

Letter of Notification for Adjustment to Gristmill-Gemini 138 kV Transmission Line Project



An **AEP** Company

BOUNDLESS ENERGYSM

PUCO Case No. 19-1489-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.

August 14, 2019

Letter of Notification for Adjustment to Gristmill-Gemini 138 kV Transmission Line Project

Letter of Notification

AEP Ohio Transmission Company, Inc. (AEP Ohio Transco) Adjustment to 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 an adjustment to the approved Gristmill-Gemini 138 kV Transmission Line Project (Case Number 19-0043-EL-BLN), which will be referred to herein as Adjustment to Gristmill-Gemini 138 kV Transmission Line Project (“Project”). The Project is located in Auglaize County, Ohio.

The Project involves shifts to 29 structures (Structures 1-16, 27-30, 35-39, 40 (N), 40 (S), 41 (N), and 41 (S)) with distances varying between approximately 4 to 48 feet from the original Ohio Power Siting Board (“OPSB”)–approved centerline between Gristmill Station (OPSB Case Number 19-0043-EL-BLN) and Gemini Station (OPSB Case Number 18-1637-EL-BLN), which are both currently under construction. The OPSB-approved centerline was shifted approximately 48 feet to the east from Gemini Station to Structure 2 to provide enough clearance to the Gemini Station fence. AEP Ohio Transco shifted the OPSB-approved centerline to the north approximately 16 feet between Structures 2 and 13 and between 10 and 19 feet between Structures 13 and 16, closer to the Short Road right-of-way (ROW), as a result of a detailed civil survey that was conducted along Short Road between Structures 2 and 16. Structure 15 was shifted approximately 21 feet south-southeast, at the request of a property owner, to minimize land-use impacts to a residential parcel by shifting the structure closer to an existing driveway. This shift also allows for access of heavy farm equipment along the existing driveway. The OPSB-approved centerline was shifted between five and 12 feet to the north between Structures 27 and 30 to better align the centerline with property lines after a detailed civil survey was conducted along this stretch of the Project. Finally, based on a shift to the Gristmill Station bay during detailed engineering, the OPSB-approved centerline was shifted between six and 12 feet to the south between Structure 35 and Gristmill Station to maintain tangent structures and avoid larger footprint angle structures.

The Project location in relation to the surrounding vicinity can be seen in Map 1, Appendix A.

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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.*

The Project has been assigned PUCO Case No. 19-1489-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 97 of the 2019 AEP Ohio Transco LTFR Form FE-T10. The Gristmill – Gemini 138kV Line is on page 52 of the 2019 AEP Ohio Transco LTFR Form FE-T9, see Appendix D. 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, see Appendix B. The solution statement for the customer needs was 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.

The location of the Project in relation to existing transmission lines and stations is shown on **Map 1, Appendix A.**

B(4) Alternatives Considered

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

The proposed structure shifts that are the subject of this application represent the most appropriate solution for meeting AEP Ohio Transco's need. Specifically, the adjustments to the pole locations were chosen because they improved the design by better aligning with property lines and road ROW or straightening the centerline. No other alternatives were considered for the Project. Significant negative socioeconomic, ecological, or construction impacts from the proposed adjustment are not expected, as the adjustments will be covered under the previously surveyed areas for the Project.

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 September of 2019, and the anticipated in-service date will be May 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.

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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.

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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

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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, including the proposed adjustment, 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.

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 along Short Road is mapped within 100 feet of the proposed Gristmill-Gemini transmission line.

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.

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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, 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.

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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 \$10,000,000¹, based on a Class 3 estimate.

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 approximately four miles of 138 kV transmission line. 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 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. 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 August 2019. The proposed Gristmill-Gemini transmission line intersects five parcels that were identified as Agricultural District Land parcels. Approximately 16.4 acres of agricultural district land cross the proposed ROW of the Gristmill-Gemini 138 kV transmission line.

¹ Section 4906-6-05(B)(9)(c) of AEP Ohio Transco's LON filing in Case No. 19-0043-EL-BLN indicated that Project costs would be approximately \$33,000,000. That cost estimate was based on a Class 4 estimate and included costs for the Gristmill Station and the Southwest Lima-Miami 345 kV transmission line, which are not specific components of the subject filing. The above cost estimate has been updated to reflect the anticipated cost of the transmission facilities that are associated with the subject filing.

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Overall, the proposed Gristmill-Gemini 138 kV transmission line ROW crosses approximately 40 acres of agricultural land. It is anticipated that only the small footprint of the proposed pole locations along the 138 kV transmission line will be converted from agricultural use as a result of the Project.

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. A response from the State Historic Preservation Office ("SHPO") were received in December 2018, see Appendix C. SHPO has indicated that the initial coordination with their office is sufficient, and that no further coordination is necessary as part of the adjustments proposed for the Project.

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

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publication lists the Indiana bat (*Myotis sodalis*; federally endangered) and northern long-eared bat (*Myotis septentrionalis*; 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 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 D.

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 D. 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.

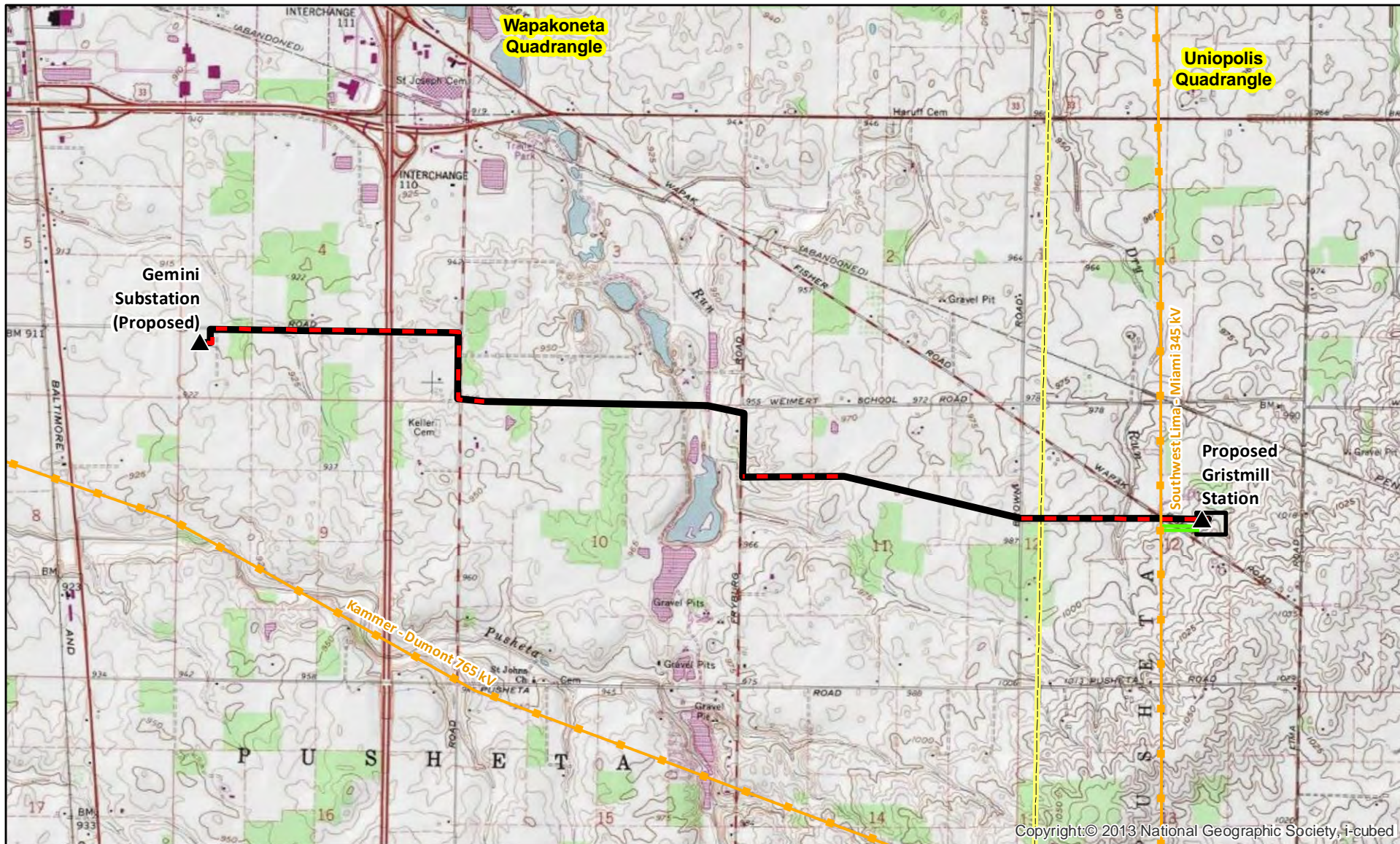
To the best of AEP Ohio Transco's knowledge, no unusual conditions exist that would result in significant environmental, social, health, or safety impacts.

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO GRISTMILL-GEMINI 138 KV
TRANSMISSION LINE PROJECT**

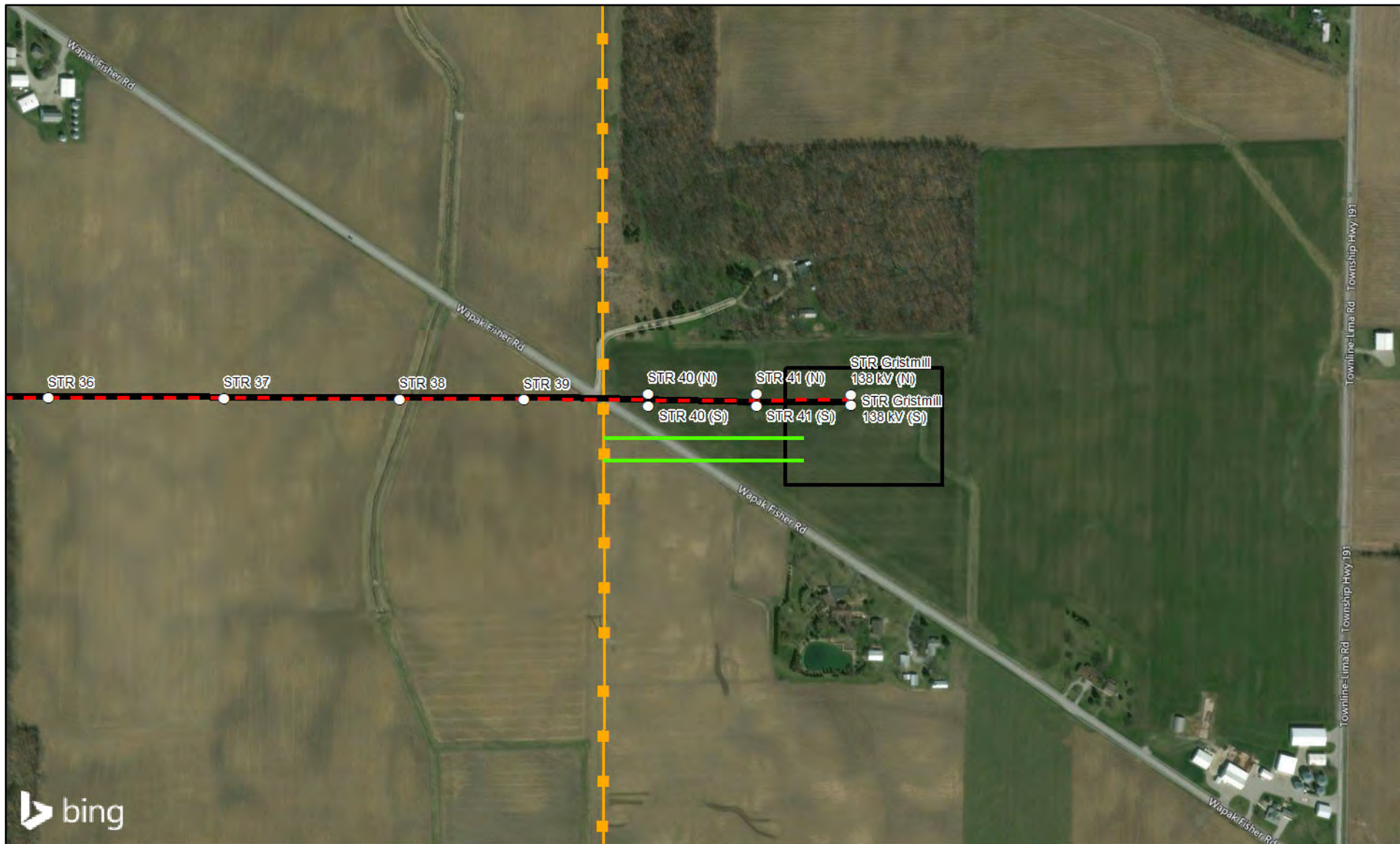
August 2019

Appendix A Project Maps

Figures 1 and 2



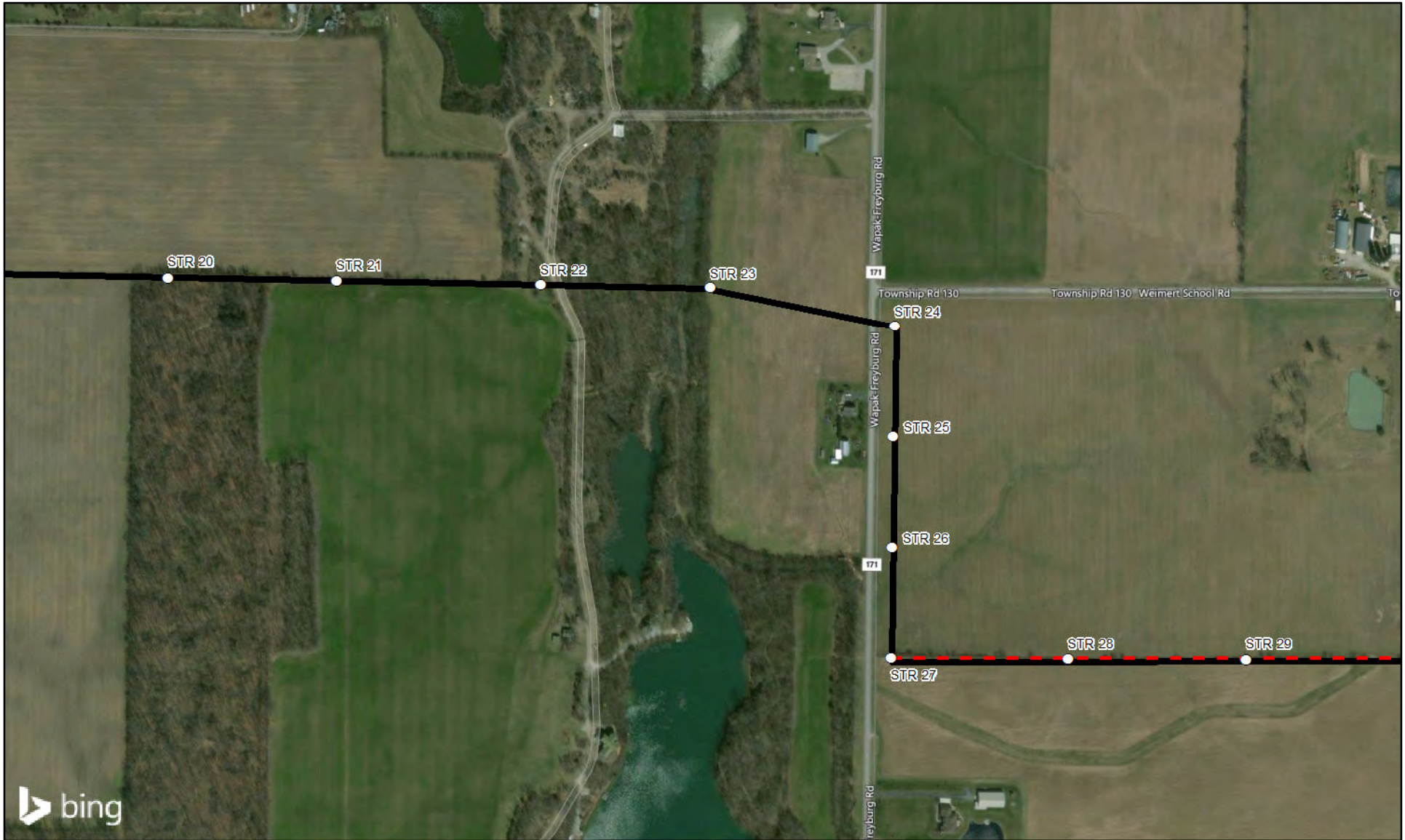
<ul style="list-style-type: none"> ▲ Substation □ Proposed Gristmill Station Site - - - Adjusted Route — OPSB Approved Route — Proposed Southwest Lima-Miami 345 kV Extension — Existing Transmission Line (345 kV+) — USGS 7.5' Topographical Quadrangle 	<p>Data Sources: AEP (2018), USGS (2018), ESRI (2013)</p> <p>Coordinate System: State Plane Ohio North NAD 83</p> <p>August 09, 2019</p>		<h3>Map 1 Project Overview</h3> <p>Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project</p> <p>AEP AMERICAN ELECTRIC POWER</p> <p>0 0.25 0.5 0.75 1 Miles</p>
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<ul style="list-style-type: none"> OPSB Approved Route Adjusted Route Proposed Structure Location Proposed Gristmill Station Site Proposed Southwest Lima-Miami 345 kV Extension Existing Transmission Line (345 kV+) 	<p>Data Sources: AEP (2018), Bing (2018)</p> <p>Coordinate System: State Plane Ohio North NAD 83</p> <p>July 30, 2019</p>		<p>Map 2A Aerial Imagery of Project Area</p> <p>AEP AMERICAN ELECTRIC POWER</p> <p>Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project</p> <p>0 250 500 750 1,000 Feet</p>
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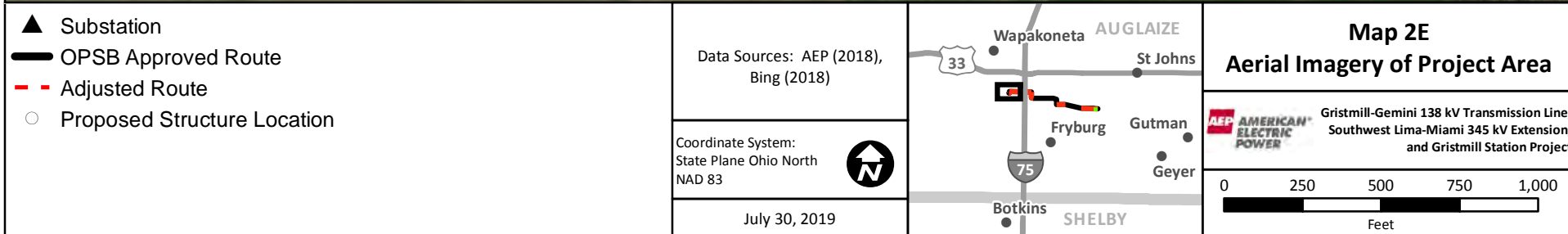
<p> OPSB Approved Route Adjusted Route Proposed Structure Location </p>	<p>Data Sources: AEP (2018), Bing (2018)</p> <hr/> <p>Coordinate System: State Plane Ohio North NAD 83</p> <hr/> <p>July 30, 2019</p>		<p align="center">Map 2B Aerial Imagery of Project Area</p> <hr/> <p> Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project </p> <hr/> <p> 0 250 500 750 1,000 Feet </p>
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<p> OPSB Approved Route Adjusted Route Proposed Structure Location </p>	<p>Data Sources: AEP (2018), Bing (2018)</p> <hr/> <p>Coordinate System: State Plane Ohio North NAD 83</p>		<div> <p>Map 2C Aerial Imagery of Project Area</p> <p> Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project </p> <p>0 250 500 750 1,000 Feet</p> </div>
<p>July 30, 2019</p>			



<p> OPSB Approved Route Adjusted Route Proposed Structure Location </p>	<p>Data Sources: AEP (2018), Bing (2018)</p> <p>Coordinate System: State Plane Ohio North NAD 83</p> <p>July 30, 2019</p>		<p>Map 2D Aerial Imagery of Project Area</p> <p> AMERICAN ELECTRIC POWER </p> <p>Gristmill-Gemini 138 kV Transmission Line, Southwest Lima-Miami 345 kV Extension, and Gristmill Station Project</p> <p> 0 250 500 750 1,000 Feet </p>
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**LETTER OF NOTIFICATION FOR ADJUSTMENT TO GRISTMILL-GEMINI 138 KV
TRANSMISSION LINE PROJECT**

August 2019

Appendix B 2019 Long Term Forecast and PJM Submittal



AEP Transmission Zone: Supplemental Wapakoneta, Ohio

Need Number: AEP-2018-OH001

Process Stage: Needs Meeting 10/26/18

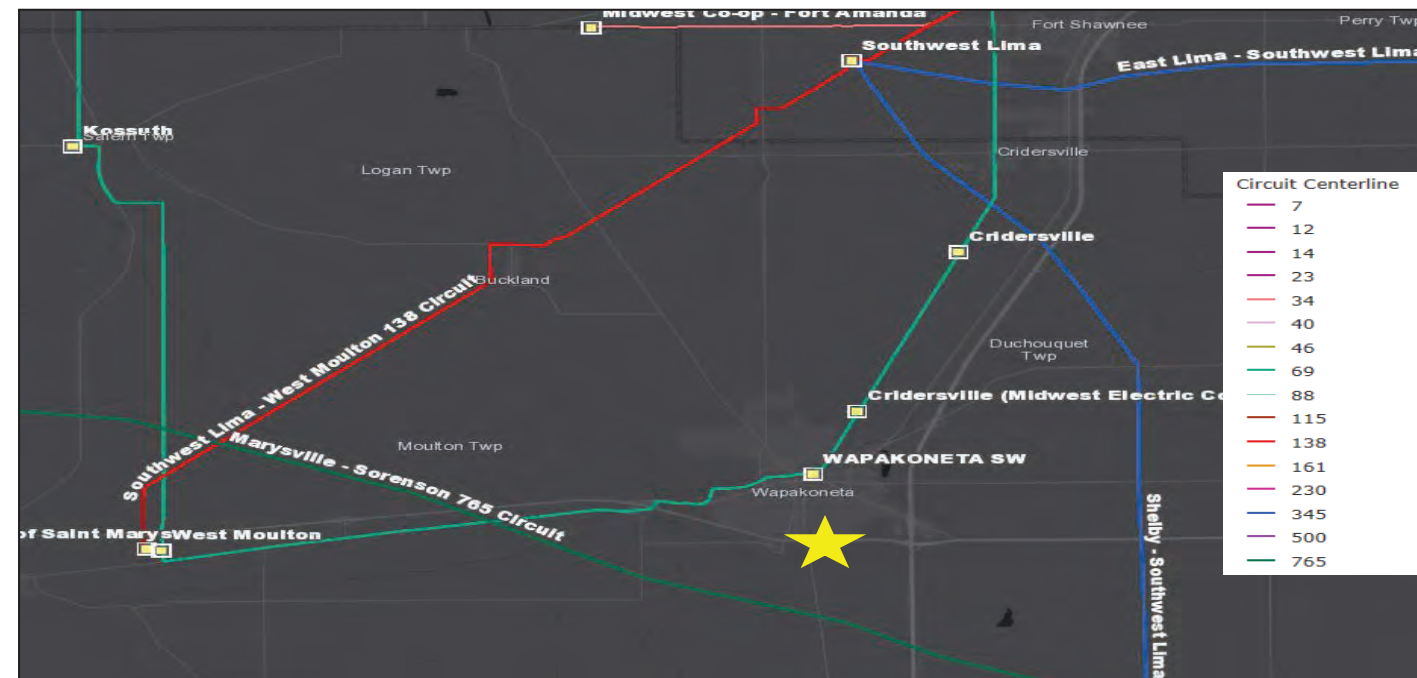
Process Chronology: Needs Meeting 10/26/18

Supplemental Project Driver: Customer Service

Specific Assumptions Reference: AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 7)

Problem Statement:

Obligation to serve a new 80 MW customer load request near the City of Wapakoneta. Two additional customers have inquired about service in this area totaling 48 MW.





AEP Transmission Zone: Supplemental Wapakoneta, Ohio

Need Number: AEP-2018-OH001

Process Stage: Solution Meeting 1/11/19

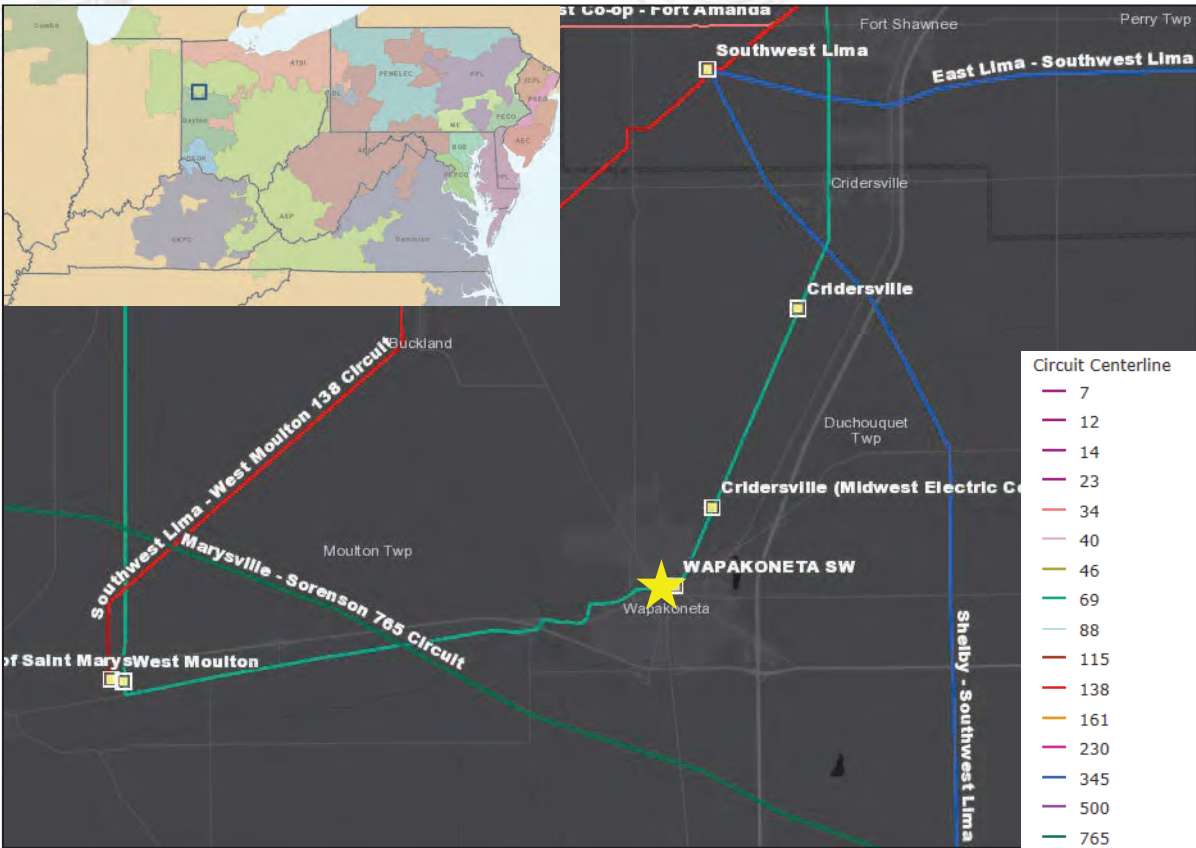
Needs Presented: 10/26/18

Supplemental Project Driver: Customer Service

Specific Assumptions Reference: AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 7)

Problem Statement:

Obligation to serve new customer load for the City of Wapakoneta. Total future load expected to be served from Gemini station is approx. 127MW.
The total 127 MW future load includes an additional estimated 40MW of new load from other new potential customers at the same location.





AEP Transmission Zone: Supplemental Wapakoneta, Ohio

Need Number: AEP-2018-OH001
Process Stage: Solution Meeting 11/1/2019

Proposed Solution:

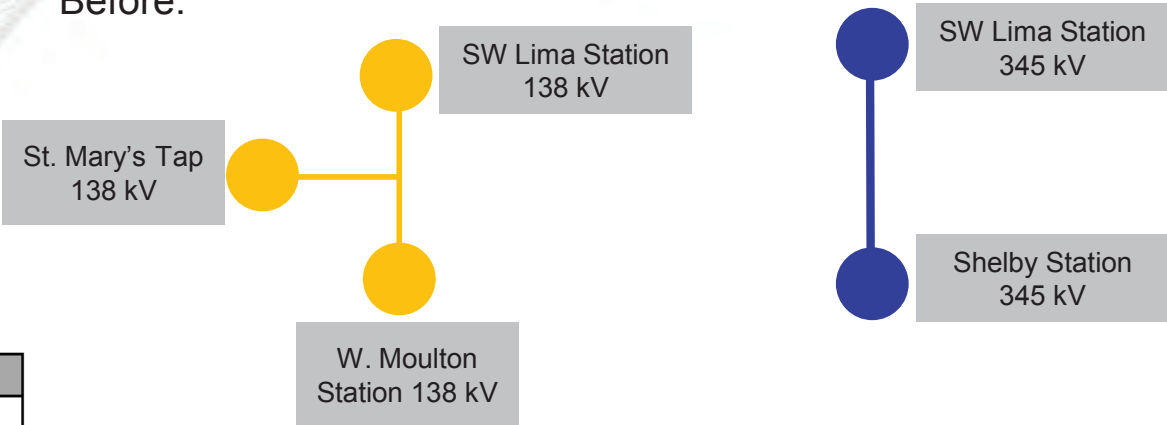
Build a new 345/138 kV Gristmill Station cutting into the Southwest Lima – Shelby 345 kV line. Build a new 138 kV Gemini Station southeast of the City of Wapakoneta to serve the load request. Build a new 138 kV line connecting Gristmill to Gemini Stations. Build a new 138 kV line from the new 138 kV Gemini Station to existing West Moulton 138 kV Station. Rebuild the West Moulton 138 kV Station as a 4 breaker ring bus. Remove the existing City of St Marys hard tap off the Southwest Lima – West Moulton 138 kV line and bring it into West Moulton 138 kV station (~0.2 mi away).

Alternative:

Build a new 138 kV Gemini Station southeast of the City of Wapakoneta. Build a new 138 kV line from the new Gemini 138 kV Station to West Moulton 138 kV Station. Build a new 138 kV line from Gemini 138 kV station to existing SW Lima 138 kV Station. This alternative was not chosen due to higher costs due to the additional line mileage.

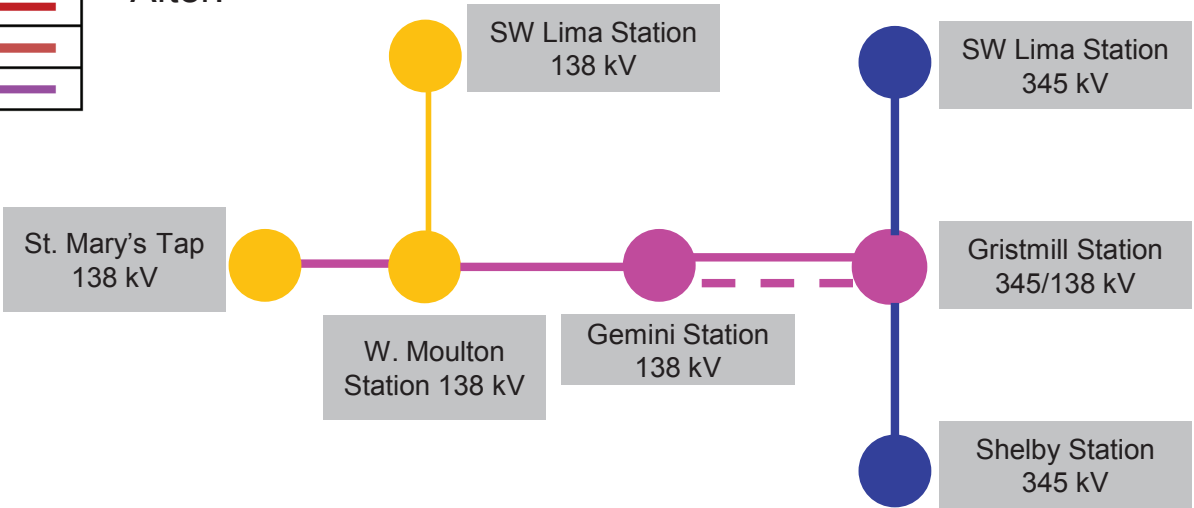
Total Estimated Transmission Cost: \$66.2M
Projected IS Date: 12/31/2020
Project Status: Engineering

Before:



Legend	
500 kV	
345 kV	
138 kV	
69 kV	
34.5 kV	
23 kV	
New	

After:



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

1.	LINE NAME AND NUMBER:	Gristmill - Gemini 138kV (PJM number pending)
2.	POINTS OF ORIGIN AND TERMINATION	Gristmill - Gemini; INTERMEDIATE STATION - N/A
3.	RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS	4.7 mi / 100 ft / single circuit
4.	VOLTAGE: DESIGN / OPERATE	138kV / 138kV
5.	APPLICATION FOR CERTIFICATE:	LON Filed Jan 2019.
6.	CONSTRUCTION:	To be completed approximately 10/1/2020
7.	CAPITAL INVESTMENT:	Approximately \$10.3M
8.	PLANNED SUBSTATION:	NAME - Gristmill; TRANSMISSION VOLTAGE - 345kV / 138kV; ACREAGE - 3; LOCATION - Wapakoneta, OH
9.	SUPPORTING STRUCTURES:	Overhead, Steel, Pole
10.	PARTICIPATION WITH OTHER UTILITIES	N/A
11.	PURPOSE OF THE PLANNED TRANSMISSION LINE	Service to new customer delivery point
12.	CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	New customer load would not have service in required timeframe
13.	MISCELLANEOUS:	N/A

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO GRISTMILL-GEMINI 138 KV
TRANSMISSION LINE PROJECT**

August 2019

Appendix C SHPO Correspondence



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 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, Project Reviews Manager
Resource Protection and Review

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

RPR Serial No: 1076539, 1076540

OHIO HISTORY CONNECTION

800 E. 17th Ave., Columbus, OH 43211-2474 • 614.297.2300 • ohiohistory.org

**LETTER OF NOTIFICATION FOR ADJUSTMENT TO GRISTMILL-GEMINI 138 KV
TRANSMISSION LINE PROJECT**

August 2019

Appendix D USFWS and ODNR Correspondence

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. Secondly, 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 (°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° 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 mi² (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 moraines on 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/](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/](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

^aForm 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 (<i>Carya</i> spp.), Black Walnut (<i>Juglans nigra</i>), Beech (<i>Fagus grandifolia</i>), Red Oak (<i>Quercus rubra</i>), Tuliptree (<i>Liriodendron tulipifera</i>), Cucumbertree (<i>Magnolia acuminata</i>), Black Cherry (<i>Prunus serotina</i>), Red Maple (<i>Acer rubrum</i>), Sugar Maple, (<i>Acer saccharum</i>), Yellow Buckeye (<i>Aesculus octandra</i>), American Basswood (<i>Tilia Americana</i>), White Basswood, (<i>Tilia heterophylla</i>), and White Ash (<i>Fraxinus Americana</i>).	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 (<i>Myotis sodalis</i>)	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 (<i>Carya</i> spp.), oak (<i>Quercus</i> spp.), ash (<i>Fraxinus</i> spp.), birch (<i>Betula</i> spp.), and elm (<i>Ulmus</i> 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 (<i>Myotis septentrionalis</i>)	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 (<i>Carya</i> spp.), oak (<i>Quercus</i> spp.), ash (<i>Fraxinus</i> spp.), birch (<i>Betula</i> spp.), and elm (<i>Ulmus</i> 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 (<i>Moxostoma valenciennesi</i>)	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 (<i>Pleurobema clava</i>)	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 (<i>Unio merus tetralasmus</i>)	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 (<i>Chondestes grammacus</i>)	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 scattered 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 mile²). 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 the lark 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. If 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.

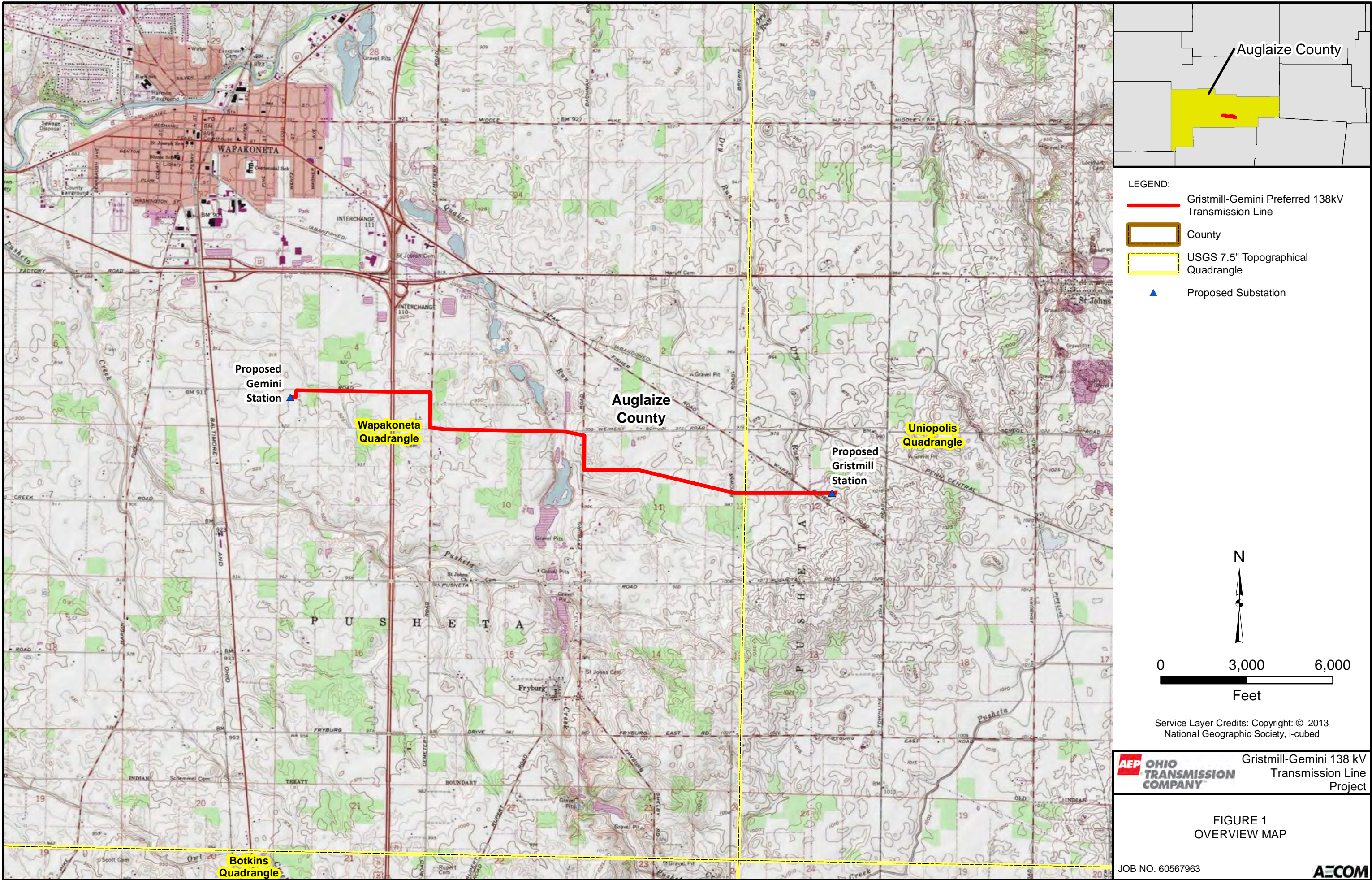
The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance; therefore, lengths and acreages listed in this report may not constitute the actual impacts of the Project defined in subsequent permit applications.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

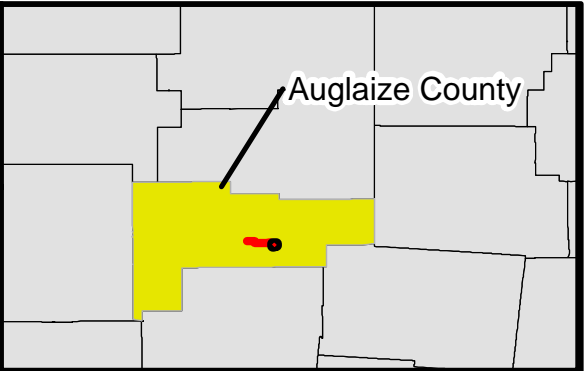
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LEGEND:

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

Soil Map Unit Symbol

Ble1A1;Blount silt loam, end moraine, 0 to 2 percent slopes

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

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

Pt;Pewamo silty clay loam, 0 to 1 percent slopes

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Feet

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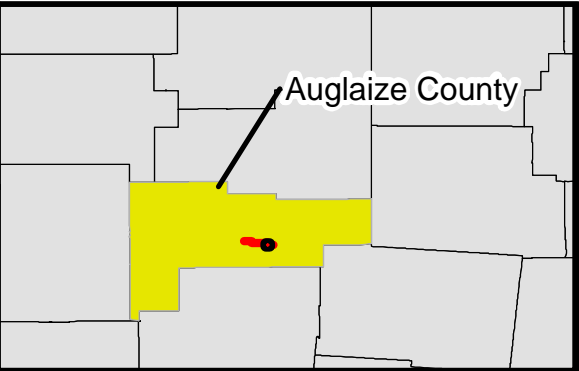
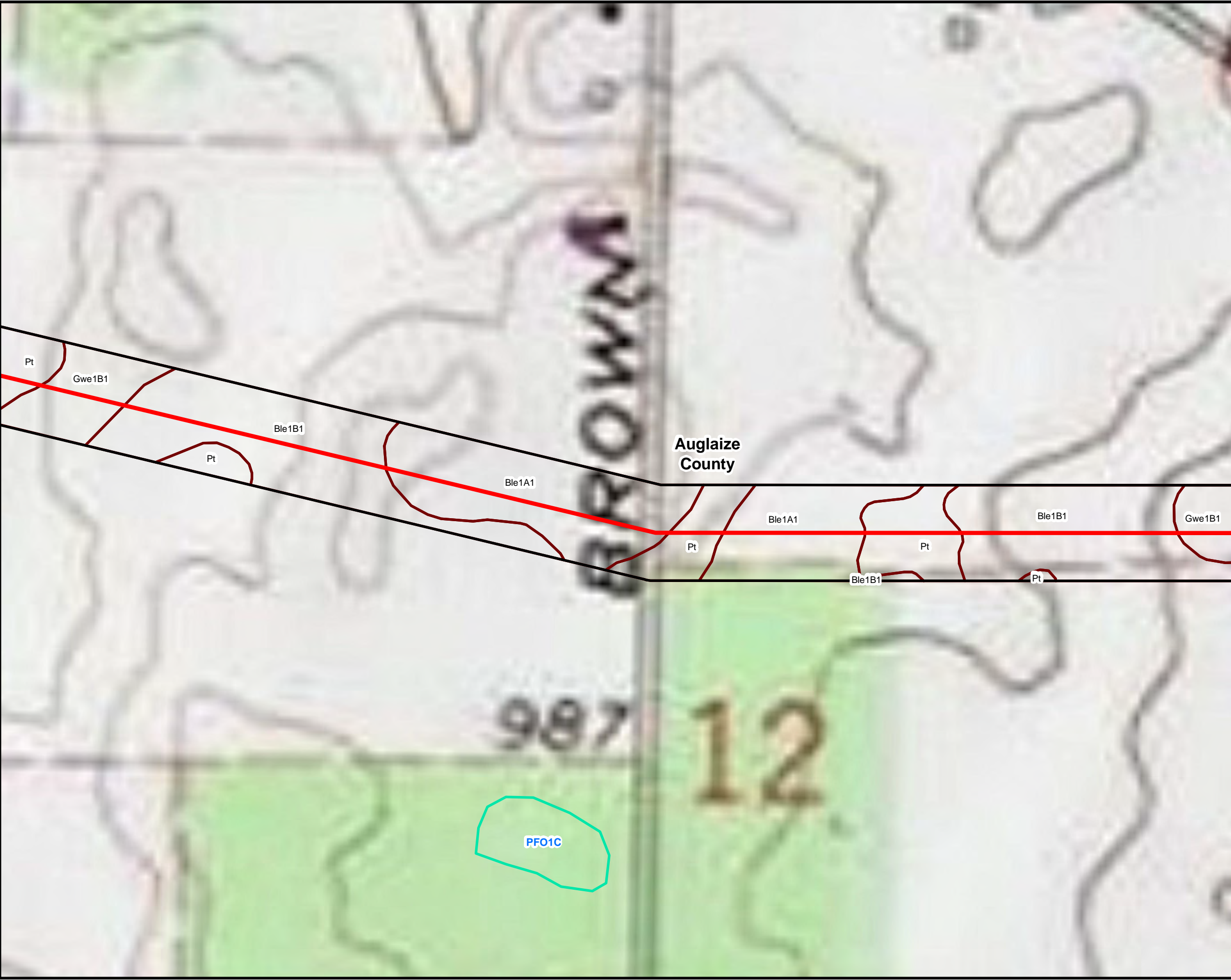
AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 2A
SOIL MAP UNIT AND NATIONAL
WETLAND INVENTORY MAP

JOB NO. 60567963

AECOM



LEGEND:

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

Soil Map Unit Symbol

- Ble1A1;Blount silt loam, end moraine, 0 to 2 percent slopes
- Ble1B1;Blount silt loam, end moraine, 2 to 4 percent slopes
- Gwe1B1;Glynwood silt loam, end moraine, 2 to 6 percent slopes
- Pt;Pewamo silty clay loam, 0 to 1 percent slopes

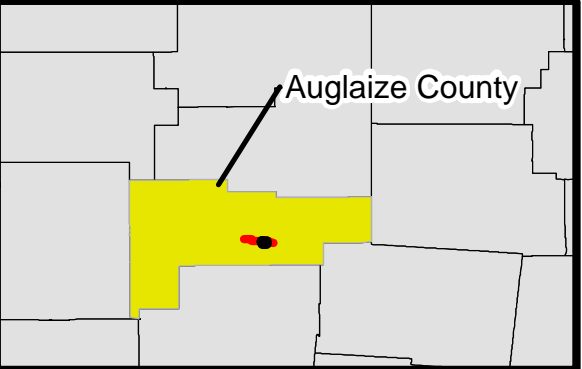
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North Arrow: N

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AEP OHIO TRANSMISSION COMPANY Gristmill-Gemini 138 kV Transmission Line Project

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



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

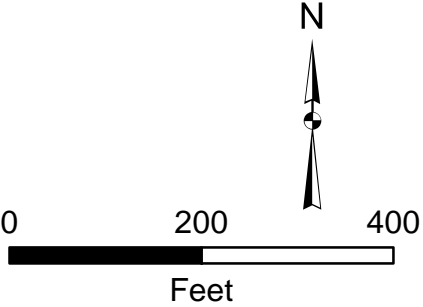
Soil Map Unit Symbol

Ble1A1;Blount silt loam, end moraine, 0 to 2 percent slopes

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

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

Pt;Pewamo silty clay loam, 0 to 1 percent slopes



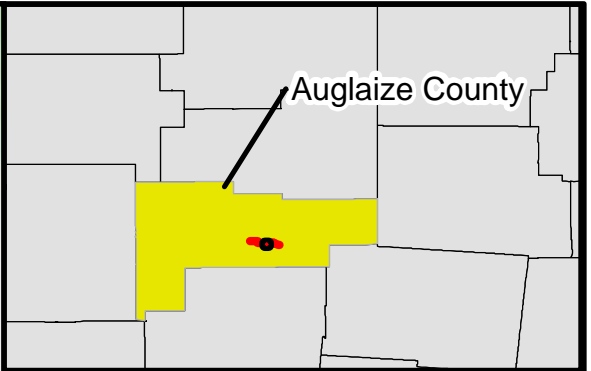
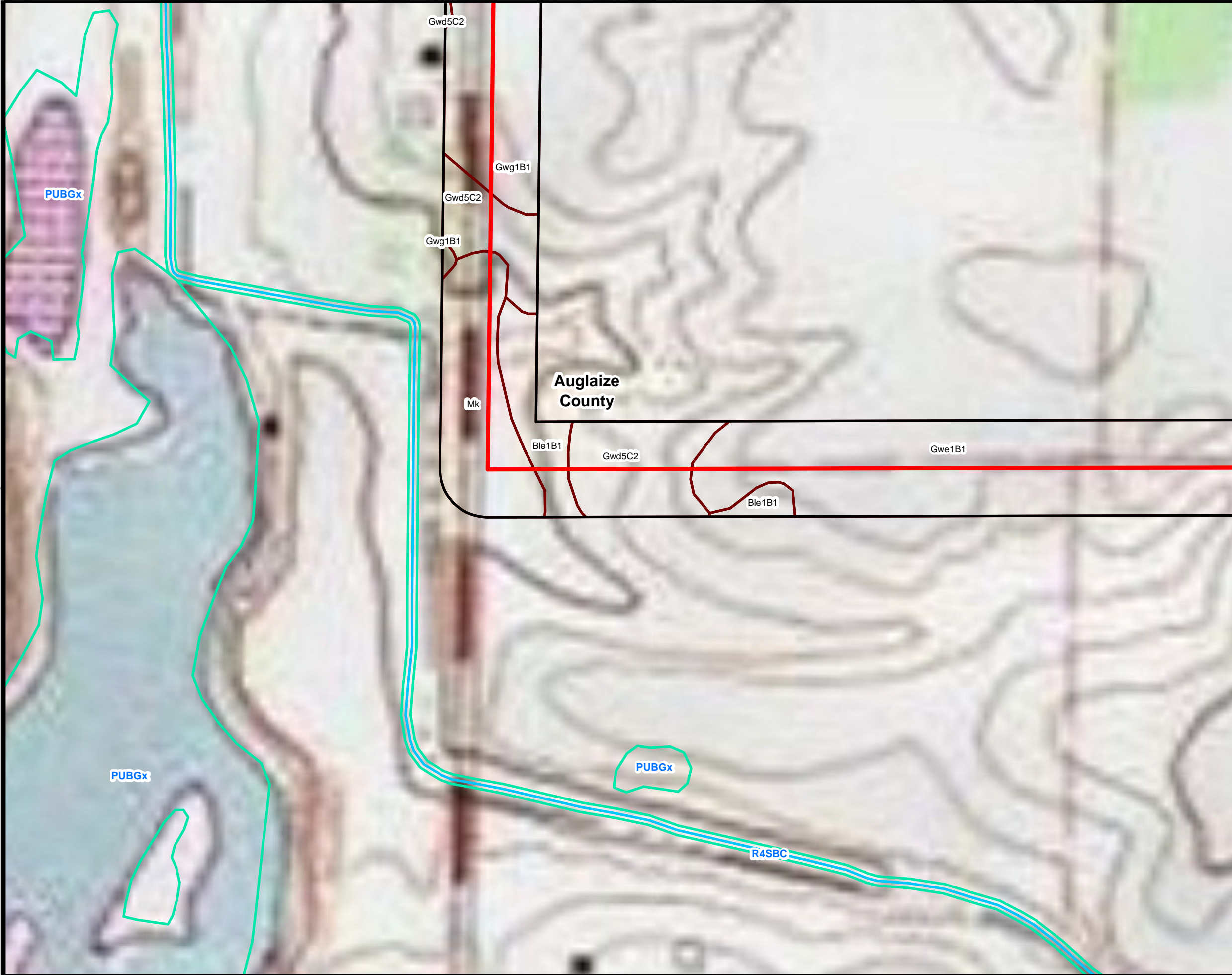
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AEP OHIO TRANSMISSION COMPANY

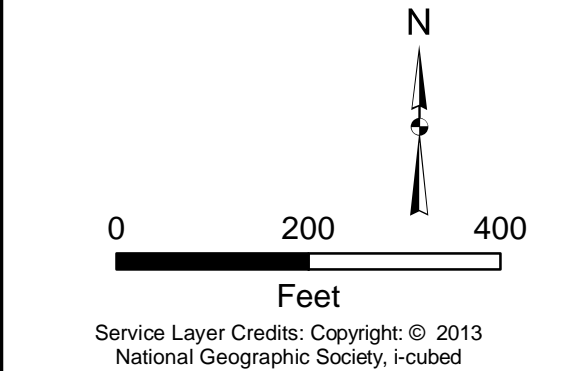
Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 2C
SOIL MAP UNIT AND NATIONAL
WETLAND INVENTORY MAP

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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



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AEP OHIO TRANSMISSION COMPANY

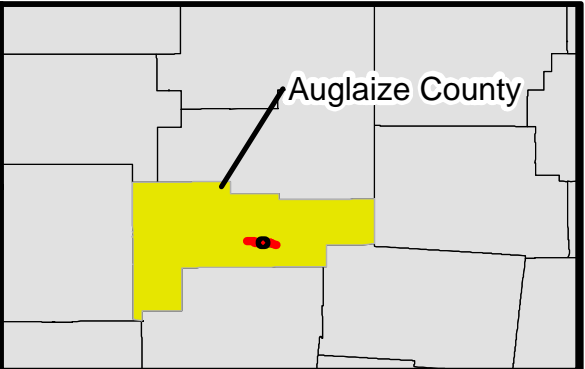
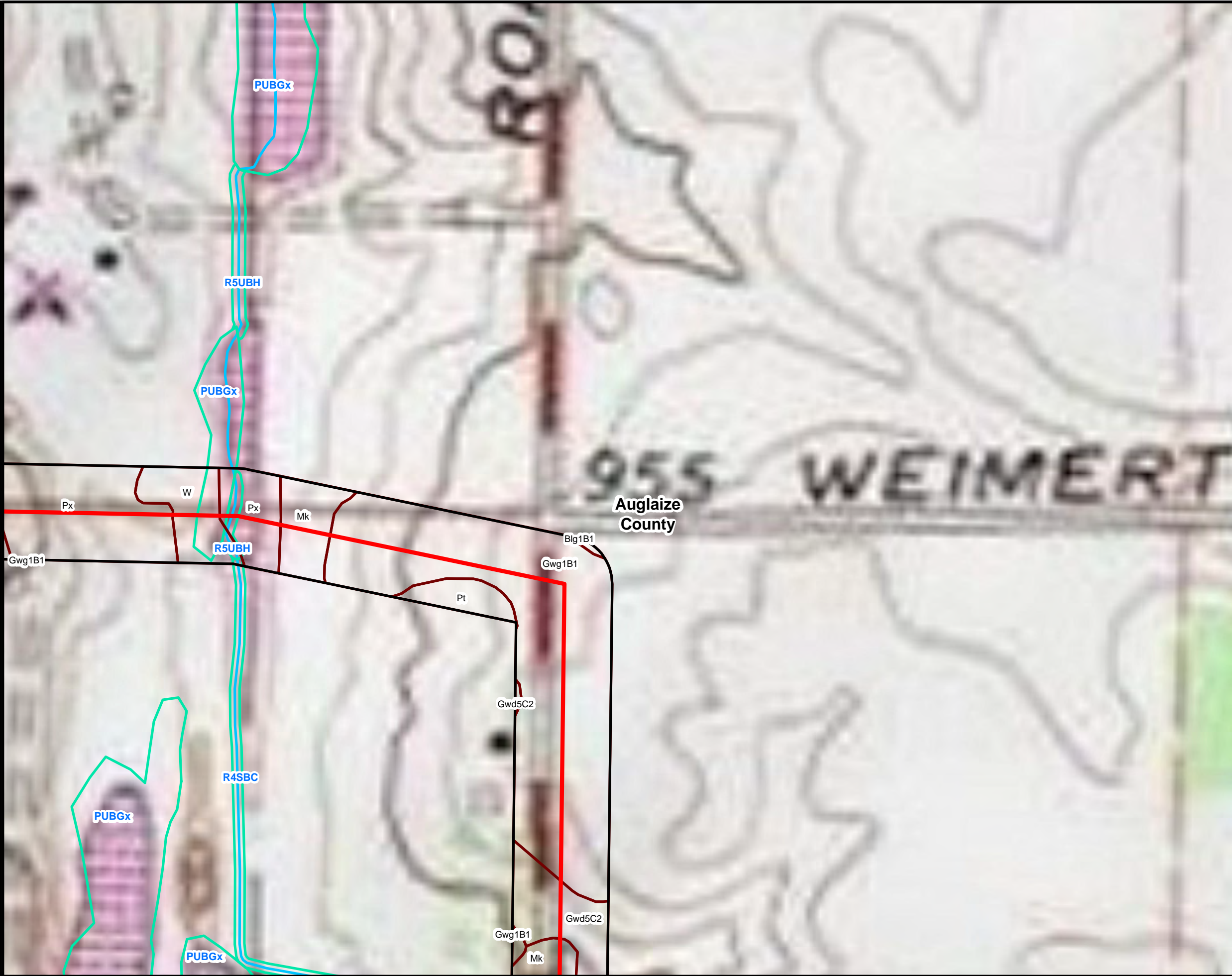
Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 2D
SOIL MAP UNIT AND NATIONAL
WETLAND INVENTORY MAP

JOB NO. 60567963

AECOM

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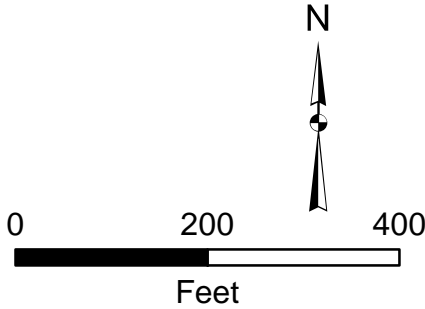


LEGEND:

- 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



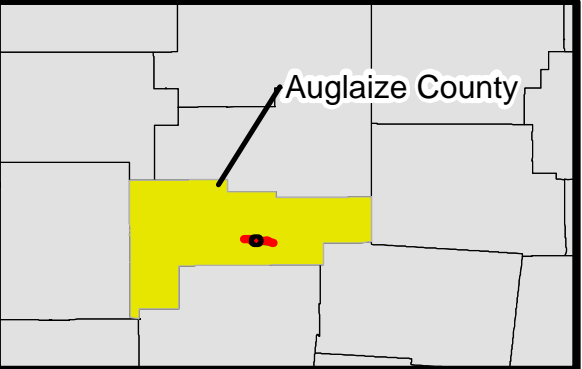
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Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 2E
SOIL MAP UNIT AND NATIONAL
WETLAND INVENTORY MAP

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LEGEND:

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

Soil Map Unit Symbol

Blg1B1;Blount silt loam, ground moraine, 2 to 4 percent slopes

EmB;Eldean loam, 2 to 6 percent slopes

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

Pt;Pewamo silty clay loam, 0 to 1 percent slopes

Px;Pits, gravel

Scale: 0 200 400 Feet

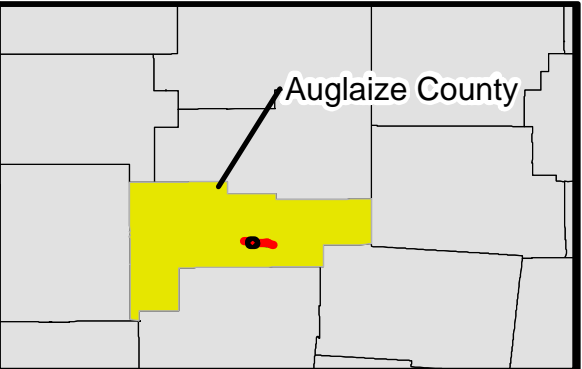
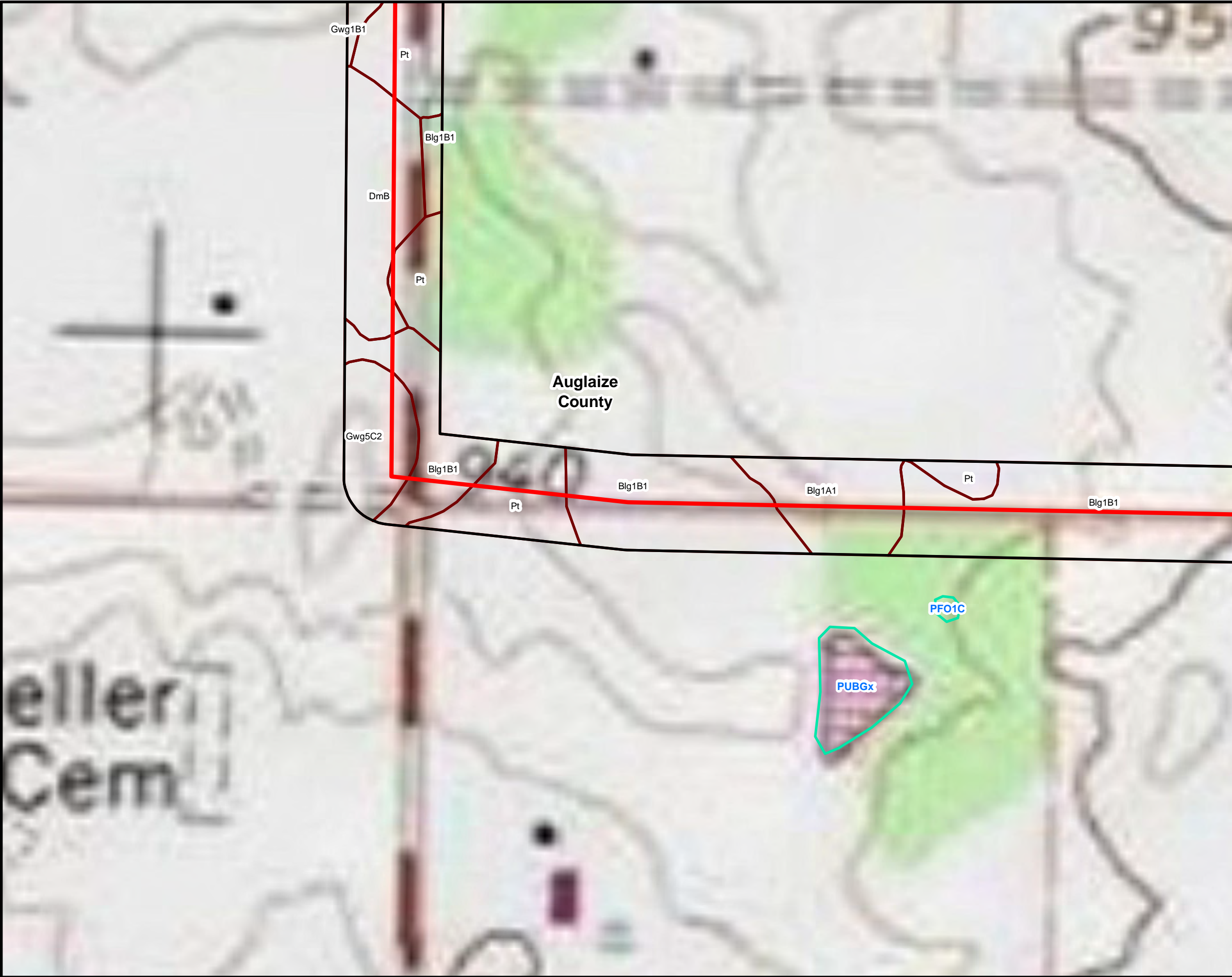
North Arrow: N

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AEP OHIO TRANSMISSION COMPANY

Gristmill-Gemini 138 kV Transmission Line Project

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LEGEND:

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

Soil Map Unit Symbol

Blg1A1;
Blg1B1;Blount silt loam, ground moraine, 2 to 4 percent slopes
DmB;Digby loam, 2 to 6 percent slopes
Gwg1B1;Glynwood silt loam, ground moraine, 2 to 6 percent slopes
Gwg5C2;Glynwood clay loam, ground moraine, 6 to 12 percent slopes, eroded
Pt;Pewamo silty clay loam, 0 to 1 percent slopes

0 200 400
Feet

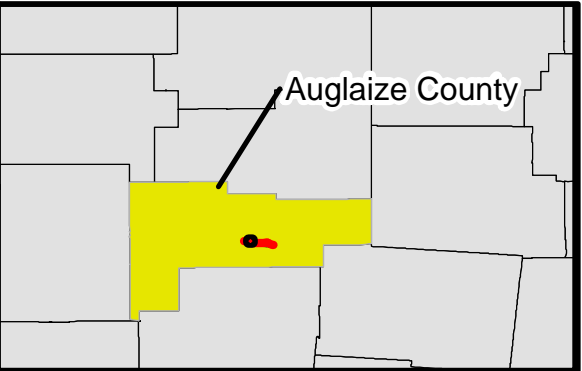
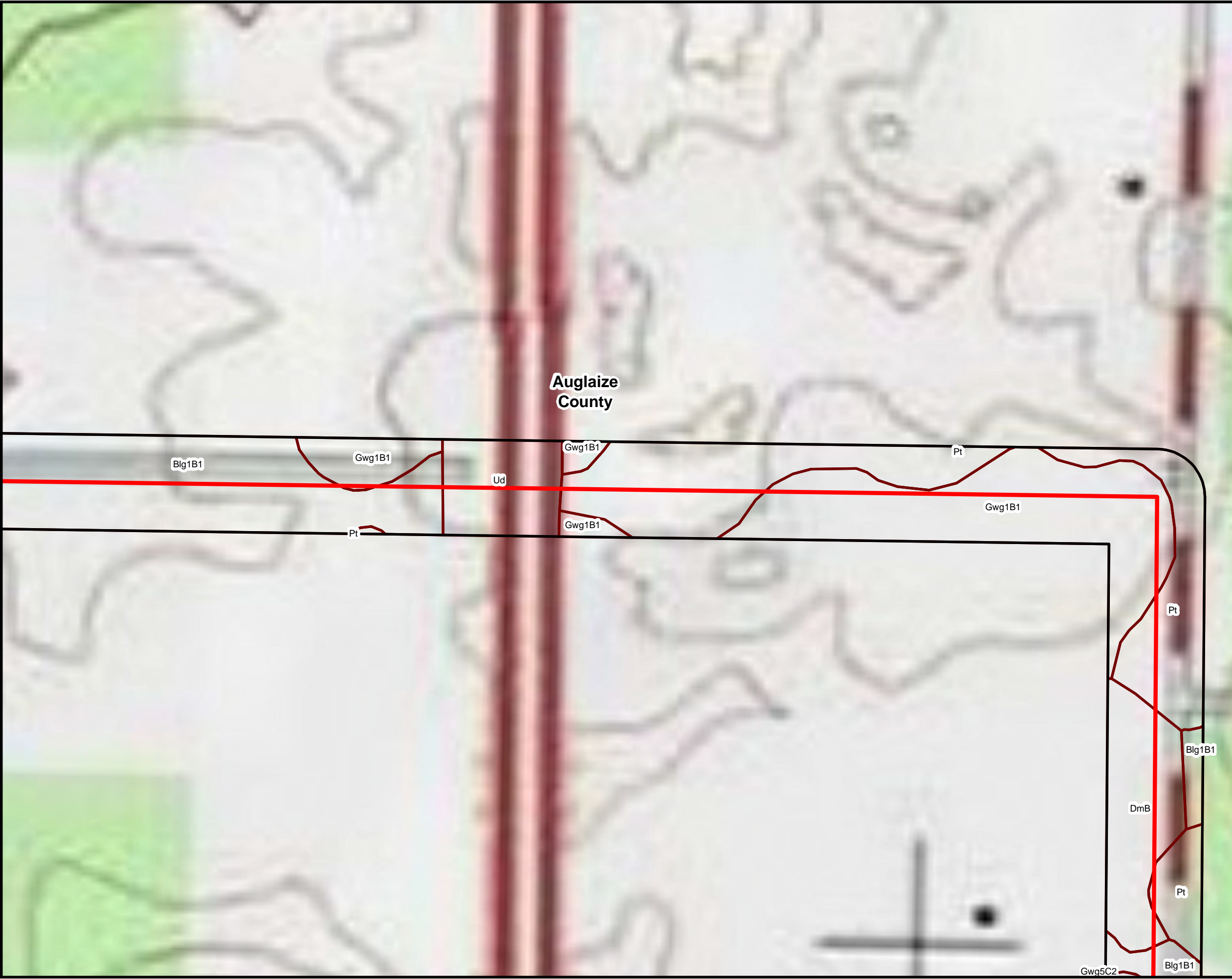
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Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 2G
SOIL MAP UNIT AND NATIONAL
WETLAND INVENTORY MAP

JOB NO. 60567963

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LEGEND:

- Project Survey Corridor
- Gristmill-Gemini Preferred 138kV Transmission Line
- Soil Map Unit

Soil Map Unit Symbol

- Blg1B1;Blount silt loam, ground moraine, 2 to 4 percent slopes
- DmB;Digby loam, 2 to 6 percent slopes
- Gwg1B1;Glynwood silt loam, ground moraine, 2 to 6 percent slopes
- Gwg5C2;Glynwood clay loam, ground moraine, 6 to 12 percent slopes, eroded
- Pt;Pewamo silty clay loam, 0 to 1 percent slopes
- Ud;Udorthents, loamy, rolling

Scale: 0 200 400 Feet

North Arrow: N

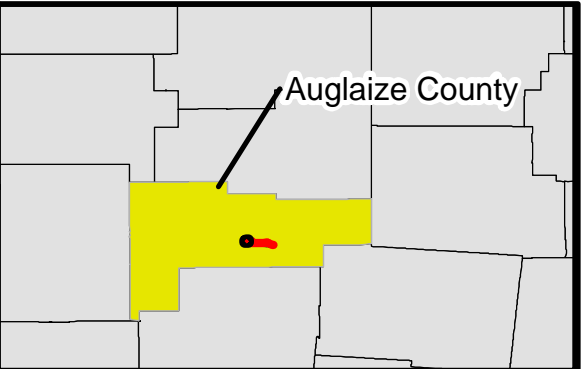
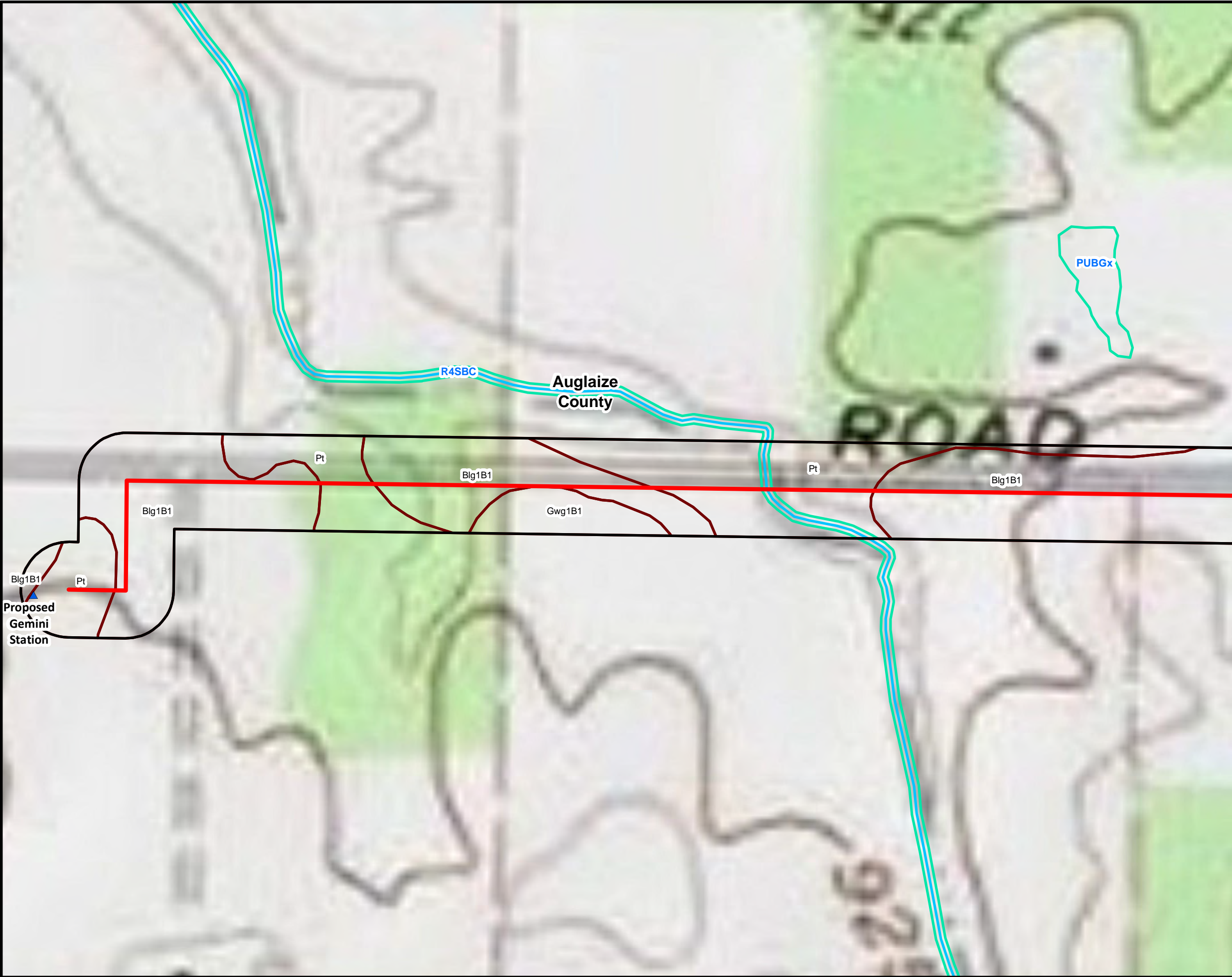
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Gristmill-Gemini 138 kV Transmission Line Project

FIGURE 2H
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60567963

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LEGEND:

- ▲ Proposed Substation
- ▭ 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

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

Pt;Pewamo silty clay loam, 0 to 1 percent slopes

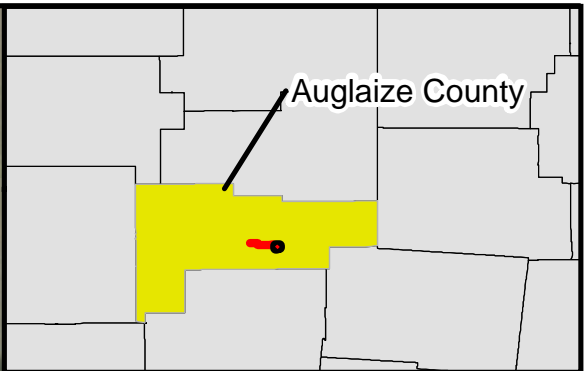
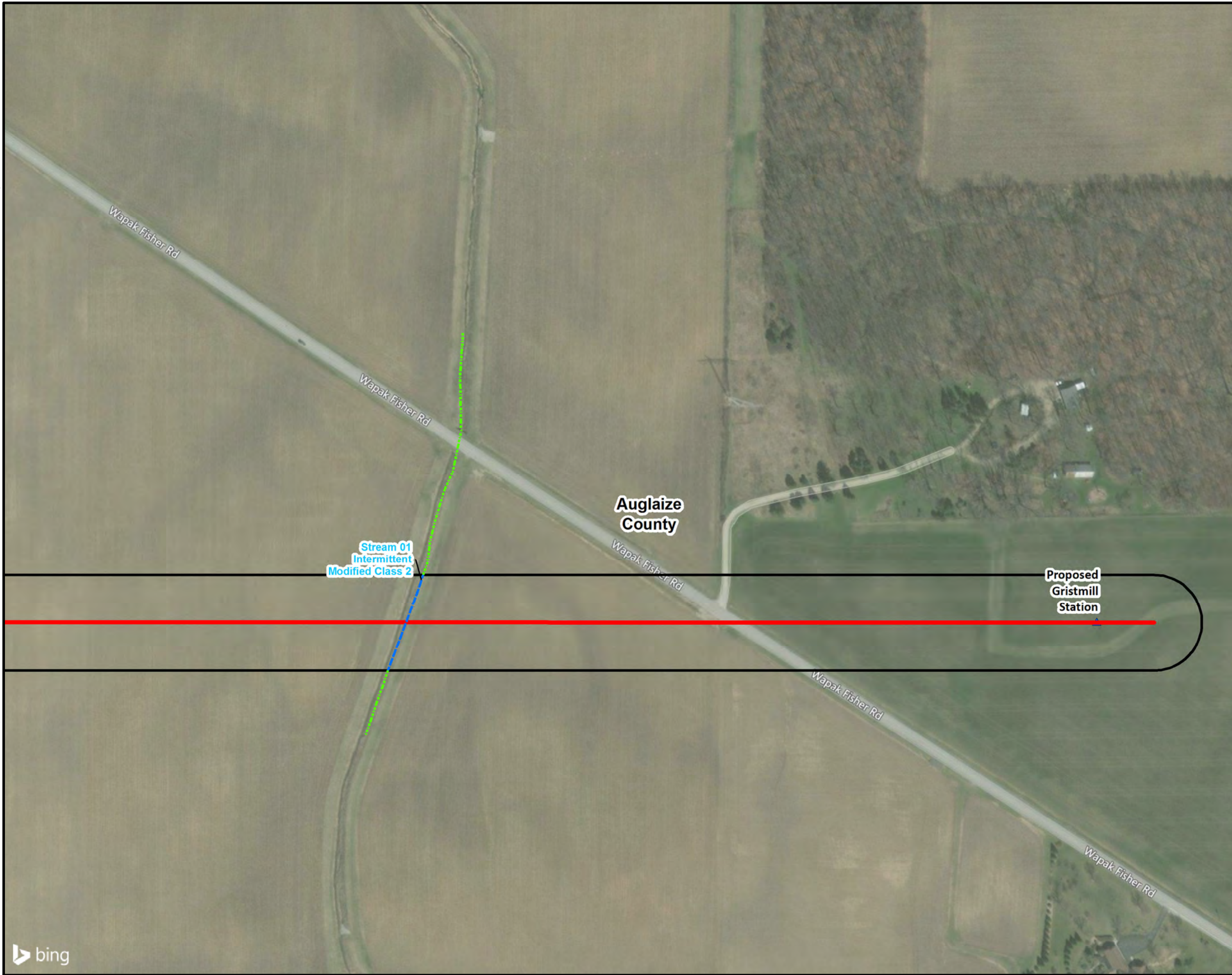
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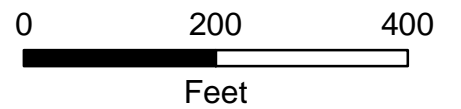
Gristmill-Gemini 138 kV
Transmission Line
Project

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LEGEND:

-  Proposed Substation
-  Project Survey Corridor
-  Gristmill-Gemini Preferred 138kV Transmission Line
-  Delineated Intermittent Stream
-  Approximate Stream Location



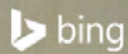
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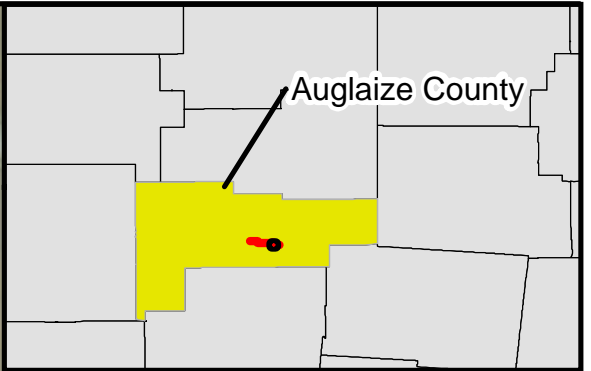
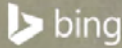
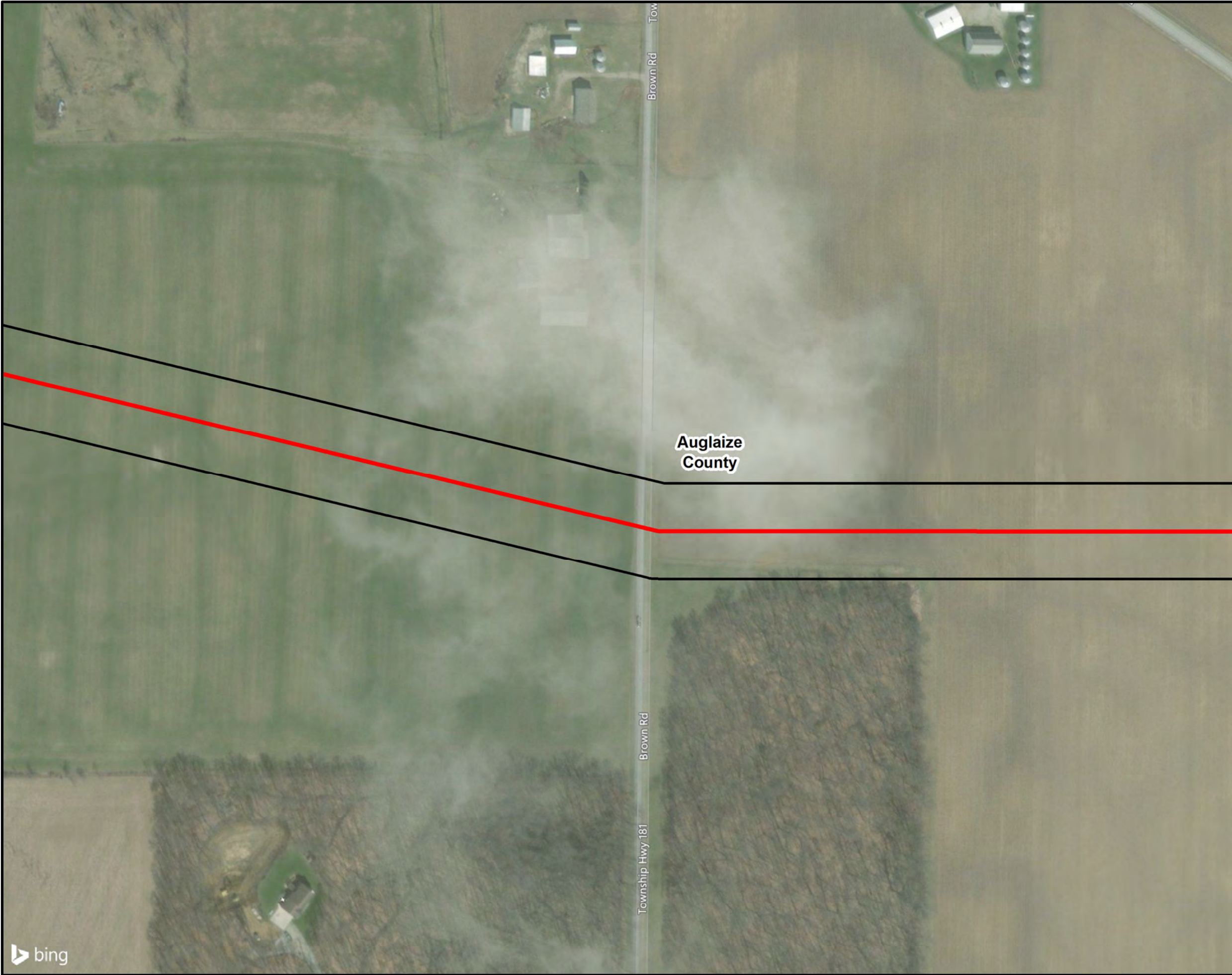




Gristmill-Gemini 138 kV
Transmission Line
Project

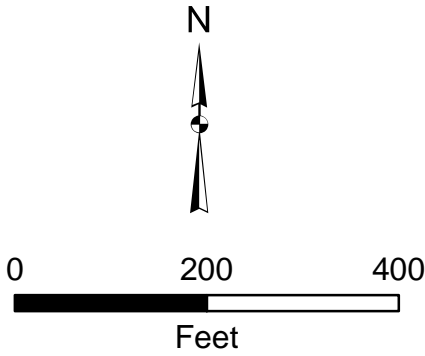
FIGURE 3A
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

JOB NO. 60567963





- LEGEND:
-  Project Survey Corridor
 -  Gristmill-Gemini Preferred 138kV Transmission Line

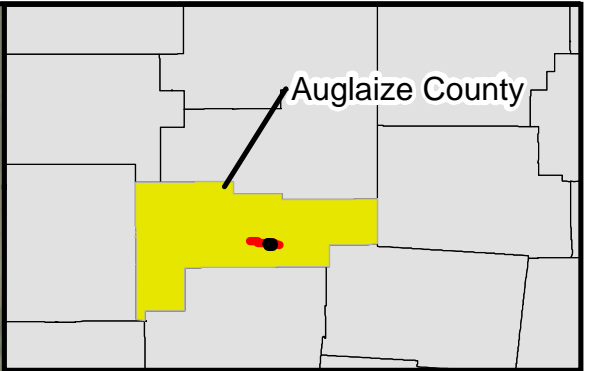
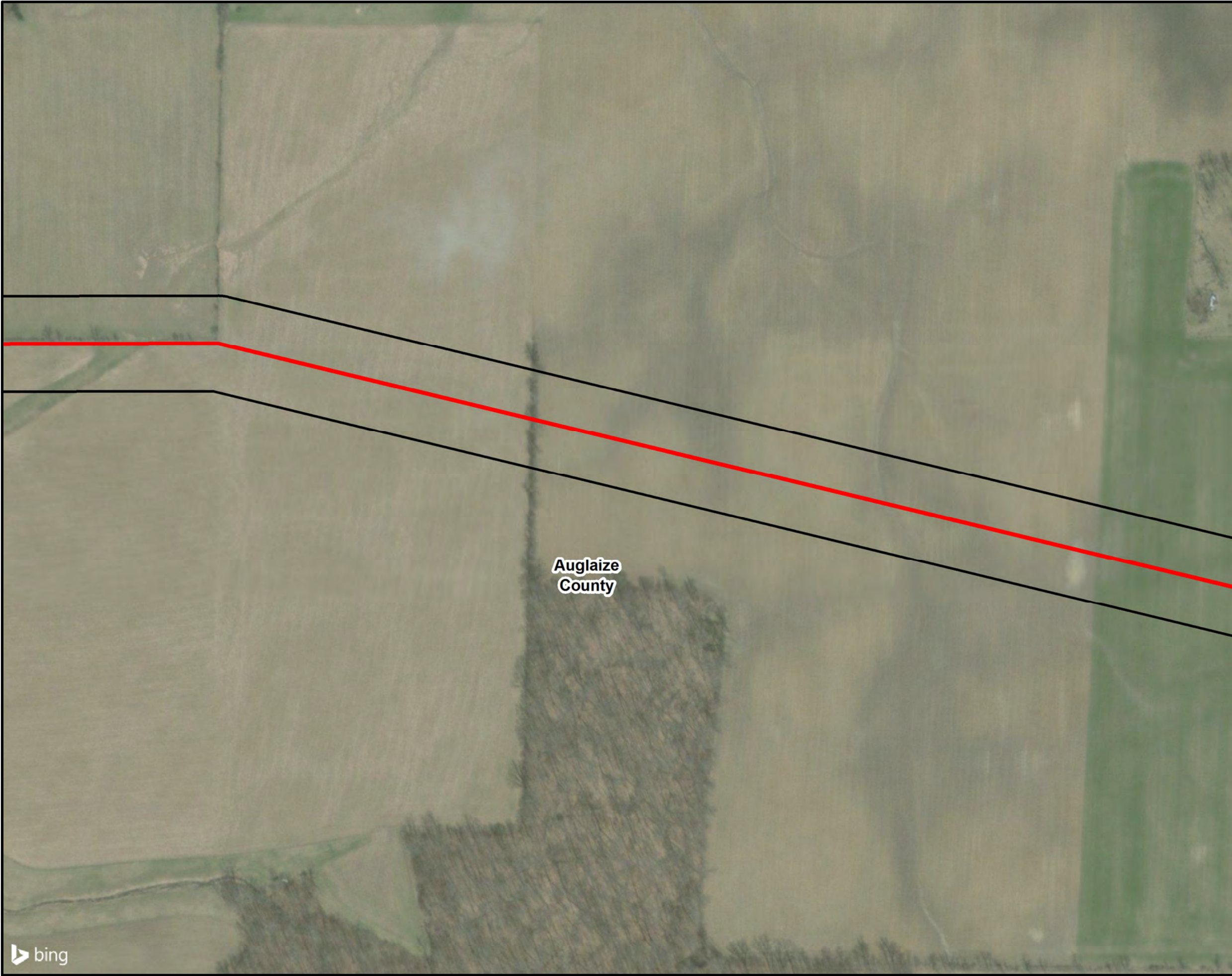


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AEP OHIO TRANSMISSION COMPANY
Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 3B
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

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LEGEND:



Project Survey Corridor



Gristmill-Gemini Preferred 138kV
Transmission Line



0 200 400
Feet

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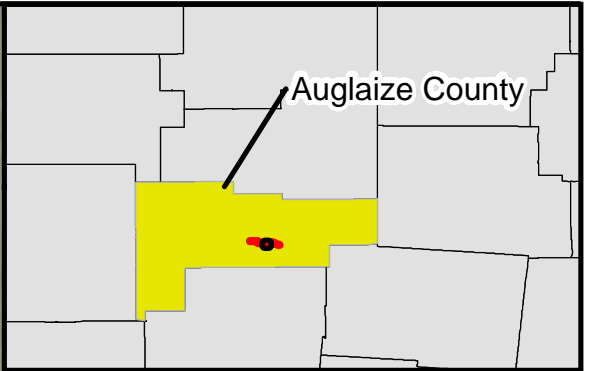
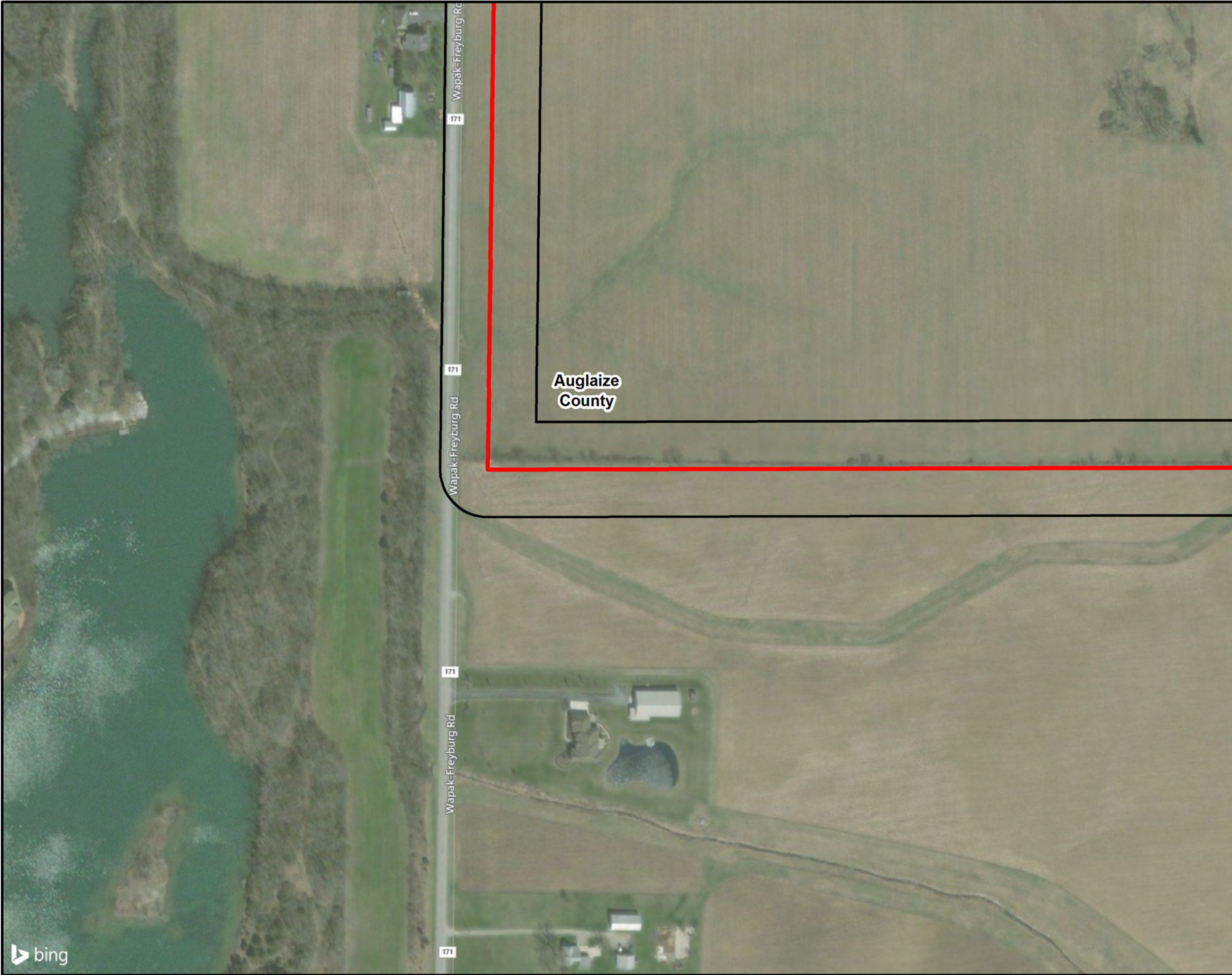


Gristmill-Gemini 138 kV
Transmission Line
Project



FIGURE 3C
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

JOB NO. 60567963





LEGEND:

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



0 200 400
Feet

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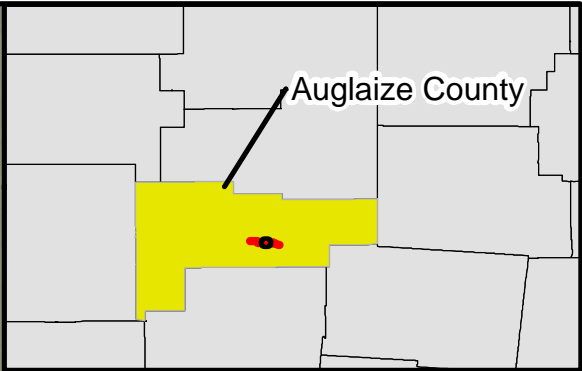
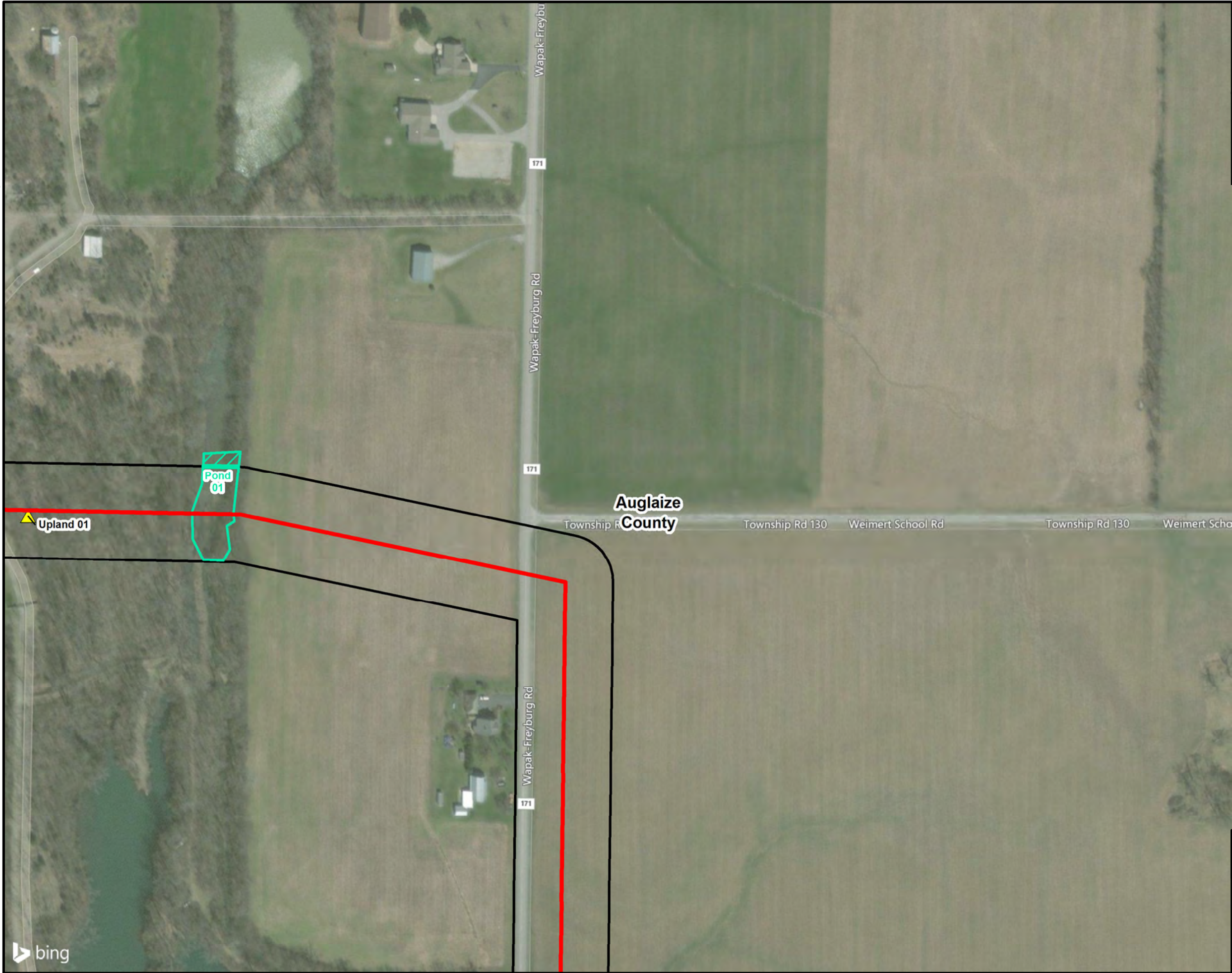


Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 3D
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

JOB NO. 60567963



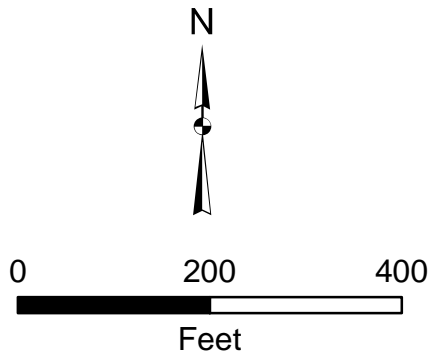


LEGEND:

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

Feat_Name

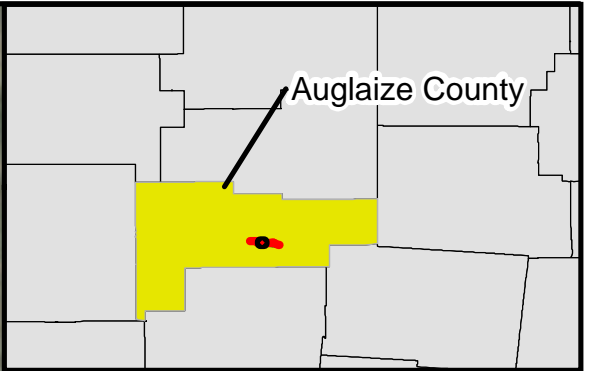
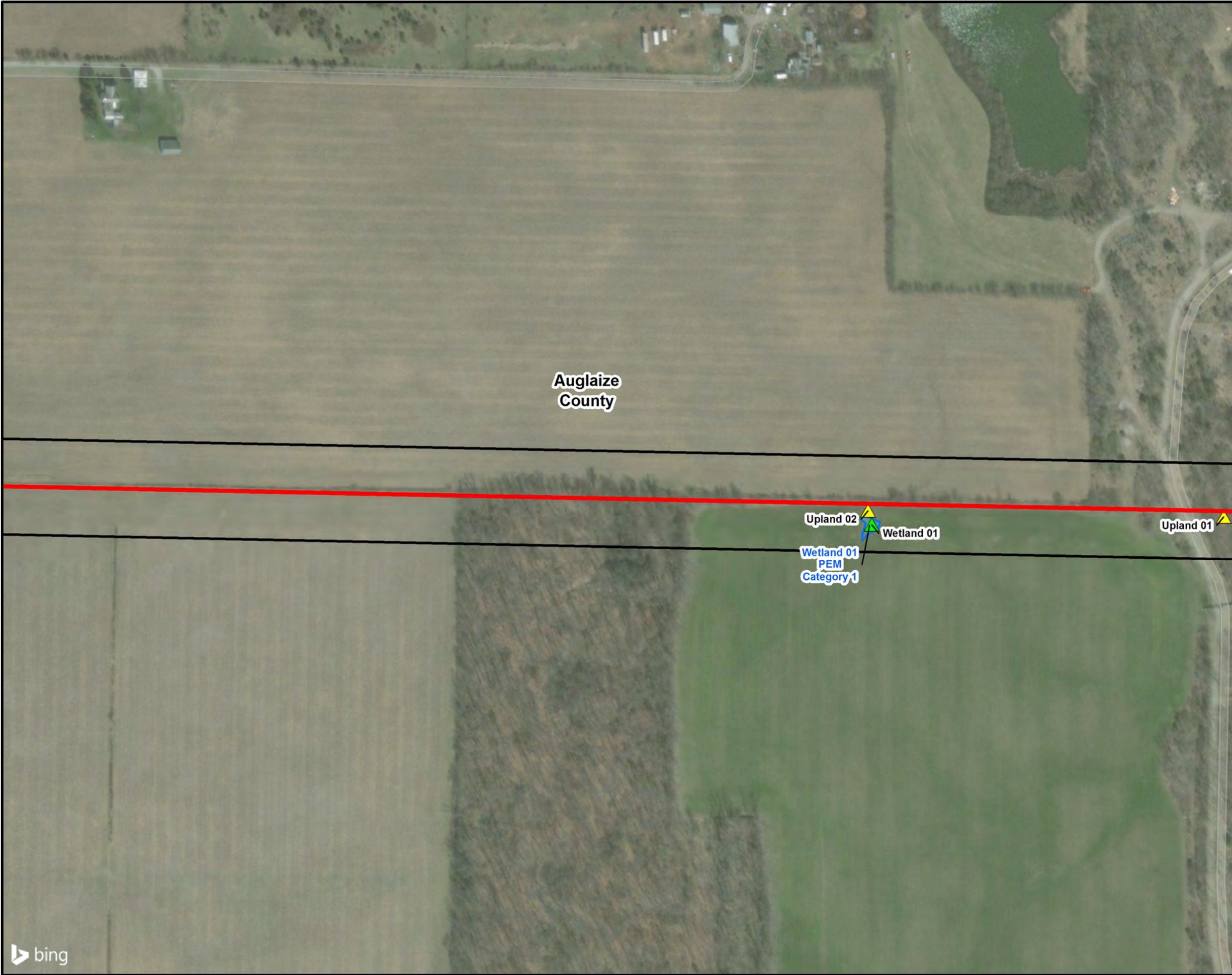
- Upland Data Point



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Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 3E
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP



LEGEND:

- Project Survey Corridor
- Gristmill-Gemini Preferred 138kV Transmission Line
- Delineated Wetland
- Wetland Data Point

Feat_Name

- Upland Data Point
- Upland Data Point



0 200 400
Feet

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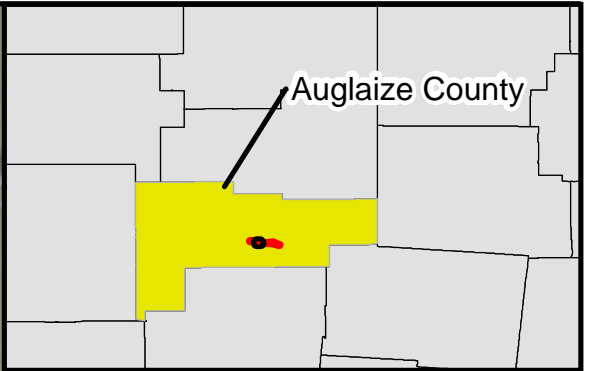


Gristmill-Gemini 138 kV
Transmission Line
Project



FIGURE 3F
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

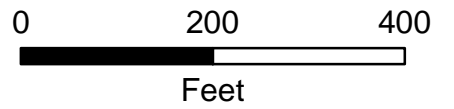
JOB NO. 60567963





LEGEND:

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



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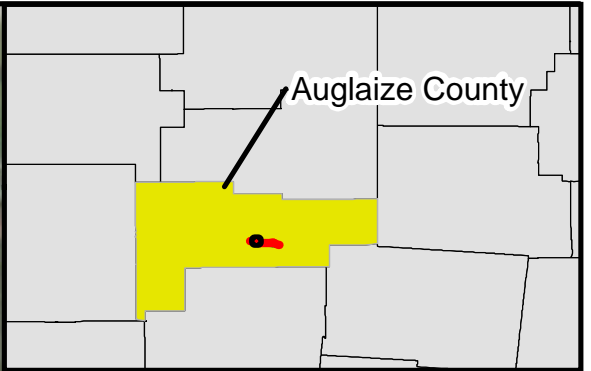
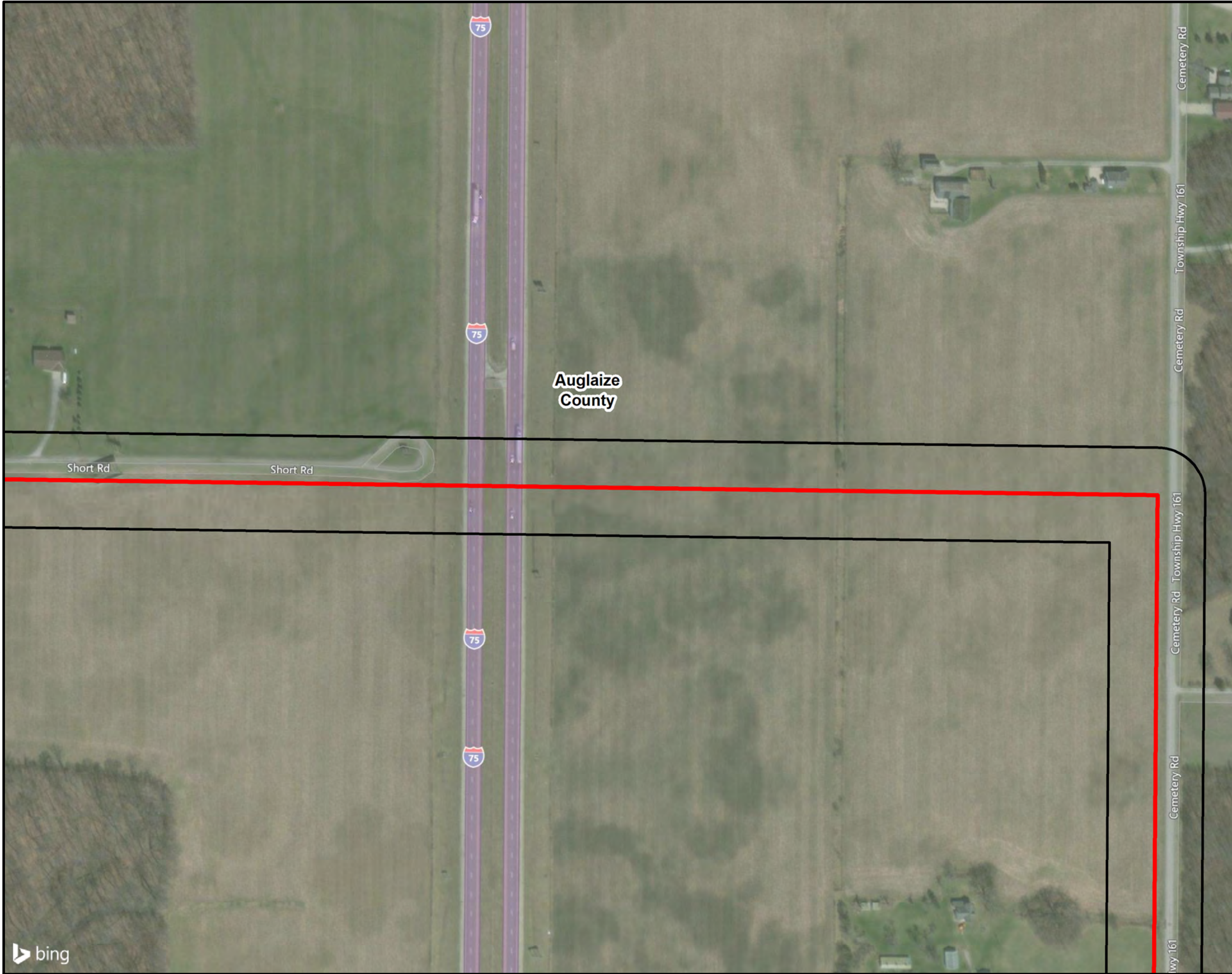


Gristmill-Gemini 138 kV
Transmission Line
Project

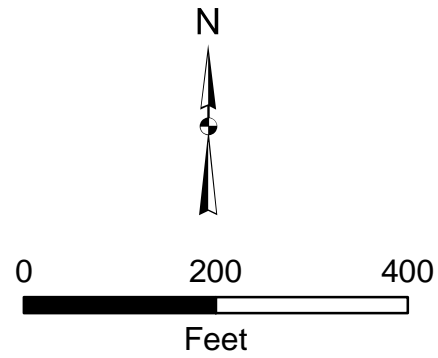
FIGURE 3G
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

JOB NO. 60567963





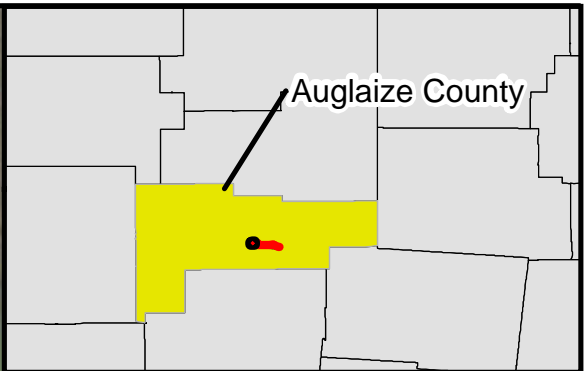
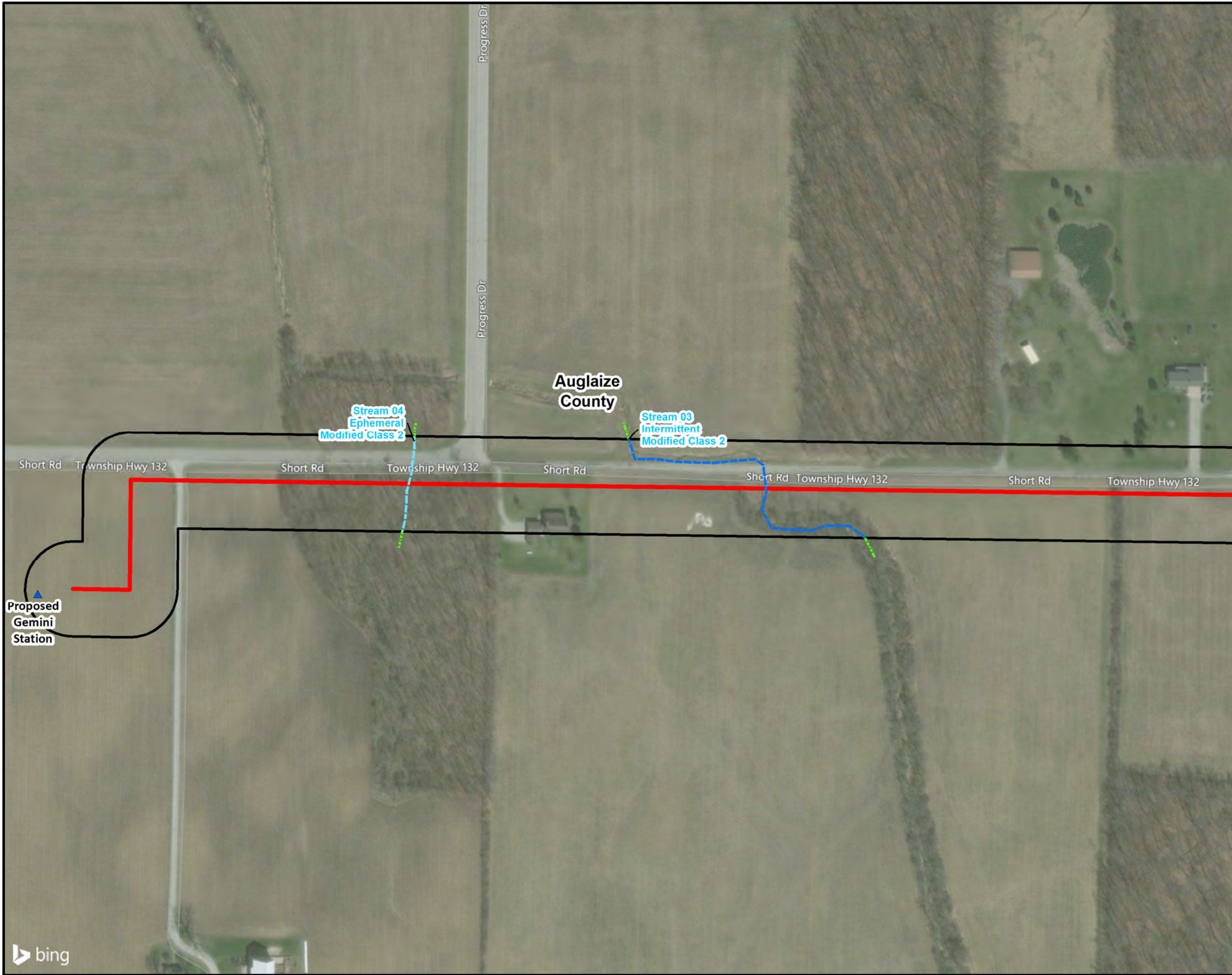
- LEGEND:
- Project Survey Corridor
 - Gristmill-Gemini Preferred 138kV Transmission Line



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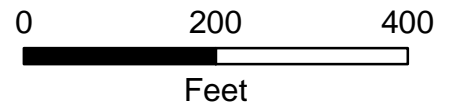
AEP OHIO TRANSMISSION COMPANY
Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 3H
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP



LEGEND:

- ▲ Proposed Substation
- ▭ Project Survey Corridor
- Gristmill-Gemini Preferred 138kV Transmission Line
- - - Delineated Ephemeral Stream
- - - Delineated Intermittent Stream
- ... Approximate Stream Location



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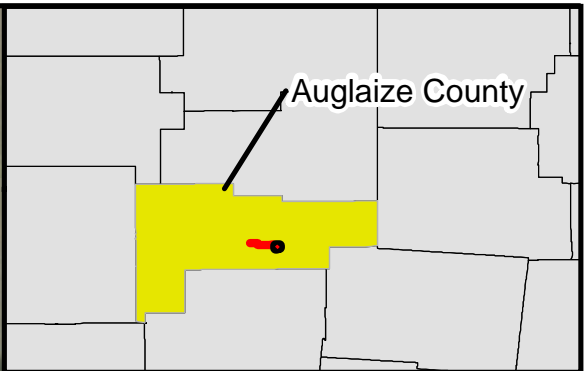
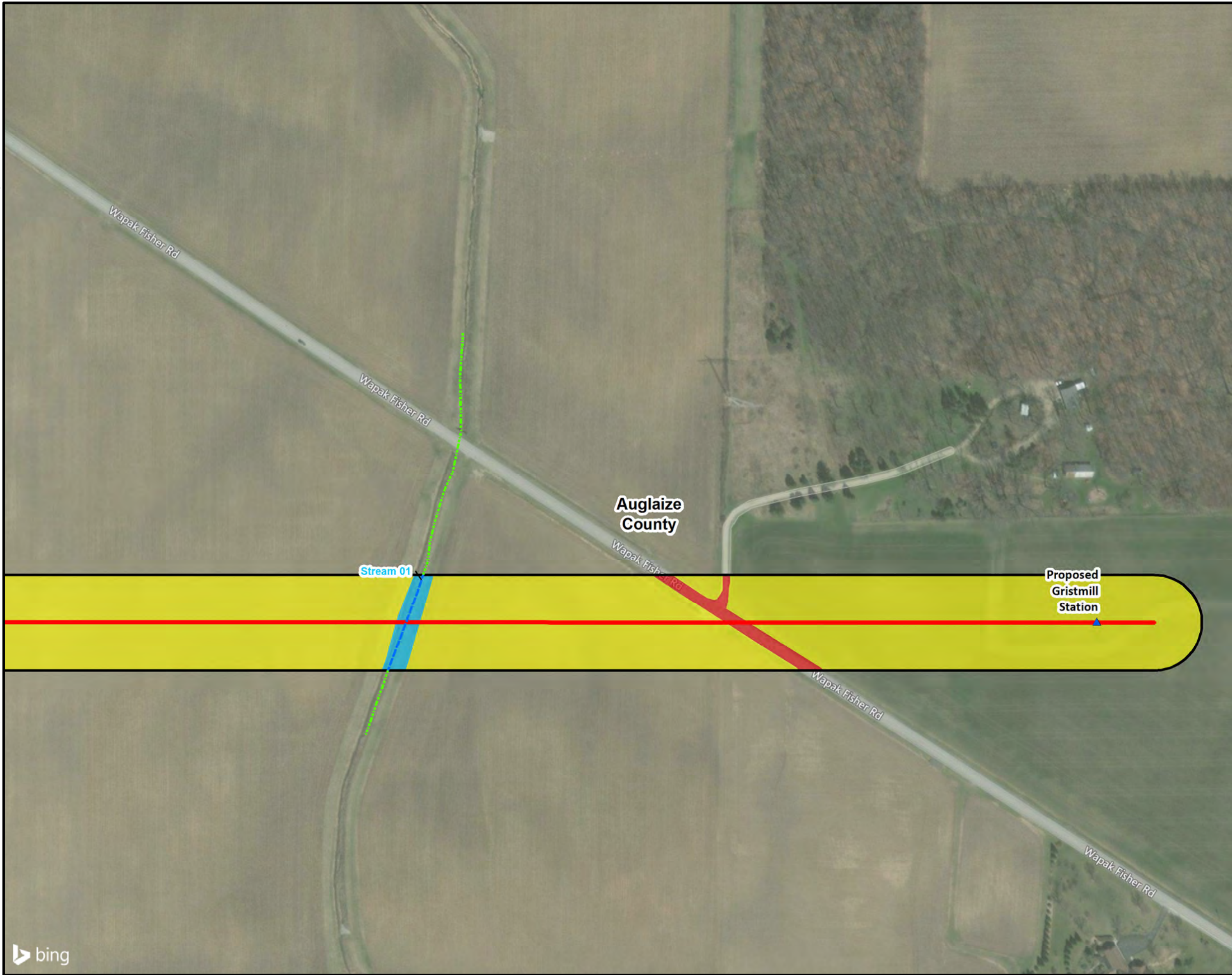


Gristmill-Gemini 138 kV
Transmission Line
Project

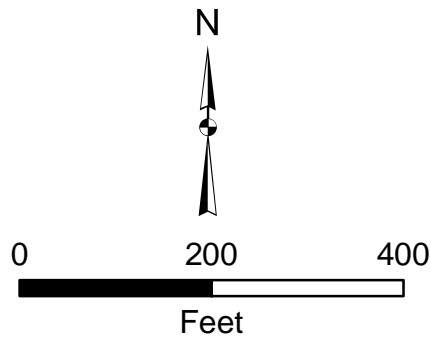
FIGURE 3I
WETLAND DELINEATION AND
STREAM ASSESSMENT MAP

JOB NO. 60567963





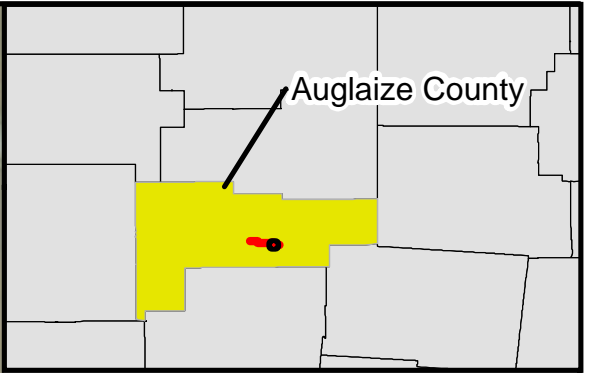
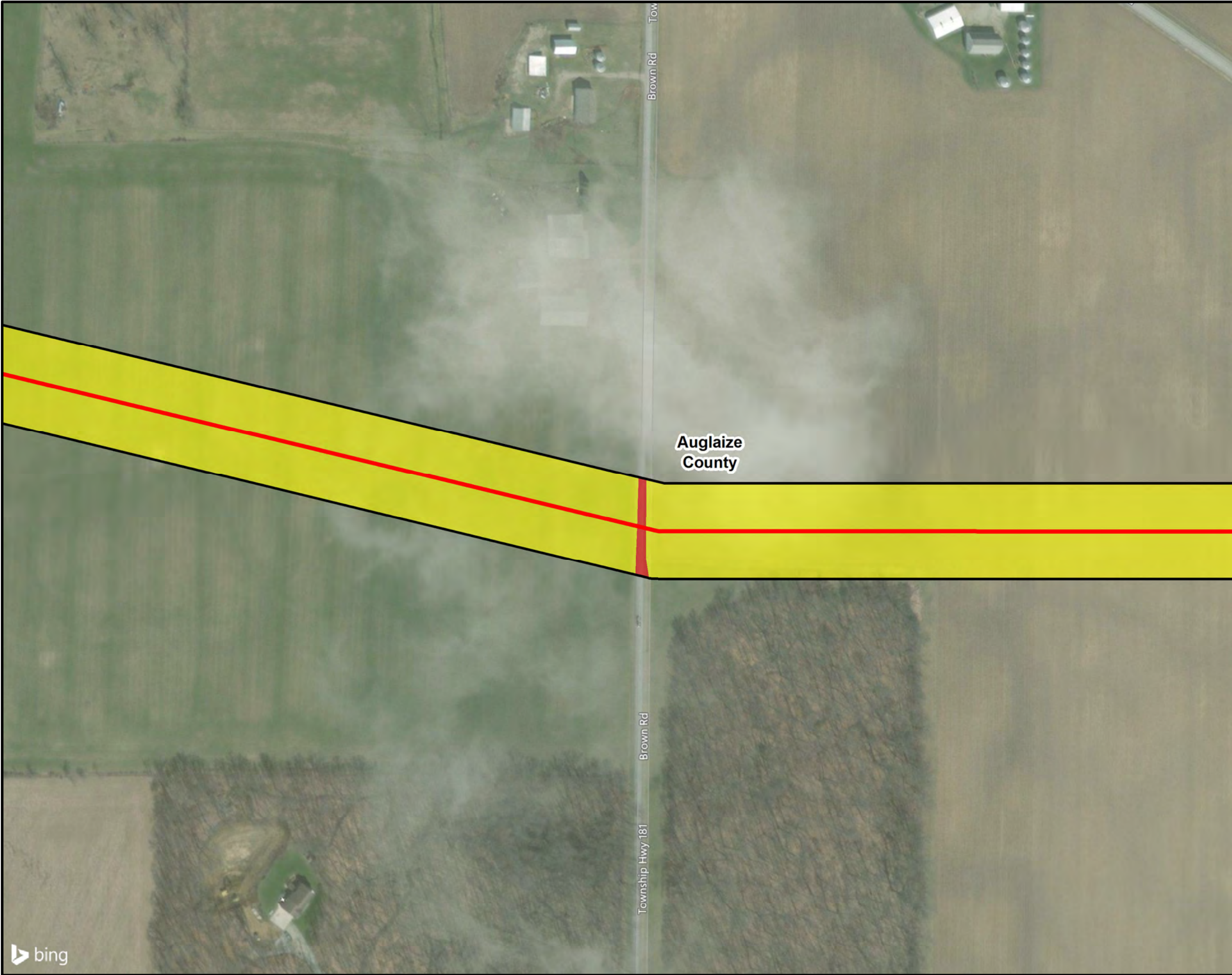
- LEGEND:
- ▲ Proposed Substation
 - ▭ Project Survey Corridor
 - Gristmill-Gemini Preferred 138kV Transmission Line
 - - - Delineated Intermittent Stream
 - - - Approximate Stream Location
 - Agricultural Land
 - Stream/Wetland/Pond
 - Urban







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AEP OHIO TRANSMISSION COMPANY Gristmill-Gemini 138 kV
Transmission Line Project

FIGURE 4A
VEGETATIVE COMMUNITIES
ASSESSMENT MAP



LEGEND:

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

N



0 200 400
Feet

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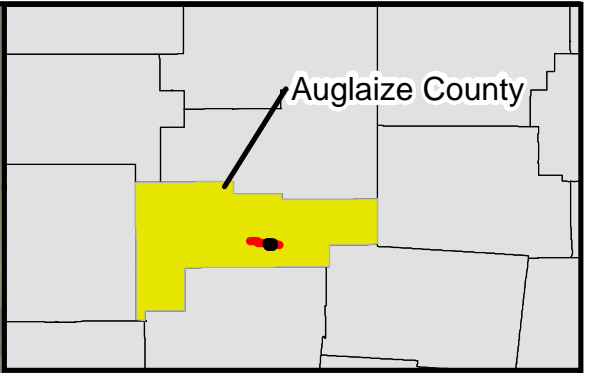
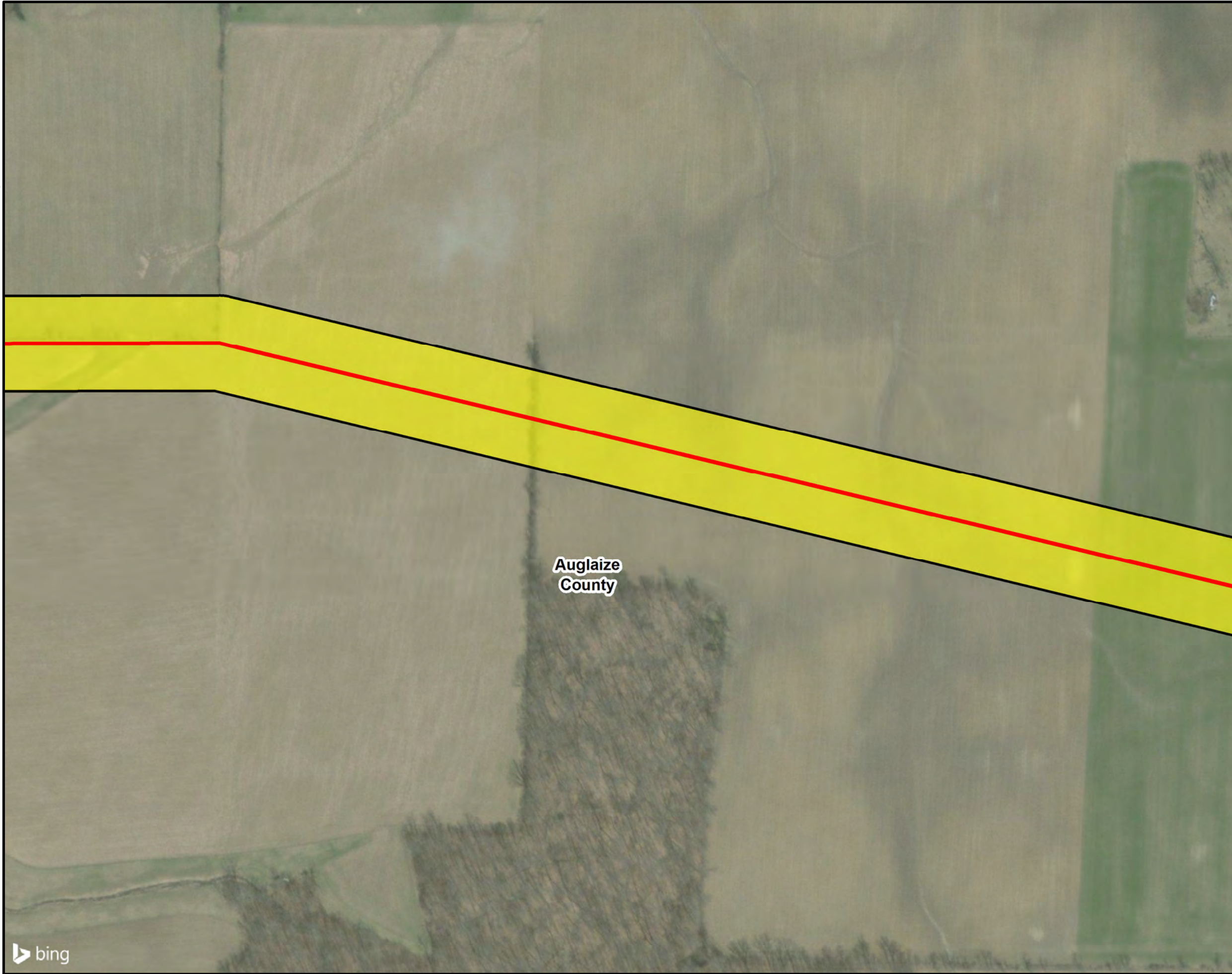


Gristmill-Gemini 138 kV
Transmission Line
Project




FIGURE 4B
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

JOB NO. 60567963

AECOM



LEGEND:

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

N

0 200 400
Feet

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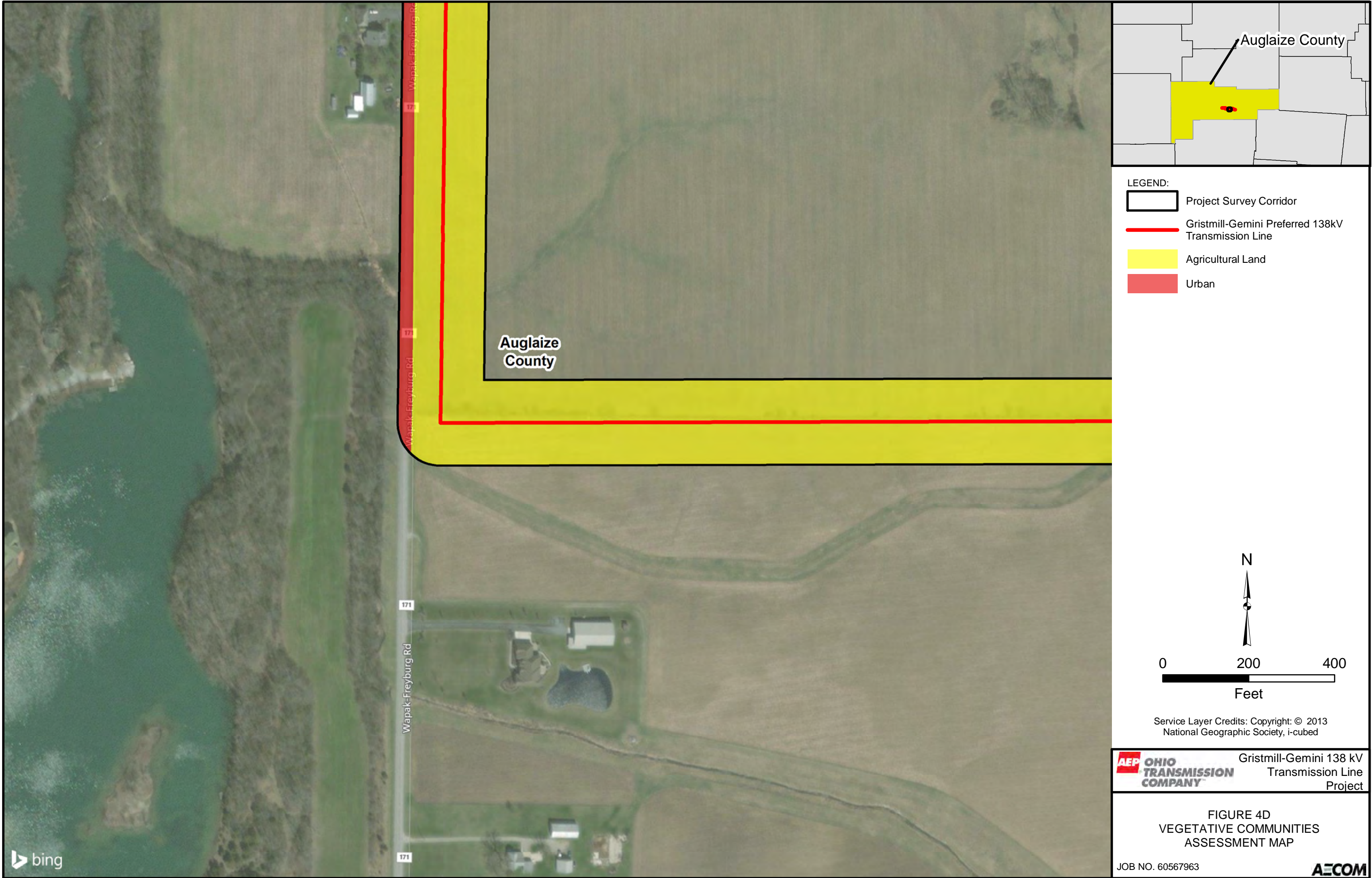


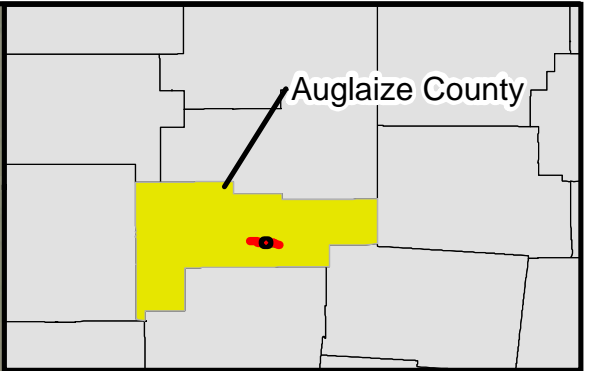
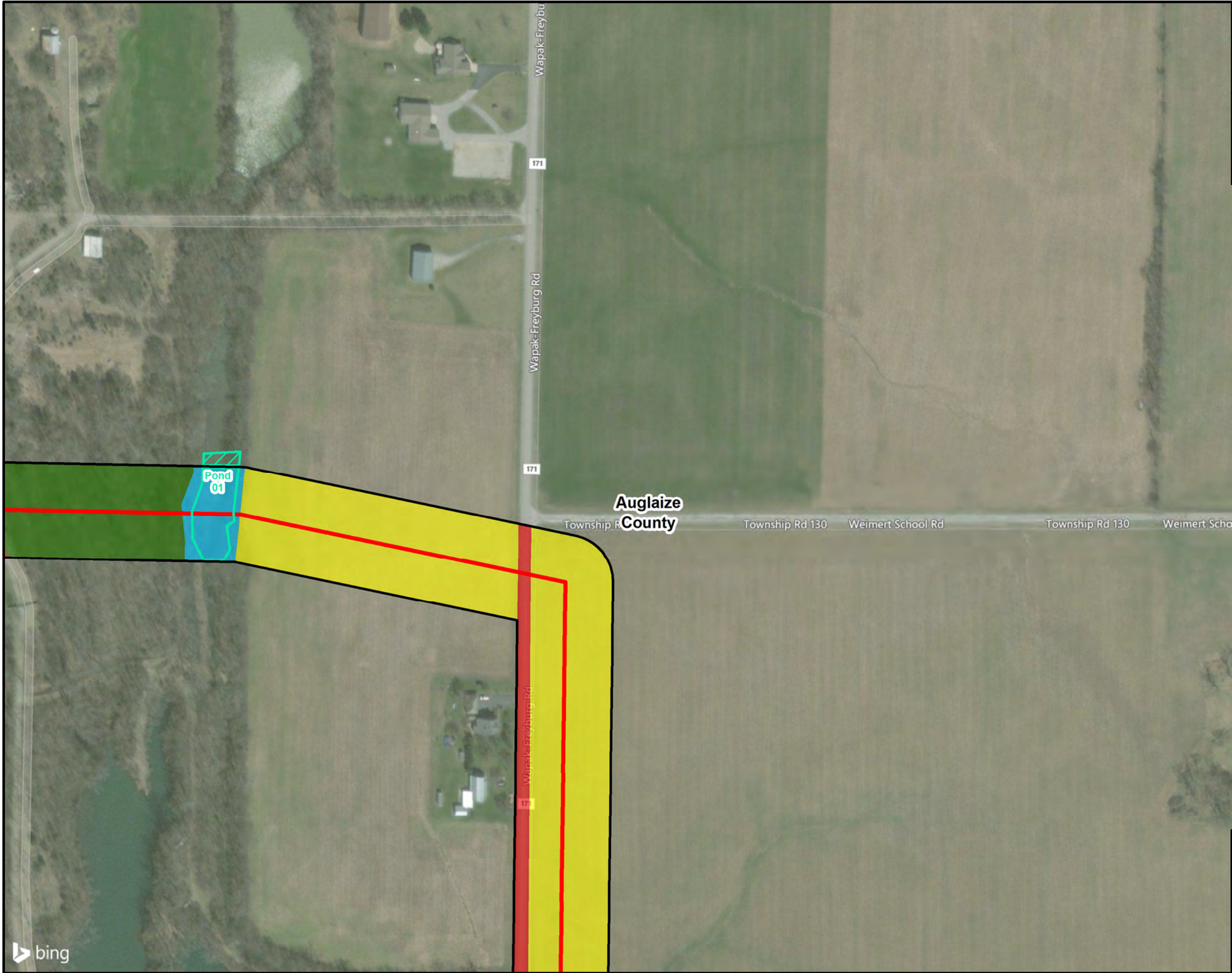
Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 4C
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

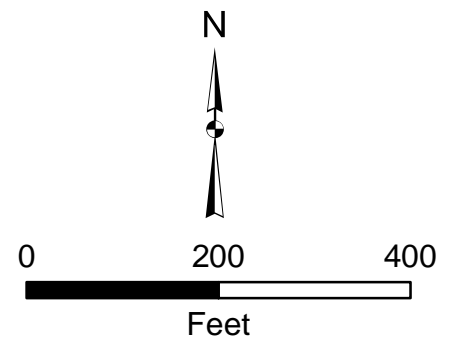
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AECOM





- LEGEND:
- Project Survey Corridor
 - Gristmill-Gemini Preferred 138kV Transmission Line
 - Delineated Pond
 - Approximate Pond Boundary
 - Agricultural Land
 - Stream/Wetland/Pond
 - Urban
 - Mixed Mesophytic Forest



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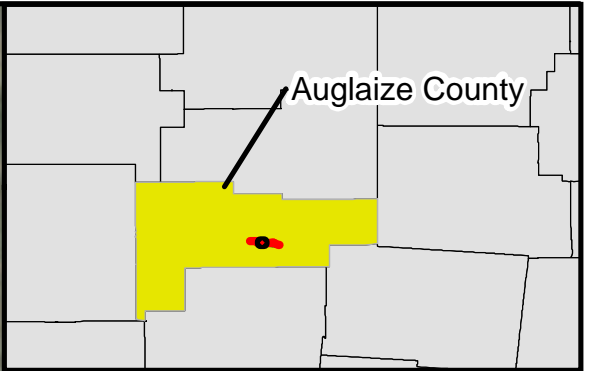
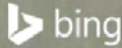
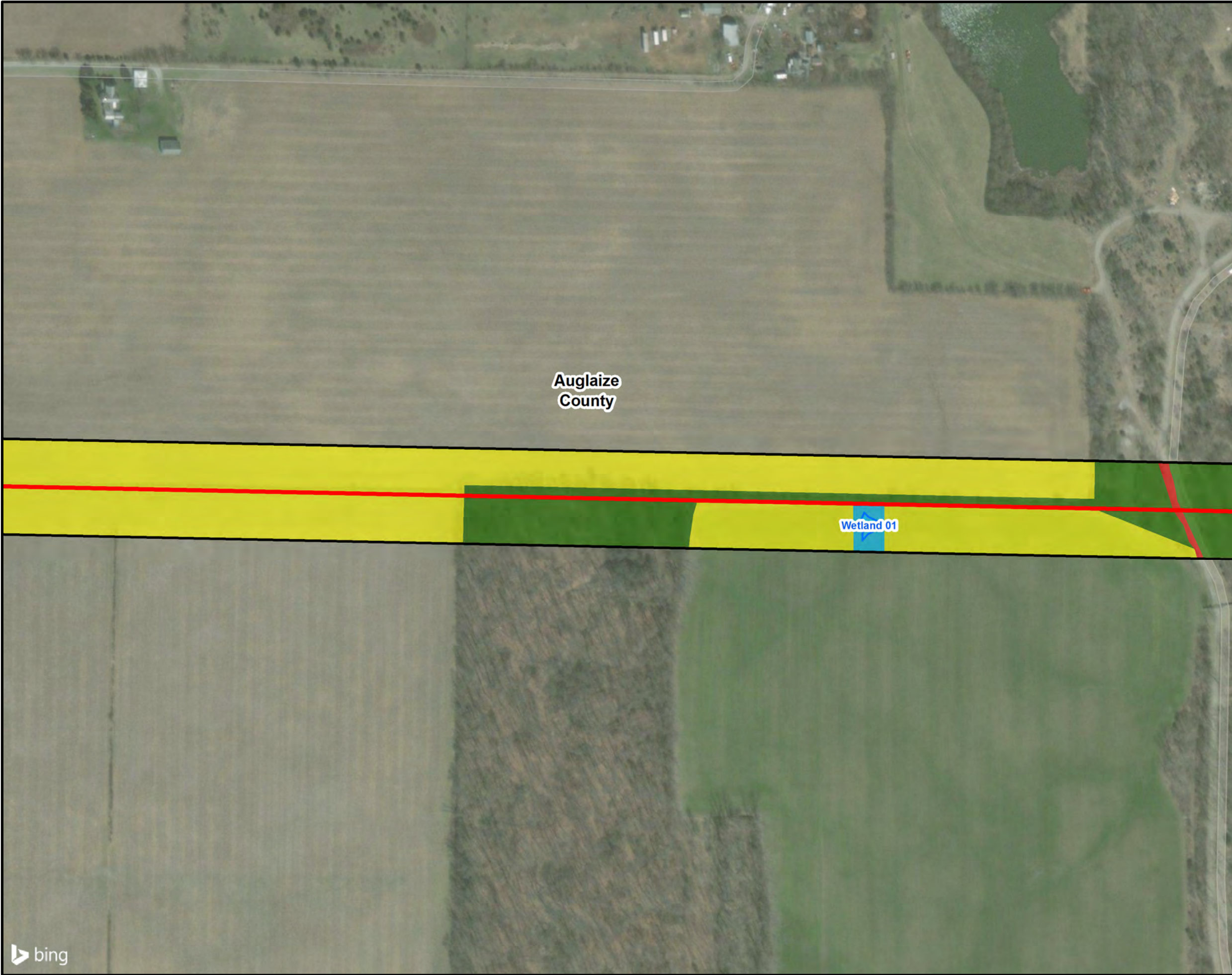









Gristmill-Gemini 138 kV
Transmission Line
Project

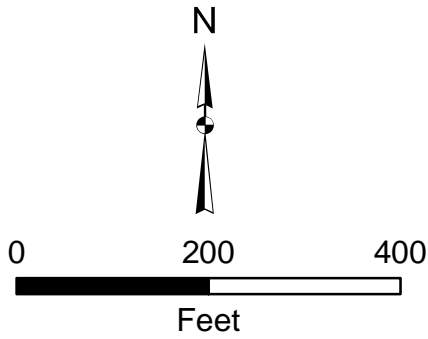
FIGURE 4E
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

JOB NO. 60567963





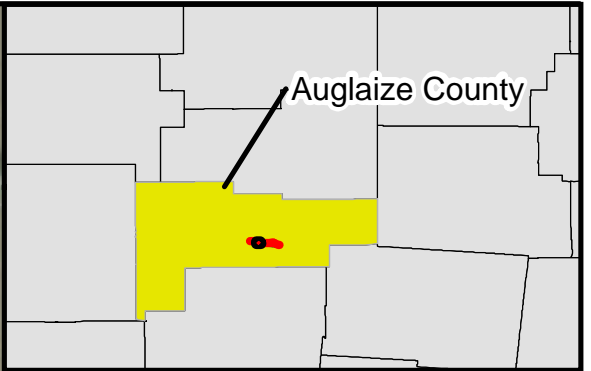
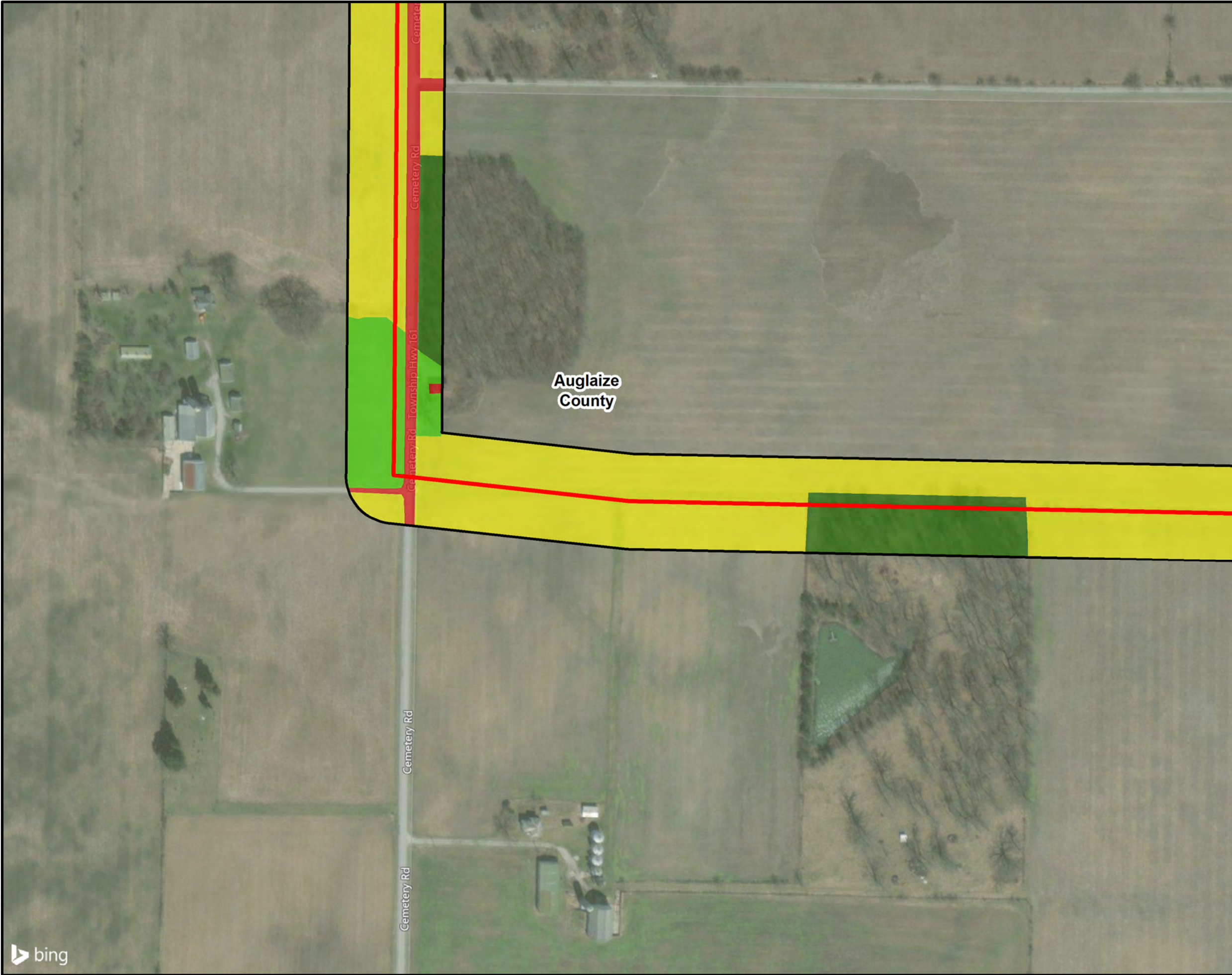
- LEGEND:
-  Project Survey Corridor
 -  Gristmill-Gemini Preferred 138kV Transmission Line
 -  Delineated Wetland
 -  Agricultural Land
 -  Stream/Wetland/Pond
 -  Urban
 -  Mixed Mesophytic Forest









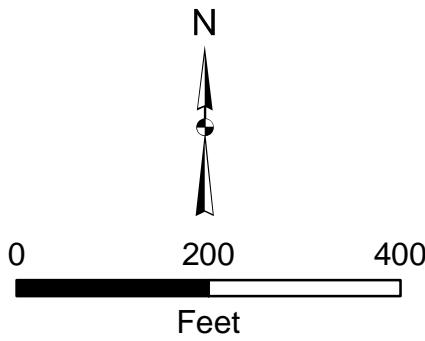
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 Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 4F
VEGETATIVE COMMUNITIES
ASSESSMENT MAP



- LEGEND:
-  Project Survey Corridor
 -  Gristmill-Gemini Preferred 138kV Transmission Line
 -  Agricultural Land
 -  Landscaped
 -  Urban
 -  Mixed Mesophytic Forest

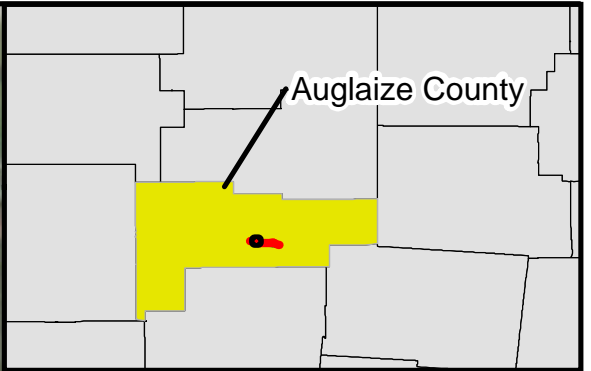
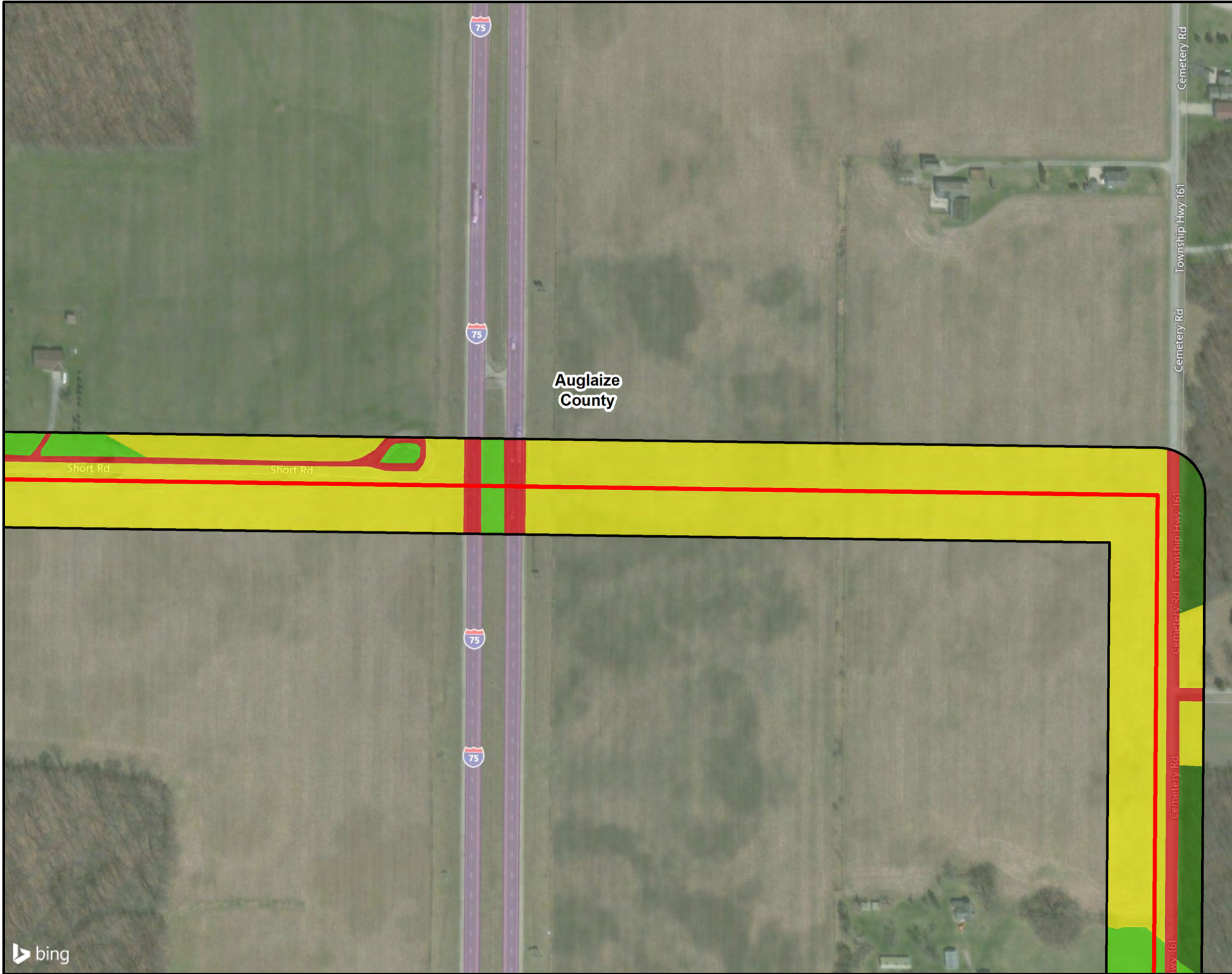


Service Layer Credits: Copyright: © 2013
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Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 4G
VEGETATIVE COMMUNITIES
ASSESSMENT MAP



LEGEND:

-  Project Survey Corridor
-  Gristmill-Gemini Preferred 138kV Transmission Line
-  Agricultural Land
-  Landscaped
-  Urban
-  Mixed Mesophytic Forest

N

0 200 400
Feet

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National Geographic Society, i-cubed

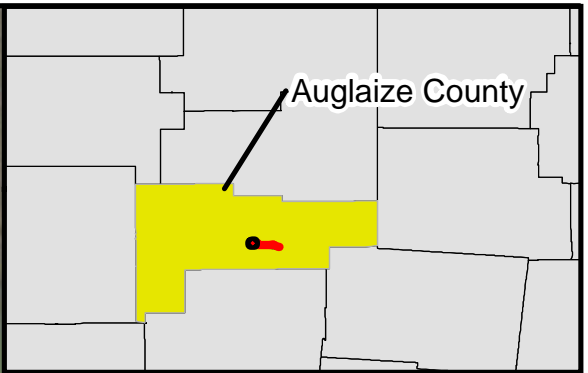
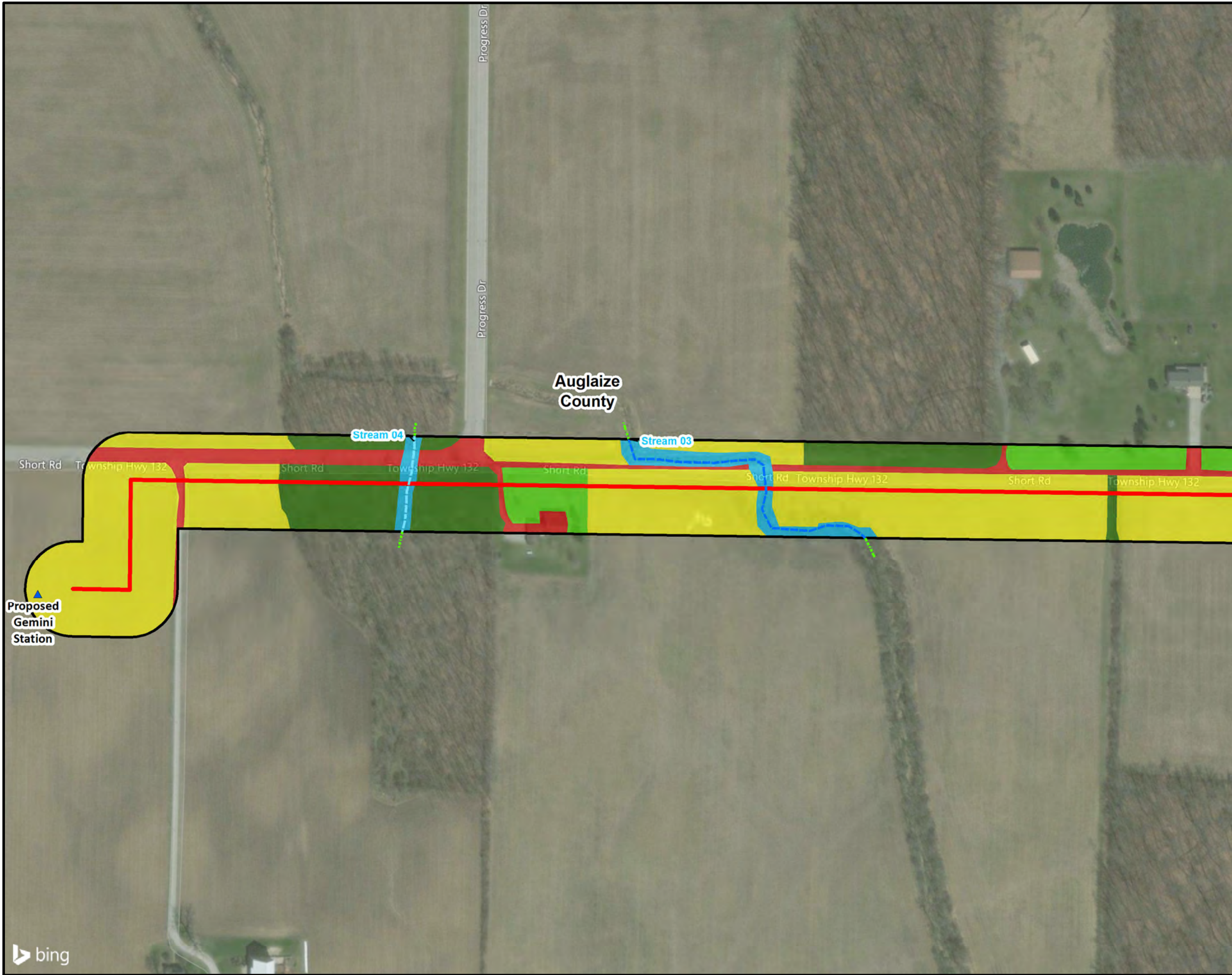


Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 4H
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

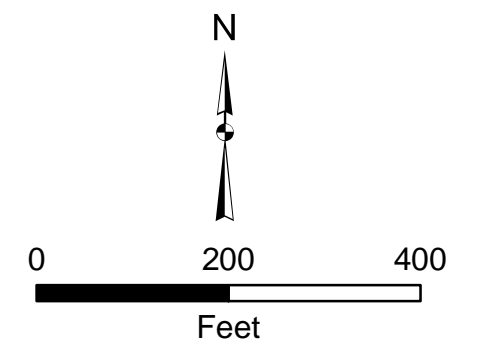
JOB NO. 60567963

AECOM



LEGEND:

- ▲ Proposed Substation
- ▭ Project Survey Corridor
- Gristmill-Gemini Preferred 138kV Transmission Line
- - - Delineated Ephemeral Stream
- - - Delineated Intermittent Stream
- - - Approximate Stream Location
- Agricultural Land
- Landscaped
- Stream/Wetland/Pond
- Urban
- Mixed Mesophytic Forest



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Gristmill-Gemini 138 kV
Transmission Line
Project

FIGURE 41
VEGETATIVE COMMUNITIES
ASSESSMENT MAP

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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: old depression/ excavated upland 1		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Prunus serotina</u>	25	<input checked="" type="checkbox"/> 55.6%	FACU	
2. <u>Fraxinus pennsylvanica</u>	20	<input checked="" type="checkbox"/> 44.4%	FACW	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	0	<input type="checkbox"/> 0.0%	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>60.0%</u> (A/B)
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
	45	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>Lonicera maackii</u>	45	<input checked="" type="checkbox"/> 69.2%	UPL	Total % Cover of: Multiply by:
2. <u>Cornus racemosa</u>	20	<input checked="" type="checkbox"/> 30.8%	FAC	OBL species <u>0</u> x 1 = <u>0</u>
3. _____	0	<input type="checkbox"/> 0.0%	_____	FACW species <u>20</u> x 2 = <u>40</u>
4. _____	0	<input type="checkbox"/> 0.0%	_____	FAC species <u>40</u> x 3 = <u>120</u>
5. _____	0	<input type="checkbox"/> 0.0%	_____	FACU species <u>25</u> x 4 = <u>100</u>
	65	= Total Cover		UPL species <u>45</u> x 5 = <u>225</u>
Herb Stratum (Plot size: _____)				Column Totals: <u>130</u> (A) <u>485</u> (B)
1. <u>Persicaria virginiana</u>	20	<input checked="" type="checkbox"/> 100.0%	FAC	Prevalence Index = B/A = <u>3.731</u>
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
	20	= Total Cover		
Woody Vine Stratu (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. _____	0	<input type="checkbox"/> 0.0%	_____	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. _____	0	<input type="checkbox"/> 0.0%	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is > 50%
	0	= Total Cover		<input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹
				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>

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.

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
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: Blq1B1 - 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks:	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)			
1. <u>Cornus alba</u>	20	<input checked="" type="checkbox"/> 100.0%	FACW
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
20 = Total Cover			
Herb Stratum (Plot size: <u>15'</u>)			
1. <u>Abutilon theophrasti</u>	15	<input type="checkbox"/> 18.8%	FACU
2. <u>Setaria faberi</u>	20	<input checked="" type="checkbox"/> 25.0%	FACU
3. <u>Daucus carota</u>	20	<input checked="" type="checkbox"/> 25.0%	UPL
4. <u>Rumex crispus</u>	5	<input type="checkbox"/> 6.3%	FAC
5. <u>Symphyotrichum ericoides</u>	20	<input checked="" type="checkbox"/> 25.0%	FACU
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
80 = Total Cover			
Woody Vine Stratu (Plot size: _____)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 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 <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>5</u>	x 3 = <u>15</u>
FACU species <u>55</u>	x 4 = <u>220</u>
UPL species <u>20</u>	x 5 = <u>100</u>
Column Totals: <u>100</u>	(A) <u>375</u> (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 ≤ 3.0¹

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

☐ Problematic Hydrophytic Vegetation¹ (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.

SOILSampling 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			Redox Features			Texture	Remarks	
	Color (moist)	%	%	Color (moist)	%	Type ¹			Loc ²
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.
 ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Muck Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> 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 <input type="radio"/> No <input checked="" type="radio"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
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: Blq1B1 - 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: pem wetland1 in soy field		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
0 = Total Cover			
Herb Stratum (Plot size: 15')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Packera glabella</i>	40	<input checked="" type="checkbox"/> 57.1%	FACW
2. <i>Eleocharis palustris</i>	30	<input checked="" type="checkbox"/> 42.9%	OBL
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
70 = Total Cover			
Woody Vine Stratu (Plot size: _____)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 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 <u>30</u>	x 1 = <u>30</u>
FACW species <u>40</u>	x 2 = <u>80</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>70</u>	(A) <u>110</u> (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 ≤ 3.0¹

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

☐ Problematic Hydrophytic Vegetation¹ (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.

Midwest Region - Version 2.0

APPENDIX B
OEPA WETLAND ORAM FORMS

Wetland 01

Site: AEP Gemini Station-Gristmill

Rater(s): J. Lubbers; A. Hanner

Date:

10/16/2018

0 0

max 6 pts

subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

Field Id:

w-jbl-101618-01

0.02 acres

1 1

max 14 pts.

subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

4.5 5.5

max 30 pts.

subtotal

Metric 3. Hydrology.

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

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

3c. Maximum water depth. Select one.

- ☐ >0.7 (27.6in) (3)
☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
☒ <0.4m (<15.7in) (1)

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

- ☐ None or none apparent (12)
☐ Recovered (7)
☐ Recovering (3)
☒ Recent or no recovery (1)

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)

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

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

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input checked="" type="checkbox"/> tile | <input checked="" type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> Other: cattle |

4 9.5

max 20 pts.

subtotal

Metric 4. Habitat Alteration and Development.

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

- ☐ None or none apparent (4)
☐ Recovered (3)
☐ Recovering (2)
☒ Recent or no recovery (1)

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

- ☐ Excellent (7)
☐ Very good (6)
☐ Good (5)
☐ Moderately good (4)
☐ Fair (3)
☒ Poor to fair (2)
☐ Poor (1)

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

- ☐ None or none apparent (9)
☐ Recovered (6)
☐ Recovering (3)
☒ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input checked="" type="checkbox"/> mowing | <input checked="" type="checkbox"/> shrub/sapling removal |
| <input checked="" type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input checked="" type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> 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

9.5

subtotal this page

0

9.5

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

2

11.5

max 20pts.

subtotal

Metric 6. Plant communities, interspersions, 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)
- ☒ 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)
- ☒ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Field Id:

w-jbl-101618-01

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 generally w/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



Primary Headwater Habitat Evaluation Form

55

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

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 PWH Streams" for Instructions

STREAM CHANNEL

☐

NONE / NATURAL CHANNEL

☐

RECOVERED

☒

RECOVERING

☐

RECENT OR NO RECOVERY

MODIFICATIONS:

culvert;channeled

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> SILT [3 pt]	<input type="text" value="50%"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0%"/>	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="30%"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0%"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="5%"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0%"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="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):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> 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):

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

COMMENTS

AVERAGE BANKFULL WIDTH

(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

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None

COMMENTS

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

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

COMMENTS rain yesterday

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

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

STREAM GRADIENT ESTIMATE

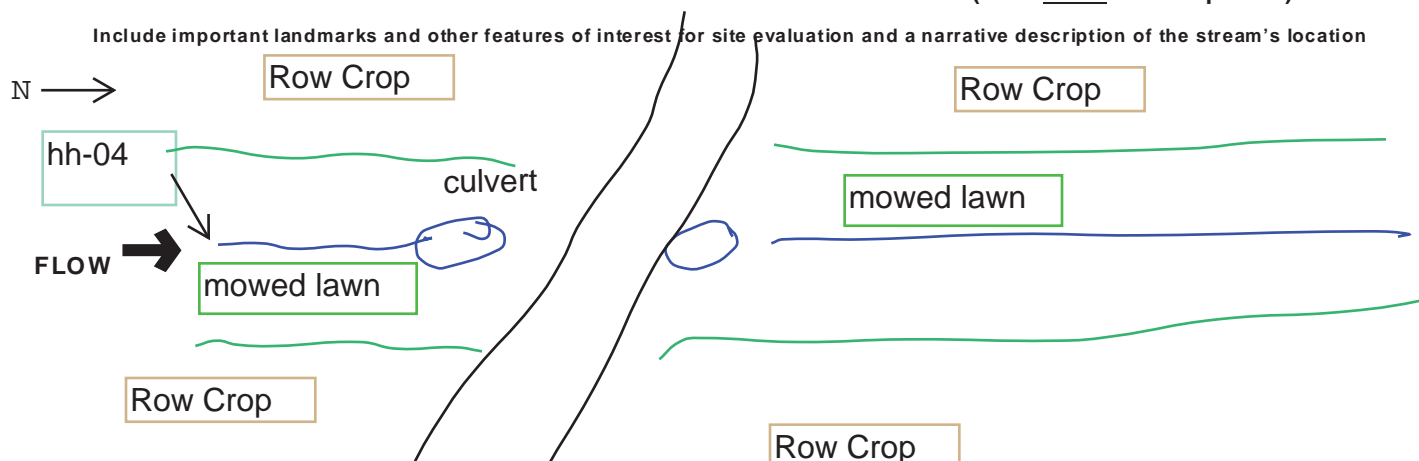
☒ Flat (0.5 ft/100 ft)
 ☐ Flat to Moderate
 ☐ Moderate (2 ft/100 ft)
 ☐ Moderate to Severe
 ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Dry Run	Distance from Evaluated Stream	0.00
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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





Primary Headwater Habitat Evaluation Form

54

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

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

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

MODIFICATIONS:

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
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> SILT [3 pt]	<input type="text" value="70%"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0%"/>	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="20%"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0%"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0%"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="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
PointsSubstrate
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):

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

COMMENTS

MAXIMUM POOL DEPTH

(Inches):

8.00

Pool Depth
Max = 30

25

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

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

COMMENTS

AVERAGE BANKFULL WIDTH

(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

FLOODPLAIN QUALITY

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

COMMENTS

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

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

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

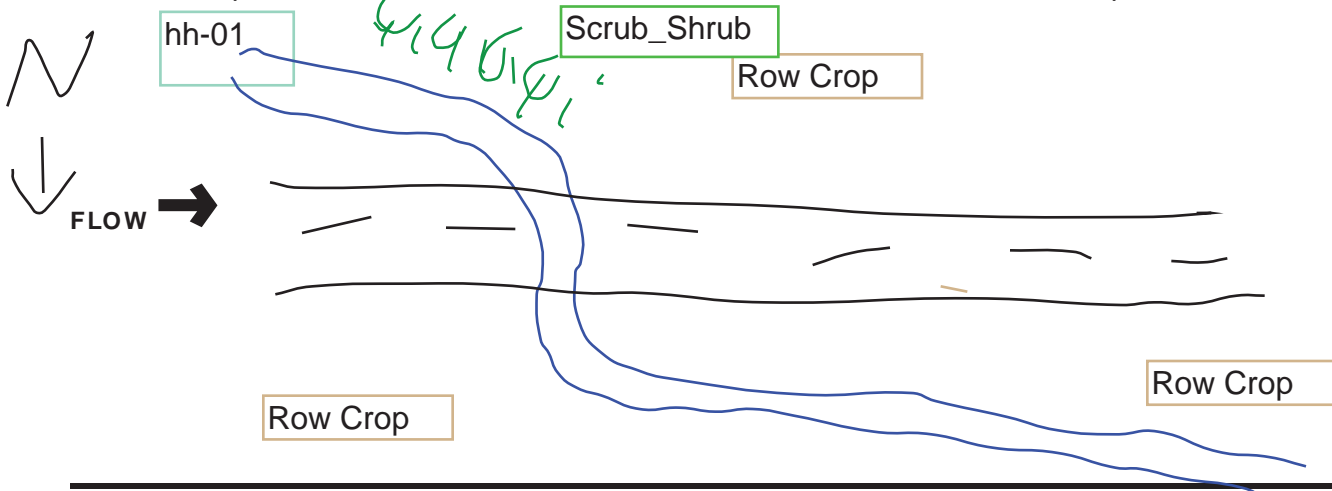
☐ Flat (0.5 ft/100 ft)
☒ Flat to Moderate
☐ Moderate (2 ft/100 ft)
☐ Moderate to Severe
☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Pusheta Creek	Distance from Evaluated Stream	8,500.00
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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





Primary Headwater Habitat Evaluation Form

39

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

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 PWH Streams" for Instructions

STREAM CHANNEL



NONE / NATURAL CHANNEL



RECOVERED



RECOVERING



RECENT OR NO RECOVERY

MODIFICATIONS:

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

☐
☐
☐
☐
☐
☐
☐

BLDR SLABS [16 pts]

BOULDER (>256 mm) [16 pts]

BEDROCK [16 pt]

COBBLE (65-256 mm) [12 pts]

GRAVEL (2-64 mm) [9 pts]

SAND (<2 mm) [6 pts]

PERCENT

0%

0%

0%

0%

0%

0%

TYPE

☒
☐
☐
☐
☐
☐
☐

SILT [3 pt]

LEAF PACK/WOODY DEBRIS [3 pts]

FINE DETRITUS [3 pts]

CLAY or HARDPAN [0 pt]

MUCK [0 pts]

ARTIFICIAL [3 pts]

PERCENT

80%

10%

0%

0%

0%

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
PointsSubstrate
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]

COMMENTS

MAXIMUM POOL DEPTH

(Inches):

2.00

Pool Depth
Max = 30

15

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]

COMMENTS

AVERAGE BANKFULL WIDTH

(Feet):

4.00

Bankfull
Width
Max=30

15

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)

Wide >10m

☐
☐

Moderate 5-10m

☐
☐

Narrow <5m

☐
☐

None

COMMENTS

FLOODPLAIN QUALITY

☐
☐

(Most Predominant per Bank)

Mature Forest, Wetland

☒
☒

Immature Forest, Shrub or Old Field

☐
☐

Residential, Park, New Field

☐
☐

Fenced Pasture

☐
☐

Conservation Tillage

☐
☐

Urban or Industrial

☐
☐

Open Pasture, Row Crop

☐
☐

Mining or Construction

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

Stream Flowing

Subsurface flow with isolated pools (Interstitial)

COMMENTS

☒
☐

Moist Channel, isolated pools, no flow (Intermittent)

Dry channel, no water (Ephemeral)

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 **8,400.00**
☐ 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 downstream 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:

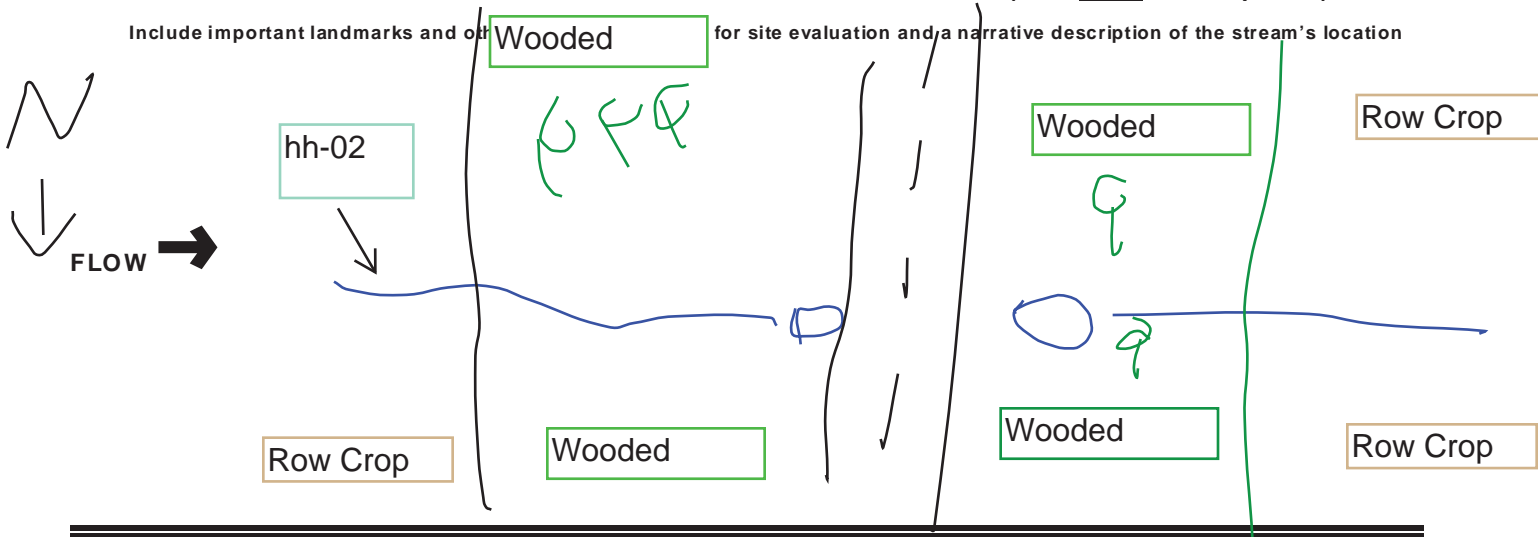
Additional comments/description of pollution impacts:

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



APPENDIX D**DELINEATED FEATURES PHOTOGRAPHS**

D1- DELINEATED WETLANDS

Client Name: AEP Ohio Transco	Site Location: Gristmill-Gemini 138 kV Transmission Line Project	Project No. 60567963
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Date: October 16, 2018 Description: Wetland 1 PEM wetland Category 1		
	 <p>Facing North</p>	 <p>Facing West</p>
	 <p>Facing South</p>	 <p>Facing East</p>
	 <p>Soil Pit</p>	

D2 – DELINEATED STREAMS

Client Name:

AEP Ohio Transco

Site Location:

Gristmill-Gemini 138 kV Transmission Line Project

Project No.

60567963

Date:

October 16, 2018

Description:

Stream 1

Intermittent

Modified
Class 2


Facing Upstream



Facing Downstream



Substrate



PHOTOGRAPHIC RECORD STREAMS & DITCHES

Client Name:

AEP Ohio Transco

Site Location:

Gristmill-Gemini 138 kV Transmission Line Project

Project No.

60567963

Date:

October 16, 2018

Description:

Stream 3

Intermittent

Modified
Class 2

Facing Upstream



Facing Downstream



Substrate

Client Name:

AEP Ohio Transco

Site Location:

Gristmill-Gemini 138 kV Transmission Line Project

Project No.

60567963

Date:

October 16, 2018

Description:

Stream 4

Ephemeral

Modified
Class 2



Facing Upstream





Facing Downstream



Substrate

D3 – DELINEATED PONDS

Client Name: AEP Ohio Transco	Site Location: Gristmill-Gemini 138 kV Transmission Line Project	Project No. 60567963
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Date: October 16, 2018 Description: Pond 1 PUB wetland	
	 <p>Northeast</p>
	 <p>Southeast</p>

APPENDIX E**USFWS AND ODNR RESPONSE LETTERS**



Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

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

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 laciniata*), 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 (*Unio merus tetralasmus*), a state threatened mussel. This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (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,

