapakoneta area's electric transmission grid and updates the infrastructure to support economic development. The modern facilities will provide local customers with greater electric service reliability.

1.2 Project Characteristics

1.2.1 Project Endpoints and Improvement Description

The Gristmill-Gemini 138 kV transmission line will start at the proposed Gristmill Station. The proposed location is off of Wapakoneta-Fisher Road on a piece of land previously used for crop production. It is adjacent to the existing Southwest Lima-Miami 345 kV transmission line. The Gristmill-Gemini 138 kV line will end at the proposed Gemini Station. The proposed Gemini Station is located in Auglaize County, Ohio. The proposed location is south of Short Road and south of the City of Wapakoneta on a piece of land previously used for crop production. It is north of the existing Kammer-Dumont 765 kV transmission line.

The Gristmill-Gemini 138 kV transmission line connecting the two proposed stations will be approximately 4 miles long. The entire transmission line is within Pusheta Township in Auglaize County, Ohio. The area is mostly agricultural land with a former quarry and residences scattered throughout.

1.2.2 Transmission Line Design and Right of Way (ROW) Requirements

The proposed Project will use steel, monopole structures estimated to be about 80-feet tall and will be constructed in an approximate 100-foot wide right-of-way corridor.

Figure 2. Typical Transmission Structure

1.2.3 Construction and Maintenance Considerations

The proposed transmission line Project requires surveying, ROW clearing, foundation installation, structure assembly and erection, conductor and shield wire installation, and restoration upon completion. Construction operations will be conducted with attention to the preservation and enhancement of the natural habitat and the conservation of natural and cultural resources. Construction activities will be conducted in accordance with all applicable local, state, and federal permits.

1.3 Project Timeline and Overview of Regulatory Approvals

AEP Ohio Transco initiated the siting process in March 2018. Study segments were developed and evaluated in March through June 2018. Twenty-four study segments were presented to the public during an open house meeting on July 19, 2018. Following the open house meeting, study segments were refined into five Alternative Routes in August 2018. The Siting Team evaluated these routes and selected a Preferred Route in November 2018. AEP Ohio Transco anticipates filing Letters of Notification to the Ohio Power Siting Board (OPSB) in late 2018. Pending approval from the OPSB, construction is expected to begin in late 2019. The transmission line is expected to be placed in service summer 2020.

1.4 Goal of the Siting Study

The goal of the Siting Study is to gain an understanding of the opportunities and constraints in the Study Area to facilitate the development of Alternative Routes, evaluate potential impacts associated with the Alternative Routes, and identify a Preferred Route. The Preferred Route is the route that (1) reasonably minimizes adverse impacts on area land uses and the natural and cultural environment; (2) minimizes special design requirements and unreasonable costs; and (3) can be constructed and operated in a timely, safe and reliable manner.

2.0 ROUTE AND SITE DEVELOPMENT PROCESS

2.1 Route Development Process Summary/Methodology

The route development process is inherently iterative, with frequent modifications made throughout the study as a result of the identification of new constraints and opportunities, input from agencies, landowners, and other stakeholders, periodic re-assessment of routes with respect to the siting criteria, and adjustments to the overall potential route network. As a result of the evolving nature of the route development process, the Siting Team (see **Section 2.2**) uses specific vocabulary to describe the routes at different stages of development.

Initial route development efforts start with the identification of large area constraints and opportunity features within the **Study Area**, which encompasses the endpoints of the Project and areas in between **(Figure 3, Step 1)**. These areas are typically identified using a combination of readily available public data sources.

The Siting Team uses this information to first develop an array of **Conceptual Routes** for the Project adhering to a series of general siting and technical guidelines **(Step 2)**.

Where two or more of these conceptual routes intersect, **Study Segments** are formed between two common points of intersection. Together, the assemblage of Study Segments are referred to as the **Study Segment Network (Step 3)**.

As the route development process progresses, the Siting Team continues to evaluate new data and modifies, if necessary, the Study Segments included in the network to develop a **Refined Study Segment Network (Step 4)**. Eventually, formal **Alternative Routes** are developed by assembling the Study Segments that best meet the siting guidelines into individual routes for analysis **(Step 5)**. Alternative Routes are assessed and compared with land uses, natural and cultural resources, and engineering and construction concerns. Ultimately, through a quantitative and qualitative analysis and comparison of the Alternative Routes, the Siting Team identifies a **Preferred Route** for submittal to the OPSB for approval **(Step 6)**.

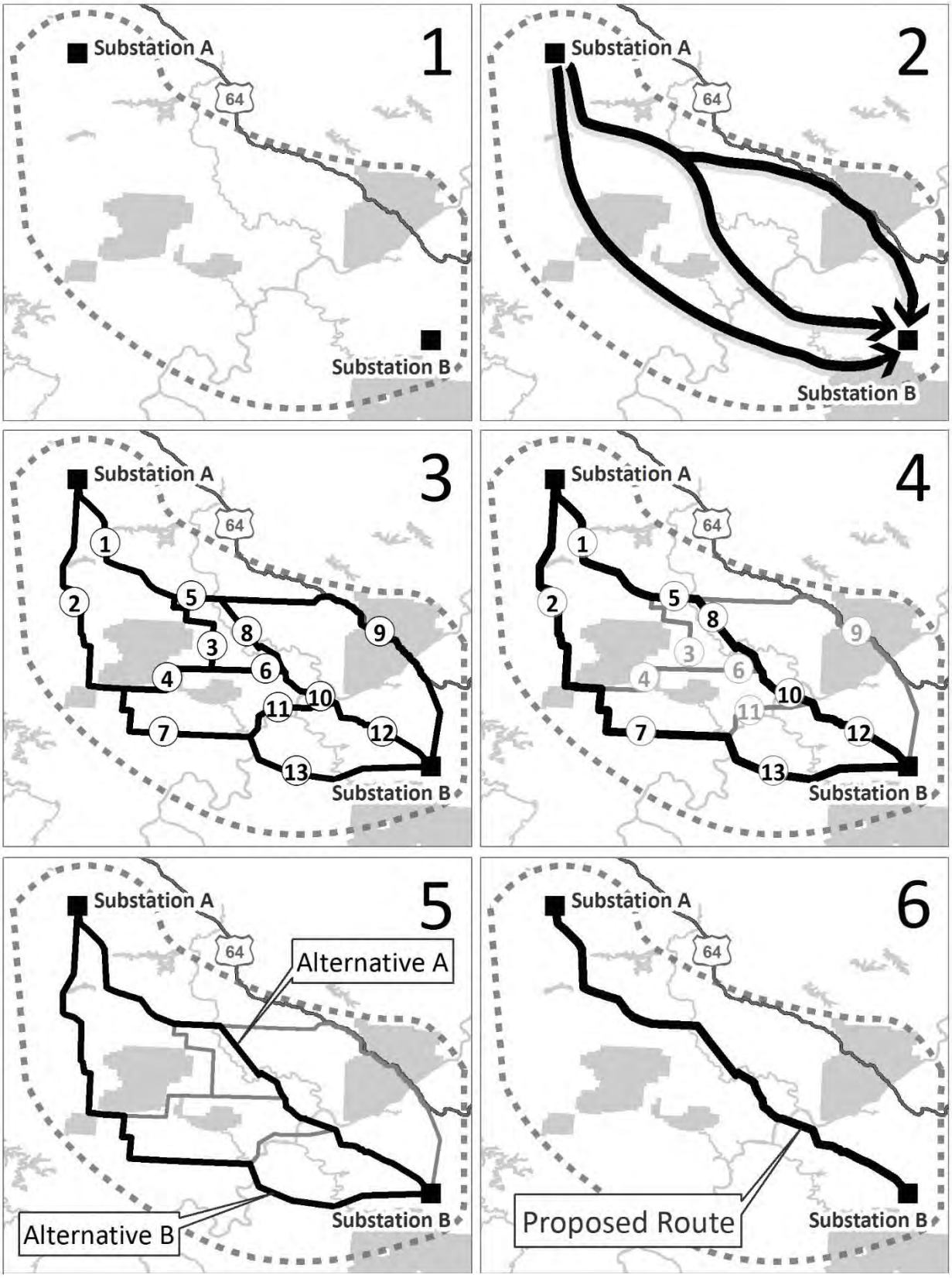


Figure 3. Route Development Process Steps

2.2 Siting Team Members

A multi-disciplinary Siting Team performed the siting study. Team members were selected to bring wide experience to the siting study to achieve a thorough review of all aspects of developing the route. Members of the Siting Team have experience in transmission line siting, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, engineering, and construction management.

The team worked together during the Siting Study to define the Study Area, develop siting criteria, identify siting constraints and opportunities, collect and analyze environmental and design data, solicit public input and concerns, consult with natural resource and permitting agencies, develop and revise the siting alternatives, and analyze and report on the selection of a Preferred Route.

2.3 Data Collection

The following sources of information were used to develop data for the Siting Study. A detailed table of data sources is provided in **Attachment B**.

2.3.1 Geographic Information System (GIS) Data Collection

Aerial photography is an important tool for route selection. The primary sources of aerial imagery used in the route identification, analysis, and selection effort for the Project include:

- Bing (2017)
- Ohio Statewide Imagery Program (2016)

Updated information, such as the location of new residences and other constraints, was annotated to the photography by either paper maps (at the public meetings) and transferred into the GIS, or digitized directly into the GIS as identified during field inspections.

The study made extensive use of information in existing GIS data sets, obtained from many sources, including federal, state, and local governments. Much of this information was obtained through official agency GIS data access websites, some was provided directly by government agencies, and the Siting Team created some by digitizing information from paper-based maps, aerial photo interpretation, interviews with stakeholders and field inspections.

GIS data sources vary with respect to their accuracy and precision. For this reason, GIS-based calculations and maps presented throughout this study should be considered reasonable approximations of the resource or geographic feature they represent and not absolute measures or counts. The data and calculations presented in this study allow for relative comparisons among Project alternatives, with the assumption that any inherent errors or inaccuracies would

be generally equal across all alternatives. Field reconnaissance is conducted to verify certain features (e.g., locations of residential, commercial and industrial buildings). **Attachment B** presents a list of the GIS data sources used for this study.

2.3.2 Field Reconnaissance

Siting Team members conducted field inspections throughout the Study Area. The team members examined Study Segments by automobile from public roads and other points of public access and correlated observed features to information shown on aerial photography, USGS 7.5 minute topographic maps, road maps, and the range of GIS sources compiled. Prior to field work, some key features such as residences, outbuildings, places of worship, cemeteries, and commercial and industrial areas were identified and mapped in GIS. These features were then field-verified, and updated as necessary.

2.3.3 Federal, State and Local Government Coordination

The Siting Team obtained information from or contacted various federal, state, and local agencies and/or officials to inform them of the Project and request data for the route planning process. The agencies contacted are listed below. Copies of agency correspondence are included as **Attachment C**.

Federal Agencies

- USFWS
- Federal Aviation Administration

State Agencies

- Ohio Department of Natural Resources (ODNR)
- Ohio History Connection (OHC)

Local Agencies and/or Officials

The Siting Team coordinated with the City of Wapakoneta to aid the route development process. This included future commercial and industrial development plans as well as transmission and distribution lines anticipated. A streaming data layer of road ROW available from the Auglaize County Engineer's website was also reviewed during routing so that structure locations stayed on private land.

2.4 Siting Guidelines

2.4.1 General Guidelines

The primary goal for this siting effort was to identify a route for the Project that (1) reasonably minimizes adverse impacts on area land uses and the natural and cultural environment; (2) minimizes special design requirements and unreasonable costs; and (3) can be constructed and operated in a timely, safe and reliable manner. Although no Preferred Route can optimally minimize impacts across all area resources, the Siting Team used a series of general siting guidelines to direct the development, evaluation, and selection of routes toward this overall goal.

The following guidelines were considered for this effort):

- Parallel alignments along existing ROWs or other infrastructure were considered.
- Maximize the separation distance from and/or minimize impact on dwellings, schools, daycare facilities, hospitals, and other community facilities.
- Consider stakeholder input, as practical.
- Avoid or minimize visibility from populated areas, scenic roadways, and designated scenic resources.
- Minimize interference with economic activities, including agricultural and natural gas activities.
- Avoid or minimize conflict with existing and proposed future development and land uses (e.g. follow property lines or field lines wherever practical)
- Avoid crossing or minimize conflict with designated public resource lands such as national and state forests and parks, large camps and other recreation lands, designated battlefields, nature preserves or other designated historic resources and sites, and conservation areas.
- Minimize environmental impact and construction/maintenance cost by selecting shorter, direct routes; route corridors through terrain where economical construction and environmental best management practices can be employed, and where line operational/maintenance is most feasible (e.g., use existing access roads where practicable).
- Avoid or minimize new crossings of large waterbodies or large wetland complexes, critical habitat, and other unique or distinct natural resources.
- Minimize habitat fragmentation and impacts on designated areas of biodiversity concern.

2.4.2 Technical Guidelines

Technical guidelines are driven by the physical characteristics and engineering limitations of the structures and lines themselves, and the design criteria necessary to meet AEP design standards, North American Electric Reliability Corporation (NERC) reliability standards, National Electric Safety Code (NESC), and industry best practices for construction. The technical guidelines were informed by (1) the technical expertise of engineers and other industry professionals responsible for the reliable, safe and economical construction, operation, and maintenance of electric system facilities, (2) NERC reliability standards as implemented by PJM, and (3) industry best practices.

The Siting Team considered the following technical guidelines during the development, evaluation, and comparison of routes.

- Minimize crossing lines of higher voltage.
- Maintain a minimum of 100 feet of centerline-to-centerline separation when paralleling 138 kV or lower voltage transmission lines.
- Avoid angles greater than 90 degrees and steep slopes (more than 20 degree slopes for angle structures, and more than 30 degrees for tangent structures).
- Avoid triple circuit lines.
- Avoid or minimize overbuilding DP&L distribution lines.
- Avoid placing structures in road right of way

2.5 Public Involvement Process

2.5.1 Public Open House

One open house was held on July 19, 2018 from 5:30 pm – 7:30 pm at the Wapakoneta Middle School at 400 W Harrison Street, Wapakoneta, OH 45895. The Siting Team set up stations at the meeting and provided information related to engineering and design of the structures, Project need, real estate and ROW issues, and the siting process. The community was notified about the time and location of the meeting through the following means:

1. Letters mailed to property owners within 500 feet of the potential Study Segments
2. AEP's Website

Printed maps at a scale of 1 inch = 400 feet were provided at the open house for the public to review and were used to record written comments concerning sensitive resources in their local environment. Members of the Siting Team greeted meeting attendees, answered questions about the Project, and aided attendees in locating their property or other features of concern on aerial maps showing the array of Study Segments under consideration. Participants were

encouraged to document the location of their houses, places of business, property of concern, or other sensitive resources on the printed maps. After the public open house, applicable information from the handwritten comments was digitized and entered into the Project GIS database.

Comment sheets were distributed to all meeting attendees. Attendees were asked to fill out the sheet completely, including contact information. The Siting Team read all comment sheets, and scanned and stored them in the Project database as a record of meeting attendance and public comments. Approximately 60 people attended the public meeting and 43 comment cards were received.

2.5.2 Project Website and Virtual Open House

AEP Ohio Transco developed a Project website (https://aeptransmission.com/ohio/Wapakoneta) to provide information and allow for public comments to be submitted. The website also provides a contact name and phone number for further questions and concerns.

2.5.3 Consideration of Public Input

All comments were cataloged and categorized based on the relevancy and topic. Many comments suggested following the U.S. 33 corridor. Several others showed concern for impacting farmland.

3.0 ALTERNATIVE ROUTE IDENTIFICATION

3.1 Study Area Description

The transmission line endpoints (beginning, in-between and terminus) must be identified before route development can begin, which for this Project includes proposed substations. Endpoints are identified by the Company's planners and engineers (e.g., based on load growth, engineering criteria or existing infrastructure) or in combination with the siting team.

AEP Ohio Transco conducted a separate Site Selection Study to determine the location of the proposed Gristmill Station (see Appendix B of the Letter of Notification for Gristmill-Gemini 138 kV Transmission Line Project). The Siting Team evaluated five potential parcels with eight potential station sites. The Proposed Site was selected based on an evaluation of impacts to the human and natural environment, as well as property owner preference. The proposed Gemini Station site was selected by the City of Wapakoneta based on the load center necessary for planned industrial development. AEP Ohio Transco intends to submit a Letter of Notification to the OPSB to include both substations and the Gristmill-Gemini 138 kV transmission line.

The Study Area is the territory in which line route alternatives can be sited to feasibly meet the Project's functional requirements and, at the same time, minimize environmental impacts and Project costs. The boundaries of the Study Area were determined by the geographic area encompassing the proposed Gristmill Station and proposed Gemini Station. The Study Area was intended to encompass all reasonable Conceptual Routes between these connection points. Given these considerations, the Siting Team identified a Study Area encompassing approximately 6,000 acres (nine square miles) in Auglaize County, Ohio (see **Attachment A**, **Map 1**). The Project Study Area is generally bounded by Township Rd. (Town Line Rd.) to the east, US 33 to the north, Township Road 120 (Pusheta Rd.) to the south and County Rd. 25A (Dixie Highway) to the west. Interstate 75 crosses the study area and will have to be crossed by the Gristmill-Gemini 138 kV transmission line. There is a large former quarry in the middle of the Study Area starting at Township Road 120 (Pusheta Rd) and extending north approximately one mile. Land use in within the Project Area consists mostly of agricultural farm land with pockets of wooded areas and scattered residences throughout.

3.2 Opportunities and Constraints

The Siting Team identified and mapped siting constraints and opportunities within the Study Area.

Siting Constraints

Constraints are specific areas that should be avoided to the extent practical during the route development and selection process. The Siting Team initially identified larger constraints during the conceptual siting process. As the Siting Team developed specific siting alignments, smaller constraints were identified and avoided where feasible. The following is a list of general large constraints:

- Urban areas, including towns, small villages, and other high concentrations of residential, commercial and industrial development areas
- National Register Historic Districts and adjacent areas
- Recreational areas such as parks and large recreational reservoirs
- Large streams, wetlands, flood zones or unique natural resource features, and critical habitat areas
- Designated Federal or State Forests, Parks, State Game Lands, and other natural and conservation areas
- Large mining areas (former quarry along Wapakoneta-Freyburg Road)
- Interstate 75

As the Siting Team develops specific alignments, smaller constraints are identified. These constraints encompass other feature types found within smaller geographic areas, or site-specific locations. Through the iterative process of route development described above, the routes are adjusted to avoid small constraints where feasible, including:

- Individual residences (houses, mobile homes, and multi-family buildings)
- Commercial and industrial buildings
- Outbuildings and barns
- Cemeteries
- Churches
- Schools
- Hospitals

- Recorded sites of designated historic buildings and sites
- Small wetlands
- Specific recreational sites, facilities, and trails
- Radio and communications towers
- Designated scenic vista points

Siting Opportunities

The Siting Team defined siting opportunities as locations where the proposed transmission line might be located while reasonably minimizing adverse impacts. Siting opportunities typically include other linear infrastructure and utility corridors, such as the existing electric and gas transmission network, rail lines, and roads, but may also include reclaimed mine lands, or unused portions of industrial or commercial areas. Siting opportunities identified within the Study Area are listed below and presented on the Study Area map (**Map 1**).

- Southwest Lime-Miami 345kV transmission line
- BP Oil Product Pipeline
- Former railroad line going through northeast of study area.
- U.S. 33, Wapak Fisher Road, Township Road 130 (Weimert School Rd.), Township Highway 181 (Brown Road), Wapak Freyburg Road, Township Road 161 (Cemetery Road), Short Road

Existing transmission and gas pipeline infrastructure provided limited siting opportunities. The transmission and gas lines traverse the Study Area from north to south, while the transmission route will traverse east to west. Interstate 75 traverses the Study Area north to south and provided limited siting opportunities. Local roads are abundant in the Study Area and provided several short parallel siting options.

3.3 Routing Concepts

The Siting Team considered many things while developing the Study Segments. Existing infrastructure including roads, transmission lines, underground infrastructure, and old railways were all considered as possible corridors to parallel.

Buildings within the Study Area were digitized using aerial imagery. These buildings were avoided whenever possible to limit disturbance.

The majority of land within the Study Area is agricultural land. When traversing active farms fields, study segments that were paralleling property lines were used whenever practical. Study segment concepts considered are shown on **Map 2.**

3.4 Study Segments

3.4.1 Description of Study Segments

The Siting Team developed a series of Study Segments based on the siting process and criteria developed in Section 2.0. Study Segments are partial alignments developed based on the routing concepts.

The siting team initially identified 24 different segments connecting the Proposed Gristmill Station and the Proposed Gemini Station. All 24 segments, as shown on **Map 3**, were taken to the public meeting for comment.

3.4.2 Study Segment Refinements

As the siting effort evolved, Study Segments were revised, removed, or added. These eliminations, adjustments, or additions were based on the likelihood of impacts on residential, commercial and industrial areas, agricultural areas, planned and future development, natural areas, and public comment from the open house.

The Siting Team reviewed all comments from the open house, and, where applicable, incorporated the information when reviewing, revising, and comparing Study Segments (see **Map 4**). Public comment suggested paralleling U.S. 33. After the public meeting, the new segment 25 was added. The addition of segment 25 split segment 8 into Segments 8a and 8b. Segment 25 provides only one route along the south side of SR 33 without any options to join with the other segments. Segment 26 was then added to the middle of segment 25 to segment 17. This segment provides an option to parallel SR 33 for the first half of the line or the second half of the line. The addition of segment 26 split segment 25 into segments 25a and 25b. It also split segment 17 into segments 17a and 17b.

Segments were also refined based on further engineering evaluations. These refinements included concerns with overbuilding existing distribution lines due to lack of agreements with commercial delivery companies in the area. AEP Ohio Transco chose to locate the segments on the opposite sides of streets from existing distribution lines where possible.

Twenty-nine segments create a large number of possible combinations to fully evaluate. Therefore, the Siting Team conducted a quantitative and qualitative review of segments and combinations of segments with the same start and end points to reduce the number of combinations for the full route alternatives evaluation.

Segment 4 was eliminated due to increased length and property owner preferences associated with Segments 2 and 3. Segments 5 and 15 were eliminated because of increased tree clearing

and concerns about construction access availability relative to other options, such as segment combinations 6-12-16 and 7-9-16. Segment 15 would have also required spanning open water at a former quarry property for over 1,000 feet. Segments 10 and 14 were eliminated due to unfavorable comparisons with Segments 8a and 8b when considering distribution coordination and proximity to residences. The Siting Team eliminated Segment 22 due to a poor I-75 crossing location relative to other options considered, increased tree clearing, and a parallel stream in the wooded area. Segments 25a and 25b, both following the U.S. 33 corridor, were eliminated due to increased length and number of heavy turn angles, and substantially greater number of residences in close proximity. The U.S. 33 corridor also presents a construction access difficulty, as it is unlikely the construction entrances would be permitted from the highway. Segments 11, 13, and 26 were eliminated because they were connectors to other eliminated segments.

Map 5 shows the resulting network of Study Segments to be evaluated further by the Siting Team.

3.5 Alternative Routes

The Siting Team met frequently throughout the route identification and review process, continually reviewing, modifying, and eliminating the Study Segments based on new field analysis and stakeholder input. At the end of the process, the Siting Team compiled the Study Segments into five Alternative Routes for analysis and comparison. These Alternative Routes are described in the following sections and are shown in more detail on **Map 5.**

3.5.1 Alternative Route A (Segments 1-2-6-12-16-18-21-23-24)

Alternative Route A runs due west from the proposed Gristmill Station, traversing mainly through agricultural fields. A majority of the route travels crossing country, crossing the quarry and I-75. However, small portions of Alternative Route A parallel Wapakoneta-Fryburg Road, Cemetery Road, and Short Road.

3.5.2 Alternative Route B (Segments 1-2-6-12-16-20-23-24)

Alternative Route B heads due west from the proposed Gristmill Station. The majority of the route is cross country, traveling through agricultural fields. Approximately 10 percent of the route parallels existing infrastructure (Wapakoneta-Fryburg Road). Alternative Route B also crosses the quarry and I-75.

3.5.3 Alternative Route C (Segments 1-3-7-9-16-18-21-23-24)

Alternative Route C runs northwest out of the Gristmill Station, paralleling roads for more than 60 percent of the total route length. The route parallels Wapakoneta-Fisher Road, Weimert

School Road, Cemetery Road, and Short Road. Alternative Route C also crosses the quarry and I-75.

3.5.4 Alternative Route D (Segments 1-3-7-9-16-20-23-24)

Alternative Route D runs northwest out of the Gristmill Station paralleling roads and traversing agricultural fields. The route parallels Wapakoneta-Fisher Road and Weimert School Road before continuing with a cross country route to the Gemini Station. Alternative Route D crosses the quarry and I-75.

3.5.5 Alternative Route E (Segments 1-3-8a-8b-17a-17b-19-21-23-24)

Alternative Route E uses a combination of paralleling roads, utilizing railroad corridor and traveling crossing country. The route beings by paralleling Wapakoneta-Fisher Road and Brown Road, runs along an old railroad corridor and then heads cross country through scrub shrub and agricultural fields. Alternative Route E then parallels Cemetery Road, crosses I-75 and then parallels Short Road to the Gemini Station.

4.0 ALTERNATIVE ROUTE COMPARISON

This section further discusses the Alternative Routes and provides a quantitative and qualitative analysis of potential impacts to local communities, the environment and cultural resources. The Alternative Routes were reviewed in detail and compared using a combination of information collected in the field, GIS data sources, public input, supporting documents, and the collective knowledge and experience of the Siting Team.

4.1 Natural Resources

Natural resource impacts include potential impacts to vegetation and habitat, surface waters, threatened and endangered species, and conservation and recreation lands. Potential impacts discussed in this section are based on publically available maps and data as well as consultation with federal and state agencies. A comparison of the natural environment considerations for the Alternative Routes is presented at the end of this section in **Table 2** and identified in **Map 6**.

4.1.1 Soil and Water Resources

Resource Characteristics

The Study Area primarily consists of agricultural land with limited residential or commercial development. Few streams and NWI wetland areas are located within the Study Area. The main streams in the area are Quaker Run and Dry Run. There are a few unnamed tributaries as well. The majority of the land within the Study Area is prime farmland and is currently being used to grow agricultural crops. Water resources are identified in **Map 6: Natural Resources**.

Alternative Route Comparison

There are no major water resource differences between the alternative routes.

4.1.2 Wildlife Habitat and Sensitive Species

Resource Characteristics

Habitat within the Study Area primarily consists of agricultural land used for row-cropping with limited residential or commercial development or forested area. While there are several federal and state sensitive species that could occur within the Study Area, habitat is limited. Wildlife and habitat resources are identified in **Table 1** and **Map 6: Natural Resources**.

A coordination letter to the USFWS was submitted on March 2, 2018, soliciting comments on the Study Area. A response regarding the Study Area from USFWS was received on March 9, 2018. The USFWS comments do not identify additional species other than those listed below and do

not anticipate any adverse effects to any federally endangered, threatened, proposed, or candidate species. No federal wilderness areas, wildlife refuges, or designated critical habitats are located within the Study Area.

A coordination letter to the ODNR was submitted on March 2, 2018, soliciting comments on the Study Area. A response regarding the Study Area was received on March 23, 2018. ODNR provided a corresponding letter response to a request for Ohio Natural Heritage Database GIS records dated March 23, 2018.

Table 1. Threatened and Endangered Species

Species Name	Status	Habitat Type	Note
Mammals			
Indiana bat (*Myotis sodalist*)	Endangered – Federal and State	Winter Indiana bat hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. The 8- to 10-inch diameter size classes of several species of hickory (*Carya* spp.), oak (*Quercus* spp.), ash (*Fraxinus* spp.), birch (*Betula* spp.), and elm (*Ulmus* spp.) have been found to be utilized by the Indiana bat. These tree species and many others may be used when dead, if there are adequately sized patches of loosely-adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes a mixture of loose-barked trees with 60 to 80 percent canopy closure and a low density sub-canopy (less than 30 percent between about 6 feet high and the base canopy). The suitability of roosting habitat for foraging or the proximity to suitable foraging habitat is critical to the evaluation of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, is important to allow maneuvering while catching insect prey.	Seasonal clearing restrictions
Northern long-eared bat (Myotis septentrionalis)	Endangered – Federal and State	Winter hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. The 8- to 10-inch diameter size classes of several species of hickory (*Carya* spp.), oak (*Quercus* spp.), ash (*Fraxinus* spp.), birch (*Betula* spp.), and elm (*Ulmus* spp.) have been found to be	Seasonal clearing restrictions

		utilized by northern long-eared bats. These tree species and many others may be used when dead, if there are adequately sized patches of loosely-adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes a mixture of loose-barked trees with 60 to 80 percent canopy closure and a low density sub-canopy (less than 30 percent between about 6 feet high and the base canopy). The suitability of roosting habitat for foraging or the proximity to suitable foraging habitat is critical to the evaluation of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, is important to allow maneuvering while catching insect prey. Northern long-eared bats have also been found, albeit rarely, roosting in structures like barns and sheds.	
Fish			
Greater redhorse (*Moxostoma Valenciennesi*)	Threatened - State	This fish favors medium to large rivers. The fish is typically found in pools with a clean sand or gravel substrate.	No in-stream work planned
Birds			
Lark sparrow (*Chondestes grammacus*)	Endangered - State	This sparrow nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patched of bare soil	Seasonal construction restrictions
Mussels			
Clubshell (*Pleurobema clava*)	Endangered – Federal and State	This mussel is found in coarse sand and gravel areas of runs and riffles within streams and small rivers.	No in-stream work planned
Pondhorn (*Uniomerus tetralasmus*)	Threatened - State	This mussel is found in ponds, small creeks, and the headwaters of larger streams in mud or sand	No in-stream work planned

Alternative Route Comparison

The DOW noted that the Project area east of County Rd. 25A (Dixie Highway) and south of Weimert School Road is within the vicinity of records for the Indiana bat, a state and federally endangered species. Presence of the Indiana bat has been established in the area, therefore, additional summer surveys would not constitute establishing presence/absence in the area. 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 between October 1 and March 31.All Route Alternatives will require tree clearing. Segments 16 and 20 along Route Alternatives B and D will require the most tree clearing.

Table 2. Natural Resource Evaluation Criteria						
Alternative Route	**Unit**	**A** 1-2-6-12-16-18-21-23-24	**B** 1-2-6-12-16-20-23-24	**C** 1-3-7-9-16-18-21-23-24	**D** 1-3-7-9-16-20-23-24	**E** 1-3-8a-8b-17a-17b-19-21-23-24
General						
Length	miles	4.12	4.16	4.00	4.01	4.62
Water Resources						
Total streams crossed	count	3	3	3	3	4
Waterbody crossings	feet	61.21	48.28	48.28	48.28	67.18
No forested wetlands in the ROW, PEM/PSS wetlands within the ROW, FEMA-designated floodplain crossed by ROW, or FEMA-designated floodway crossed by ROW were identified.						
Geological, Topographical, and Soil Resources						
Prime and unique farmland soil in the ROW[1]	acres	46.02	45.96	44.76	45.07	50.17
No farmland of statewide importance in the ROW, karst topography in the ROW, known caves or mines in the ROW were identified.						
Wildlife and Habitat						
Tree clearing required in the ROW (digitized based on aerial photography)	acres	2.03	5.72	2.20	5.72	3.00
Length of clearing parallel to existing linear infrastructure	miles	1.10	0.47	2.86	1.86	2.39
No special natural areas crossed by the ROW, special natural areas within 250 feet of the ROW were identified.						

[1] Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops, as designated by NRCS

4.2 Land Use

Land use impacts include direct and indirect impacts to residential, commercial and industrial development, institutional uses (e.g., schools, places of worship, cemeteries, and hospitals), cultural resources, and land use. Construction of a new transmission line can result in changes in land use and aesthetic impacts to residents, commuters and travelers, employees, and recreational users. A comparison of the land use considerations for the Alternative Routes is presented at the end of this section in **Table 4.** Land uses within the Study Area are shown on **Map 7.**

4.2.1 Agricultural and Forestry Resources

Resource Characteristics

The majority of land within the Study Area is agricultural and used for row-crop farming. There are few forested areas scattered throughout the area. There are no federal or state forested lands within the Study Area.

Alternative Comparison

Alternative Routes B and D encompass the least amount of pasture/rangeland within their ROWs. Alternative Route C has the least amount of cropland within the ROW because it parallels the most existing infrastructure. Alternative Route B is a less direct route than Alternative Route C and contains the most cropland within the ROW. No major differences regarding potential impacts to pasture/rangeland or cropland were identified amongst the routes.

4.2.2 Recreation and Conservation Lands

Resource Characteristics

There are no recreational or conservation resources within the Study Area.

4.2.3 Developed Land Use

Resource Characteristics

The Study Area is a rural area with few residential areas throughout. There is no significant commercial or industrial development within the Study Area.

Residences are located along WapakonetaFisher Road, Short Road, and Weimert School Road within the Study Area. The most concentrated area is at the corner of Weimert School Rd. and Wapakoneta-Fisher Rd. There are five residences at this intersection.

Alternative Route Comparison

Alternative Routes A, B, and E would avoid the concentrated residences around the intersection of Weimert School Rd. and Wapakoneta-Fisher Rd. However, these routes are not as direct and add to the overall length of the Project.

4.2.4 Historic and Archeological Resources

Resource Characteristics

A review of the architectural resources from Ohio History Connection (OHC) identified no historic architectural resources within one mile of the Alternative Routes. A review of the archeological resources from OHC identified 91 sites within 0.5 mile of the Alternative Routes. The sites include historic and prehistoric sites. None of the sites are listed in the National Register of Historic Places. These archeological resources are identified in **Table 3**. There is not a figure showing these locations as the information is considered confidential by the OHC. There are no NRHP eligible or potentially eligible resources with the Study Area.

Alternative Route Comparison

No substantial differences regarding potential impacts to archeological sites were identified amongst the routes. No impacts to known archeological resources are anticipated.

Table 4. Land Use Evaluation Criteria						
Alternative Route	**Unit**	**A**	**B**	**C**	**D**	**E**
General						
Length	miles	4.12	4.16	4.00	4.01	4.62
Number of parcels[2] crossed	count	17	18	18	20	23
Landowners within ROW	count	19	13	15	15	17
Municipalities, Counties, and Townships Crossed						
Auglaize County	miles	4.12	4.16	4.00	4.01	4.62
City of Wapakoneta	miles	0	0	0	0	0.12
Pusheta Township	miles	4.12	4.16	4.00	4.01	4.50
Residential						
Barns, outbuildings, sheds, garages and silos in the ROW (excludes abandoned features)	count	0	1	2	3	2
Residences/single-family dwellings within 100 feet of centerline	count	1	0	4	3	3
Residences/single-family dwellings within 250 feet of centerline	count	4	1	11	7	11
Residences/single-family dwellings within 500 feet of centerline	count	7	3	14	9	16
No residence/single-family dwellings within row, multi-family dwellings within ROW, multi-family dwellings within 250 feet of centerline, multi-family dwellings within 500 feet of centerline were identified.						
Commercial/Industrial						
Businesses/commercial buildings within 250 feet of the centerline	count	0	0	2	2	1
Businesses/commercial buildings within 500 feet of the centerline	count	0	0	2	2	1
Quarries crossed	count	1	1	1	1	0
No businesses/commercial buildings within the ROW, mining areas crossed were identified.						
Agricultural						
Pasture/rangeland within ROW (based on NLCD data)	acres	6.09	4.82	6.66	4.82	9.89
Cropland within ROW (based on NLCD data)	acres	33.51	34.92	20.61	25.00	25.66

[2] The number of parcels crossed refers to the number of individual plots of owned land recorded by each County. The number of landowners within the ROW represent the number of individual landowners, who each may own one or more parcels.

Table 4. Land Use Evaluation Criteria						
Alternative Route	**Unit**	**A**	**B**	**C**	**D**	**E**
Agricultural easements crossed in ROW	acres	18.27	17.84	18.80	18.98	13.25
No tree farms/orchards crossed in ROW were identified.						
Community/Recreational Facilities						
No schools within 1,000 feet of centerline, designated places of worship within 1,000 feet of centerline, cemeteries within 250 feet of centerline, hospitals, and assisted living facilities within 250 feet of centerline, parks and recreation areas crossed by the ROW, scenic byways crossed were identified.						
Protected Land						
No federal/state land crossed by ROW, conservation easements crossed by the ROW were identified.						
Cultural Resources						
Listed archeological sites within ROW	count	1	1	1	1	1
Listed archeological sites within 250 feet of centerline	count	4	3	3	3	6
No NRHP-listed sites within one mile of the centerline, national Landmarks within one mile of the centerline, historic Districts within one mile of the centerline, known NRHP-eligible sites within one mile of the centerline were identified.						

4.3 Constructability

This section discusses the feasibility of a proposed transmission line, as it relates to engineering and construction concerns. Constructability evaluates the use of existing transmission corridors, engineering challenges, and accessibility issues of the Alternative Routes. Major factors that affect constructability include, but are not limited to, steep topography, condensed ROWs, sharp angles, proximity to major highways, accessibility, safety and cost. A comparison of the engineering and construction considerations for the five Alternative Routes is presented at the end of this section in **Table 5.**

4.3.1 Engineering Design Considerations

Transmission Right-of-Way

AEP Ohio Transco attempted to minimize route length and ROW acquisition. Where possible and practical, AEP Ohio Transco considered paralleling existing infrastructure (i.e., roadways, railways, gas lines or existing transmission lines). No existing transmission ROW runs in the direction of the Project within the Study Area.

Engineering and Construction Considerations

Potential engineering and construction challenges are important to consider when siting a transmission line. Heavy angles, steep topography, nearby towers, antennas, and airfields along with narrow ROW alignments are all elements that could ultimately require extensive or non-standard engineering and lead to increases in impacts and overall cost.

The proximity to existing roadway, transmission and gas pipeline infrastructure could also pose potential engineering and construction challenges. As with paralleling existing infrastructure, crossing over transmission lines and gas pipelines may require specialized construction techniques, and transmission crossings may require outages. AEP Ohio Transco attempted to minimize engineering challenges during the conceptual design phase.

Alternative Routes A, B, C, and D all cross the quarry located in the middle of the Study Area. Crossing the quarry property could require a longer span length. Alternative Routes A, B, C, and D all cross at the most narrow point feasible for crossing. Exiting the proposed Gristmill Station will require crossing the existing Southwest Lima-Miami 345 kV transmission line. All Alternative Routes will have to cross this existing transmission line. Similarly, all of the proposed Alternative Routes cross over an existing gas pipeline, which parallels Brown Road. All Alternative Routes have between seven and nine heavy angles.

Alternative Route Comparison

Alternative Route C parallels existing roads for 64% (2.56 miles) of the line. This Alternative Route will have the smallest amount of access road impacts because most of the structures will be accessible from the side of the existing road. Alternative Routes A and B will have more temporary access road disturbance because they parallel existing roads for only 1.18 and 0.47 miles respectively. The temporary access roads associated with Alternative Route A would have the least impact on residential properties because there is only one residential home within 100 feet of Alternative Route A.

All Alternative Routes will have to cross Interstate I-75. It is preferable to have permanent access to the structures on either side of an interstate crossing. Segment 21 in Alternative Routes A, C, and E currently have permanent access to the west side of the I-75 crossing.

Table 5. Constructability Evaluation Criteria						
Alternative Route	**Unit**	**A**	**B**	**C**	**D**	**E**
General						
Length	miles	4.12	4.16	4.00	4.01	4.62
Transportation Resources						
Interstate highways crossed	count	1	1	1	1	1
Local roads and streets crossed	count	4	4	4	4	8
No U.S. highways crossed, state highways crossed, railroads crossed, airports within one mile of the centerline were identified.						
Utility Resources						
Oil and gas pipelines crossed	count	1	1	1	1	1
Oil and gas wells within 250 feet from edge of ROW	count	2	2	2	2	2
Communication towers within 1,000 feet of the centerline	count	0	0	0	0	2
Existing 345 kV Transmission Lines Crossed	count	1	1	1	1	1
No existing 765 kV transmission lines crossed or existing 138 kV transmission lines crossed were identified.						
Engineering and Construction Considerations						
Heavy angles, change from straight greater than 30 degrees	count	9	9	8	9	9
No steep slopes crossed by ROW (>20%), percent of total length were identified.						
Rights-of-Way Rebuild/Parallel						
Interstate highways, U.S. highways, State highways, and local roads	miles	1.10	0.47	2.56	1.86	2.09
No existing 765 kV, 345 kV, 138 kV transmission lines paralleled, existing distribution lines paralleled or underbuilt, oil and gas pipelines, or railroads were identified.						
Total length paralleled	miles	1.10	0.47	2.56	1.86	2.09
Total percentage paralleled	percent	27%	11%	64%	46%	45%

5.0 IDENTIFICATION OF THE PREFERRED ROUTE

As stated in the introductory chapters, the goal in selecting a suitable route for the Project is to minimize impacts on land use and natural and cultural resources while avoiding circuitous routes, extreme costs, and non-standard design requirements. However, in practice, it is not usually possible to optimally minimize all potential impacts at all times. There are often inherent tradeoffs in potential impacts to every siting decision. For example, in heavily forested study areas, the route that avoids the most developed areas will likely have the greatest amount of forest clearing, while the route that has the least impact on vegetation and wildlife habitats often impacts more residences or farm lands. Thus, an underlying goal of a siting study is to reach a reasonable balance between minimizing potential impacts on one resource versus increasing the potential impacts on another.

The following summarizes the rationale for selection of the Preferred Route, and thus, the route that the Siting Team considered to best minimize the overall impacts of the Project. The rationale presented is derived from the accumulation of the siting decisions made throughout the process, the knowledge and experience of the Siting Team, comments from the public and regulatory agencies, and the comparative analysis of potential impacts presented in Chapter 4. Five Alternative Routes were considered in this study.

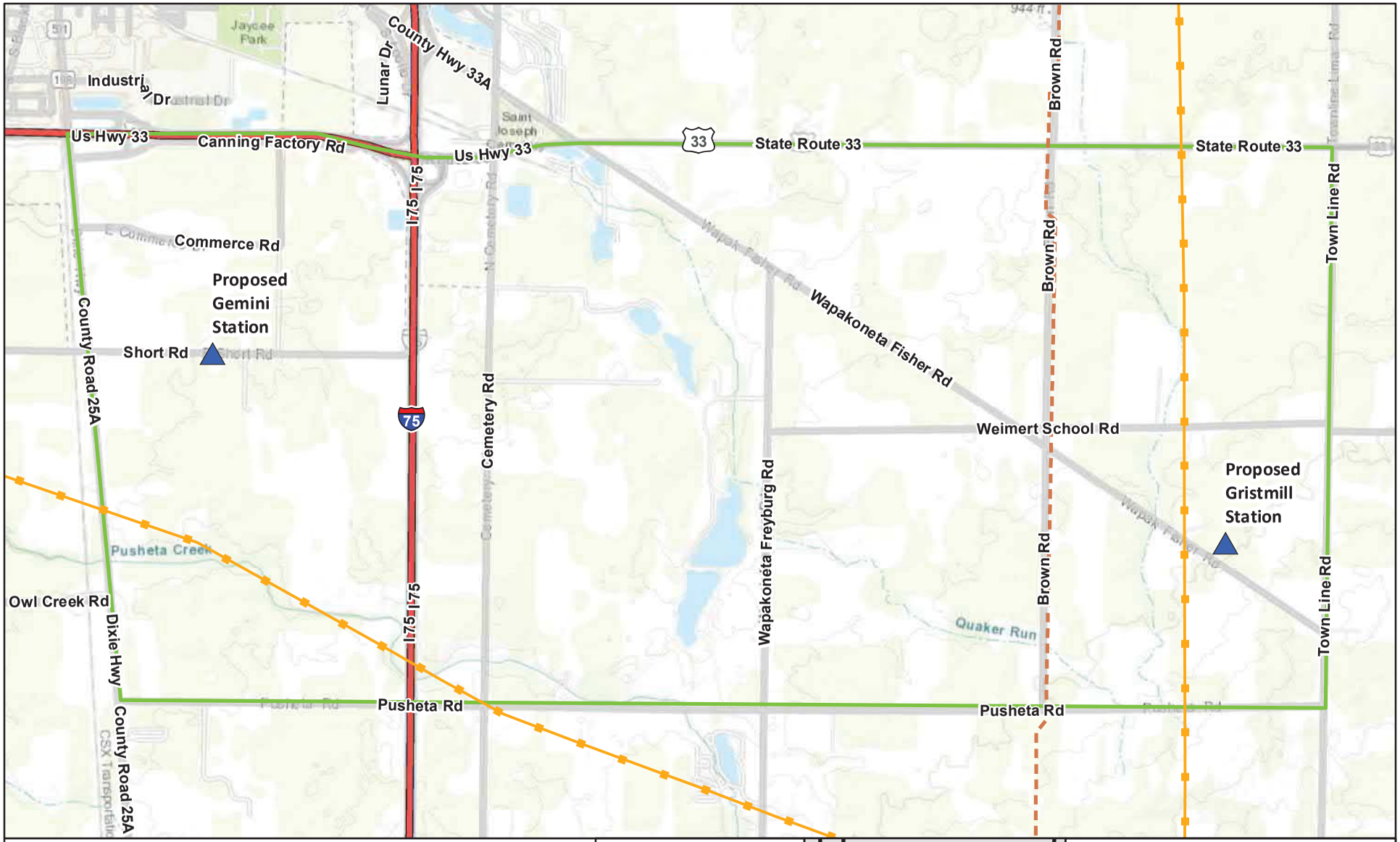
5.1 Conclusion

Based on a qualitative and quantitative review of information obtained from GIS data, existing easements, field reconnaissance, agency consultation and public outreach, as well as, engineering and financial estimates for the Project, the Siting Team recommends Alternative Route A as the Preferred Route.

Alternative Route A is able to utilize existing infrastructure by paralleling local roads for over 25 percent of its route length. Alternative Route A avoids residences and outbuildings in close proximity along Weimert School Road by bisecting the agricultural field to the south. Additionally, this route requires the least amount of tree clearing. Collectively, the Siting Team believes that the Preferred Route meets the goal of minimizing impacts on land use, and the natural and cultural resources along the route, while avoiding circuitous routes, extreme costs, and non- standard design requirements.

AEP met with several property owners along the Alternative Routes. Property owners provided additional information when available regarding their property and the surrounding area. Information such as agricultural drainage tiles, field use, and equipment dimensions were gathered and used to help determine the final alignment (see **Map 8**).

Attachment A: Maps

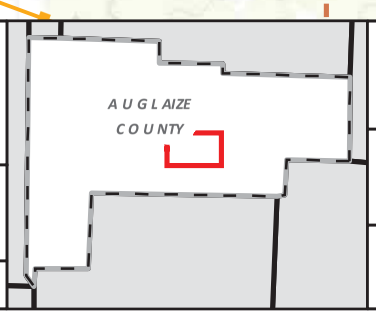


Study Area
Proposed Substation
Existing Transmission (345 kV +)
Existing Natural Gas Pipeline
Limited Access Highway
Minor Road

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap

NAD 1983 StatePlane
Ohio South FIPS 3402 Feet

September 25, 2018

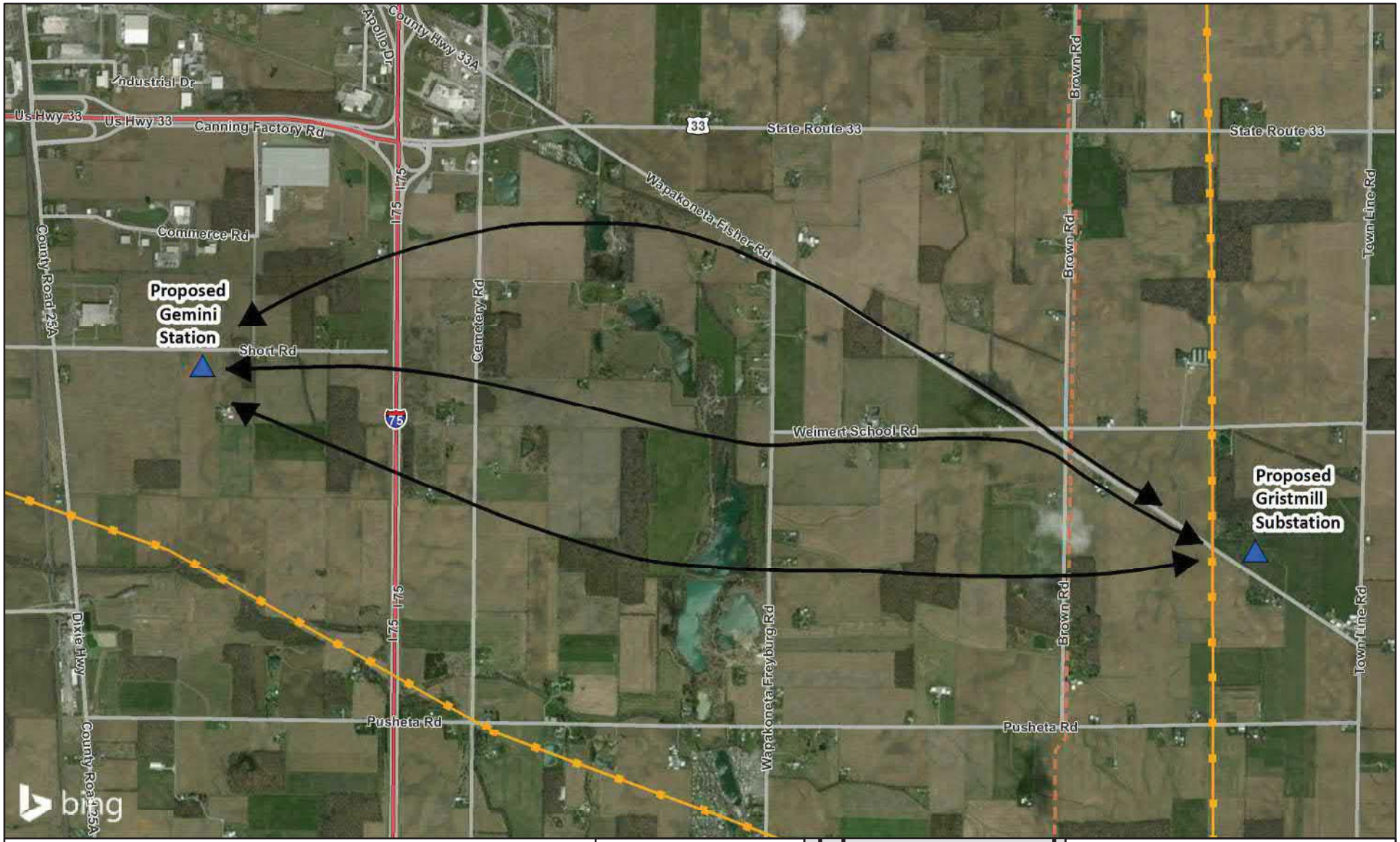


Map 1
Study Area

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV
Transmission Line

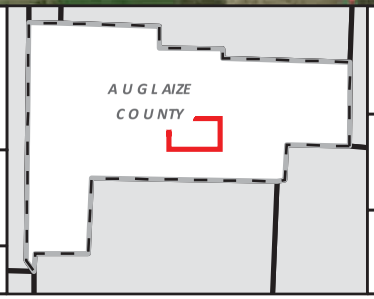
0 0.25 0.5 0.75 1
Miles



Conceptual Route
Proposed Substation
Existing Transmission (345 kV +)
Existing Natural Gas Pipeline
Limited Access Highway
Minor Road

NAD 1983 StatePlane
Ohio South FIPS 3402 Feet

January 10, 2019

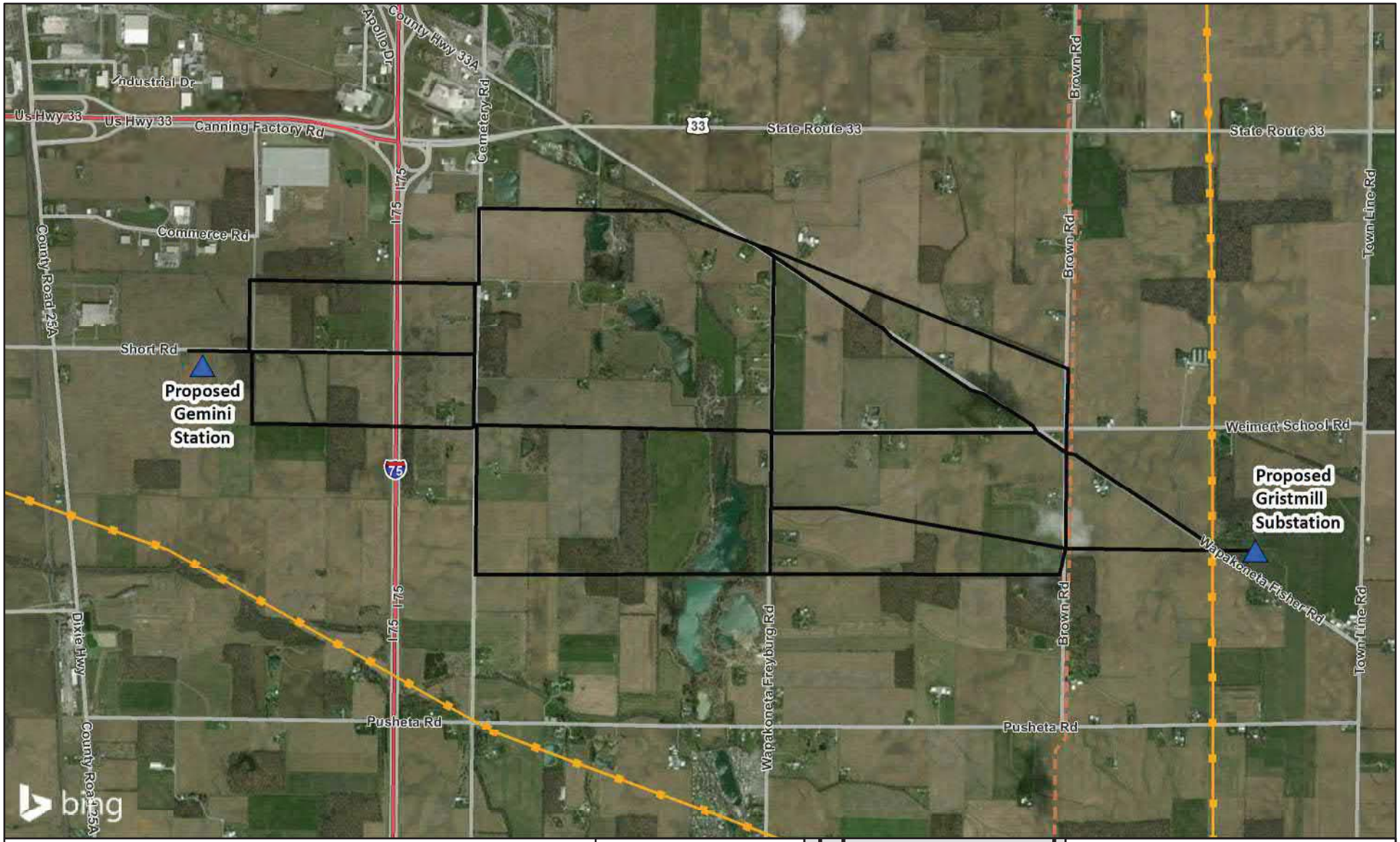


Map 2
Conceptual Routes

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV
Transmission Line

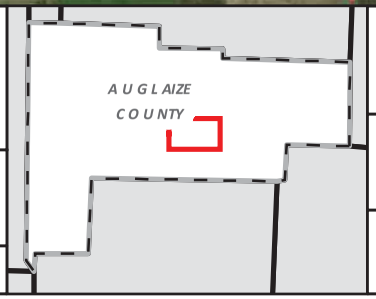
0 0.25 0.5 0.75 1
Miles



- Public Meeting Route
- Proposed Substation
- Existing Transmission (345 kV +)
- Existing Natural Gas Pipeline
- Limited Access Highway
- Minor Road

NAD 1983 StatePlane
Ohio South FIPS 3402 Feet

January 04, 2019

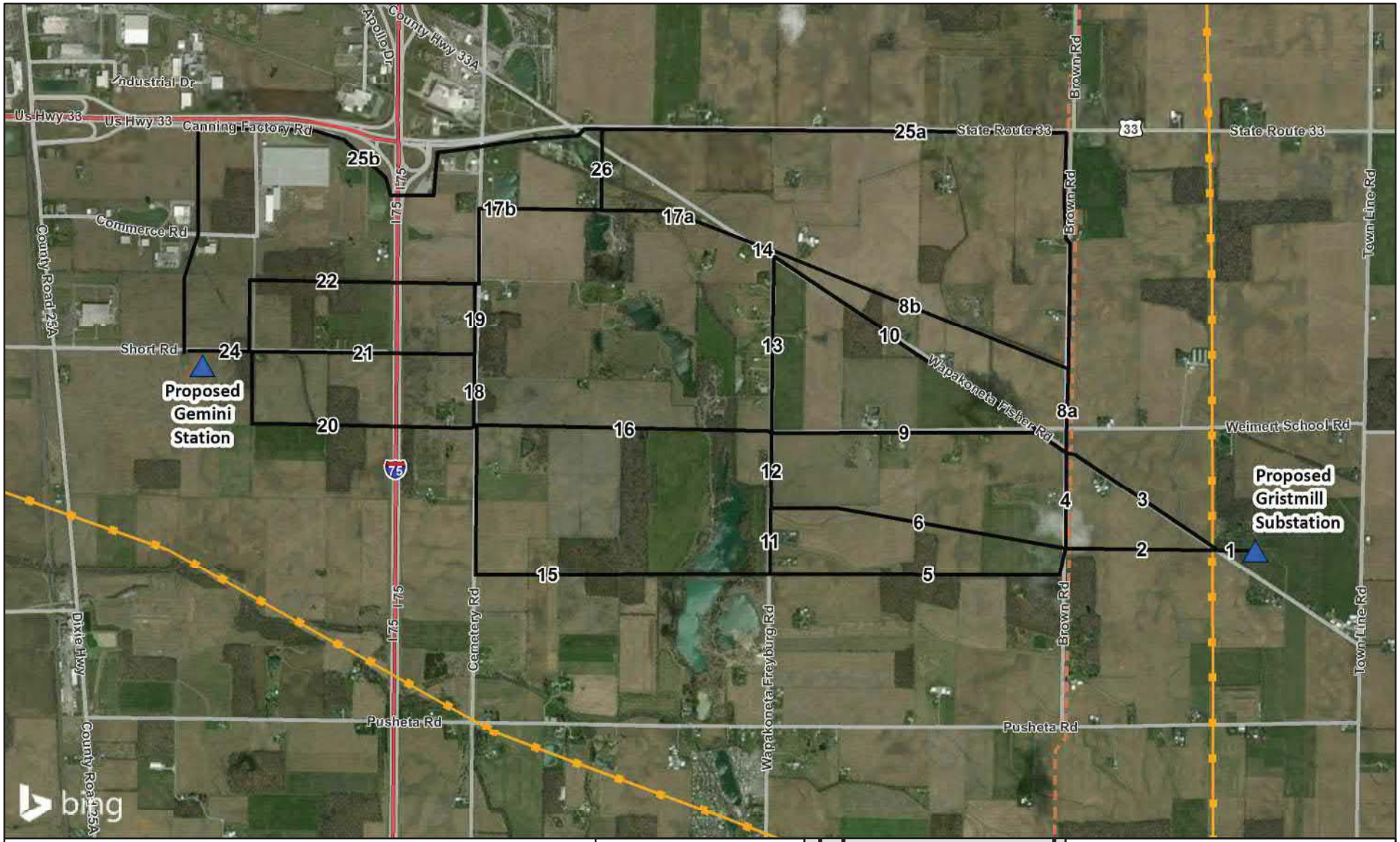


Map 3
Public Meeting Routes

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line

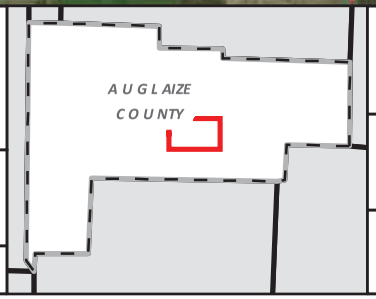
0 0.25 0.5 0.75 1
Miles



Study Segment
Proposed Substation
Existing Transmission (345 kV +)
Existing Natural Gas Pipeline
Limited Access Highway
Minor Road

NAD 1983 StatePlane
Ohio South FIPS 3402 Feet

January 04, 2019

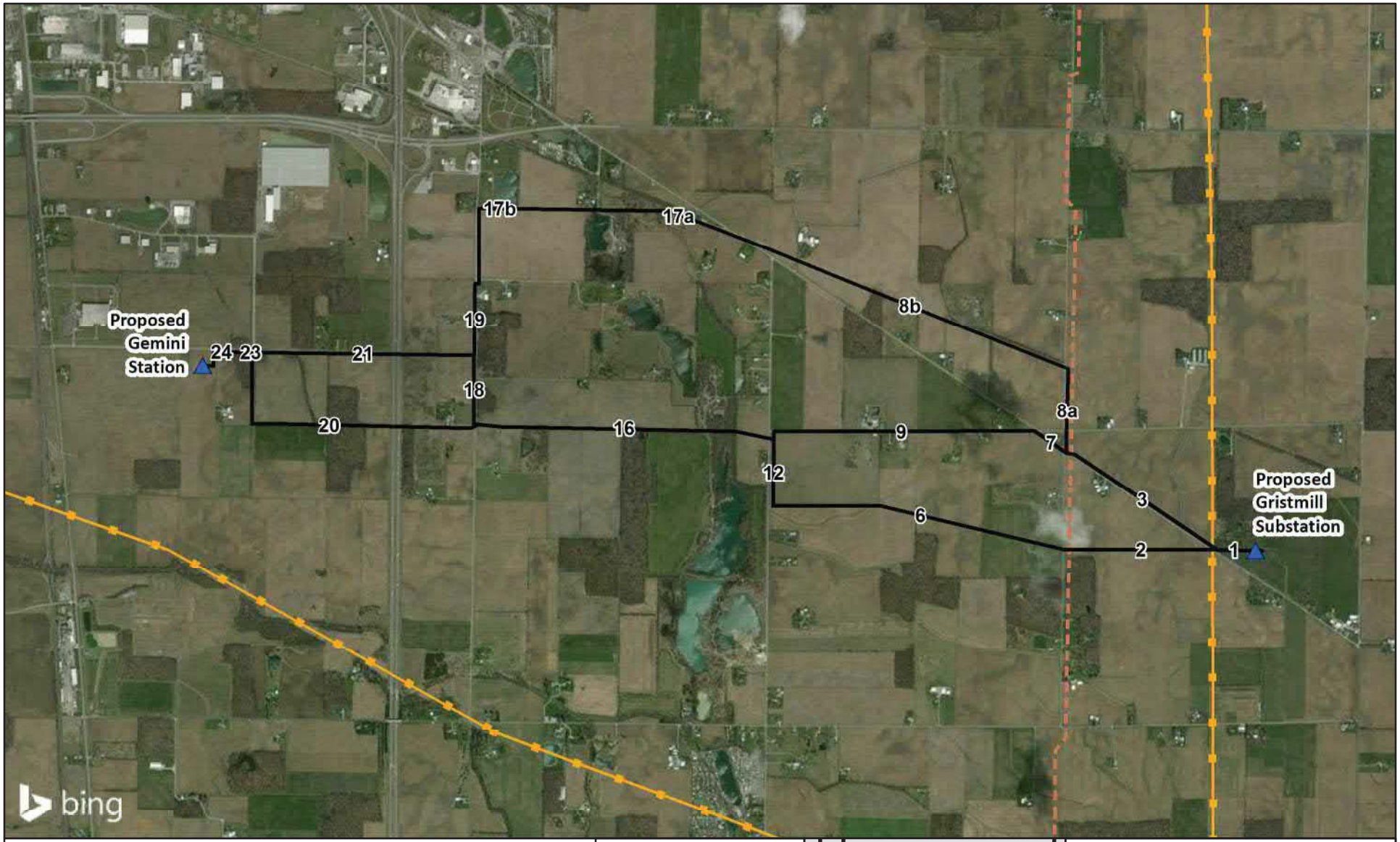


Map 4
Potential Route Network

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV
Transmission Line

0 0.25 0.5 0.75 1
Miles



Alternative A: 1-2-6-12-16-18-21-23-24

Alternative B: 1-2-6-12-16-20-23-24

Alternative C: 1-3-7-9-16-18-21-23-24

Alternative D: 1-3-7-9-16-20-23-24

Alternative E: 1-3-8a-8b-17a-17b-19-21-23-24

Limited Access

Minor Road

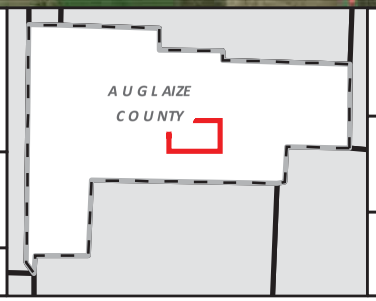
Proposed Substation

Existing Transmission (345 kV +)

Existing Natural Gas Pipeline

NAD 1983 StatePlane
Ohio South FIPS 3402 Feet

January 10, 2019

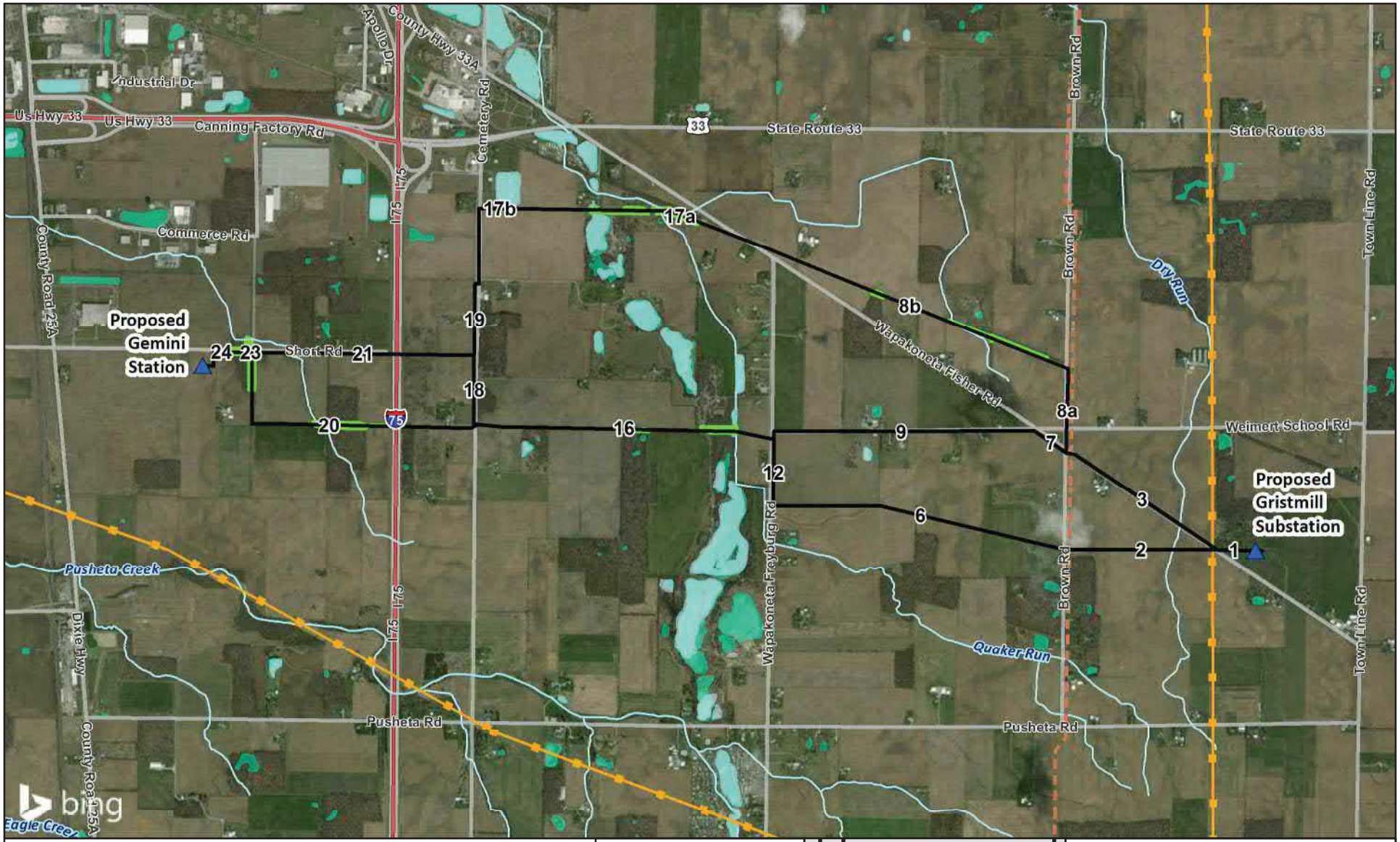


Map 5
Alternative Routes

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV
Transmission Line

0 0.25 0.5 0.75 1
Miles



Alternative A: 1-2-6-12-16-18-21-23-24

Alternative B: 1-2-6-12-16-20-23-24

Alternative C: 1-3-7-9-16-18-21-23-24

Alternative D: 1-3-7-9-16-20-23-24

Alternative E: 1-3-8a-8b-17a-17b-19-21-23-24

Potential Bat Habitat

NHD Stream

NHD Waterbody

NWI Wetland

Proposed Substation

Existing Transmission (345 kV +)

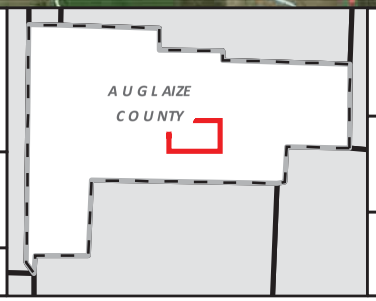
Existing Natural Gas Pipeline

Limited Access Highway

Minor Road

NAD 1983 StatePlane Ohio South FIPS 3402 Feet

January 10, 2019



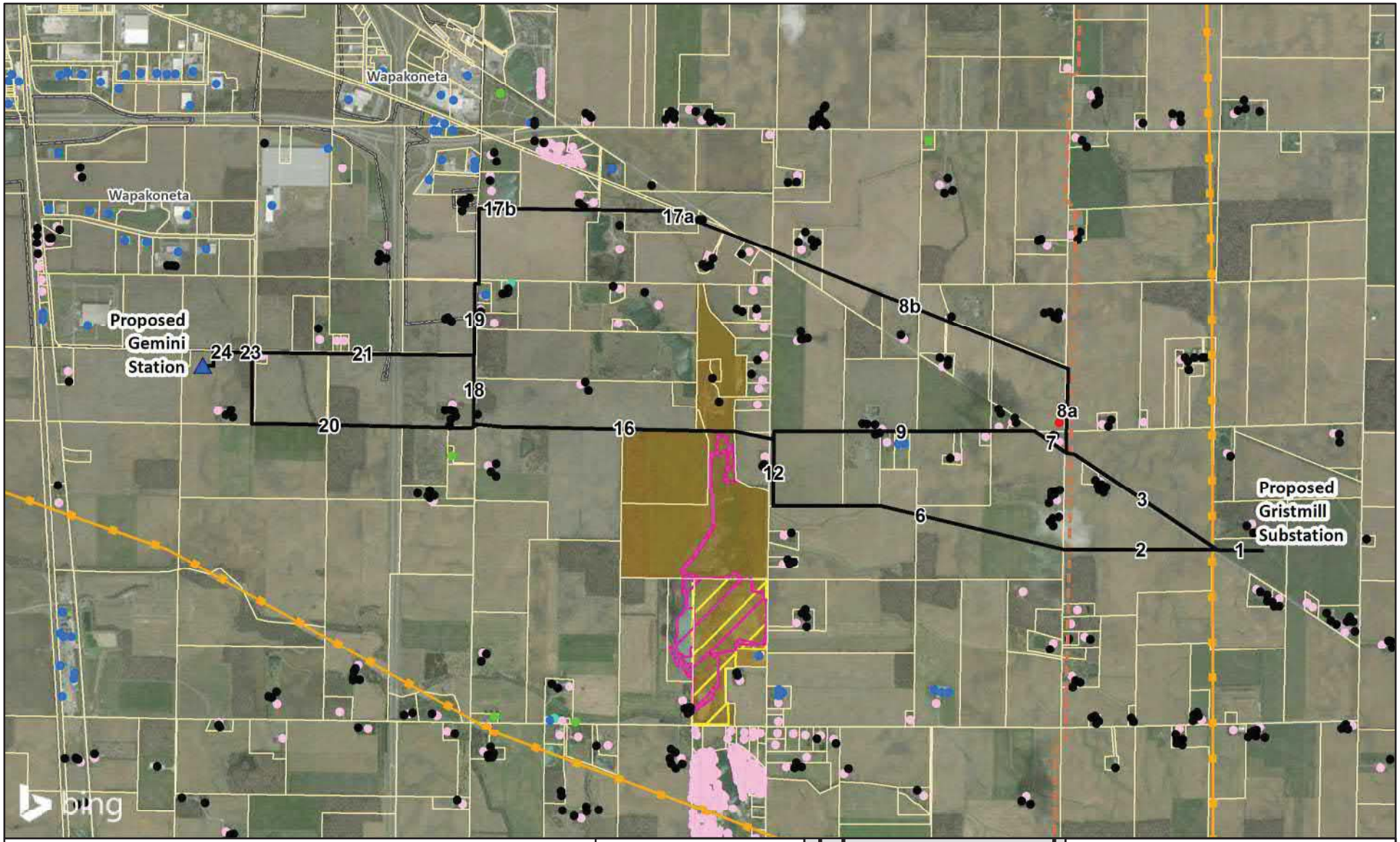
Map 6
Natural Resources

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line

0 0.25 0.5 0.75 1

Miles

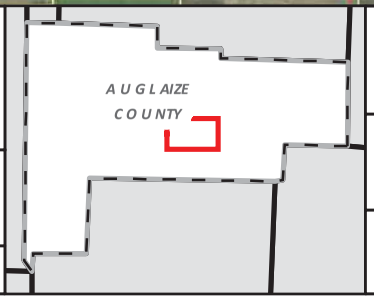


- Out building
- Residence
- Church
- Commercial Building
- School
- Cemetery
- Parcel Boundary
- City Boundary
- Disturbed Reclamation Land
- Surface Industrial Mineral Mine
- Quarry

- Alternative A: 1-2-6-12-16-18-21-23-24
- Alternative B: 1-2-6-12-16-20-23-24
- Alternative C: 1-3-7-9-16-18-21-23-24
- Alternative D: 1-3-7-9-16-20-23-24
- Alternative E: 1-3-8a-8b-17a-17b-19-21-23-24
- Proposed Substation
- Existing Transmission (345 kV +)
- Existing Natural Gas Pipeline

NAD 1983 StatePlane
Ohio South FIPS 3402 Feet

January 10, 2019

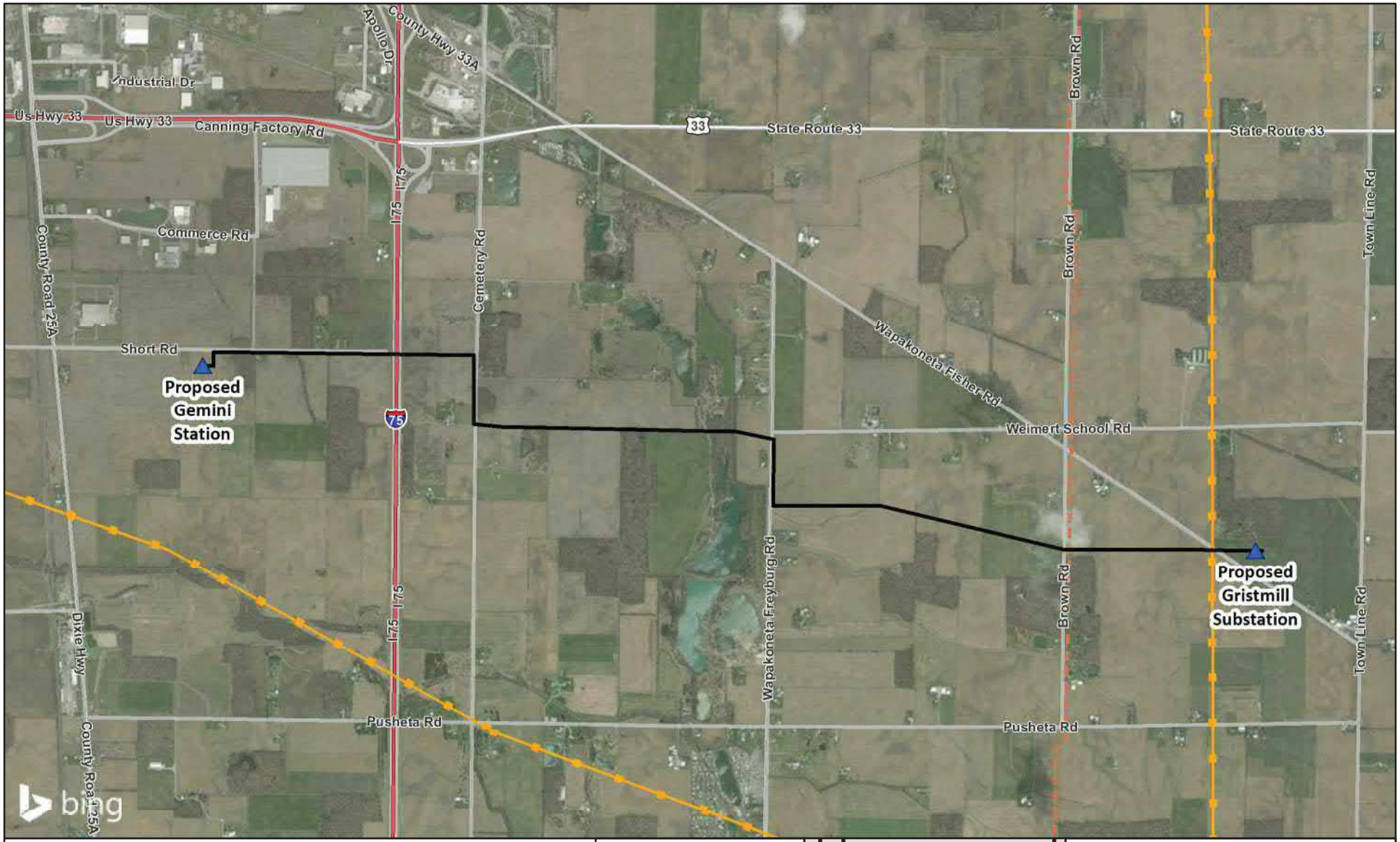


Map 7
Land Use

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line

0 0.25 0.5 0.75 1
Miles

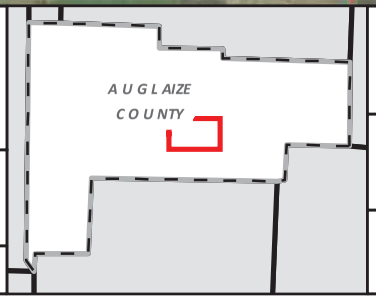


Preferred Alignment
Proposed Substation
Existing Transmission (345 kV +)
Existing Natural Gas Pipeline

Service Layer Credits: © 2018 Microsoft Corporation © 2018 DigitalGlobe ©CNES (2018) Distribution Airbus DS

NAD 1983 StatePlane Ohio South FIPS 3402 Feet

January 04, 2019



Map 8
Preferred Alignment

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line

0 0.25 0.5 0.75 1
Miles

Attachment B: GIS Data Sources

Attachment A. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Land Use		
Number of parcels crossed by the ROW	Auglaize County Auditor, 2018	Count of the number of parcels crossed by the ROW
Number of residences within 500 feet of the route centerline	Digitized from Bing Maps aerial photography (2017) and field verified from points of public access	Count of the number of residences within the ROW and within 100, 250, and 500 feet of potential routes
Number of commercial buildings within 500 feet of the route centerline	Digitized from Bing Maps aerial photography (2017) and field verified from points of public access	Count of the number of commercial buildings within the ROW and within 250 and 500 feet of potential routes
Land use acreage crossed by the ROW	National Land Cover Data	The NLCD 2011 (NLCD 2011) compiled by the Multi-Resolution Land Characteristics (MRLC) Consortium includes 15 classes of land cover from Landsat satellite imagery
Acres of conservation easements crossed	National Conservation Easement Database (NCED) (2018)	Private conservation easements crossed by the routes from the NCED which is comprised of voluntarily reported conservation easement information from land trusts and public agencies
Acres of agricultural district land crossed	Auglaize County Auditor, 2018	Protected land that is devoted exclusively to agricultural production or devoted to and qualified for compensation under a federal land retirement or conservation program that is at least 10 acres in size, or produces an average yearly gross income of at least $2,500 during a 3-year period
Number of archeological resources within the ROW and within 0.5 mile	OHPO, 2018	Previously identified archeological resources listed or eligible on the National Register of Historic Places (NRHP) acquired through OHPO, 2018
Number of historic architectural resources within the ROW, within 0.5 mile	OHPO, 2018	Previously identified historic architectural resource sites and districts listed or eligible on the NRHP acquired through OHPO, 2018

Attachment A. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Institutional uses (schools, places of worship and cemeteries) within 250 to 1,000 feet of the route centerline	U.S. Geological Survey's GNIS (2016)	This dataset includes the locations of cemeteries, churches, hospitals, parks, and schools. Features within 250 to 1,000 feet of potential routes were field verified.
Airfield and heliports within one mile of the route centerline	GNIS (2016) and the Federal Aviation Administration (FAA) database (2017)	Distance from airfields and heliports
Natural Environment		
Forest clearing within the ROW	Digitized based on Bing Maps aerial photography (2017)	Acres of forest within the ROW
Number of National hydrography dataset (NHD) stream and waterbody crossings within the ROW	USGS (2016)	The NHD is a comprehensive set of digital spatial data prepared by the USGS that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells
Acres of National Wetland Inventory (NWI) wetland crossings within the ROW	U.S. Fish and Wildlife Service (USFWS) (2017)	The NWI produces information on the characteristics, extent, and status of the Nation's wetlands and deepwater habitats
Acres of 100-year floodplain crossing within the ROW	U.S. Federal Emergency and Management Agency (FEMA) (1989)	Acres of 100-year floodplain within the ROW
Miles of public lands crossed by the route	The Protected Areas Database of the United States (PAD-US) (2018)	Miles of federal, state and local lands crossed by the ROW
Threatened, endangered, rare or sensitive species occurrence within the Project vicinity	ODNR, 2018	Known occurrences; locations of potential habitat based on land use

Attachment A. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Percent of hydric soils within the ROW	United States Department of Agriculture (USDA-NRCS), Natural Resources Conservation Service Soil Survey Geographic (SSURGO) Database (2017)	Percent of soil associations crossed by the ROW characterized as hydric, predominantly hydric, partially hydric and non-hydric
Percent of prime farmland soils and soils of statewide importance within the ROW	USDA-NRCS SSURGO Database (2017)	Percent of soil associations crossed by the ROW characterized as prime farmland or farmland of statewide importance
Technical		
Route length	Measured in GIS	Length of route in miles
Number and severity of angled structures	Developed in GIS	Anticipated number of angled structures >30 based on preliminary design
Number of road crossings	ESRI road file (2013)	Count of federal, state and local roadway crossings
Number of pipeline crossings	U.S. Department of Transportation National Pipeline Mapping System (2017)	Number of known pipelines crossed by the transmission ROW
Number of transmission line crossings	AEP Ohio Transco	Number of high voltage (100 kV or greater) transmission lines crossed by the ROW
Distance of steep slopes crossed	Derived from seamless Digital Elevation Models (DEMs) obtained from the U.S. Geological Survey (2016)	Miles of slope greater than 20 percent crossed by the routes
Length of transmission line parallel	AEP Ohio Transco	Miles of the route parallel to existing high voltage transmission lines
Length of pipeline parallel	U.S. Department of Transportation National Pipeline Mapping System (2017)	Miles of the route parallel to existing pipelines
Length of road parallel	ESRI road file (2013)	Miles of the route parallel to existing roadways

Attachment C: Agency Correspondence

Tucker, Jason

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Friday, March 09, 2018 10:35 AM
To: Tucker, Jason
Subject: Wapakoneta Transmission Infrastructures (Several 138 kV Stations) in Auglaize Co.

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# 03E15000-2018-TA-0902

Dear Mr. Tucker,

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

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

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

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

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

Sincerely,

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, DIRECTOR

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

March 23, 2018

Jason Tucker
AECOM
525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Re: 18-409; Wapakoneta Improvements Project

Project: The proposed project includes a new Gristmill Station, a new Gemini Station, a new 138 kV transmission line between Gristmill and Gemini Stations, a new 138 kV transmission line between Gemini and West Moulton Stations, and expanding the West Moulton Station.

Location: The proposed project is located in Pusheta and Washington Townships, Auglaize County, Ohio.

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

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

Greater redhorse (*Moxostoma valenciennesi*), State threatened, federal species of concern
Great blue heron rookery

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

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

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

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

The project area east of Dixie Highway and south of Weimert School Road is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. Presence of the Indiana bat has been established in the area, and therefore additional summer surveys would not constitute presence/absence in the area. 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.

The remainder of the project area is within the range of the Indiana bat (*Myotis sodalis*). 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, and the pondhorn (*Uniomerus 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 (2016), 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 10 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 (2018) 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 in a perennial stream, this project is not likely to impact this or other aquatic species.

The project is within the range of the lark sparrow (*Chondestes grammacus*), a state endangered bird. This sparrow nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patches of bare soil. These summer residents normally migrate out of Ohio shortly after their young fledge or leave the nest. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to June 30. If this habitat will not be impacted, the project is not likely to impact this species.

The DOW has a record for a great blue heron rookery within the boundary of the project area. The rookery is located within the large woodlot between the following roads: Washington Pike, Burr Oak Road, Kettlersville Road, and Kohler Road. Nesting great blue herons are protected under the Migratory Bird Treaty Act of 1918. Impacts to great blue heron rookeries can have a significant impact on a local population due to the large number of birds that return each year to the same rookery to nest. Rookeries often include a certain set of characteristics that are not easily found elsewhere. The DOW recommends that construction activity within the rookery be avoided to preserve the rookery. If construction within the rookery cannot be avoided, the DOW recommends at the very least, the rookery be avoided during the nesting season of March 1 through June 31 as to not interfere with nesting birds. In addition, the DOW recommends a 100 yard no activity buffer be maintained around the rookery during the breeding season as to not interfere with nesting birds.

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

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

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

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

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

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

Appendix D: Ohio History Connection Coordination

January 2, 2019

In reply, please refer to:
2018-AUG-43269

Ryan J. Weller
Weller & Associated, Inc.
1395 West Fifth Avenue
Columbus, Ohio 43212

RE: Gristmill Station Project – Pusheta Township, Auglaize County, Ohio

Dear Mr. Weller:

This is in response to correspondence, received on December 5, 2018, regarding the above-referenced project. The comments of Ohio's State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-4). The comments of Ohio's SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

Archaeological and architectural investigations have been completed and reviewed for the Gristmill Station Project in Pusheta Township, Auglaize County, Ohio. The project plans are for the new construction of Gristmill Station in a 20 acre area.

The following comments pertain to the *Phase I Archaeological Investigations for the 8.0 ha (20 ac) Gristmill Station Project in Pusheta Township, Auglaize County, Ohio* by Weller & Associated, Inc. (2018).

A literature review, visual inspection, and shovel test unit excavation were completed as part of the investigations. The current investigations did not result in the identification of any cultural materials. No additional investigation is necessary.

The following comments pertain to the *History/Architecture Investigations for the Gristmill Station Project in Pusheta Township, Auglaize County, Ohio* by Weller & Associates, Inc. (2018).

A literature review and field survey were completed as part of the investigations. Two individual properties fifty years of age or older were identified, while streetscape photos provided minimal documentation for other properties with potential visibility to the project. It is Weller's recommendation that the identified properties are not eligible for inclusion in the National Register of Historic Places. Our office agrees with Weller's recommendations of eligibility.

Based on the information provided, we agree the project will have no effect on historic properties. No further coordination with this office is necessary, unless the project changes or new/additional historic properties are discovered during implementation of the project. In such a

situation, our office should be contacted. If you have any questions, please contact me at (614) 298-2000 or jwilliams@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Joy Williams

Joy Williams, Project Reviews Manager
Resource Protection and Review

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

RPR Serial Nos: 1076654 and 1076655

OHIO HISTORY CONNECTION

In reply, refer to
2018-AUG-43269

December 7, 2018

Mr. Ryan J. Weller
Weller & Associates, Inc.
1395 West Fifth Avenue
Columbus, Ohio 43212

RE: Gemini-Gristmill New Line Rebuild Project, Pusheta Township, Auglaize County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on October 29, 2018, and additional information received on November 26, 2018, regarding the proposed Gemini-Gristmill New Line Rebuild Project, Pusheta Township, Auglaize County, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-4). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The following comments pertain to the *Phase I Archaeological Investigations for Approximately 7.7 km (4.8 mi) Gemini-Gristmill New Line Rebuild Project in Pusheta Township, Auglaize County, Ohio* by Weller & Associates, Inc. (2018).

A literature review, visual inspection, surface collection, and shovel test unit excavation was completed as part of the investigations. One (1) previously identified archaeological site is located within the project area. Ohio Archaeological Inventory (OAI) site #33AU0315 is a prehistoric isolated find identified in 2009 during a JobsOhio Site investigation. Three (3) new archaeological sites were identified during survey. OAI#33AU0358, 33AU0359, and 33AU0360 are prehistoric isolated finds. Our office agrees the sites are not eligible for listing in the National Register of Historic Places (NRHP) and no additional archaeological investigation is necessary.

The following comments pertain to the *History/Architecture Investigations f for Approximately 7.7 km (4.8 mi) Gemini-Gristmill New Line Rebuild Project in Pusheta Township, Auglaize County, Ohio* by Weller & Associates, Inc. (2018).

The history/architecture field survey included a systematic approach to identifying properties with potential significance and fifty years of age or older that may have a potential view of the project (i.e., within 1,000' of the project's centerline). A total of twelve resources, including four previously recorded Ohio Historic Inventory properties (AUG0044610, AUG0045110, AUG0164210, and AUG0164910), were identified during field investigations.

It is Weller's recommendation that the identified properties are not eligible for inclusion in the National Register of Historic Places due to a lack of associative significance, a loss of integrity, or a lack of character defining features. Our office agrees with Weller's recommendations regarding eligibility.

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

RPR Serial No: 1076539, 1076540

should be contacted. If you have any questions, please contact me at (614) 298-2000, or by e-mail at jwilliams@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Joy Williams

Joy Williams, Project Reviews Manager
Resource Protection and Review

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

RPR Serial No: 1076539, 1076540

Appendix E: Wetland Delineation Reports

GRISTMILL STATION PROJECT, AUGLAIZE COUNTY, OHIO

WETLAND DELINEATION AND STREAM ASSESSMENT REPORT

Prepared for:
American Electric Power Ohio Transmission Company
700 Morrison Road
Gahanna, Ohio 45230

Prepared by:

525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Project #: 60567992

July 2018

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LIST OF ACRONYMS and ABBREVIATIONS

AEP Ohio Transco	American Electric Power Ohio Transmission Company
DBH	Diameter at Breast Height
FAC	Facultative
FACU	Facultative upland
FACW	Facultative wetland
GPS	Global Positioning System
IBI	Index of Biotic Integrity
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
ONHD	Ohio Natural Heritage Database
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PFO	Palustrine forested
QHEI	Qualitative Habitat Evaluation Index
ROW	Right-of-way
UPL	Upland
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

American Electric Power Ohio Transmission Company's (AEP Ohio Transco) is proposing to construct an approximately 5 acre Gristmill Station in Auglaize County, Ohio (Project). AEP requested that AECOM conduct a wetland and stream delineation for the identified Project survey area. The proposed Project is illustrated on Figure 1.

The purpose of the field survey was to assess whether wetlands and other "waters of the U.S." exist within the Project survey area. Secondarily, land uses were recorded in an effort to classify and characterize potential habitat for rare, threatened, and endangered species. This report will be used to assist AEP Ohio Transco's efforts to identify potential waters of the U.S. and to avoid or minimize impacts to rare, threatened and endangered species potentially present within the Project survey area during construction activities.

2.0 METHODOLOGY

Prior to conducting field surveys, digital and published county Natural Resources Conservation Service (NRCS) soil surveys, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and U.S. Geological Survey (USGS) 7.5-minute topographic maps were reviewed to identify the occurrence and location of potential wetland areas.

In May 2018, AECOM ecologists walked the Project survey area to conduct a wetland delineation and stream assessment. During the field survey, the physical boundaries of observed water features were recorded using sub-decimeter accurate Trimble Global Positioning System (GPS) units. The GPS data was imported into ArcMap GIS software, where the data was then reviewed and edited for accuracy. Land uses observed within the Project survey area were assigned a general classification based upon the principal land characteristics of the location as observed through aerial photography review and observations during the field surveys. General land use types in the vicinity of the proposed Project include: wooded areas, agricultural fields, residential lots, old fields, and maintained transmission line right-of-way (ROW). Agricultural land is the dominant land use in the vicinity of the Project.

2.1 WETLAND DELINEATION

The Project survey area was evaluated according to the procedures outlined in the U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual (*1987 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 Midwest Regional Supplement was released by the USACE in August 2010 to address regional wetland characteristics and improve the accuracy and efficiency of wetland delineation procedures. The *1987 Manual* and *Regional Supplement* define wetlands as areas that have positive evidence of three environmental parameters: hydric soils, wetland hydrology,

and hydrophytic vegetation. Wetland boundaries are placed where one or more of these parameters give way to upland characteristics.

Since quantitative data were not available for any of the identified wetlands, AECOM utilized the routine delineation method described in the *1987 Manual* and *Regional Supplement* that consisted of a pedestrian site reconnaissance, including identifying the vegetation communities, soils identification, a geomorphologic assessment of hydrology, and notation of disturbance. The methodology used to examine each parameter is described in the following sections.

2.1.1 SOILS

Soils were examined for hydric soil characteristics using a spade shovel to extract soil samples. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 2010) was used to identify the hue, value, and chroma of the matrix and mottles of the soils. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics (Environmental Laboratory, 1987). In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.

2.1.2 HYDROLOGY

The *1987 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-in. depth) is 41 degree 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. The National Weather Service WETS data obtained from the NRCS National Water and Climate Center reveals for Shelby County (adjacent to Auglaize County) that in an average year, this period lasts from April 15 to October 26, or 194 days. In the Project area, five percent of the growing season equates to approximately 10 days.

The soils and ground surface were examined for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the *1987 Manual* and the *Regional*

Supplement. Evidence indicating wetland hydrology typically includes primary indicators such as surface water, saturation, water marks, drift deposits, water-stained leaves, sediment deposits and oxidized rhizospheres on living roots; and secondary indicators such as drainage patterns, geomorphic position, micro-topographic relief, and a positive Facultative (FAC)-neutral test (USACE, 2010).

2.1.3 VEGETATION

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the U.S. Army Corps of Engineers *2016 National Wetland Plant List: Midwest Region* (Lichvar et al, 2016), which encompasses the area of the Project. An area is determined to have hydrophytic vegetation when, under normal circumstances, 50 percent or more of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when more than 50 percent of the composition of the dominant species was FACU and/or UPL species. In addition to the dominance test, the FAC-Neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation. Recent USACE guidance indicates that to the extent possible, the hydrophytic vegetation decision should be based on the plant community that is normally present during the wet portion of the growing season in a normal rainfall year (USACE, 2010).

2.1.4 WETLAND CLASSIFICATIONS

Wetlands are classified based on the naming convention found in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al*, 1979).

2.1.5 OHIO RAPID ASSESSMENT METHOD v. 5.0

The Ohio Environmental Protection Agency (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 resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1", 30 to 59.9 are "Category 2" and 60 to 100 are "Category 3". Transitional zones exist between “Categories 1 and 2” from 30 to 34.9 and between “Categories 2 and 3” from 60 to 64.9. However, according to the OEPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower Category (Mack, 2001).

Category 1 Wetlands

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

Category 2 Wetlands

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

Category 3 Wetlands

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

2.2 STREAM CROSSINGS

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

clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (USACE, 2005).

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

2.2.1 OEPA QUALITATIVE HABITAT EVALUATION INDEX

The Qualitative Habitat Evaluation Index (QHEI) 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).

2.2.2 OEPA PRIMARY HEADWATER HABITAT EVALUATION INDEX

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

techniques as used for QHEI, but has criteria specifically designed for headwater habitats. To use HHEI, the stream must have a "defined bed and bank, with either continuous or periodically flowing water, with watershed area less than or equal to 1.0 mi^2 (259 ha), ***and*** a maximum depth of water pools equal to or less than 15.75 inches (40 cm)" (OEPA, 2012).

Headwater streams are scored on the basis of channel substrate composition, bankfull width, and maximum pool depth. Assessments result in a score (0 to 100) that is converted to a specific PHWH stream class. Streams that are scored from 0 to 29.9 are typically grouped into "Class 1 PHWH Streams", 30 to 69.9 are "Class 2 PHWH Streams", and 70 to 100 are "Class 3 PHWH Streams". Technically, a stream can score relatively high, but actually belong in a lower class, and vice-versa. According to the OEPA, if the stream score falls into a class and the scorer feels that based on site observations that score does not reflect the actual stream class, a decision-making flow chart can be used to determine appropriate PHWH stream class using the HHEI protocol (OEPA, 2012). Evidence of anthropogenic alterations to the natural channel will result in a "Modified" qualifier for the stream.

Class 1 PHWH Streams: Class 1 PHWH Streams are those that have "normally dry channels with little or no aquatic life present" (OEPA, 2012). These waterways are usually ephemeral, with water present for short periods of time due to infiltration from snow melts or rainwater runoff.

Class 2 PHWH Streams: Class 2 PHWH Streams are equivalent to "warm-water habitat" streams. This stream class has a "moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis" (OEPA, 2012). These species communities are composed of vertebrates (fish and salamanders) and/or benthic macroinvertebrates that are considered pioneering, headwater temporary, and/or temperature facultative species.

Class 3 PHWH Streams: Class 3 PHWH Streams usually have perennial water flow with cool-cold water adapted native fauna. The community of Class 3 PHWH Streams is comprised of vertebrates (either cold water adapted species of headwater fish and or obligate aquatic species of salamanders, with larval stages present), and/or a diverse community of benthic cool water adapted macroinvertebrates present in the stream continuously (on an annual basis).

2.3 RARE, THREATENED AND ENDANGERED SPECIES

AECOM conducted a rare, threatened, and endangered species review and general field habitat surveys within areas crossed by the Project survey area. The first phase of the survey involved a review of online lists of federal and state species of concern. In addition to the review of available literature, AECOM submitted a request to Ohio Department of Natural Resources (ODNR) Office of Real Estate – Environmental Review Section soliciting comments on the Project. AECOM also submitted a coordination letter to the USFWS soliciting technical assistance on the Project. Agency-identified species and

available species-specific information was reviewed to identify the various habitat types that listed species are known to inhabit. AECOM field ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys as part of the second phase of assessing rare, threatened, and endangered species. Land uses observed by the Project survey area were assigned a general classification based upon the principal land characteristics of the location as observed through aerial photography review and observations during the field surveys.

3.0 RESULTS

Within the Project survey area, AECOM delineated no wetlands, streams or ponds. One upland swale was delineated within the Project survey area.

3.1 WETLAND DELINEATION

3.1.1 Preliminary Soils Evaluation

Soils in the delineated wetland were observed and documented as part of the delineation methodology. According to the USDA/NRCS Web Soil Survey of Auglaize County, Ohio (NRCS, 2017), and the NRCS Hydric Soils Lists of Ohio, three soil series are mapped within the Project survey area (NRCS, 2017). Of these three soil series, one soil map unit is listed as hydric. Table 1 provides a detailed overview of all soil series and soil map units within the Project survey area. Soil map units located within the Project survey area are shown on Figure 2.

TABLE 1

SOIL MAP UNITS AND DESCRIPTIONS WITHIN THE GRISTMILL STATION PROJECT SURVEY AREA

Soil Series	Symbol	Map Unit Description	Topographic Setting	Hydric	Hydric Component (%)
Blount	Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	End moraines on till plains	Not hydric	Pewamo, end moraine (6%)
	Ble1B1	Blount silt loam, end moraine, 2 to 4 percent slopes	End moraines on till plains	Not hydric	Pewamo, end moraine (6%)
Glynwood	Gwe1B1	Glynwood silt loam, end moraine, 2 to 6 percent slopes	End moraines on till plains, till plains	Not hydric	Pewamo (6%)
Pewamo	Pt	Pewamo silty clay loam, 0 to 1 percent slopes	Depressions on till plains, drainageways on till plains	Yes	Pewamo (85%), Minster (6%)

USDA, NRCS. 2017 Soil Survey Geographic (SSURGO) Database. Available online at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm
USDA, NRCS. 2017. National Hydric Soils List by State. Available online at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/

3.1.2 National Wetland Inventory Map Review

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

According to the NWI maps of the Uniopolis Ohio quadrangle, the Project survey area contains no mapped NWI wetlands. Three mapped NWI wetlands are within 0.1 mile of the survey area. The NWI wetlands nearby were identified as one palustrine, unconsolidated bottom, intermittently exposed, excavated wetland (PUBGx), one riverine, intermittent, streambed, seasonally flooded, (R4SBC), and one palustrine, shrub/scrub, broad leaf deciduous, seasonally flooded wetland (PSS1C). The location of the nearby NWI mapped wetlands are shown on Figure 2.

3.1.3 Delineated Wetlands

During the field survey, AECOM identified no wetlands within the survey area. AECOM identified an upland swale along the roadway. This swale consisted of upland plants and did not exhibit hydric soils or signs of hydrology.

Completed USACE wetland delineation forms are provided in Appendix A. Representative color photographs taken of the Data Points are provided in Appendix B.

3.2 STREAM CROSSINGS

AECOM identified no streams within the Project survey area.

3.3 PONDS

AECOM identified no ponds within the Project survey area.

3.4 VEGETATIVE COMMUNITIES WITHIN THE PROJECT SURVEY AREA

AECOM field ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys in May 2018. Portions of the Project survey area were identified as agricultural land, young to mature woodland forests, residential landscaped areas, and urban areas. Habitat descriptions, applicable to the Project, and details on the expected impacts of construction are provided below. Vegetated land cover can be seen visually from aerial photography provided on Figure 4.

TABLE 2
VEGETATIVE COMMUNITIES WITHIN THE PROJECT AREA

Vegetative Community	Description	Approximate Acreage Within the Project Survey Area	Approximate Percentage within the Project Survey Area
Agricultural Land	Agricultural land consisting of soybean and corn fields were present within the Project survey area. The agricultural land contains row crops and is not used for pasture or hay fields.	20.63	85%
Landscaped Areas	Landscaped areas, including residential properties, were observed within the Project vicinity. These landscaped areas within the Project survey area and adjacent areas are frequently mowed grasses and forbs.	0.89	4%

TABLE 2

VEGETATIVE COMMUNITIES WITHIN THE PROJECT AREA

Vegetative Community	Description	Approximate Acreage Within the Project Survey Area	Approximate Percentage within the Project Survey Area
Successional Hardwood Woodlands	Successional mixed hardwood woodlands are present along the Project survey area. Woody species dominating these areas included American Beech (*Fagus grandfolia),* red oak (*Quercus rubra*), white oak (*Quercus alba*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), box elder (*Acer negundo*),, shagbark hickory (*Carya ovata*), and black cherry (*Prunus serotina*). The dominant shrub-layer species included spicebush (Lindera benzoin), poison ivy (Toxicodendron radicans), honeysuckle (Lonicera japonica), and blackberry (Rubus occidentalis).	0.35	2%
Urban	Urban areas are areas developed with residential and commercial land uses, including roads, buildings and parking lots. These areas are generally devoid of significant woody and herbaceous vegetation.	2.09	9%
Totals:		**23. 96**	**100%**

3.5 RARE, THREATENED AND ENDANGERED SPECIES

Protected Species Agency Consultation –

AECOM conducted a rare, threatened, and endangered species review for areas crossed by the Project survey area. A summary of the agency coordination is provided below. Correspondence letters from the USFWS and ODNR are included as Appendix C. Table 3 provides a list of species whose range includes the Project area.

TABLE 3
ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA

Common Name (Scientific Name)	State Status	Federal Status	Habitat Description	Potential Habitat Observed in the Project Survey Area	Impact Assessment	Agency Comments
Mammals						
Indiana bat (*Myotis sodalis*)	Endangered	Endangered	Winter Indiana bat hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. The 8- to 10-inch diameter size classes of several species of hickory (*Carya* spp.), oak (*Quercus* spp.), ash (*Fraxinus* spp.), birch (*Betula* spp.), and elm (*Ulmus* spp.) have been found to be utilized by the Indiana bat. These tree species and many others may be used when dead, if there are adequately sized patches of loosely-adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes a mixture of loose-barked trees with 60 to 80 percent canopy closure and a low density sub-canopy (less than 30 percent between about 6 feet high and the base canopy). The suitability of roosting habitat for foraging or the proximity to suitable foraging habitat is critical to the evaluation of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, is important to allow maneuvering while catching insect prey.	Yes	Some potentially suitable habitat is present within the Project area (woodlands).	USFWS commented that due to the project type, size, and location, plus the proposal for seasonal tree cutting between October 1 and March 31, there should be no adverse effects to the Indiana bat. ODNR stated that the presence of the Indiana Bat has been established in the surrounding area. Additional survey areas would not constitute a presence/absence in the area. If suitable habitat occurs within the Project area, the DOW recommends trees be conserved. It suitable habitat occurs within the Project area and trees must be cut, the DOW recommends cutting between October 1 and March 31.
Northern long-eared bat (*Myotis septentrionalis*)	Threatened	Threatened	Winter hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. The 8- to 10-inch diameter size classes of several species of hickory (*Carya* spp.), oak (*Quercus* spp.), ash (*Fraxinus* spp.), birch (*Betula* spp.), and elm (*Ulmus* spp.) have been found to be utilized by northern long-eared bats. These tree species and many others may be used when dead, if there are adequately sized patches of loosely-adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes a mixture of loose-barked trees with 60 to 80 percent canopy closure and a low density sub-canopy (less than 30 percent between about 6 feet high and the base canopy). The suitability of roosting habitat for foraging or the proximity to suitable	Yes	Some potentially suitable habitat is present within the Project area (woodlands).	USFWS commented that due to the project type, size, and location, plus the proposal for seasonal tree cutting between October 1 and March 31, there should be no adverse effects to the northern long-eared bat.

TABLE 3
ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA

Common Name (Scientific Name)	State Status	Federal Status	Habitat Description	Potential Habitat Observed in the Project Survey Area	Impact Assessment	Agency Comments
			foraging habitat is critical to the evaluation of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, is important to allow maneuvering while catching insect prey. Northern long-eared bats have also been found, albeit rarely, roosting in structures like barns and sheds.			
Fish						
Greater redhorse (*Moxostoma valenciennesi)*	Threatened	None	This fish favors medium to large rivers. The fish is typically found in pools with a clean sand or gravel substrate.	No	No in-water work is planned as part of the Project. No impacts to fish species and their habitat are anticipated.	ODNR stated that if no in-water work proposed, the Project is not likely to impact this species.
Birds						
Lark sparrow *(Chondestes grammacus)*	Endangered	None	This sparrow nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patched of bare soil	No	No potentially suitable habitat within the Project survey area.	ODNR stated that if this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to June 30.
Mussels						
Clubshell (*Pleurobema clava)*	Endangered	Endangered	This mussel is found in coarse sand and gravel areas of runs and riffles within streams and small rivers.	No	No in-water work is planned as part of the Project. No impacts to this species and their habitat are anticipated.	ODNR stated that due to the location and that there is no in-water work proposed, the Project is not likely to impact these species.
Pondhorn (*Uniomerus tetralasmus)*	Threatened	None	This mussel is found in ponds, small creeks, and the headwaters of larger streams in mud or sand	No		

ODNR-DOW Coordination

Coordination with the ODNR-DOW was initiated during the planning stages of the Project to obtain Ohio Natural Heritage Database (ONHD) records located in the vicinity of the project. On March 23, 2018, the ODNR Office of Real Estate Environmental Review Section provided comments on the Project based on an inter-disciplinary review. The ONHD, Division of Wildlife (DOW), and the Division of Water Resources (DWR) provided comments regarding their respective regulatory authorities.

The ONHD stated that the greater redhorse, and the Great blue heron rookery is known to be within a one-mile radius of the Project area.

The DOW noted that the Project area east of Dixie Highway and south of Weimert School Road is within the vicinity of records for the Indiana bat, a state and federally endangered species. Presence of the Indiana bat has been established in the area, therefore additional summer surveys would not constitute presence/absence in the area. If suitable habitat occurs within the Project area, the DOW recommends trees be conserved. It suitable habitat occurs within the Project area and trees must be cut, the DOW recommends cutting between October 1 and March 31.

The DOW also noted that the Project area is within the range of the lark sparrow, a state endangered bird. This sparrow nests in grassland habitats with scatted shrub layers, disturbed open areas, as well as patches of bare soil. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to June 30.

The DOW also commented that the Project must not have an impact on freshwater native mussels at the Project site. The Project is also within the range of the clubshell, pondhorn, and the greater redhorse. All of the mentioned species are state and/or federally listed threatened or endangered species. ODNR stated that due to the location and that there is no in-water work proposed, the Project is not likely to impact these species.

The DOW also commented that there is a record for a great blue heron rookery within the boundary of the Project area. The DOW recommends that construction activity within the rookery by avoided to preserve the rookery. If construction within the rookery cannot be avoided, the DOW recommends at the very least, the rookery be avoided during the nesting season of March 1 through June 31 as to not interfere with nesting birds. In addition, the DOW recommends a 100 yard no activity buffer by maintained around the rookery during the breading season as to not interfere with nesting birds.

USFWS Coordination

Coordination with the USFWS was initiated during the planning stages of the Project to obtain technical assistance in regard to federally listed species that may occur within the Project vicinity. In a letter dated

March 9, 2018, the USFWS indicated that there are no Federal wildlife refuges, wilderness areas, or critical habitat within the vicinity of the Project.

The USFWS noted that the Project lies within the range of the federally endangered Indiana bat, and the federally threatened northern long-eared bat. USFWS commented that due to the project type, size, and location, plus the proposal for seasonal tree cutting between October 1 and March 31, there should be no adverse effects to the Indiana bat or northern long-eared bat...

4.0 SUMMARY

The ecological survey of the Project survey area identified no wetlands, streams, or ponds.

With regard to state and/or federally-listed threatened and endangered species that may occur within the Project vicinity, six species were identified by the ODNR or USFWS including the following: Indiana bat, northern long-eared bat, clubshell, pondhorn, greather redhorse, and lark sparrow.

Based on general observations during the ecology survey, a limited portion of the Project survey area contained potential summer habitat for the Indiana bat and the northern long-eared bat. USFWS commented that due to the project type, size, and location, plus the proposal for seasonal tree cutting between October 1 and March 31, there should be no adverse effects to the Indiana bat or northern long-eared bat. ODNR stated that presence of the Indiana bat has been established in the area, therefore additional summer surveys would not constitute presence/absence in the area. If suitable habitat occurs within the Project area, the DOW recommends trees be conserved. It suitable habitat occurs within the Project area and trees must be cut, the DOW recommends cutting between October 1 and March 31.

The reported results of the ecological survey conducted by AECOM on this Project are limited to the areas within the Project survey boundary provided in Figure 3. Areas that fall outside of the Project survey boundary were not evaluated in the field and are not included in the reporting of this survey.

The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance; therefore, lengths and acreages listed in this report may not constitute the actual impacts of the Project defined in subsequent permit applications. If necessary, a separate report that identifies the actual Project impacts will be provided with agency submittals.

The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which AECOM is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to natural processes or human impacts at the Project site or on adjacent properties. Changes in applicable

standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of AECOM.

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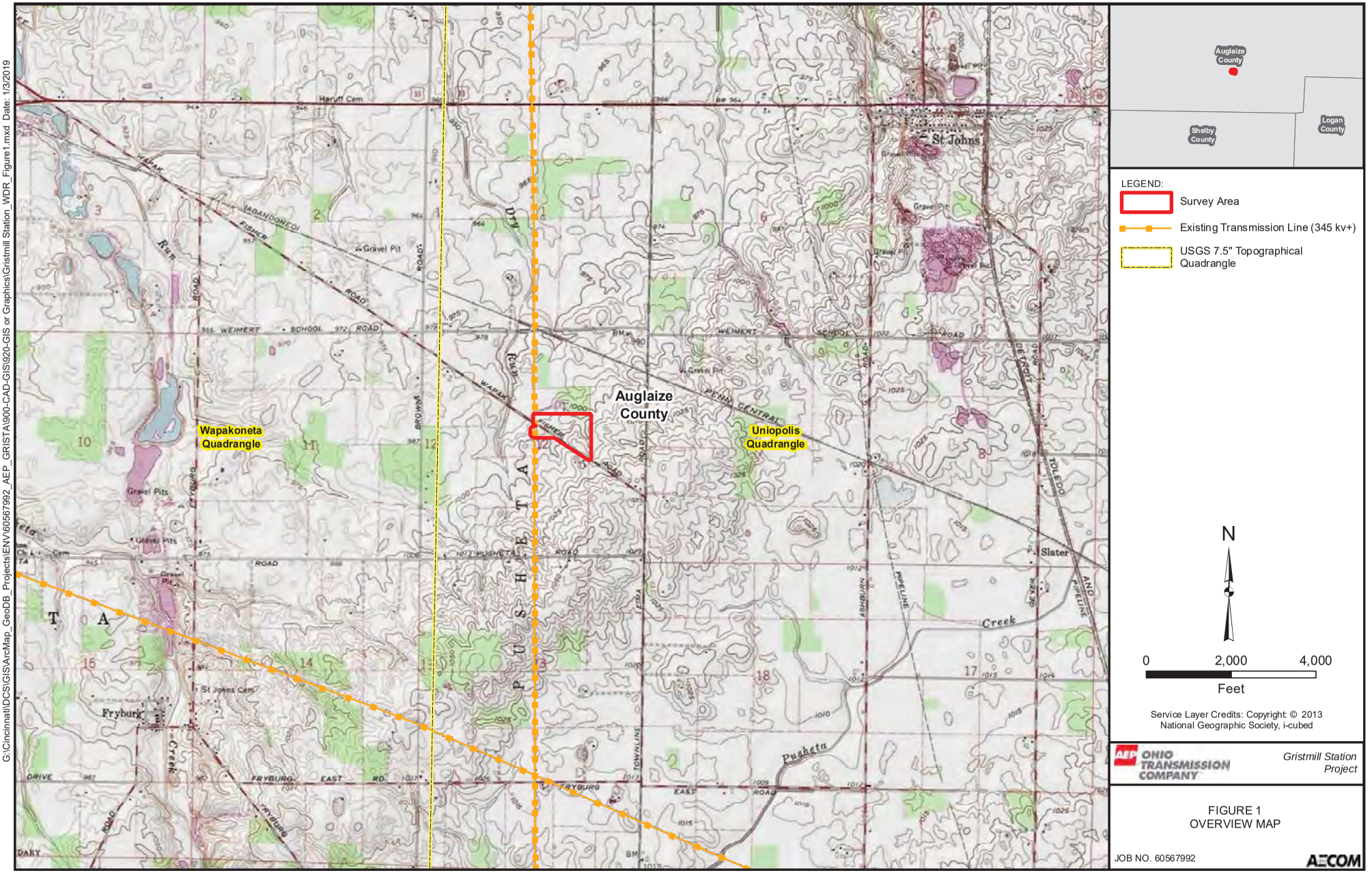

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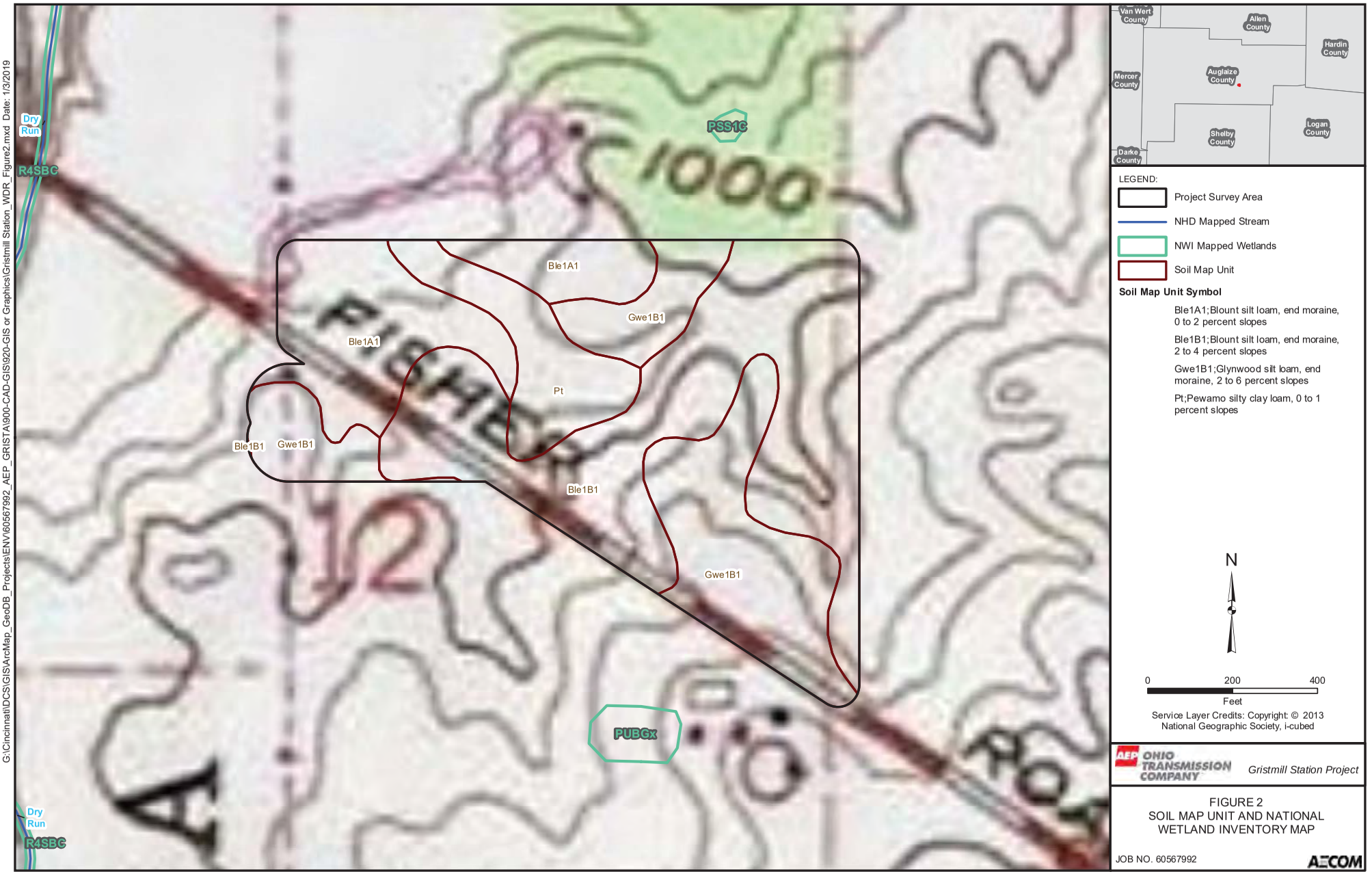

AEP OHIO TRANSMISSION COMPANY

Gristmill Station Project

FIGURE 2
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60567992

AECOM

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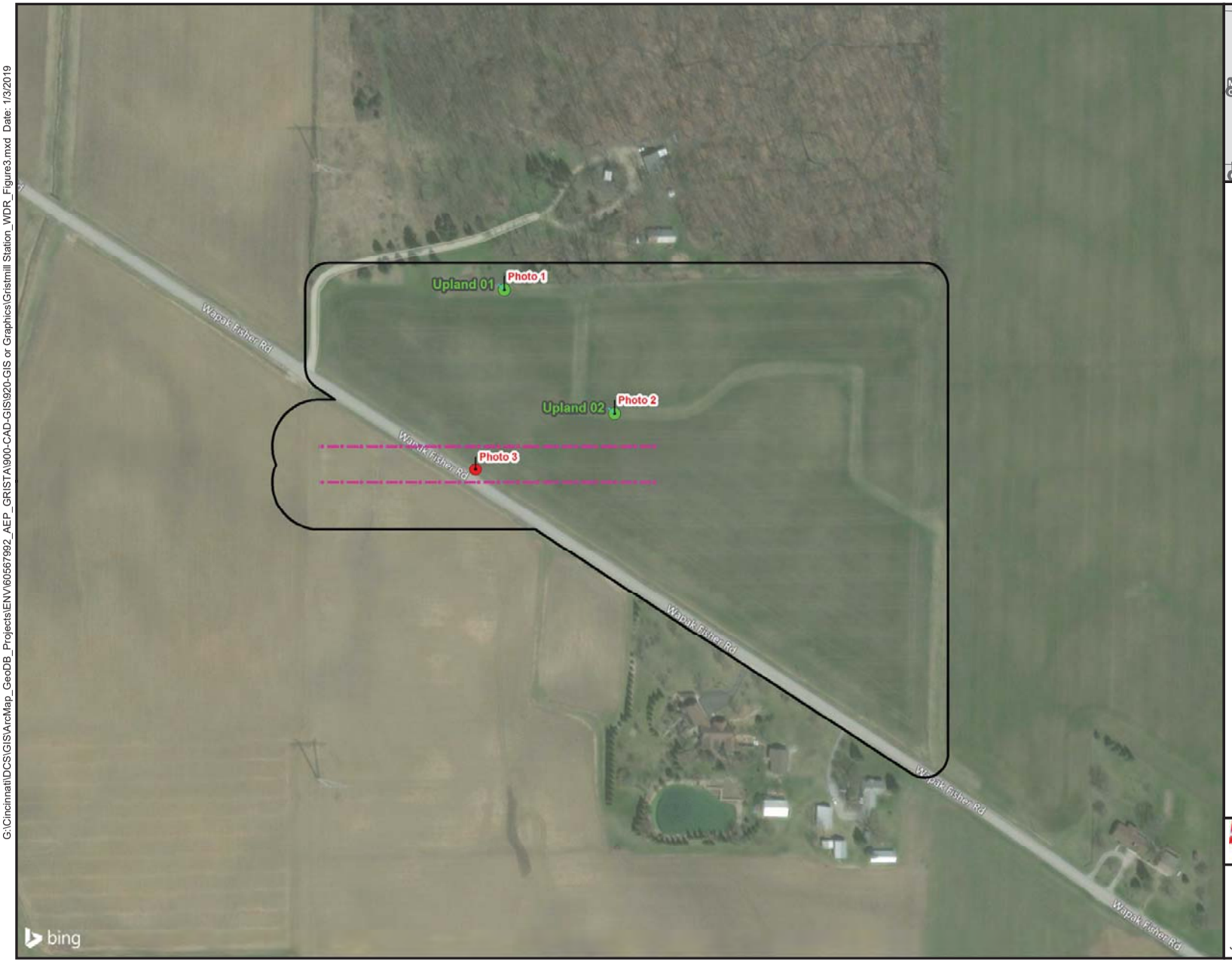

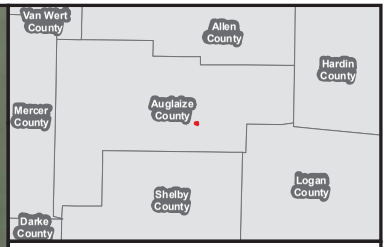

LEGEND:

- Gristmill Interconnection 345kV Transmission Line
- Project Survey
- Upland Data Point and Photo
- Photo Location

N

0 200 400

Feet

Service Layer Credits: Copyright: © 2013 National Geographic Society, i-cubed

AEP OHIO TRANSMISSION COMPANY

Gristmill Station Project

FIGURE 3
DATA POINTS AND
PHOTO LOCATION MAP

JOB NO. 60567992

AECOM

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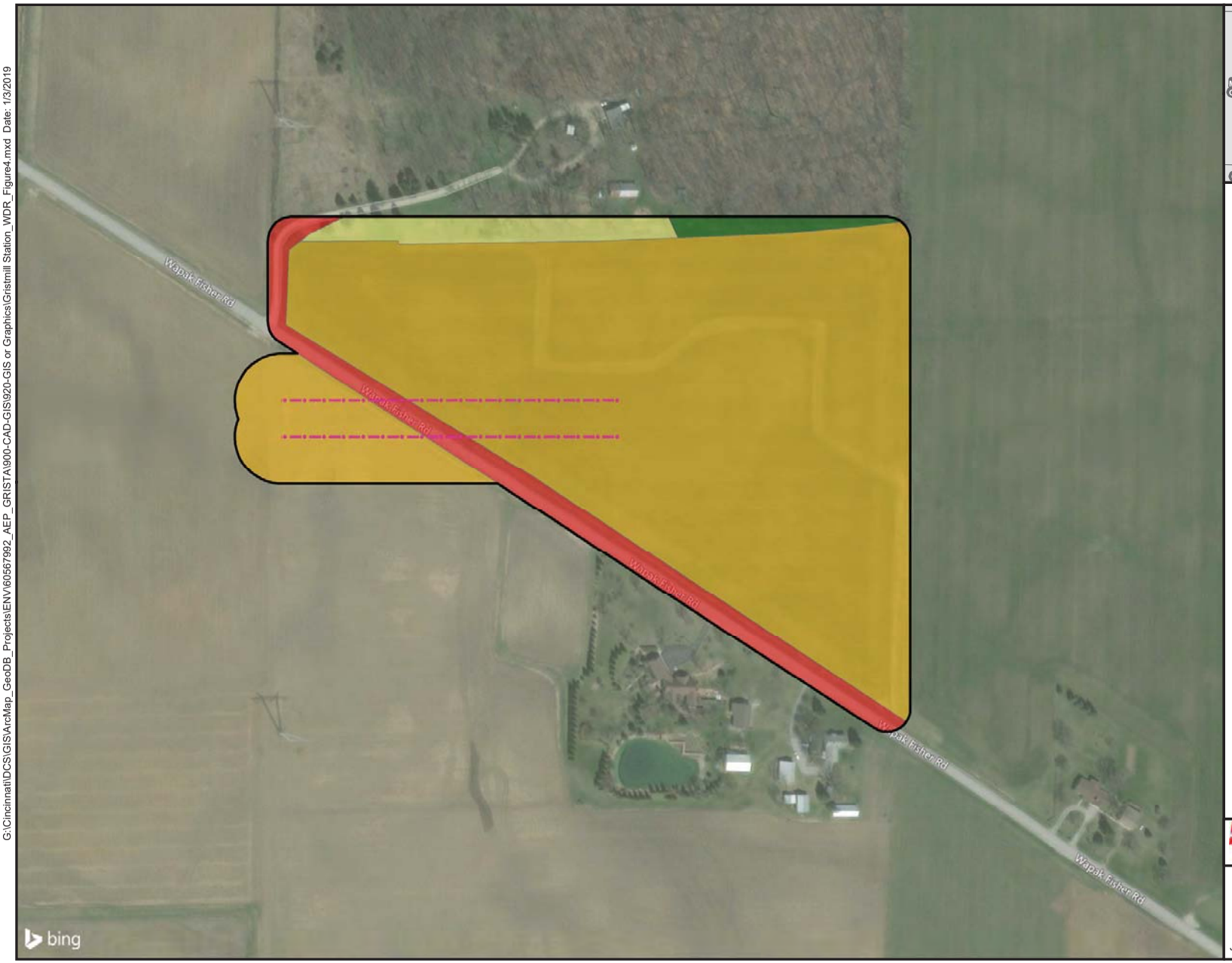

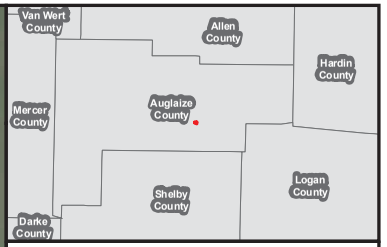

LEGEND:

- Gristmill Interconnection 345kV Transmission Line
- Project Survey Area
- Agricultural Field
- Landscaped Area
- Urban
- Woodlanad

N

0 200 400

Feet

Service Layer Credits: Copyright: © 2013 National Geographic Society, i-cubed

AEP OHIO TRANSMISSION COMPANY

Gristmill Station Project

FIGURE 4
VEGETATION COMMUNITIES ASSESSMENT MAP

JOB NO. 60567992

AECOM

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APPENDIX A

U.S. ARMY CORPS OF ENGINEERS DATA FORMS

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Gristmill Station City/County: Auglaize Sampling Date: 17-May-18

Applicant/Owner: AEP State: OH Sampling Point: **upl-jbl-051718-01**

Investigator(s): JBL Section, Township, Range: S 12 T 6S R 6E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave

Slope: 0.0% / 0.0 ° Lat.: 40.535868463 Long.: -84.115423616 Datum: NAD 83

Soil Map Unit Name: Pewamo silt clay loam, 0 to 1 percent slopes (Pt) NWI classification: N/A

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size:)			
1. Festuca arundinacea	50	☑ 50.0%	FACU
2. Poa pratensis	30	☑ 30.0%	FAC
3. Trifolium repens	5	☐ 5.0%	FACU
4. Taraxacum officinale	15	☐ 15.0%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= 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: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	100 (A)		370 (B)

Prevalence Index = B/A = 3.700

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **upl-jbl-051718-01**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc [2]	Texture	Remarks
0-11	10YR	3/3	100						Silt Loam	
11-14	10YR	3/4	100						Silt Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ 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 Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ 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? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Upland 2

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Gristmill Station | City/County: Auglaize | Sampling Date: 17-May-18

Applicant/Owner: AEP | State: OH | Sampling Point: **upl-jbl-051718-02**

Investigator(s): JBL | Section, Township, Range: S 12 T 6S R 6E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): concave

Slope: 0.0% / 0.0 ° | Lat.: 40.535153489 | Long.: -84.114560449 | Datum: NAD 83

Soil Map Unit Name: Pewamo silty clay loam, 0 to 1 percent slopes (Pt) | NWI classification: N/A

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size:)			
1. Festuca arundinacea	30	☑ 30.0%	FACU
2. Poa pratensis	40	☑ 40.0%	FAC
3. Dactylis glomerata	20	☑ 20.0%	FACU
4. Taraxacum officinale	10	☐ 10.0%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= 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: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	100 (A)		360 (B)

Prevalence Index = B/A = 3.600

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **upl-jbl-051718-02**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc [2]	Texture	Remarks
0-10	10YR	3/3	100						Loam	
10-12	10YR	3/2	100						Silt Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ 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 Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ 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? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

APPENDIX B

REPRESENTATIVE PHOTOGRAPHS

AECOM

PHOTOGRAPHIC RECORD
UPLANDS

Client Name:	Site Location:	Project No.
AEP	Gristmill Station Project	60567992

Date:

May 17, 2018

Description:

Upland 01

Facing North

Facing East

Facing South

Facing West

Soil Pit

PHOTOGRAPHIC RECORD
UPLANDS

Client Name:	Site Location:	Project No.
AEP	Gristmill Station Project	60567992

Date:

May 17, 2018

Description:

Upland 02

Facing North

Facing East

Facing South

Facing West

Soil Pit

AECOM

PHOTOGRAPHIC RECORD
UPLANDS

Client Name:	Site Location:	Project No.
AEP	Gristmill Station Project	60567992

Date:

May 17, 2018

Description:

Upland Swale

Facing Northwest

Facing Southeast

APPENDIX C

CORRESPONDENCE LETTERS FROM USFWS AND ODNR

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, DIRECTOR

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

March 23, 2018

Jason Tucker
AECOM
525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Re: 18-409; Wapakoneta Improvements Project

Project: The proposed project includes a new Gristmill Station, a new Gemini Station, a new 138 kV transmission line between Gristmill and Gemini Stations, a new 138 kV transmission line between Gemini and West Moulton Stations, and expanding the West Moulton Station.

Location: The proposed project is located in Pusheta and Washington Townships, Auglaize County, Ohio.

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

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

Greater redhorse (*Moxostoma valenciennesi*), State threatened, federal species of concern
Great blue heron rookery

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

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

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

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

The project area east of Dixie Highway and south of Weimert School Road is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. Presence of the Indiana bat has been established in the area, and therefore additional summer surveys would not constitute presence/absence in the area. 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.

The remainder of the project area is within the range of the Indiana bat (*Myotis sodalis*). 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, and the pondhorn (*Uniomerus 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 (2016), 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 10 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 (2018) 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 in a perennial stream, this project is not likely to impact this or other aquatic species.

The project is within the range of the lark sparrow (*Chondestes grammacus*), a state endangered bird. This sparrow nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patches of bare soil. These summer residents normally migrate out of Ohio shortly after their young fledge or leave the nest. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to June 30. If this habitat will not be impacted, the project is not likely to impact this species.

The DOW has a record for a great blue heron rookery within the boundary of the project area. The rookery is located within the large woodlot between the following roads: Washington Pike, Burr Oak Road, Kettlersville Road, and Kohler Road. Nesting great blue herons are protected under the Migratory Bird Treaty Act of 1918. Impacts to great blue heron rookeries can have a significant impact on a local population due to the large number of birds that return each year to the same rookery to nest. Rookeries often include a certain set of characteristics that are not easily found elsewhere. The DOW recommends that construction activity within the rookery be avoided to preserve the rookery. If construction within the rookery cannot be avoided, the DOW recommends at the very least, the rookery be avoided during the nesting season of March 1 through June 31 as to not interfere with nesting birds. In addition, the DOW recommends a 100 yard no activity buffer be maintained around the rookery during the breeding season as to not interfere with nesting birds.

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

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

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

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

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

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

Tucker, Jason

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Friday, March 09, 2018 10:35 AM
To: Tucker, Jason
Subject: Wapakoneta Transmission Infrastructures (Several 138 kV Stations) in Auglaize Co.

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# 03E15000-2018-TA-0902

Dear Mr. Tucker,

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

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

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

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

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

Sincerely,

Dan Everson
Field Supervisor

GRISTMILL-GEMINI 138 KV TRANSMISSION LINE PROJECT, AUGLAIZE COUNTY, OHIO

WETLAND DELINEATION AND STREAM ASSESSMENT REPORT

Prepared for:
American Electric Power Ohio Transmission Company
700 Morrison Road
Gahanna, Ohio 45230

Prepared by:

525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Project #: 60567963

November 2018

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LIST OF ACRONYMS and ABBREVIATIONS

AECOM	AECOM Technical Services, Inc.
AEP Ohio Transco	American Electric Power Ohio Transmission Company
DOW	Division of Wildlife
°F	Fahrenheit
FAC	Facultative
FACU	Facultative upland
FACW	Facultative wetland
GIS	Geographic Information System
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
IBI	Index of Biotic Integrity
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
ONHD	Ohio Natural Heritage Database
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent wetland
PFO	Palustrine forested wetland
PHWH	Primary Headwater Habitat
PSS	Palustrine scrub-shrub wetland
PUB	Palustrine unconsolidated bottom
QHEI	Qualitative Habitat Evaluation Index
ROW	Right-of-way
UPL	Upland
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

AECOM Technical Services, Inc. (AECOM) is providing various permitting support for American Electric Power Ohio Transmission Company's (AEP Ohio Transco) Wapakoneta Improvements Project. As part of the overall improvements, AEP Ohio Transco is proposing to construct a new 138 kV transmission line between Gristmill and Gemini Stations (approximately 5 miles) in Auglaize County, Ohio (Project). The proposed Project is illustrated on Figure 1.

AECOM was retained by AEP Ohio Transco to conduct a wetland delineation and stream assessment of the Project corridor. The purpose of the field survey was to assess whether wetlands and other "waters of the United States (U.S.)" exist within the Project corridor. Secondarily, land uses were also recorded to classify and characterize potential habitat for rare, threatened, and endangered species. This report will be used to assist AEP Ohio Transco's efforts to identify potential waters of the U.S. and rare, threatened and endangered species habitat potentially present within the Project survey area to avoid or minimize impacts during construction. activities.

2.0 METHODOLOGY

The purpose of the field survey was to assess whether wetlands and other waters of the U.S. exist within the 200 foot Project survey corridor which consisted of a 100-foot buffer on each side of the proposed centerline. Prior to conducting field surveys, digital and published county U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil surveys, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and U.S. Geological Survey (USGS) 7.5-minute topographic maps were reviewed as an exercise to identify the occurrence and location of potential wetland areas.

In October 2018, AECOM ecologists walked the Project survey corridor to conduct a wetland delineation and stream assessment. During the field survey, the physical boundaries of observed water features were recorded using sub-decimeter capable Trimble Global Positioning System (GPS) units. The GPS data was imported into ArcMap Geographic Information System (GIS) software, where the data was then reviewed and edited for accuracy. Additionally, land uses within the Project survey corridor identified prior to field reconnaissance were verified during the field investigations.

2.1 WETLAND DELINEATION

The Project survey corridor was evaluated according to the procedures outlined in the U.S. Army Corps of Engineers (USACE) *1987 Wetland Delineation Manual* (1987 Manual) (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Regional Supplement) (USACE, 2010). The Regional Supplement addresses regional wetland characteristics and improves the accuracy and efficiency of wetland delineation procedures. The 1987

Manual and Regional Supplement define wetlands as areas that have positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation. Wetland boundaries are placed where one or more of these parameters give way to upland characteristics.

AECOM utilized the routine delineation method described in the 1987 Manual and Regional Supplement that consisted of a pedestrian site reconnaissance, including identifying the vegetation communities, soils identification, a geomorphologic assessment of hydrology, and notation of disturbance. The methodology used to examine each parameter is described in the following sections.

2.1.1 SOILS

Soils were examined for hydric soil characteristics using a spade shovel to extract soil samples. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 2010) was used to identify the hue, value, and chroma of the matrix and mottles of the soils. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics (Environmental Laboratory, 1987). In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.

2.1.2 HYDROLOGY

The 1987 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 5% and 12.5%of the growing season may or may not be wetlands, while areas saturated over 12.5% 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 degree Fahrenheit (^{o}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 (5 of 10 years, or 50% probability of recurrence) date of the last and first 28^{o} F air temperature in the spring and fall, respectively. The National Weather Service WETS data review from the NRCS National Water and Climate Center for Auglaize County, Ohio stated that all three stations lacked sufficient data for our analysis. Therefore data from neighboring Allen County was reviewed and it was found that in an average year, this period lasts from April 10 to November 3, or 207 days. Due to latitudinal and regional similarity, the Allen County data indicates that five percent of the growing season is approximately 10 days.

The soils and ground surface were examined for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the 1987 Manual and the Regional Supplement. Evidence indicating wetland hydrology typically includes primary indicators such as surface water, saturation, water marks, drift deposits, water-stained leaves, sediment deposits and oxidized rhizospheres on living roots; and secondary indicators such as drainage patterns, geomorphic position, micro-topographic relief, and a positive facultative (FAC)-neutral test (USACE, 2012).

2.1.3 VEGETATION

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the U.S. Army Corps of Engineers *2016 National Wetland Plant List: Midwest Region* (Lichvar, et al, 2016), which encompasses the area of the Project. An area is determined to have hydrophytic vegetation when, under normal circumstances, 50 percent or more of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when more than 50 percent of the composition of the dominant species was FACU and/or UPL species. In addition to the dominance test, the FAC-neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation. USACE guidance indicates that to the extent possible, the hydrophytic vegetation decision should be based on the plant community that is normally present during the wet portion of the growing season in a normal rainfall year (USACE, 2012).

2.1.4 WETLAND CLASSIFICATIONS

Wetlands were classified based on the naming convention found in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979). Using this methodology, any identified wetlands within the survey area would be classified as freshwater, Palustrine systems, which include non-tidal wetlands dominated by trees, shrubs, emergents, mosses, or lichens. The typical palustrine wetland classification types are as follows:

- ***PEM*** – Palustrine emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

- ***PFO*** – Palustrine Forested wetlands are characterized by woody vegetation that is 3 inches or more diameter at breast height (DBH), regardless of total height. These wetlands generally include an overstory of broad-leaved and needle-leaved trees, an understory of young saplings and shrubs, and an herbaceous layer.

- ***PSS*** – Palustrine scrub/shrub wetlands are characterized by woody vegetation that is less than three inches DBH, and greater than 3.28 feet tall. The woody angiosperms (i.e., small trees or shrubs) in this broad leaved deciduous community have relatively wide, flat leaves that are shed annually during the cold or dry season.

- ***PUB*** – Palustrine unconsolidated bottom wetlands includes all open water wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones, and a vegetative cover less than 30 percent. Palustrine open water wetlands are characterized by the lack of large stable surfaces for plant and animal attachment.

For some wetlands, multiple Cowardin classifications may be present where more than one classification's vegetation is dominant (vegetation covers 30 percent or more of the substrate). Where multiple Cowardin classifications are present, the Cowardin classification of the plants that constitute the uppermost layer of vegetation is listed.

2.1.5 OHIO RAPID ASSESSMENT METHOD v. 5.0

The Ohio Environmental Protection Agency (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 resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1", 30 to 59.9 are "Category 2" and 60 to 100 are "Category 3". Transitional zones exist between "Categories 1 and 2" from 30 to 34.9 and between "Categories 2 and 3" from 60 to 64.9. However, according to the OEPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower Category (Mack, 2001).

Category 1 Wetlands

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

Category 2 Wetlands

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

Category 3 Wetlands

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

2.2 STREAM ASSESSMENT

Regulatory activities under the Clean Water Act provide authority for states to issue water quality standards and "designated uses" to all waters of the U.S. upstream to the highest reaches of the tributary streams. In addition, the Federal Water Pollution Control Act of 1972 and its 1977 and 1987 amendments (Clean Water Act and Water Quality Act, respectively) require knowledge of the potential fish or biological communities that can be supported in a stream or river, including upstream headwaters, for setting a point of reference for comparison of expected aquatic life use designations to actual instream performance. In Ohio, the OEPA has developed two indices for assessing streams for life use and qualitatively assessing the aquatic life use designation in absence of official designations..

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 in the OEPA's *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams* (OEPA, 2012).

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).

2.2.1 OEPA QUALITATIVE HABITAT EVALUATION INDEX

The Qualitative Habitat Evaluation Index (QHEI) 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 15.7 inches, 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).

2.2.2 OEPA PRIMARY HEADWATER HABITAT EVALUATION INDEX

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

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

Headwater streams are scored on the basis of channel substrate composition, bankfull width, and maximum pool depth. Assessments result in a score (0 to 100) that is converted to a specific PHWH stream class. Streams that are scored from 0 to 29.9 are typically grouped into "Class 1 PHWH Streams", 30 to 69.9 are "Class 2 PHWH Streams", and 70 to 100 are "Class 3 PHWH Streams". Technically, a stream can score relatively high, but actually belong in a lower class, and vice-versa. According to the OEPA, if the stream score falls into a class and the scorer feels that based on site observations that score does not reflect the actual stream class, a decision-making flow chart can be used to determine appropriate PHWH stream class using the HHEI protocol (OEPA, 2012). Evidence of anthropogenic alterations to the natural channel will result in a "Modified" qualifier for the stream.

Class 1 PHWH Streams: Class 1 PHWH Streams are those that have "normally dry channels with little or no aquatic life present" (OEPA, 2012). These waterways are usually ephemeral, with water present for short periods of time due to infiltration from snowmelts or rainwater runoff.

Class 2 PHWH Streams: Class 2 PHWH Streams are equivalent to "warm-water habitat" streams. This stream class has a "moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis" (OEPA, 2012). These species communities are composed of vertebrates (fish and salamanders) and/or benthic macroinvertebrates that are considered pioneering, headwater temporary, and/or temperature facultative species.

Class 3 PHWH Streams: Class 3 PHWH Streams usually have perennial water flow with cool-cold water adapted native fauna. The community of Class 3 PHWH Streams is comprised of vertebrates (either cold water adapted species of headwater fish and or obligate aquatic species of salamanders, with larval stages present), and/or a diverse community of benthic cool water adapted macroinvertebrates present in the stream continuously (on an annual basis).

2.3 RARE, THREATENED, AND ENDANGERED SPECIES

AECOM conducted a rare, threatened, and endangered species review and general field habitat surveys within areas crossed by the Project survey corridor. The first phase of the survey involved a review of online lists of federal and state-listed species. In addition, AECOM submitted a request to Ohio Department of Natural Resources (ODNR) Office of Real Estate – Environmental Review Section soliciting comments on the Project. AECOM also submitted a coordination letter to the USFWS soliciting technical assistance on the Project. Agency-identified species and available species-specific information was reviewed to identify the various habitat types that listed species are known to inhabit.

AECOM field ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys as part of the second phase of assessing rare, threatened, and endangered species. Land uses observed by the Project survey corridor were assigned a general classification based upon the principal land characteristics of the location as observed through aerial photography review and observations during the field surveys.

3.0 RESULTS

Within the Project survey corridor, AECOM delineated one wetland, three streams and one pond. The delineated features are discussed in detail in the following sections.

3.1 WETLAND DELINEATION

3.1.1 Preliminary Soils Evaluation

Soils were observed and documented as part of the delineation methodology. According to the USDA/NRCS Web Soil Survey of Auglaize County, Ohio, and the NRCS Hydric Soils Lists of Ohio, six soil series are mapped within the Project survey corridor (USDA NRCS, 2017). Of these soil series, two soil map units have been identified as hydric, while seven other map units have hydric components that may comprise between 6 percent and 9 percent of the area mapped within the units. Table 1 provides a detailed overview of all soil series and soil map units within the Project survey corridor. Soil map units located within the Project survey corridor are shown on Figure 2.

TABLE 1
SOIL MAP UNITS AND DESCRIPTIONS WITHIN THE GRISTMILL-GEMINI 138 KV TRANSMISSION LINE PROJECT SURVEY CORRIDOR

Soil Series	Symbol	Map Unit Description	Topographic Setting	Hydric	Hydric Component (%)
Blount	Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	end moraines, till plains	No	Pewamo, end moraine (6%)
	Ble1B1	Blount silt loam, end moraine, 2 to 4 percent slopes	end moraines, till plains	No	Pewamo, end moraine (6%)
	Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	ground moraines, till plains	No	Pewamo, ground moraine (9%)
	Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	ground moraines, till plains	No	Pewamo, ground moraine (9%)
Digby	DmB	Digby loam, 2 to 6 percent slopes	outwash terraces	No	N/A
Eldean	EmB	Eldean loam, 2 to 6 percent slopes	outwash terraces	No	N/A
Glynwood	Gwd5C2	Glynwood clay loam, 6 to 12 percent slopes, eroded	end moraines	No	N/A
	Gwe1B1	Glynwood silt loam, end moraine, 2 to 6 percent slopes	end moraines, till plains	No	Pewamo (6%)
	Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	Ground moraineson till plains	No	Pewamo (6%)
	Gwg5C2	Glynwood clay loam, ground moraine, 6 to 12 percent	ground moraines	No	Pewamo (7%)

		slopes, eroded			
Millgrove	Mk	Millgrove clay loam	stream terraces	Yes	Millgrove (85%); Frequently flooded areas along st. mary's and auglaize river (3%); Free lime in the surface layer (2%)
Pewamo	Pt	Pewamo silty clay loam, 0 to 1 percent slopes	depressions, till plains	Yes	Pewamo and similar soils (85%); Minster (6%)
	Px	Pits, gravel	miscellaneous area	No	N/A
	Ud	Udorthents, loamy, rolling	miscellaneous area	No	N/A

USDA, NRCS. 2017 Soil Survey Geographic (SSURGO) Database. Available online at: http://soildatamart.nrcs.usda.gov/
USDA, NRCS. May 2015. National Hydric Soils List by State. Available online at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/

3.1.2 National Wetland Inventory Map Review

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

According to the NWI maps of the Wapakoneta and Uniopolis, Ohio quadrangles, the Project survey corridor contains five mapped NWI wetlands: three Riverine, Intermittent, Streambed, Seasonally Flooded (R4SBC), systems; one Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded (R5UBH), system; one Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated (PUBGx), systems. The locations of NWI mapped wetlands in the Project vicinity are shown on Figure 2.

3.1.3 Delineated Wetlands

During the field survey, AECOM identified one, approximately 0.02 acre wetland within the Project survey corridor. This wetland was found to consist of a PEM wetland habitat. See Table 2 for a summary of the delineated wetlands within the Project survey corridor.

The locations and approximate extent of the wetlands identified within the Project survey corridor are shown on Figure 3. Completed USACE and ORAM wetland delineation forms are provided in Appendices A and B, respectively. Representative color photographs taken of the wetlands are provided in Appendix C.

Table 2
DELINEATED WETLANDS WITHIN THE GRISTMILL-GEMINI 138 KV TRANSMISSION LINE PROJECT SURVEY CORRIDOR

Wetland Name	Latitude	Longitude	Cowardin Wetland Type[a]	ORAM Score	ORAM Category	Acreage within Project Survey Corridor
Wetland 1	40.540592	-84.152009	PEM	11.5	Category 1	0.02
Total: 1 Wetland						**0.02**

[a] Cowardin Wetland Type: PEM = palustrine emergent

3.1.4 Delineated Wetlands ORAM Results

Category 1 Wetlands

The Category 1 wetland delineated within the Project survey corridor consists of a PEM wetland. The Category 1 wetland generally exhibited very narrow buffers, moderately high to high intensive surrounding land use (e.g., row cropping, urban/highway), nearly absent to extensive percentage of invasive species, and had habitat and hydrology generally recovering or recently impacted from previous manipulation due to filling/grading, installation of ditches and tile, clearcutting, sedimentation, mowing, and farming.

Category 2 Wetlands

No Category 2 wetlands were identified within the Project survey corridor.

Category 3 Wetlands

No Category 3 wetlands were identified within the Project survey corridor.

TABLE 3
SUMMARY OF DELINEATED WETLANDS WITHIN THE GRISTMILL-GEMINI 138 KV TRANSMISSION LINE PROJECT SURVEY CORRIDOR

Cowardin Wetland Type[a]	ORAM Category 1	ORAM Category 2	ORAM Category 3	Number of Wetlands	Acreage within Project Survey Corridor
PEM	1	0	0	1	0.02
Total	**1**	**0**	**0**	**1**	0.02

[a] Cowardin Wetland Type: PEM = palustrine emergent

3.2 STREAM CROSSINGS

AECOM identified three streams, totaling 1,077 linear feet, within the Project survey corridor, as listed in Table 4. The streams are comprised of two intermittent streams, and one ephemeral stream. One stream (Stream 02) was identified on a preliminary survey prior to a shift in the centerline location. After the centerline shift, Stream 02 was no longer located within the Project survey corridor and the stream has been omitted from this report. The locations of the streams identified within the Project survey corridor are shown on Figure 3.

HHEI evaluations were conducted on Streams 1, 3 and 4 within the Project survey corridor. These streams were identified using USGS topographic maps, aerial photography, and field reconnaissance.

AECOM has preliminarily determined that the assessed streams within the Project survey corridor appear to be jurisdictional (i.e., waters of the U.S.), as they appear to be tributaries that flow into or combine with other streams (waters of the U.S).

TABLE 4
STREAMS IDENTIFIED WITHIN THE GRISTMILL-GEMINI 138 KV TRANSMISSION LINE PROJECT SURVEY CORRIDOR

Stream Report Name	Latitude	Longitude	Waterbody	Flow Regime	Bankfull Width (feet)	Maximum Pool Depth (in)	Form[a]	Score	Class/ Narrative Rating	Length (feet) within Project Survey Corridor
Stream 1	40.5363	-84.1188	Dry Run	Intermittent	5	6	HHEI	55	Modified Class 2	213
Stream 3	40.5409	-84.1333	Tributary to Pusheta Creek	Intermittent	5	6	HHEI	54	Modified Class 2	662
Stream 4	40.5443	-84.1777	Tributary to Pusheta Creek	Ephemeral	5	2	HHEI	39	Modified Class 2	202
Total: 3 Streams										**1,077**

[a]Form Used : HHEI = Headwater Habitat Evaluation Index

3.2.1 Qualitative Habitat Evaluation Index

No streams were assessed using the QHEI methodology within the Project survey corridor.

3.2.2 Primary Headwater Habitat Evaluation Index

Three headwater streams, totaling 1,077 linear feet, were identified along the Project survey corridor. These streams included three Modified Class 2 streams. Completed HHEI forms for each stream are provided in Appendix C. Representative color photographs were taken during the field survey and are provided in Appendix D.

Modified Class 2 Headwater Streams – Three Modified Class 2 headwater streams, totaling 1,077 linear feet, with scores ranging between 39 and 55 were identified during the field investigations. The substrate of Stream 1 consisted of silt and leaf pack with some artificial materials. The maximum pool depth 6 inches and average bankfull width was 5 feet. The stream showed evidence of stream channel modification (e.g., channelization, culverting, etc.) that resulted in the stream receiving a Modified Class 2 designation.

The substrate of Stream 3 consisted of silt and leaf pack with some artificial materials. The maximum pool depth 8 inches and average bankfull width was 5 feet. The stream showed evidence of stream channel modification (e.g., channelization, culverting, etc.) that resulted in the stream receiving a Modified Class 2 designation.

The substrate of Stream 4 consisted of silt with some artificial materials and leaf pack. The maximum pool depth 2 inches and average bankfull width was 4 feet. The stream showed evidence of stream channel modification (e.g., channelization, culverting, etc.) that resulted in the stream receiving a Modified Class 2 designation.

3.3 PONDS

One pond, totaling approximately 0.34 acre, was observed within the Project survey corridor during the survey. This pond was observed to be a portion of Quaker Run that was historically ponded. Quaker Run flows into the Auglaize River.

3.4 VEGETATIVE COMMUNITIES WITHIN THE PROJECT SURVEY AREA

AECOM ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys on October 16, 2018. Portions of the Project survey corridor were identified as agricultural lands, streams/wetlands/ponds, landscaped areas, mixed mesophytic forests, and urban areas. Habitat descriptions, applicable to the Project, and details on the expected impacts of construction are provided

below in Table 5. Vegetated land cover can be seen visually from aerial photography provided on Figure 4.

TABLE 5
VEGETATIVE COMMUNITIES WITHIN THE PROJECT SURVEY CORRIDOR

Vegetative Community	Description	Approximate Acreage Within the Project Survey Area	Approximate Percentage within the Project Survey Area
Urban	Urban areas are areas developed with residential and commercial land uses, including roads, buildings and parking lots. These areas are generally devoid of significant woody and herbaceous vegetation.	4.36	4%
Agricultural Land	Agricultural land consisting of soybean, corn fields, and winter wheat were present along the Project survey area. The agricultural land contains row crops and is not used for pasture or hay fields.	83.44	83%
Landscaped Area	Landscaped areas, including residential properties and commercial properties, were observed within the Project vicinity. These landscaped areas within the Project survey corridor and adjacent areas are frequently mowed grasses and forbs.	2.63	3%
Stream/Wetland/Pond	Streams, wetlands and ponds were observed both within and beyond the Project survey corridor.	1.53	2%
Mixed Mesophytic Forest	Mixed mesophytic forests are present along the Project survey corridor. Woody species dominating these areas included Hickories (Carya spp.), Black Walnut (Juglans nigra), Beech (Faqus grandifolia), Red Oak (Quercus rubra), Tuliptree (Liriodendron tulipifera), Cucumbertree (Magnolia acuminate), Black Cherry (Prunus serotine), Red Maple (Acer rubrum), Sugar Maple, (Acer saccharum), Yellow Buckeye (Aesculus octandra), American Basswood (Tilia Americana), White Basswood, (Tilia heterophylla), and White Ash (Fraxinus Americana).	8.42	8%
	Totals:	**100.38**	**100%**

3.5 RARE, THREATENED AND ENDANGERED SPECIES AGENCY COORDINATION

Protected Species Agency Consultation –

AECOM conducted a rare, threatened, and endangered species review for the Project survey corridor. A summary of the agency coordination responses is provided below. Correspondence letters from the USFWS and ODNR are included as Appendix D. Table 6 provides a list of federal and state-listed threatened and endangered species identified as possibly occurring within or near the Project during the rare, threatened, and endangered species review.

TABLE 6

ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA

Common Name (Scientific Name)	State Status	Federal Status	Habitat Description	Potential Habitat Observed in the Project Survey Area	Impact Assessment	Agency Comments
Mammals						
Indiana bat (*Myotis sodalis*)	Endangered	Endangered	Winter Indiana bat hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. The 8- to 10-inch diameter size classes of several species of hickory (*Carya* spp.), oak (*Quercus* spp.), ash (*Fraxinus* spp.), birch (*Betula* spp.), and elm (*Ulmus* spp.) have been found to be utilized by the Indiana bat. These tree species and many others may be used when dead, if there are adequately sized patches of loosely-adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes a mixture of loose-barked trees with 60 to 80 percent canopy closure and a low density sub-canopy (less than 30 percent between about 6 feet high and the base canopy). The suitability of roosting habitat for foraging or the proximity to suitable foraging habitat is critical to the evaluation of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, is important to allow maneuvering while catching insect prey.	Yes	Some potentially suitable habitat is present within the Project area (woodlands).	ODNR-DOW commented that presence of the Indiana bat has been established in the project area, and therefore additional summer surveys would not constitute presence/absence in the area. 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. USFWS commented that due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to Indiana bats, that they do not anticipate adverse effects to this species.

TABLE 6

ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA

Common Name (Scientific Name)	State Status	Federal Status	Habitat Description	Potential Habitat Observed in the Project Survey Area	Impact Assessment	Agency Comments
Northern long-eared bat (*Myotis septentrionalis*)	Threatened	Threatened	Winter hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. The 8- to 10-inch diameter size classes of several species of hickory (*Carya* spp.), oak (*Quercus* spp.), ash (*Fraxinus* spp.), birch (*Betula* spp.), and elm (*Ulmus* spp.) have been found to be utilized by northern long-eared bats. These tree species and many others may be used when dead, if there are adequately sized patches of loosely-adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes a mixture of loose-barked trees with 60 to 80 percent canopy closure and a low density sub-canopy (less than 30 percent between about 6 feet high and the base canopy). The suitability of roosting habitat for foraging or the proximity to suitable foraging habitat is critical to the evaluation of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, is important to allow maneuvering while catching insect prey. Proximity to water is critical, because insect prey density is greater over or near open water. Northern long-eared bats have also been found, albeit rarely, roosting in structures like barns and sheds.	Yes	Some potentially suitable habitat is present within the Project area (woodlands).	USFWS commented that due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to northern long-eared bats, that they do not anticipate adverse effects to this species.
Fish						
Greater redhorse (*Moxostoma valenciennesi*)	Threatened	Species of Concern	Found in medium to large rivers in the Lake Erie drainage system. Only found in limited portions of the Sandusky, Maumee, and Grand River systems. Greater redhorse are typically found in pools with clean sand or gravel substrate, but are intolerant of pollution and turbid water.	No	No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.	The ODNR-DOW stated if no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.
Mussels						
Clubshell (*Pleurobema clava*)	Endangered	Endangered	This mussel prefers clean, loose sand and gravel in medium to small rivers and streams. This mussel will bury itself in the bottom substrate to depths of up to four inches.	No	No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.	ODNR stated that due to the location and that there is no in-water work proposed, the Project is not likely to impact these species.

TABLE 6

ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA

Common Name (Scientific Name)	State Status	Federal Status	Habitat Description	Potential Habitat Observed in the Project Survey Area	Impact Assessment	Agency Comments
Pondhorn (*Uniomerus tetralasmus*)	Threatened	None	This species typically inhabits the quiet or slow-moving, shallow waters of sloughs, borrow pits, ponds, ditches, and meandering streams. It is tolerant of poor water conditions and can be found well buried in a substrate of fine silt and/or mud.	No	No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.	
Birds						
Lark Sparrow (*Chondestes grammacus*)	Endangered	None	This sparrow nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patches of bare soil. These summer residents normally migrate out of Ohio shortly after their young fledge or leave the nest.	No	No suitable habitat was observed within the Project area.	ODNR-DOW stated that the project is within the range of the lark sparrow and if this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to June 30. If this habitat will not be impacted, the project is not likely to impact this species.

ODNR Coordination –

Coordination with the ODNR was initiated during the planning stages of the Project to obtain records of protected species located in the vicinity of the Project. On March 23, 2018, the ODNR Office of Real Estate Environmental Review Section replied to an emailed request for records of protected species within an extended area around the Project site. The Ohio Natural Heritage Database (ONHD) review found records of state threatened, federal species of concern, greater redhorse, and a great blue heron rookery at or within a one-mile radius of the Project area.

The ODNR Division of Wildlife (DOW) recommended 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 DOW indicated that the Project is within the range of the Indiana bat, a state endangered and federally endangered species. The presence of the Indiana Bat has been established in the area east of Dixie Highway and south of Weimert School Road and therefore additional summer surveys would not constitute presence/absence in the area. The DOW recommended that if suitable habitat occurs within the Project area, trees be conserved or cut between October 1 and March 31. If no tree removal is proposed then the Project is not likely to impact this species.

The DOW indicated that the Project is within the range of the club shell, a state-endangered and federally endangered mussel; the pondhorn, a state threatened mussel; and the greater redhorse, a state threatened fish. DOW stated this project must not have an impact on freshwater native mussels at the project site. The DOW stated that if no in-water work is proposed in a stream then the Project is not likely to impact the mussels, fish or other aquatic species.

The DOW indicated that the Project is within the range of the lark sparrow, a state endangered bird. The sparrow nests in grassland habitats with scatted shrub layers, disturbed open areas, and patches of bare soil. The DOW stated if potential habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to June 30. If this habitat will not be impacted, the project is not likely to impact this species.

The DOW indicated that the Wapakoneta Projects are within the range of great blue heron rookery. The Project is approximately three miles east of the great blue heron rookery. The DOW recommends that construction activity within the rookery be avoided to preserve the rookery. If construction within the rookery cannot be avoided, the DOW recommends at the very least, the rookery be avoided during the nesting season of March 1 through June 31 as to not interfere with nesting birds. In addition, the DOW recommends a 100 yard no activity buffer be maintained around the rookery during the breeding season

as to not interfere with nesting birds. Since the Project is over the 100 yard buffer from the great blue heron rookery, it is likely the Project will not impact this species.

USFWS Coordination –

Coordination with the USFWS was also initiated during the planning stages of the Project to obtain technical assistance in regard to federally listed species that may occur within the Project vicinity. The USFWS responded on March 9, 2018, indicating that there are no Federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project.

The USFWS noted that the Project lies within the range of the federally endangered Indiana bat, and the federally threatened northern long-eared bat. USFWS stated that due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to Indiana bats and northern long-eared bats, that they do not anticipate adverse effects to any federally endangered, threatened, proposed or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the USFWS should be initiated to assess any potential impacts.

4.0 SUMMARY

The ecological survey of the Project survey corridor identified a total of one wetland, three streams and one pond. The one wetland within the Project survey corridor consisted of a PEM wetland habitat type. The wetland was identified as Category 1 wetland. No Category 2 or 3 wetlands were identified within the Project survey corridor.

The three streams identified within the Project survey corridor include two intermittent streams and one ephemeral stream. All three streams were assessed using the HHEI methodology (drainage area less than 1 mile^2). AECOM has preliminarily determined that all assessed streams within the Project survey corridor appear to be jurisdictional (i.e., waters of the U.S.), as they all appear to be tributaries that flow into or combine with other streams (waters of the U.S).

According to a response letter received from the USFWS on March 9, 2018, this Project is not anticipated to have adverse effects to federally endangered, threatened, proposed, or candidate species. With regard to state threatened and endangered species that may occur within the Project vicinity, six species were listed by ODNR. These species included: Indiana bat, northern long-eared bat, club shell, pondhorn, greater redhorse, and lark sparrow. No impacts are anticipated to the club shell, pondhorn, greater redhorse, or thelark sparrow.

Based on general observations during the ecology survey, a portion of the Project survey area contained potential summer habitat for the Indiana bat and the northern long-eared bat. USFWS commented that due to the project type, size, and location, plus the proposal for seasonal tree cutting between October 1 and March 31, there should be no adverse effects to the Indiana bat or northern long-eared bat. ODNR stated that presence of the Indiana bat has been established in the area, therefore additional summer surveys would not constitute presence/absence in the area. If suitable habitat occurs within the Project area, the DOW recommends trees be conserved. It suitable habitat occurs within the Project area and trees must be cut, the DOW recommends cutting between October 1 and March 31.

The reported results of the ecological survey conducted by AECOM on this Project are limited to the areas within the Project survey boundary provided in Figure 3: Wetland Delineation and Stream Assessment Map. Areas that fall outside of the Project survey boundary were not evaluated in the field and are not included in the reporting of this survey.

The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance; therefore, lengths and acreages listed in this report may not constitute the actual impacts of the Project defined in subsequent permit applications. If necessary, a separate report that identifies the actual Project impacts will be provided with agency submittals.

The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which AECOM is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to natural processes or human impacts at the project site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of AECOM.

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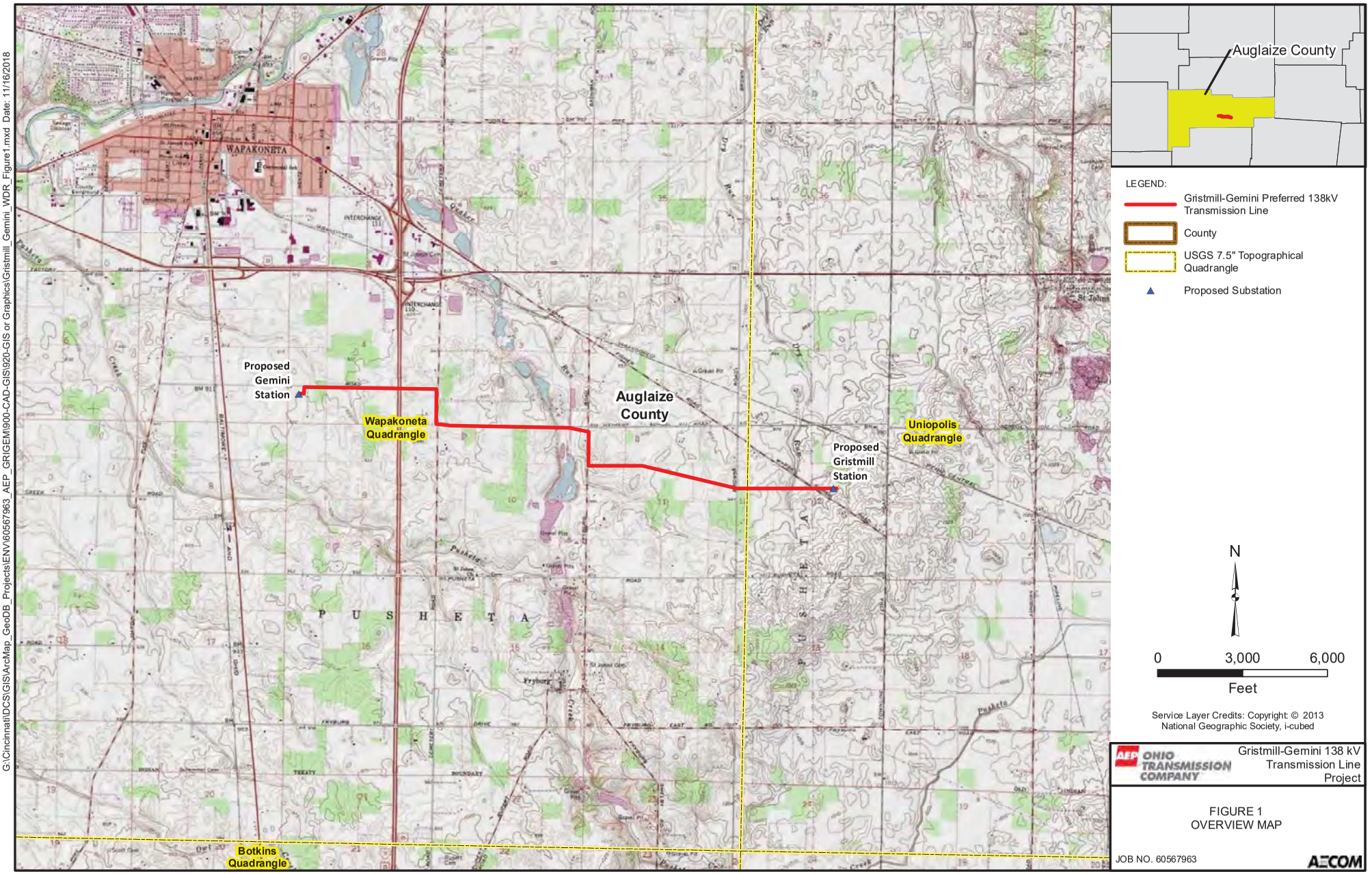

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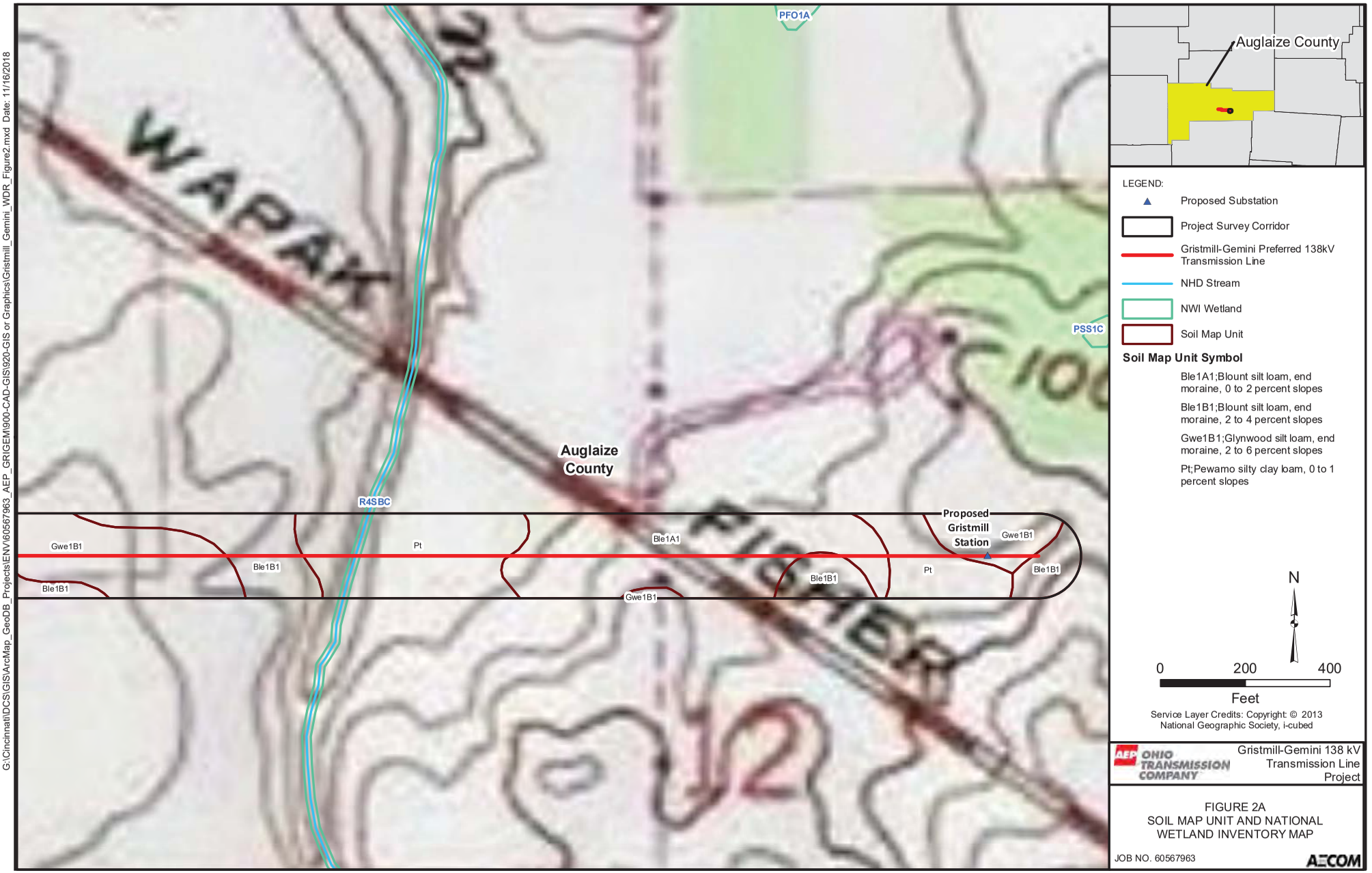
AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 1
OVERVIEW MAP

JOB NO. 60567963

AECOM



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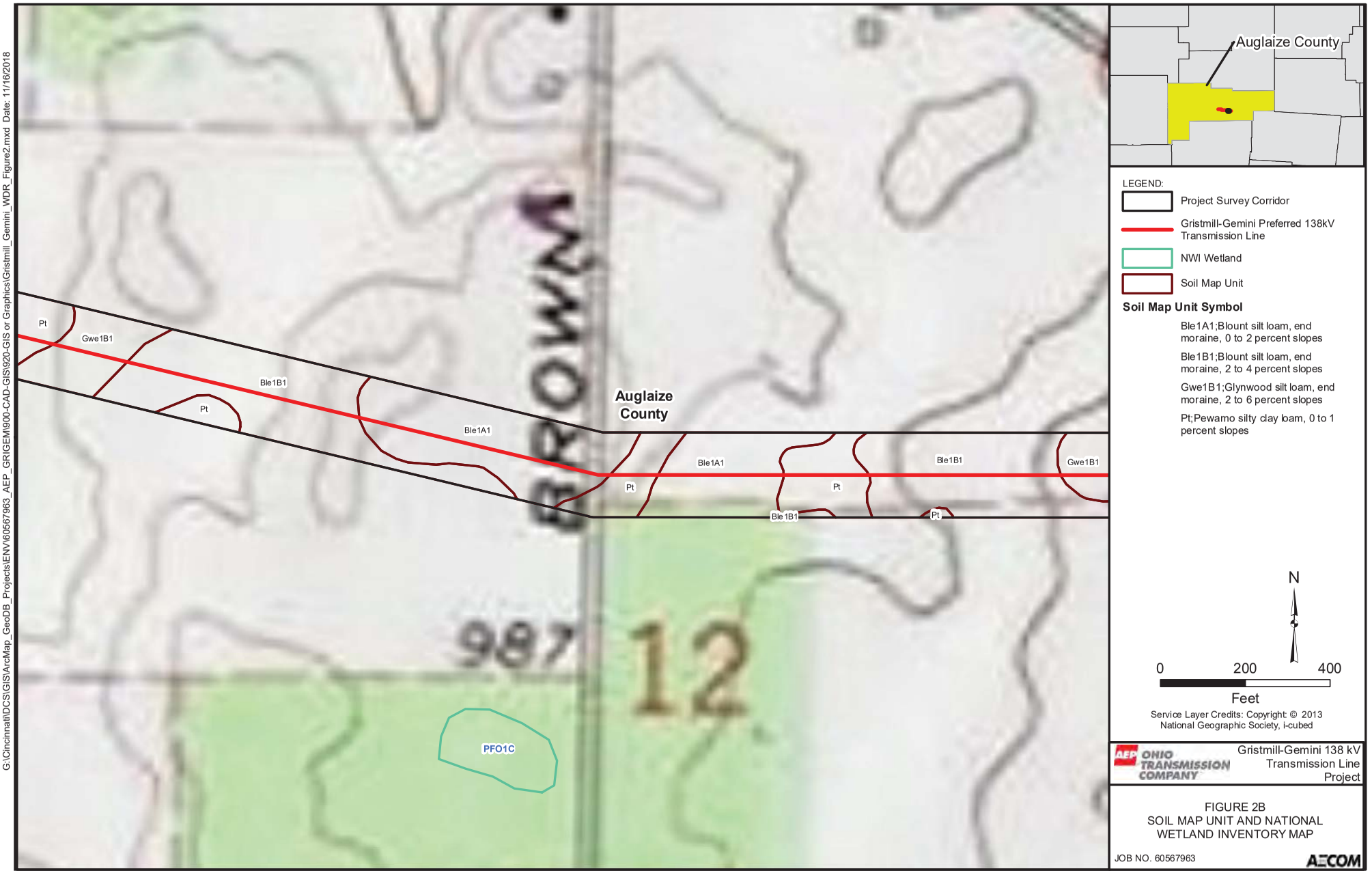
AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 2A
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60567963

AECOM



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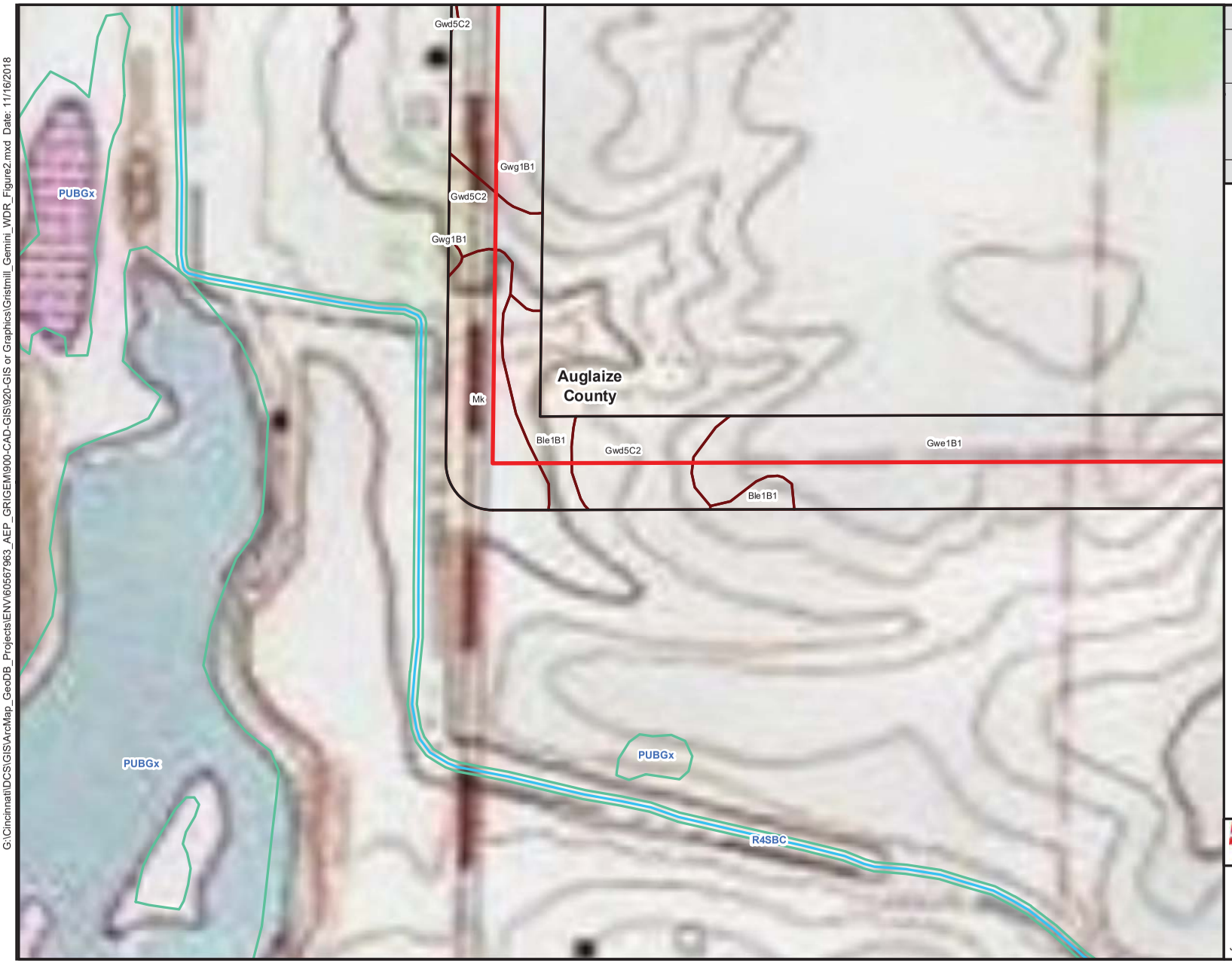

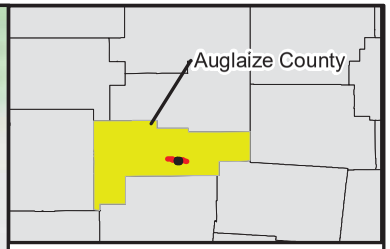

LEGEND:

- Project Survey Corridor
- Gristmill-Gemini Preferred 138kV Transmission Line
- NHD Stream
- NWI Wetland
- Soil Map Unit

Soil Map Unit Symbol

Ble1B1;Blount silt loam, end moraine, 2 to 4 percent slopes

Gwd5C2;Glynwood clay loam, 6 to 12 percent slopes, eroded

Gwe1B1;Glynwood silt loam, end moraine, 2 to 6 percent slopes

Gwg1B1;Glynwood silt loam, ground moraine, 2 to 6 percent slopes

Mk;Millgrove clay loam

N

0 200 400

Feet

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AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 2D
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60567963

AECOM

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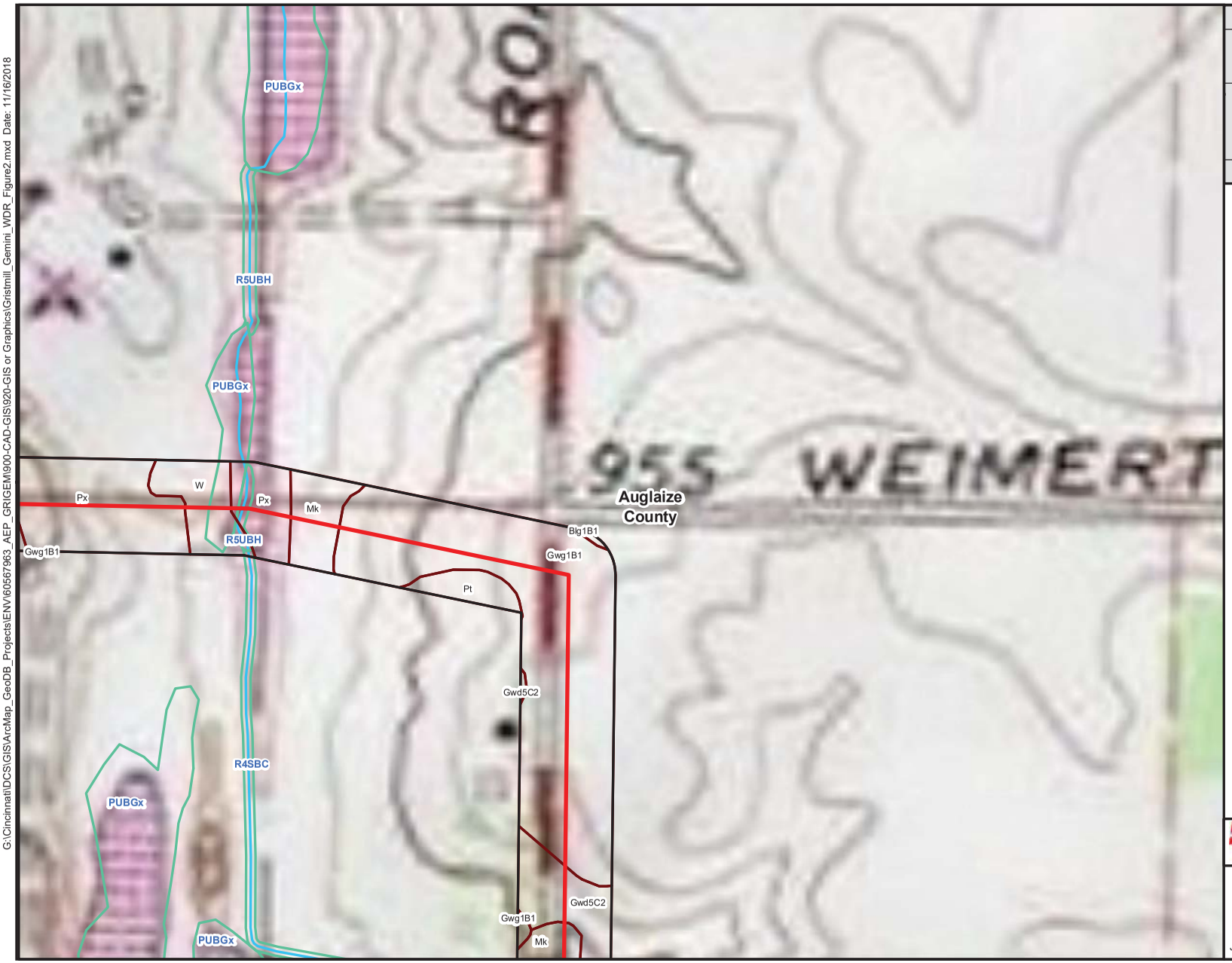
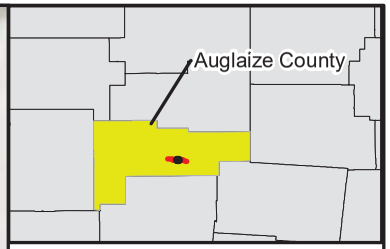




LEGEND:

- Project Survey Corridor
- Gristmill-Gemini Preferred 138kV Transmission Line
- NHD Stream
- NWI Wetland
- Soil Map Unit

Soil Map Unit Symbol

- Blg1B1;Blount silt loam, ground moraine, 2 to 4 percent slopes
- Gwd5C2;Glynwood clay loam, 6 to 12 percent slopes, eroded
- Gwg1B1;Glynwood silt loam, ground moraine, 2 to 6 percent slopes
- Mk;Millgrove clay loam
- Pt;Pewamo silty clay loam, 0 to 1 percent slopes
- Px;Pits, gravel
- W;Water

N

0 200 400

Feet

AEP OHIO TRANSMISSION COMPANY

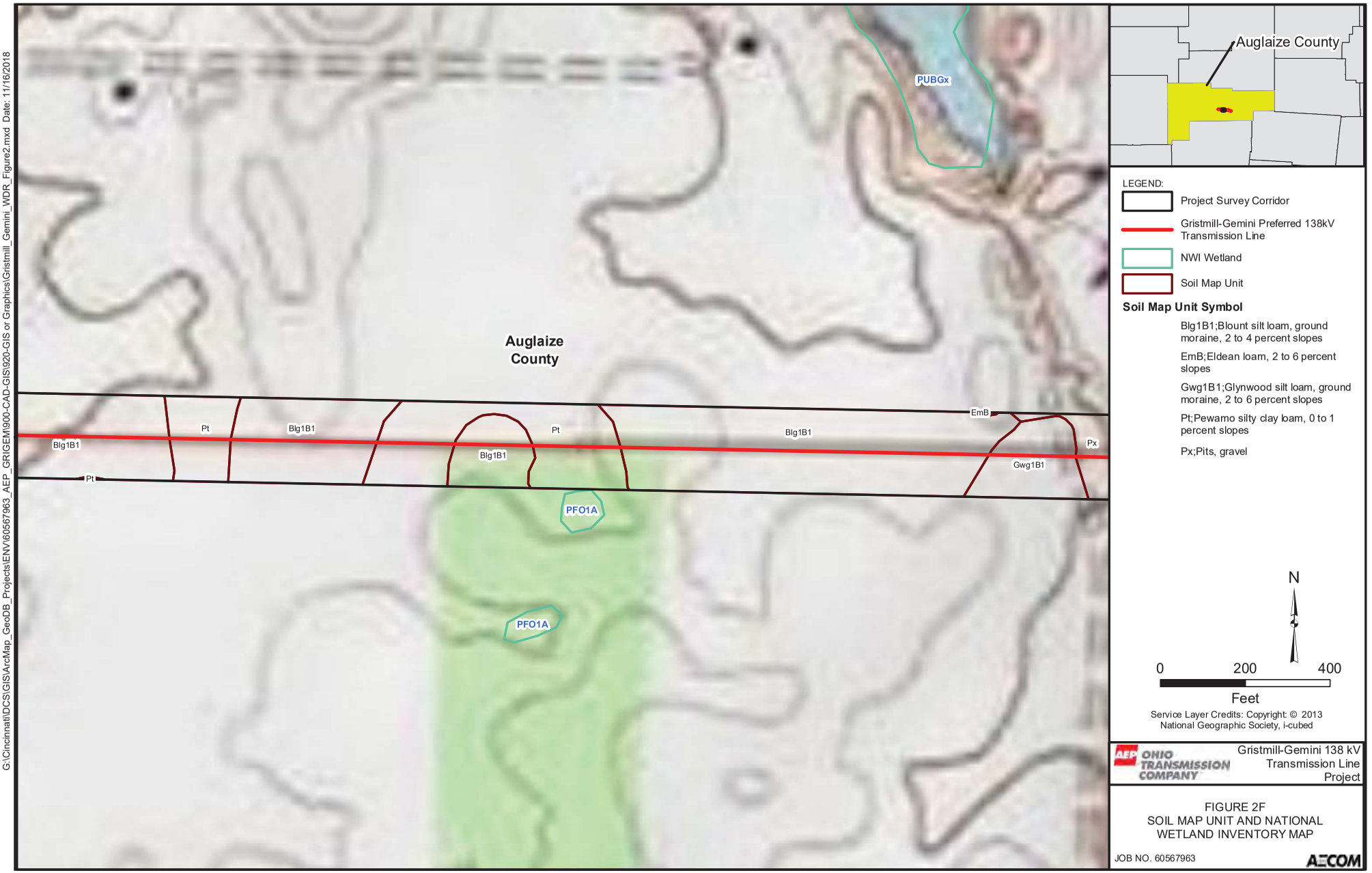
Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 2E
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60567963

AECOM

G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60567963_AEP_GR\GEM\900-CAD-GIS\920-GIS or Graphics\Gristmill_Gemini_WDR_Figure2.mxd Date: 11/16/2018



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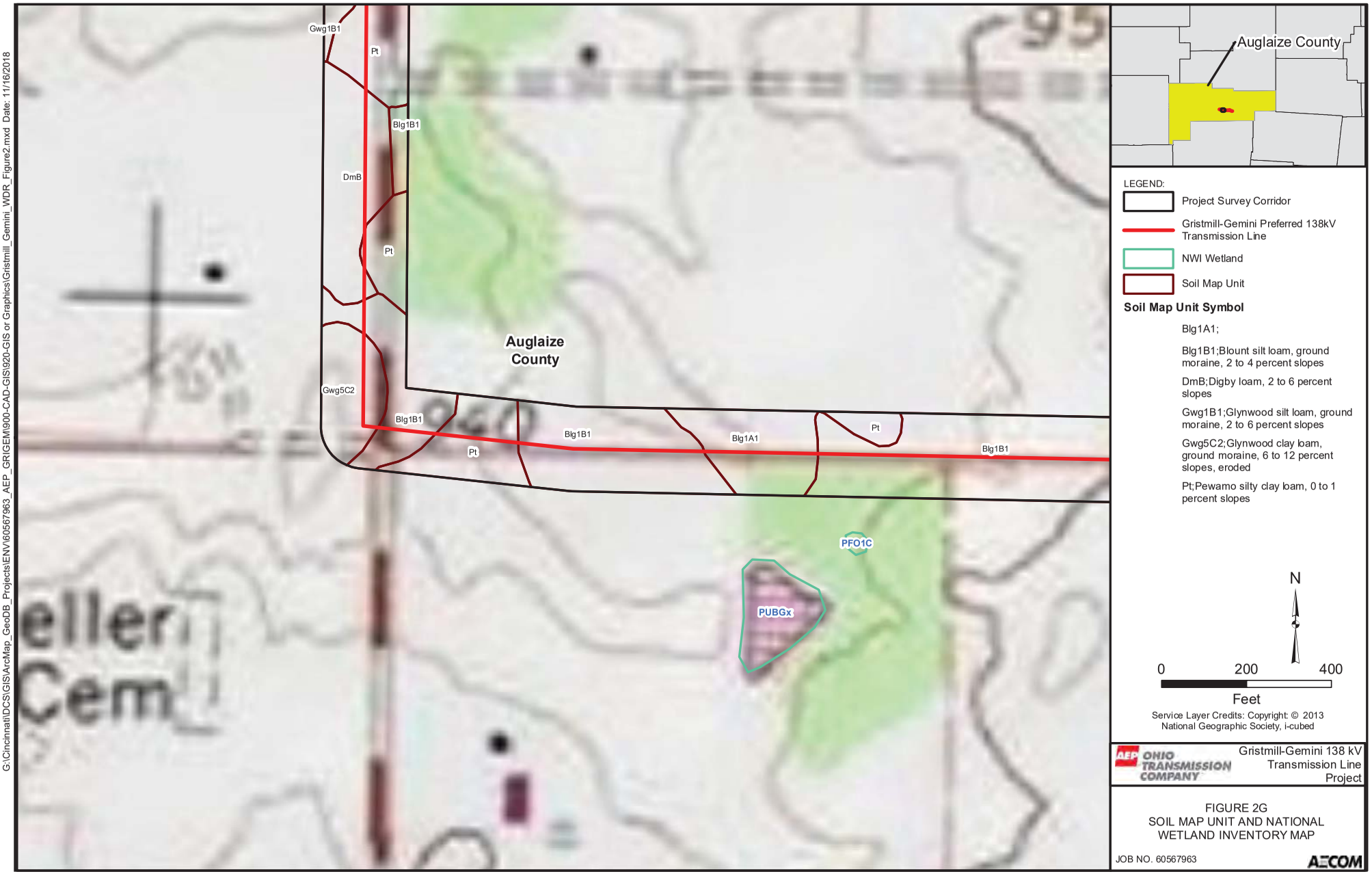

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AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 2G
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60567963

AECOM

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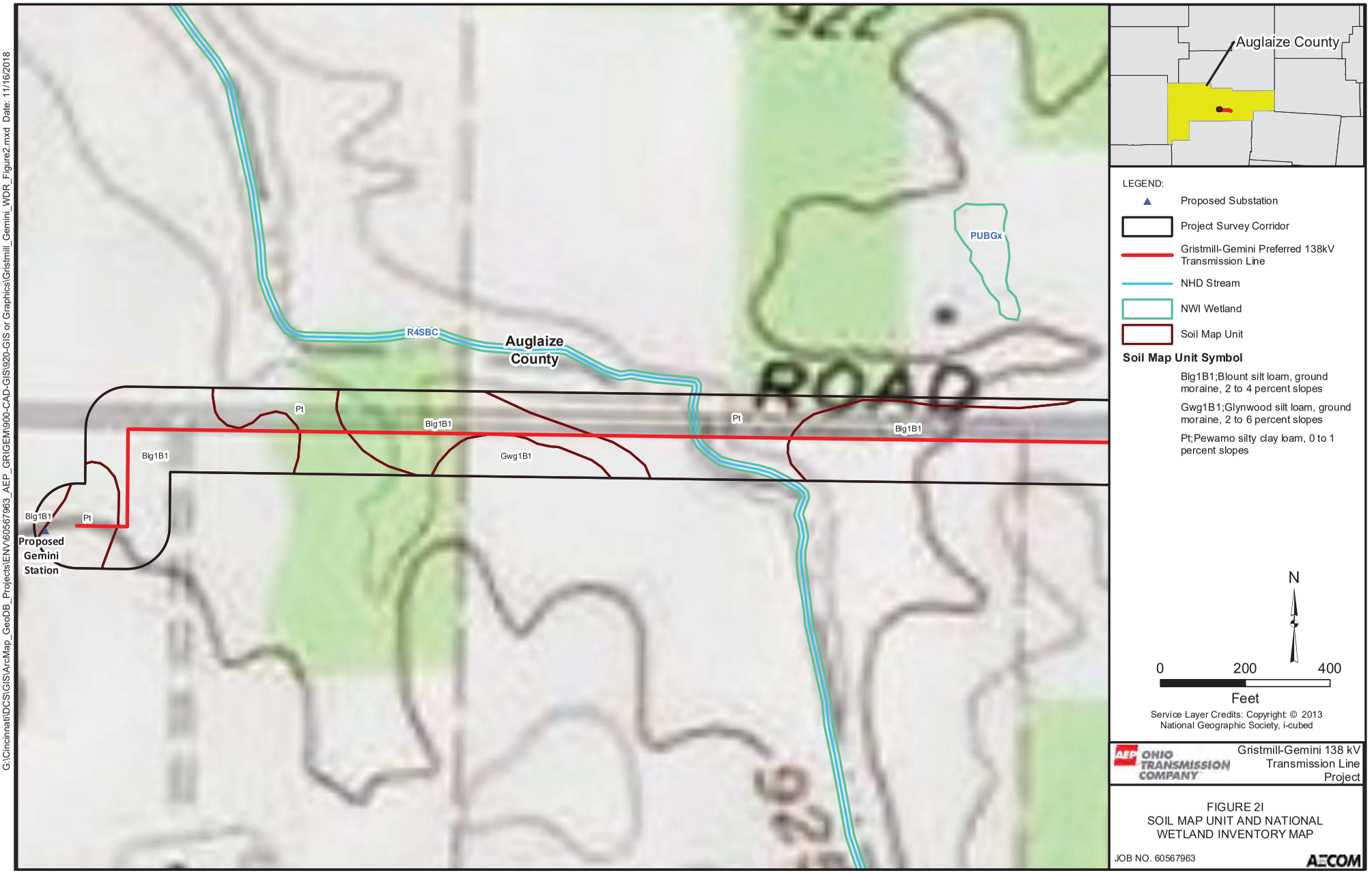

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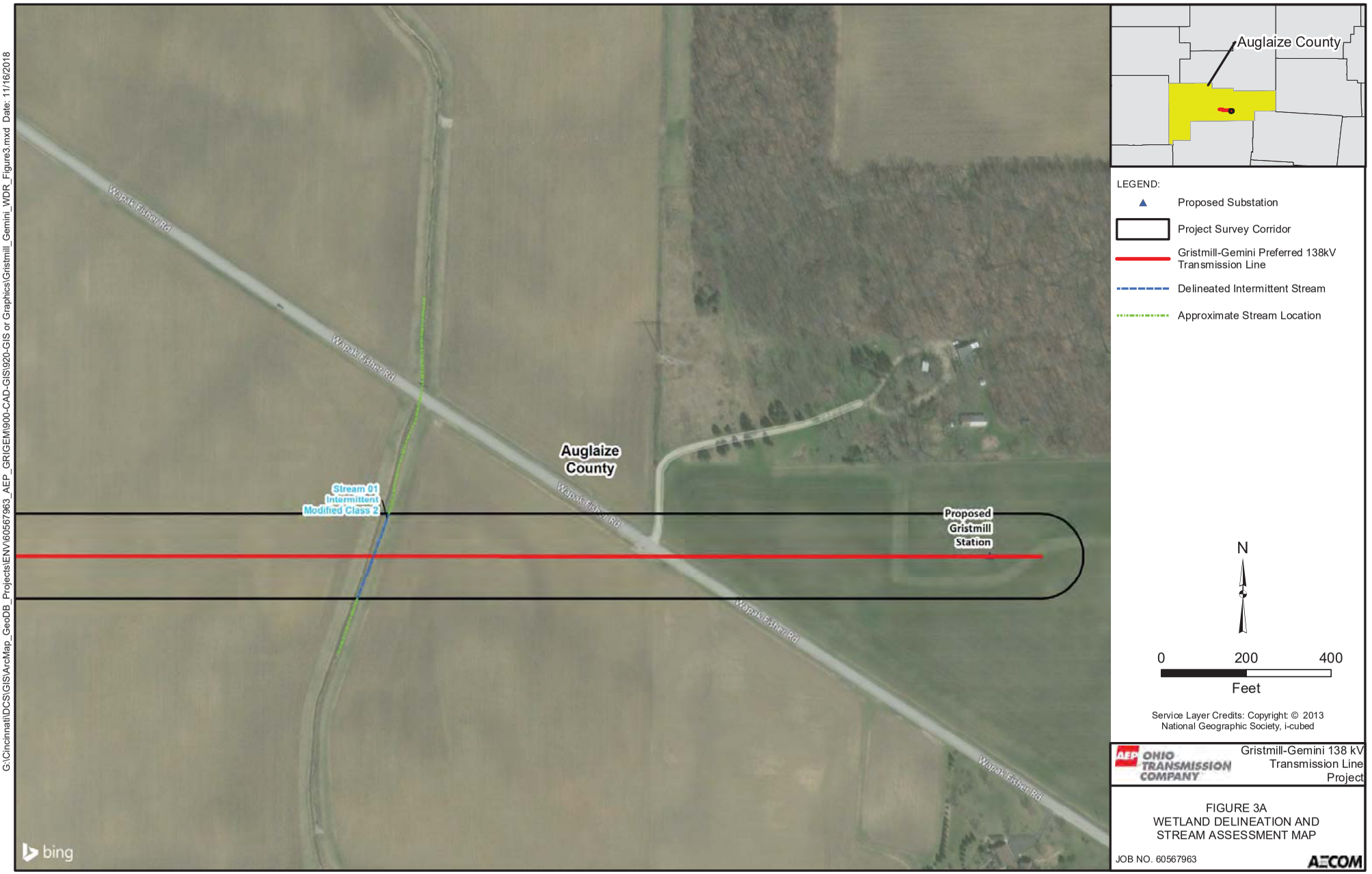

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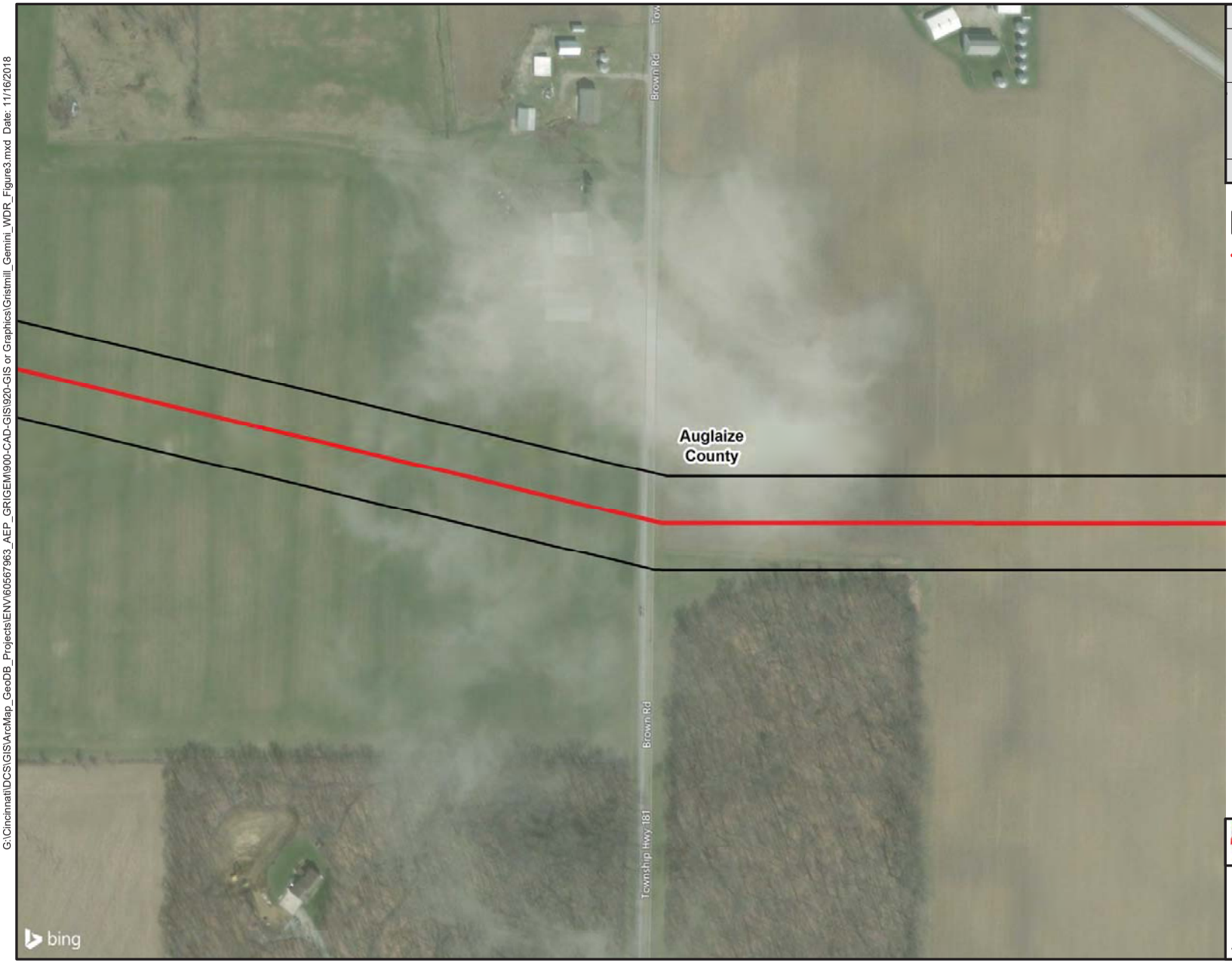

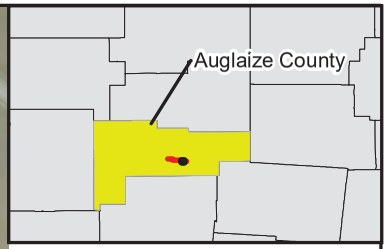

LEGEND:

Project Survey Corridor

Gristmill-Gemini Preferred 138kV Transmission Line

N

0 200 400

Feet

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AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 3B
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60567963

AECOM

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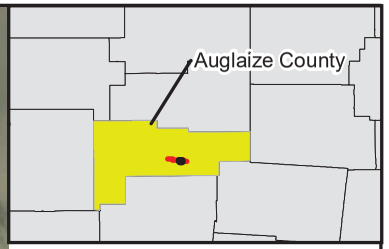

LEGEND:

Project Survey Corridor

Gristmill-Gemini Preferred 138kV Transmission Line

N

0 200 400

Feet

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 3C
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60567963

AECOM

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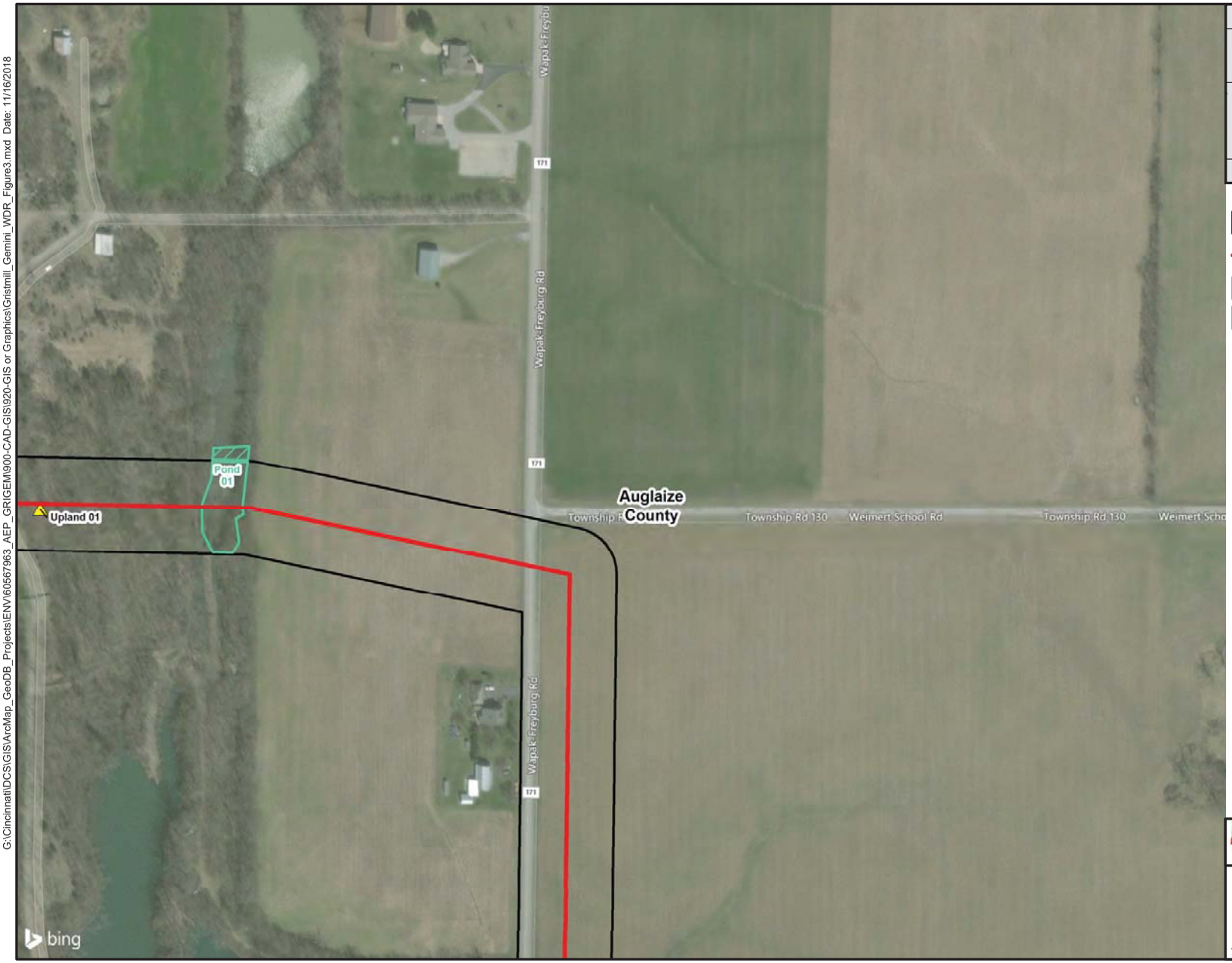

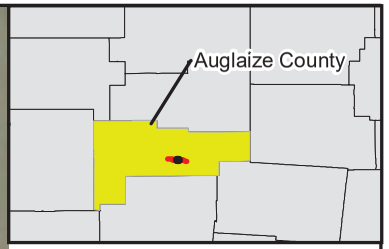

LEGEND:

- Project Survey Corridor
- Gristmill-Gemini Preferred 138kV Transmission Line
- Delineated Pond
- Approximate Pond Boundary

Feat_Name

- Upland Data Point

N

0 200 400

Feet

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 3E
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60567963

AECOM

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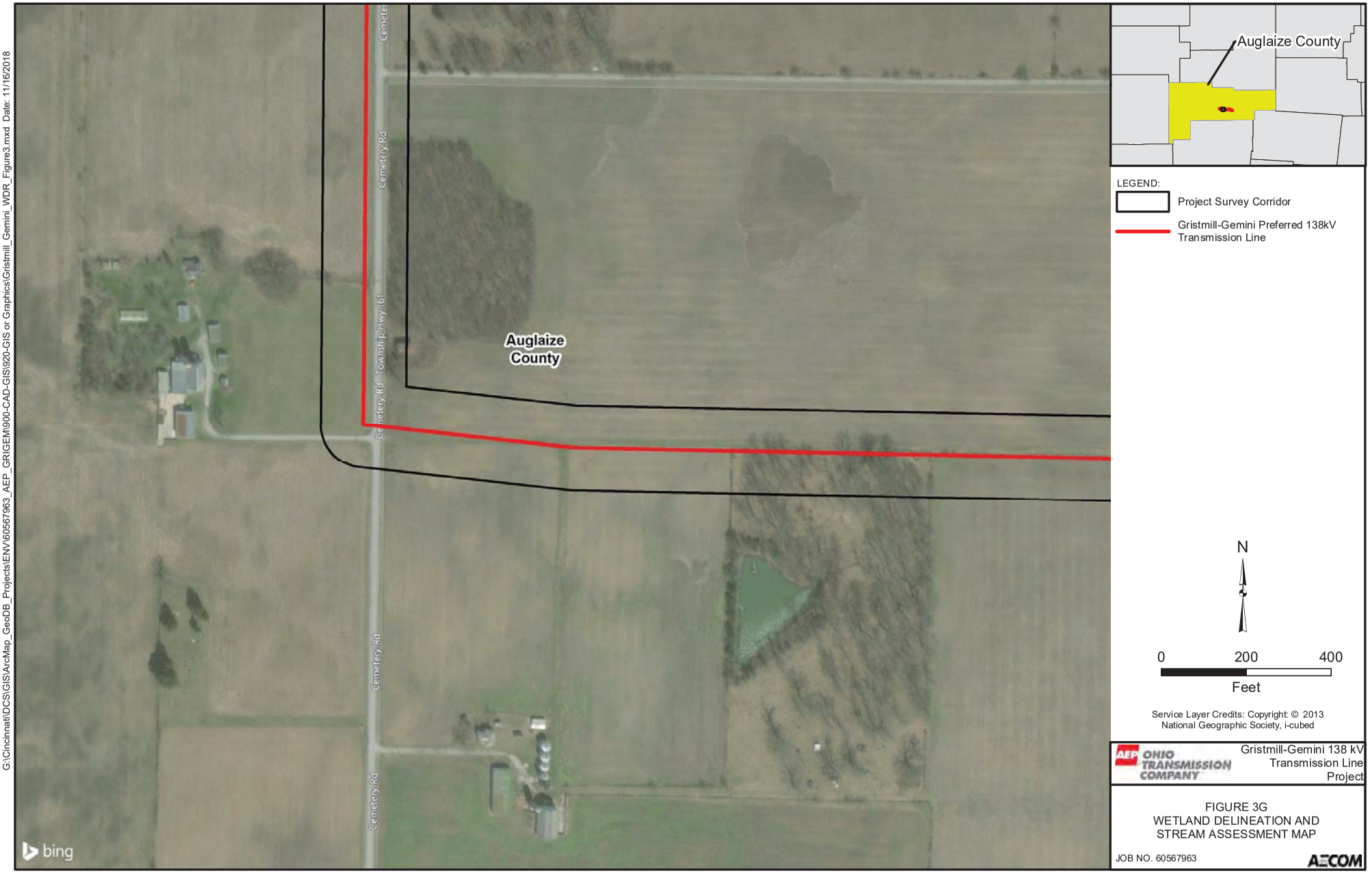
AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 3F
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60567963

AECOM



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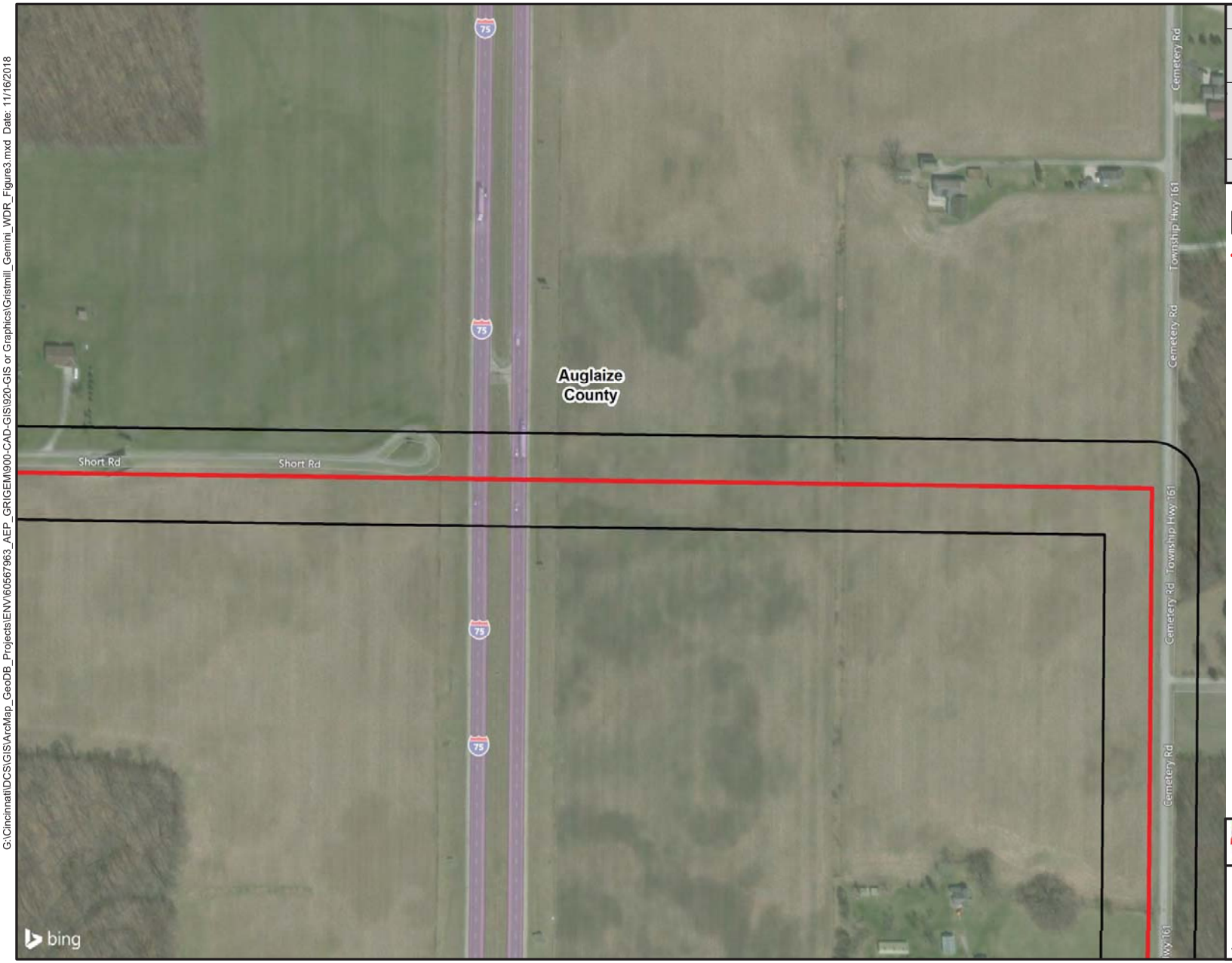
AEP OHIO TRANSMISSION COMPANY

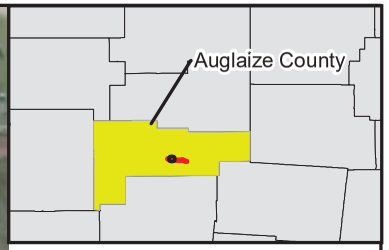
Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 3G
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60567963

AECOM





LEGEND:

Project Survey Corridor

Gristmill-Gemini Preferred 138kV Transmission Line

N

0 200 400

Feet

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AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 3H
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60567963

AECOM

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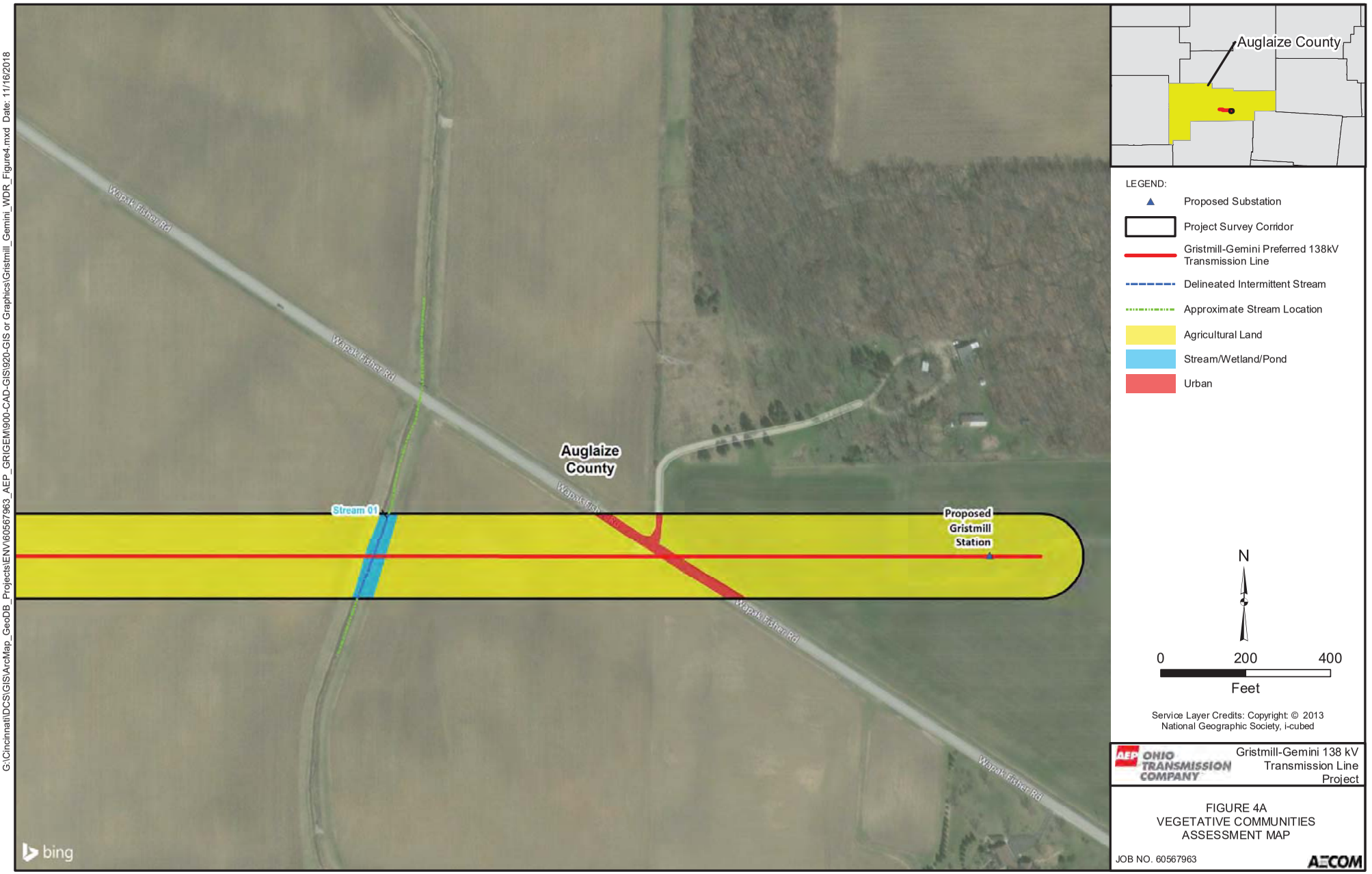

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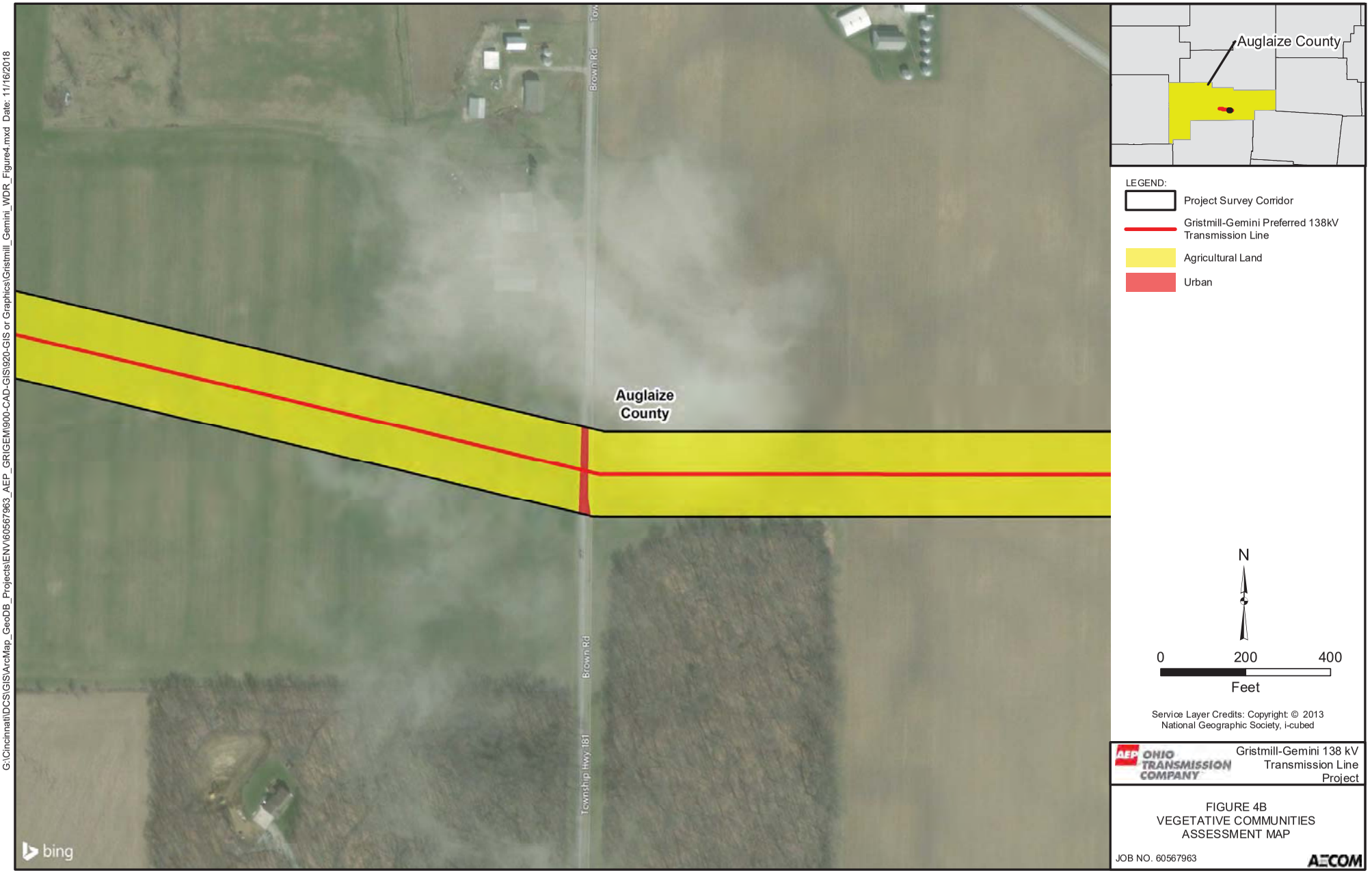

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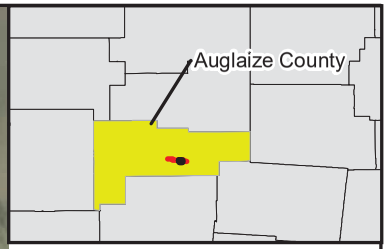

LEGEND:

- Project Survey Corridor
- Gristmill-Gemini Preferred 138kV Transmission Line
- Agricultural Land

N

0 200 400

Feet

AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 4C
VEGETATIVE COMMUNITIES ASSESSMENT MAP

JOB NO. 60567963

AECOM

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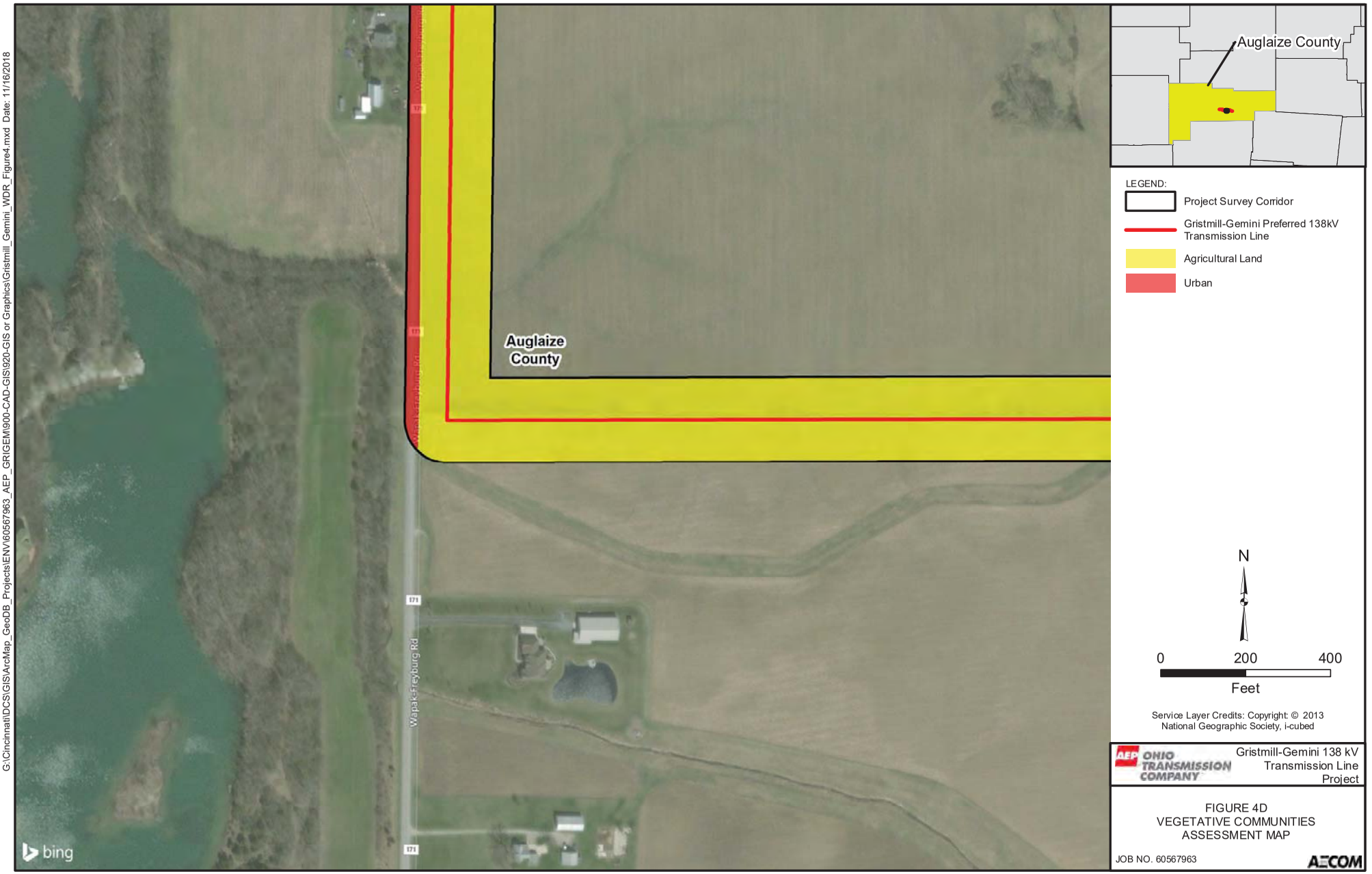

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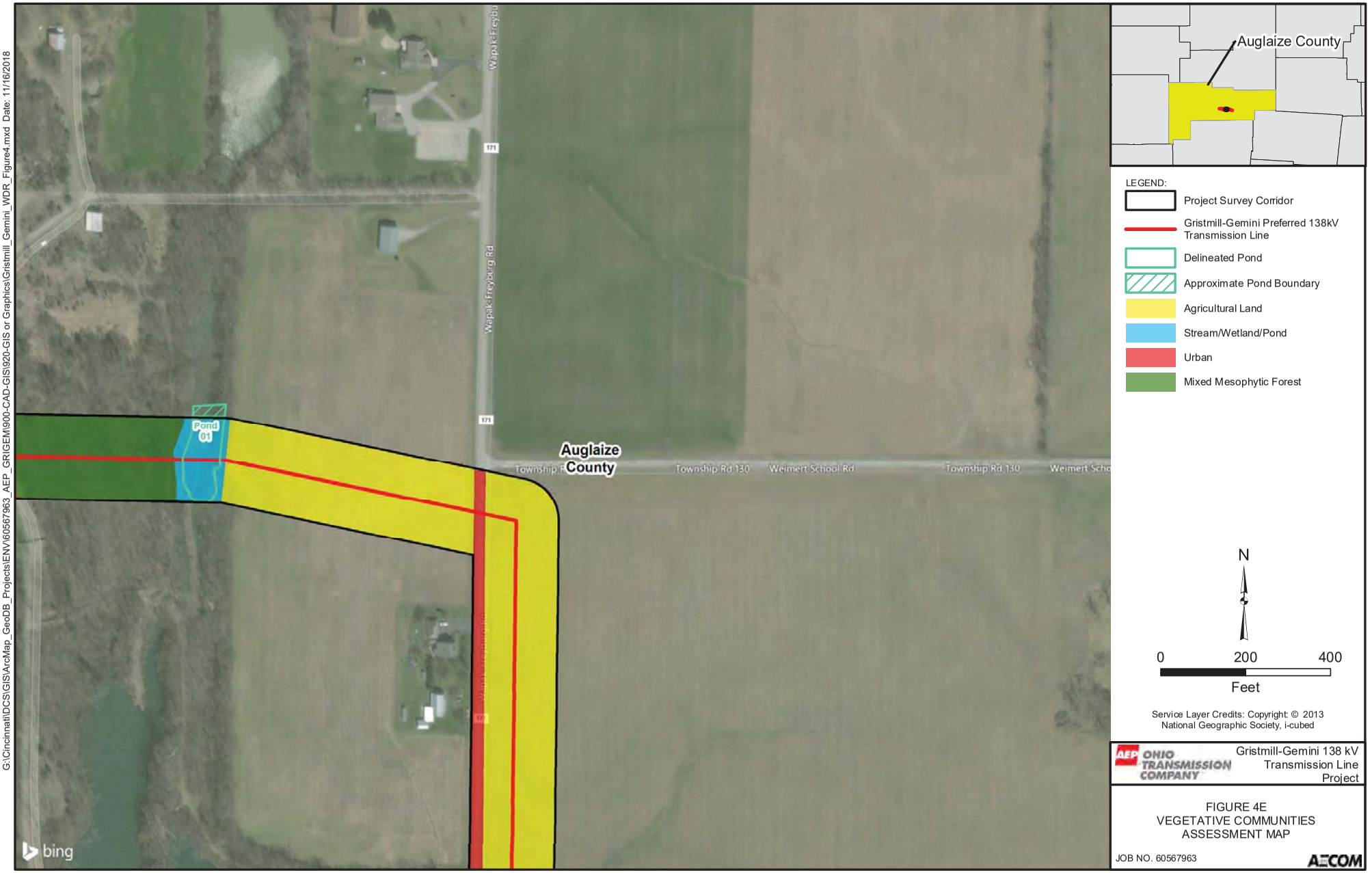

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AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 4E
VEGETATIVE COMMUNITIES ASSESSMENT MAP

JOB NO. 60567963

AECOM

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AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 4F
VEGETATIVE COMMUNITIES ASSESSMENT MAP

JOB NO. 60567963

AECOM

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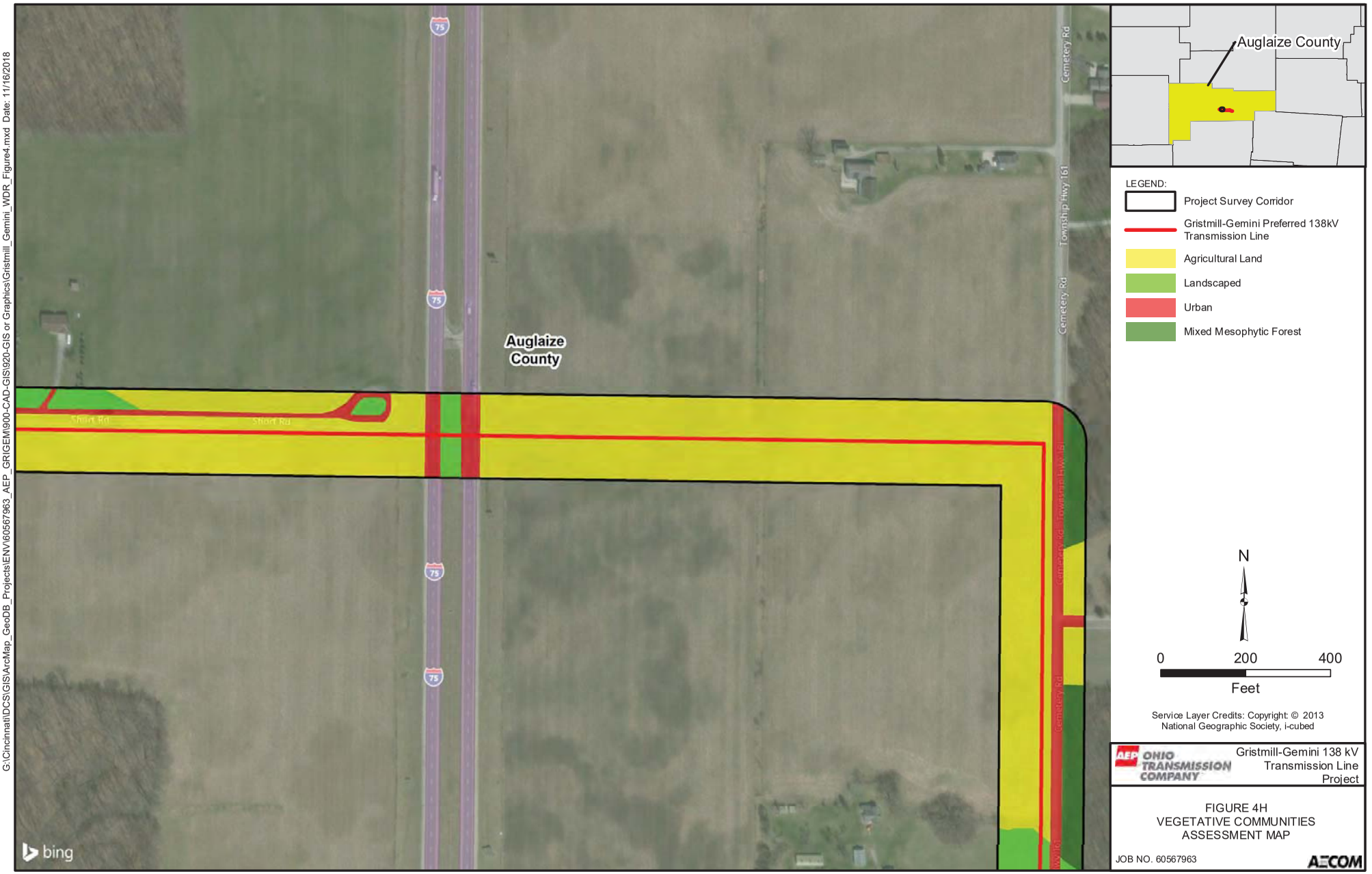

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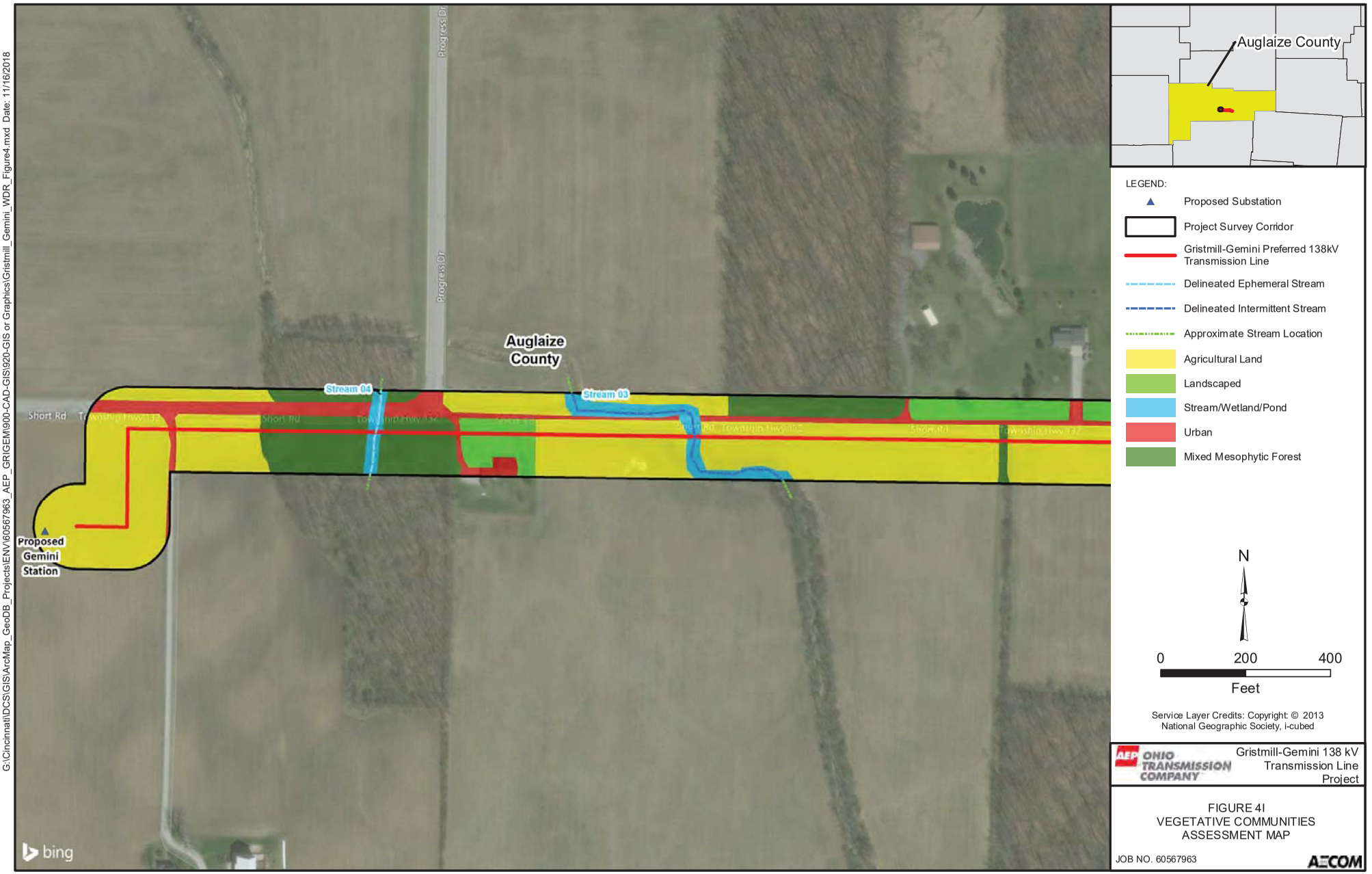

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APPENDIX A

U.S. ARMY CORPS OF ENGINEERS WETLAND AND UPLAND FORMS

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Gemini I Station | City/County: Auglaize | Sampling Date: 16-Oct-18

Applicant/Owner: AEP | State: OH | Sampling Point: **upl-jbl-101618-01**

Investigator(s): JBL | Section, Township, Range: S 10 T 6S R 6E

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): concave

Slope: 0.0% 0.0 ° | Lat.: 40.540683236 | Long.: -84.149363573 | Datum: DD NAD83

Soil Map Unit Name: Px - Pits, gravel | NWI classification:

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:
old depressionl excavted upland 1

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1. Prunus serotina	25	☑ 55.6%	FACU
2. Fraxinus pennsylvanica	20	☑ 44.4%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	45	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. Lonicera maackii	45	☑ 69.2%	UPL
2. Cornus racemosa	20	☑ 30.8%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	65	= Total Cover	
Herb Stratum (Plot size:)			
1. Persicaria virginiana	20	☑ 100.0%	FAC
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
	20	= Total Cover	
Woody Vine Stratu (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	40	x 3 =	120
FACU species	25	x 4 =	100
UPL species	45	x 5 =	225
Column Totals:	130 (A)		485 (B)

Prevalence Index = B/A = 3.731

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: upl-ibl-101618-01

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

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

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ 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 Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ 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? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

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: Gemini I Station | City/County: Auglaize | Sampling Date: 16-Oct-18

Applicant/Owner: AEP | State: OH | Sampling Point: **upl-jbl-101618-02**

Investigator(s): JBL | Section, Township, Range: S 10 T 6S R 6E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): flat

Slope: 0.0% 0.0 ° | Lat.: 40.540680027 | Long.: -84.152043806 | Datum: NAD 83

Soil Map Unit Name: Blg1B1 - Blount silt loam, ground moraine, 2 to 4 percent slopes | NWI classification:

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size:)				
1. Cornus alba	20	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	20	= Total Cover		
Herb Stratum (Plot size: 15')				
1. Abutilon theophrasti	15	☐	18.8%	FACU
2. Setaria faberi	20	☑	25.0%	FACU
3. Daucus carota	20	☑	25.0%	UPL
4. Rumex crispus	5	☐	6.3%	FAC
5. Symphyotrichum ericoides	20	☑	25.0%	FACU
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	80	= Total Cover		
Woody Vine Stratu (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= 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: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	5	x 3 =	15
FACU species	55	x 4 =	220
UPL species	20	x 5 =	100
Column Totals:	100 (A)		375 (B)

Prevalence Index = B/A = 3.750

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: upl-ibl-101618-02

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-16	2.5YR	2.5/1	60						Clay Loam	
	5YR	2.5/2	40						Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ 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 Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ 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? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

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: Gemini I Station | City/County: Auglaize | Sampling Date: 16-Oct-18

Applicant/Owner: AEP | State: OH | Sampling Point: **w-jbl-101618-01**

Investigator(s): JBL;TWL | Section, Township, Range: S 10 T 6S R 6E

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): concave

Slope: 0.0% 0.0 ° | Lat.: 40.540599453 | Long.: -84.152013643 | Datum: DD NAD83

Soil Map Unit Name: Blg1B1 - Blount silt loam, ground moraine, 2 to 4 percent slopes | NWI classification:

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
pem wetland1 in soy field

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 15')			
1. Packera glabella	40	☑ 57.1%	FACW
2. Eleocharis palustris	30	☑ 42.9%	OBL
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
	70	= Total Cover	
Woody Vine Stratu (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (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	30	x 1 =	30
FACW species	40	x 2 =	80
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		110 (B)

Prevalence Index = B/A = 1.571

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)
soy bean 10%

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **w-ibl-101618-01**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc [2]	Texture	Remarks
0-16	10YR	4/1	85	10YR	4/3	15	C	M	Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ 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 Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ 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): 1

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

APPENDIX B

OEPA WETLAND ORAM FORMS

Wetland 01

Site: AEP Gemini Station-Gristmill	Rater(s): J. Lubbers; A. Hanner	Date: 10/16/2018

Field Id:

w-jbl-101618-01

Metric 1. Wetland Area (size).

0 (max 6 pts) | 0 (subtotal)

Select one size class and assign score.

0.02 acres

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

Metric 2. Upland buffers and surrounding land use.

1 (max 14 pts.) | 1 (subtotal)

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] 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)
- [x] 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), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

4.5 (max 30 pts.) | 5.5 (subtotal)

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] 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 one.

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

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

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

4 (max 20 pts.) | 9.5 (subtotal)

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

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

Check all disturbances observed

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

9.5 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland 01

Site: AEP Gemini Station-Gristmill	Rater(s): J. Lubbers; A. Hanner	Date: 10/16/2018

Field Id:
w-jbl-101618-01

9.5 subtotal this page

0 max 10 pts. | **9.5** 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 Praires (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 5 Qualitative Rating (-10)

2 max 20pts. | **11.5** subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] 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)
- [x] None (0)

6c. Coverage of invasive plants. Refer 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)
- [x] Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

	Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
	Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare threatened or endangered spp to
	A predominance of native species, with nonnative spp high 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

Category 1

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

APPENDIX C

OEPA HHEI STREAM FORMS

Stream 01

Modified Class 2

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 55

SITE NAME/LOCATION: AEP Gristmill-Gemini

hh-jbl-101618-04 SITE NUMBER: _____ RIVER BASIN: Maumee DRAINAGE AREA (mi²): 0.29

LENGTH OF STREAM REACH (ft): 449 LAT.: 40.53646 LONG.: -84.11888 RIVER CODE: _____ RIVER MILE: _____

DATE: 10/16/18 SCORER: jbl,twl COMMENTS: intermittent

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

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

culvert;channelized

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☑	LEAF PACK/WOODY DEBRIS [3 pts]	30%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	15%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40

10

A + B

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

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

COMMENTS _____ **MAXIMUM POOL DEPTH** (Inches): 6.00

Pool Depth Max = 30

25

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

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

COMMENTS _____ **AVERAGE BANKFULL WIDTH** (Feet): 5.00

Bankfull Width Max=30

20

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS: rain yesterday

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Dry Run** Distance from Evaluated Stream **0.00**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: **Auglaize** Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/15/18** Quantity: **0.20**

Photograph Information: **3 photos, upstream and downsteam and substrate**

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)

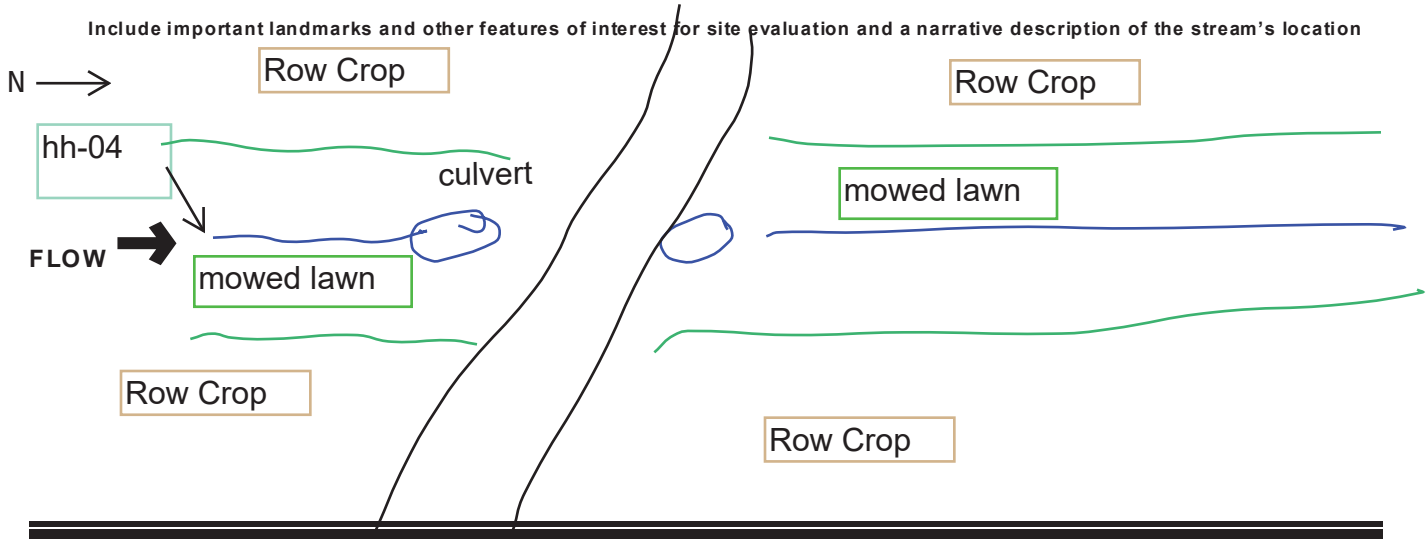
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

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



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Stream 03

Modified Class 2

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 54

SITE NAME/LOCATION: AEP Gristmill-Gemini

hh-jbl-101618-01 SITE NUMBER: | RIVER BASIN: Maumee | DRAINAGE AREA (mi²): 0.89

LENGTH OF STREAM REACH (ft): 535 | LAT.: 40.54423 | LONG.: -84.17678 | RIVER CODE: | RIVER MILE:

DATE: 10/16/18 | SCORER: jbl,twl | COMMENTS: Intermittent

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

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

channelized, culvert

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	70%
☐	BOULDER (>256 mm) [16 pts]	0%	☑	LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	10%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40

9

A + B

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

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

Pool Depth Max = 30

25

COMMENTS | **MAXIMUM POOL DEPTH** (Inches): 8.00

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

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

Bankfull Width Max=30

20

COMMENTS | **AVERAGE BANKFULL WIDTH** (Feet): 5.00

This information must also be completed

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

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

COMMENTS

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

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

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Pusheta Creek** Distance from Evaluated Stream **8,500.00**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: **Auglaize** Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **10/15/18** Quantity: **0.20**

Photograph Information: **2 photos, upstream and downsteam**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**

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)

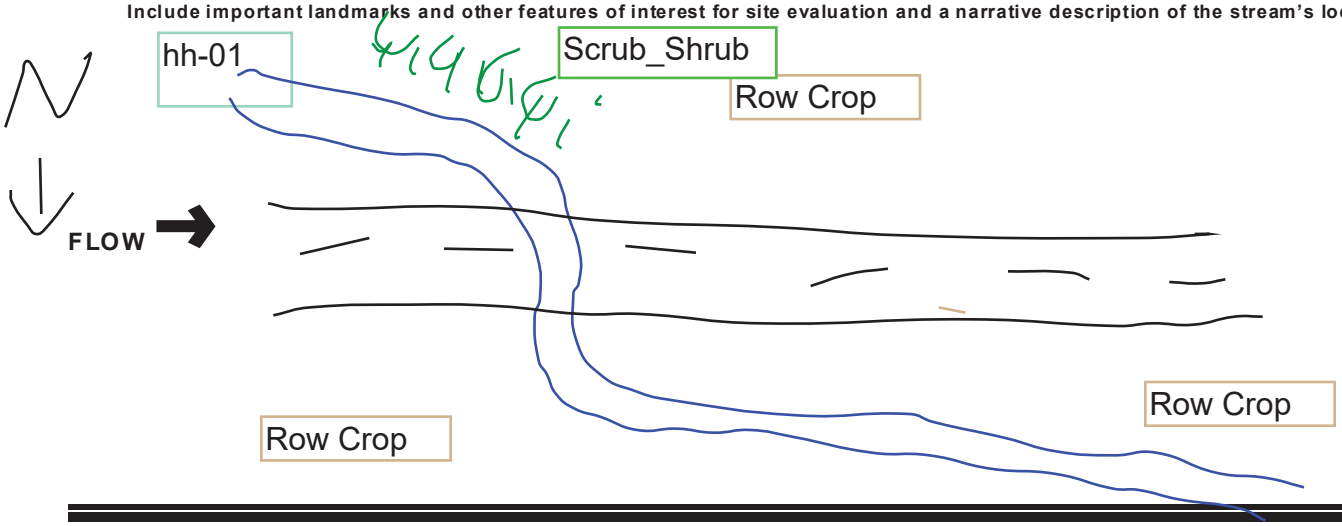
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

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



Save as pdf Reset Form

Stream 04

Modified Class 2

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 39

SITE NAME/LOCATION: AEP Gristmill-Gemini

hh-jbl-101618-02 SITE NUMBER: | RIVER BASIN: Maumee | DRAINAGE AREA (mi²): 0.15

LENGTH OF STREAM REACH (ft): 201 | LAT.: 40.54423 | LONG.: -84.17946 | RIVER CODE: | RIVER MILE:

DATE: 10/16/18 | SCORER: jbl,twl | COMMENTS: ephemeral

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

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

culvert

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	80%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	10%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40

9

A + B

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

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

Pool Depth Max = 30

15

COMMENTS: **MAXIMUM POOL DEPTH** (Inches): 2.00

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

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

Bankfull Width Max=30

15

COMMENTS: **AVERAGE BANKFULL WIDTH** (Feet): 4.00

This information must also be completed

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

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

COMMENTS:

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

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

COMMENTS:

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Pusheta Creek** Distance from Evaluated Stream **8,400.00**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: **Auglaize** Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/15/18** Quantity: **0.20**

Photograph Information: **3 photos, upstream and downsteam and substrate**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**

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)

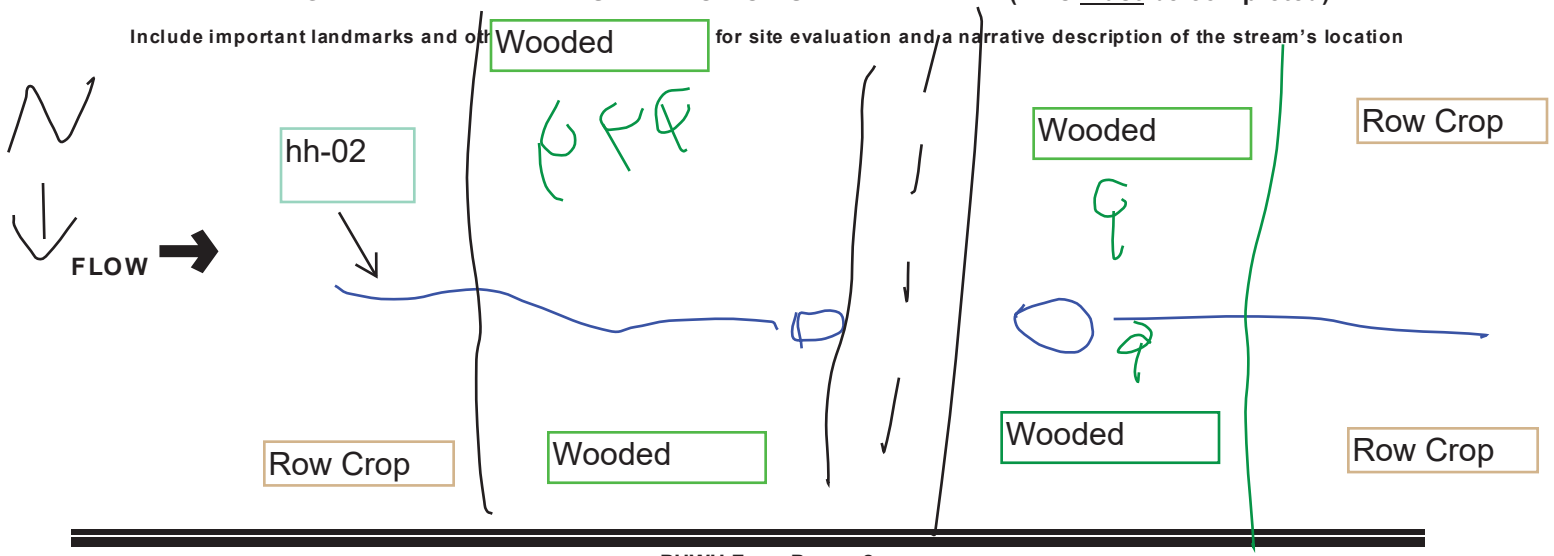
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

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 for site evaluation and a narrative description of the stream's location



Save as pdf Reset Form

APPENDIX D

DELINEATED FEATURES PHOTOGRAPHS

D1– DELINEATED WETLANDS

AECOM

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP Ohio Transco	Gristmill-Gemini 138 kV Transmission Line Project	60567963

Date:

October 16, 2018

Description:

Wetland 1

PEM wetland

Category 1

Facing North

Facing West

Facing South

Facing East

Soil Pit

D2 – DELINEATED STREAMS

PHOTOGRAPHIC RECORD
STREAMS & DITCHES

Client Name:	Site Location:	Project No.
AEP Ohio Transco	Gristmill-Gemini 138 kV Transmission Line Project	60567963

Date:

October 16, 2018

Description:

Stream 1

Intermittent

Modified
Class 2

Facing Upstream

Facing Downstream

Substrate

PHOTOGRAPHIC RECORD
STREAMS & DITCHES

Client Name:	Site Location:	Project No.
AEP Ohio Transco	Gristmill-Gemini 138 kV Transmission Line Project	60567963

Date:

October 16, 2018

Description:

Stream 3

Intermittent

Modified
Class 2

Facing Upstream

Facing Downstream

Substrate

PHOTOGRAPHIC RECORD
STREAMS & DITCHES

Client Name:	Site Location:	Project No.
AEP Ohio Transco	Gristmill-Gemini 138 kV Transmission Line Project	60567963

Date:

October 16, 2018

Description:

Stream 4

Ephemeral

Modified
Class 2

Facing Upstream

Facing Downstream

Substrate

D3 – DELINEATED PONDS

PHOTOGRAPHIC RECORD
PONDS

Client Name:	Site Location:	Project No.
AEP Ohio Transco	Gristmill-Gemini 138 kV Transmission Line Project	60567963

Date:

October 16, 2018

Description:

Pond 1

PUB wetland

Northeast

Southeast

APPENDIX E

USFWS AND ODNR RESPONSE LETTERS

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, DIRECTOR

Office of Real Estate
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March 23, 2018

Jason Tucker
AECOM
525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Re: 18-409; Wapakoneta Improvements Project

Project: The proposed project includes a new Gristmill Station, a new Gemini Station, a new 138 kV transmission line between Gristmill and Gemini Stations, a new 138 kV transmission line between Gemini and West Moulton Stations, and expanding the West Moulton Station.

Location: The proposed project is located in Pusheta and Washington Townships, Auglaize County, Ohio.

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

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

Greater redhorse (*Moxostoma valenciennesi*), State threatened, federal species of concern
Great blue heron rookery

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

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

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

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

The project area east of Dixie Highway and south of Weimert School Road is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. Presence of the Indiana bat has been established in the area, and therefore additional summer surveys would not constitute presence/absence in the area. 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.

The remainder of the project area is within the range of the Indiana bat (*Myotis sodalis*). 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, and the pondhorn (*Uniomerus 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 (2016), 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 10 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 (2018) 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 in a perennial stream, this project is not likely to impact this or other aquatic species.

The project is within the range of the lark sparrow (*Chondestes grammacus*), a state endangered bird. This sparrow nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patches of bare soil. These summer residents normally migrate out of Ohio shortly after their young fledge or leave the nest. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to June 30. If this habitat will not be impacted, the project is not likely to impact this species.

The DOW has a record for a great blue heron rookery within the boundary of the project area. The rookery is located within the large woodlot between the following roads: Washington Pike, Burr Oak Road, Kettlersville Road, and Kohler Road. Nesting great blue herons are protected under the Migratory Bird Treaty Act of 1918. Impacts to great blue heron rookeries can have a significant impact on a local population due to the large number of birds that return each year to the same rookery to nest. Rookeries often include a certain set of characteristics that are not easily found elsewhere. The DOW recommends that construction activity within the rookery be avoided to preserve the rookery. If construction within the rookery cannot be avoided, the DOW recommends at the very least, the rookery be avoided during the nesting season of March 1 through June 31 as to not interfere with nesting birds. In addition, the DOW recommends a 100 yard no activity buffer be maintained around the rookery during the breeding season as to not interfere with nesting birds.

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

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

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

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

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

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

Tucker, Jason

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Friday, March 09, 2018 10:35 AM
To: Tucker, Jason
Subject: Wapakoneta Transmission Infrastructures (Several 138 kV Stations) in Auglaize Co.

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# 03E15000-2018-TA-0902

Dear Mr. Tucker,

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

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

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

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

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

Sincerely,

Dan Everson
Field Supervisor

Summary: Letter of Notification electronically filed by Ms. Christen M. Blend on behalf of AEP Ohio Transmission Power Company, Inc.