Legal Department

American Electric Power
1 Riverside Plaza
Columbus, OH 43215-2373
AEP.com

April 4, 2017

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

Hector Garcia
Senior Counsel –
Regulatory Services
(614) 716-3410 (P)
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hgarcia1@aep.com

Re: Case No. 17-0635-EL-BLN
In the Matter of the Letter of Notification for the
Lemaster-Strouds Run 138kV Transmission Line Extension Project

Dear Chairman Haque,

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

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

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

Respectfully submitted,

/s/ Hector Garcia

Hector Garcia
Counsel for AEP Ohio Transmission Company

cc: Jon Pawley, OPSB Staff

Letter of Notification for Lemaster-Strouds Run 138 kV Transmission Line Relocation Project

PUCO Case No. 17-0635-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.

April 4, 2017

April 4, 2017

Letter of Notification
Lemaster-Strouds Run 138 kV Transmission Line Relocation Project

4906-6-05

AEP Ohio Transmission Company, Inc. ("AEP Ohio Transco") provides this Letter of Notification ("LON") to the Ohio Power Siting Board ("OPSB") in accordance with the requirements of the Ohio Administrative Code Chapter 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 has identified the need to relocate a segment of the Lemaster-Strouds Run 138 kV Transmission Line (the "Project") in York Township, Athens County, Ohio. The Project consists of the removal of approximately 0.1 miles of existing 138 kV transmission line that terminates within AEP Ohio Transco's Poston Station and construction of approximately 0.4 miles of new 138 kV transmission line that will terminate within AEP Ohio Transco's proposed Lemaster Station. The LON application for the proposed Lemaster Station was filed with the OPSB separately under PUCO Case No. 16-2314-EL-BLN, and was approved by the OPSB on March 22, 2017. Figures 1.1, 1.2, and 1.3 in Appendix A show the existing Poston Station location, the general location of the proposed Lemaster Station, and the proposed Lemaster-Strouds Run 138 kV transmission line relocation "Project Area.".

The proposed transmission line removal work for this Project will occur on property owned by AEP Ohio Transco (Parcels P010010000100 and P010010000109). The proposed transmission line construction work for this Project will occur primarily on property owned by AEP Ohio Transco (Parcel P010010000100), though a small portion will be located on Athens County Port Authority property (Parcel P010010000104). AEP Ohio Transco has secured an option to purchase property from the Athens County Port Authority for this Project (and for the Lemaster Station project). Technical features of this project are discussed in Section B9.

The Project meets the requirements for a LON because it is within the types of projects defined by Item (1)(b) of 4906-1-01 *Appendix A Application Requirement Matrix For Electric Power Transmission Lines*. This item states:

> *(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:*
>
> *(b) Line(s) greater than 0.2 miles in length but not greater than two miles in length.*

B(2) Statement of Need

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

The Lemaster 138kV greenfield station (filed separately under PUCO Case No. 16-2314-EL-BLN) is being developed to replace Poston station, where the station will be retired and removed. Poston station is currently positioned within a floodplain, and is comprised of deteriorated equipment installed in the 1940's and 50's. The equipment of this station poses a safety concern, and no longer complies with AEP safety standards. The drivers for replacement of the equipment are age, dielectric strength breakdown, short circuit strength breakdown, and accessory damage. The site where Poston station currently sits has been subject to flooding in the past, posing a safety concern, as well as increases the difficulty of maintaining and repairing existing structures.

The purpose of this Project is to energize the proposed Lemaster Station and is part of a series of improvements to enhance the reliability of electric service in Athens County and the greater Southern Ohio area. The proposed Project, in combination with the proposed Lemaster Station project, is required to alleviate voltage concerns throughout the Southern Ohio area. The Project will improve the reliability of the transmission network in southeast Ohio and provide adequate voltage on the local 138 kV system under N-1 contingency conditions per the applicable system planning criteria. More information on this project can be found in Table 10 of the Long Term Forecast Report to be submitted to the Public Utilities Commission of Ohio.

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.

Figures 1.2, 1.3, and 1.4 in Appendix A show the location of the Project in relation to other existing AEP Ohio Transco transmission lines, the existing Poston Station, and the proposed Lemaster Station.

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.

Replacing all equipment within place in Poston station was considered, but was not considered

practical as the station is regularly flooded. In addition, outages are difficult to obtain to replace the equipment considering that the majority of the equipment is in need of replacement. The estimated cost of replacing this equipment in place is $15,000,000, not including the cost that may potentially arise from further water damage to the station. Constructing Lemaster Station as a greenfield station is seen as a preferable viable alternative as it ensures the longevity of station equipment in comparison to the possibility of more frequent equipment replacement within Poston Station.

This Project minimizes impacts to the community and the environment, while taking into account the engineering and construction needs of the Project (see Sections B9 and B10 for further discussion of socioeconomic, ecological, construction, and engineering aspects of the project). The proposed Project will occur primarily on property owned by AEP Ohio Transco, though a small portion will be located on Athens County Port Authority property. AEP Ohio Transco has secured an option to purchase property from the Athens County Port Authority for this Project. No streams are located in the Project Area, and there are no residences within 1,000 feet of the Project Area. The Project Area is currently undeveloped and primarily non-forested. One emergent and one scrub-shrub wetland are located in the Project Area. However, proposed transmission line removal and relocation activities are not expected to result in the discharge of fill material in either wetland, and timber mats will be utilized at wetland locations if equipment crossings are required. Limited amounts of potentially suitable Indiana bat (*Myotis sodalis*; federally endangered) and northern long-eared bat (*Myotis septentrionalis*; federally threatened) habitat is present within the Project Area, though no potential roost trees or hibernacula for these species were observed during threatened and endangered species habitat assessment field surveys completed for the Project. No potential habitat for other federally listed species was observed within the Project Area.

B(5) Public Information Program

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

The proposed Project will be located on property currently owned by the AEP Ohio Transco and the Athens County Port Authority. 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 maintains a website (http://aeptransmission.com/ohio/) which provides the public access to an electronic copy of this LON and the public notice for this LON. The LON will also be sent to applicable public officials concurrently with submittal to OPSB, and a paper copy of the LON will be provided to the Athens County Public Library.

B(6) Construction Schedule

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

Construction is planned to start in September 2017. The in-service date (completion date) of the Project is expected to be on or about June 2018.

B(7) Area Map

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

Figure 1.1 included in Appendix A identifies the location of the Project Area on a USGS quadrangle map. Figure 1.2 in Appendix A is an aerial map of the Project Area. To visit the Project from Columbus, take US 33 southeast to the State Route 682 interchange approximately four miles northeast of Athens, Ohio. Take State Route 682 south for 0.25 miles and then turn right (west) on Poston Road (County Road 110). Follow Poston Road west for approximately 2.75 miles. The Project Area is located on the north side of the road.

B(8) Property Agreements

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

The proposed transmission line removal work for this Project will occur on property owned by AEP Ohio Transco (Parcels P010010000100 and P010010000109). The proposed transmission line construction work for this Project will occur primarily on property owned by AEP Ohio Transco (Parcel P010010000100), though a small portion will be located on Athens County Port Authority property (Parcel P010010000104). AEP Ohio Transco has secured an option to purchase property from the Athens County Port Authority for this Project. No other property acquisition or easements are required to construct and operate the Lemaster-Strouds Run 138 kV transmission line.

B(9) Technical Features

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

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

The Project will remove one existing guyed three-pole structure, one lattice tower structure (shared with the Lemaster-Lick 138 kV transmission line), and approximately 0.15 miles of existing 138 kV single circuit transmission line. The existing conductor type is 636 KCM ACSR 26/7 "Grosbeak" and the existing shield wire is 3/8 EHS steel. The Project will include the installation of five new steel pole structures and 0.4 miles of new single-circuit 138 kV transmission line, new 636 KCM ACSR 26/7 "Grosbeak" conductors, along with a 7#8 alumoweld shield wire. All deadends will utilize pier foundations with anchor cages. The design and operating voltage will be 138 kV. Structure design and phasing diagrams are presented under Appendix D.

The proposed Project will occur primarily on property owned by AEP Ohio Transco, though a small portion will be located on Athens County Port Authority property. AEP Ohio Transco has secured an option to purchase property from the Athens County Port Authority for this Project. No other property acquisition or easements are required to construct and operate the Lemaster-Strouds Run 138 kV transmission line.

(b) For electric power transmission lines that are within one hundred feet of an occupied residence or institution, the production of electric and magnetic fields during the operation of the proposed electric power transmission line. The discussion shall include:

(i) Calculated Electric and Magnetic Field Strength Levels

This section is not applicable. There are no occupied residences or institutions located within 100 feet of the Project.

(ii) 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.

There are no occupied residences or institutions located within 100 feet of the Project. The transmission line removal and relocation work associated with the Project will primarily occur on existing AEP Ohio Transco property immediately adjacent to AEP Ohio Transco's existing Poston Station and proposed Lemaster Station. Therefore, no design alternatives were considered.

(c) The estimated capital cost of the project.

The 2017 capital cost estimate for the proposed Project, comprised of applicable tangible and capital costs, is approximately $1,200,000.

B(10) Social and Economic Impacts

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

B(10)(a) Provide a brief, general description of land use within the vicinity of the proposed project, including a list of municipalities, townships, and counties affected.

The Project is located within York Township, Athens County, Ohio. Figure 1.3 in Appendix A shows U.S. Department of Agriculture land use categories for the Project Area. According to this map, land uses in the Project Area consist of grassland, barren land, and deciduous forest. However, field observations by AEP Ohio Transco's consultant indicate the Project Area is primarily comprised of "old field" habitat, which can be characterized as non-forested grassland that is occasionally disturbed (mowed, grazed, or cleared) and contains a variety of herbaceous species, young shrubs, vines, and tree saplings. One emergent wetland and one scrub-shrub wetland are located in the Project Area (see Appendix C). No streams are located in the Project Area.

There are currently no active residences, cemeteries, churches, schools, or other community facilities located within 1,000 feet of the Project Area (as shown on Figures 1.2 and 1.3 in Appendix A). The nearest residences are located along State Route 691, approximately 1,500 feet to the west of the Project Area. A water filtration plant is located approximately 0.25 miles to the east of the Project (approximately 1,000 feet northeast of the existing Poston Station).

No wildlife management areas or nature preserve lands are located within 1,000 feet of the Project. However, the Wayne National Forest, the Hamley Run Floodplain Forest Conservation Site, a Breeding Amphibian Site, a Floodplain Forest Plant Community, and a Mixed Mesophytic Forest Plant Community were reported by the Ohio Department of Natural Resources ("ODNR") Ohio Natural Heritage Program ("ONHP") as occurring within one mile of the Project Area (see Appendix C). The proposed Project will not impact any of these resources.

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 Project is not located within a registered agricultural district, based on coordination with the Athens County Auditor's Office. Additionally, the Project Area does not contain any active agricultural row crop land (see Figure 1.3 in Appendix A and Figure 3 in Appendix C).

B(10)(c) Archaeological and Cultural Resources

Provide a description of the applicant's investigation concerning the presence or absence of

significant archeological or cultural resources that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

In February and March of 2017, AEP Ohio Transco's consultant conducted Phase I Cultural Resource Management Investigations for the Lemaster-Strouds Run 138kV Transmission Line Relocation Project in York Township, Athens County, Ohio (see Appendix B). A literature review conducted for this Project indicated previous cultural resource management activity. The southwestern part of the Project Area was previously investigated (Weller 2016) as well as a very small part of the eastern aspect (Zink 2013). Weller's 2016 survey was for a tract where the new Lemaster Station is planned. The only recorded resource within the study area is the extant Poston Station (ATH0063302), though this site is not regarded as significant.

The Project will not directly involve any buildings, structures, or archaeological sites. The archaeological field reconnaissance involved subsurface testing and visual inspection and determined that the Project Area has been severely altered and disturbed or previously investigated. No cultural materials were identified during these investigations. The Project will not involve or impact any significant cultural resources or landmarks and AEP Ohio Transco's consultant recommends no further cultural resource management work.

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

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

Best management practices (BMPs) will be implemented and maintained to minimize erosion and control sediment to protect surface water quality during storm events. If applicable (based on the final Project disturbance area), a project-specific Storm Water Pollution Prevention Plan (SWPPP) will be prepared and a Notice of Intent (NOI) will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHC000004.

No streams are located in the Project Area. However, one emergent and one scrub-shrub wetland are located in the Project Area (see Appendix C). Transmission line removal and relocation activities are not expected to result in the discharge of fill material in these wetlands, and timber mats will be utilized if equipment crossings are required. Therefore, the Project is not expected to require a Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers, a Pre-Construction Notification to the U.S. Army Corps of Engineers, or a Section 401 Water Quality Certification from the Ohio Environmental Protection Agency.

The Project is not located within a Federal Emergency Management Agency ("FEMA") 100-year floodplain area. Therefore, no floodplain permitting is required for the Project. There are no other known local, state or federal requirements that must be met prior to commencement of the Project.

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

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

The United States Fish and Wildlife Service ("USFWS") Midwest Region's *Ohio County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species* (available at https://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyList11Jan2017.pdf) was reviewed to determine the threatened and endangered species currently known to occur in Athens County. This USFWS publication listed the following threatened or endangered species as occurring in Athens County: Indiana bat (*Myotis sodalis*; federally endangered), northern long-eared bat (*Myotis septentrionalis;* federally threatened), fanshell (*Cyprogenia stegaria*; federally endangered), sheepnose (*Plethobasus cyphyus*; federally endangered), pink mucket pearly mussel (*Lampsilis abrupta*; federally endangered), snuffbox (*Epioblasma triquetra*; federally endangered), and American burying beetle (*Nicrophorus americanus*; federally endangered). Limited amounts of potentially suitable Indiana bat and northern long-eared bat habitat is present within the Project Area, though no potential roost trees or hibernacula for these species were observed during threatened and endangered species habitat assessment field surveys completed for the Project. No potential habitat for other federally listed species was observed within the Project Area. As part of the ecological study completed for the Project, a coordination letter was submitted to the USFWS Ohio Ecological Services Field Office seeking technical assistance on the Project for potential impacts to threatened or endangered species. The November 28, 2016 response letter from USFWS (see Appendix C) indicated that the proposed Project is within the range of the Indiana bat and northern long-eared bat in Ohio, and within the vicinity of one or more confirmed records of Indiana bats, but if tree clearing occurs between October 1 and March 31, they do not anticipate the Project having any adverse effects to these species or any other federally listed endangered, threatened, proposed, or candidate species. The proposed Project is not expected to require any tree clearing. The USFWS letter did not include any comments specific to the other federally listed species.

Several state-listed threatened species, endangered species, and species of concern are listed by

the Ohio Department of Natural Resources (http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/species%20and% 20habitats/statelisted%20species/athens.pdf) as occurring, or potentially occurring in Athens County. These state-listed species are addressed in detail in the Ecological Resources Inventory Report included in Appendix C.

Coordination letters were submitted via email to the Ohio Department of Natural Resources ("ODNR") Division of Wildlife ("DOW") Ohio Natural Heritage Program ("ONHP") and the ODNR Office of Real Estate in November 2016, seeking an environmental review of the proposed Project for potential impacts on state-listed and federally-listed threatened or endangered species. Correspondence from ODNR's DOW/OHNP was received on November 17, 2016 (see Appendix C).

According to the ODNR - Office of Real Estate, the Project is within the vicinity of records for the Indiana bat and presence of the Indiana bat has been established in the area. If suitable habitat occurs within the Project Area, the ODNR recommends trees be conserved. If suitable habitat occurs within the Project Area and trees must be cut, the ODNR recommends cutting occur between October 1 and March 31. If no tree removal is proposed, this Project is not likely to impact this species. The ODNR - Office of Real Estate also indicated that due to the Project location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact federal and state-listed mussel species. The project is also within the range of the channel darter (*Percina copelandi*), a state threatened fish, and the river darter (*Percina shumardi*), a state threatened fish. The ODNR - Office of Real Estate recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this Project is not likely to impact these or other aquatic species. The project is also within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species and a federal species of concern, the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species, mud salamander (*Pseudotriton montanus*), a state threatened species, and black bear (*Ursus americanus*), a state endangered species. The ODNR - Office of Real Estate indicated that due to the location, the type of habitat present at the project site, and the type of work proposed, this Project is not likely to impact these species.

According to the DOW/OHNP, three species are known to occur within a one-mile radius of the Project Area, including rough boneset (*Eupatorium pilosum*; status not yet determined), a caddisfly (*Brachycentrus numerosus*; state endangered), and eastern box turtle (*Terrapene carolina*; state species of concern). None of these known locations is within or in the immediate vicinity of the Project Area and no impacts to these species are anticipated (see Appendix C for further information). Potentially suitable habitat for three other state-listed species, black bear (*Ursus americanus*; state endangered), marsh fern moth (*Fagitana littera*; state threatened), and timber rattlesnake (*Crotalus horridus horridus;* state endangered*)* was observed in the Project Area. However, none of these species is known to occur within a mile of the Project Area, and no impacts to these species are anticipated (see Appendix C for further information).

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.

The ODNR DOW/OHNP response indicated that they are unaware of any unique geological features or scenic rivers within a mile of the Project Area, but did state that the Wayne National Forest, the Hamley Run Floodplain Forest Conservation Site, a Breeding Amphibian Site, a Floodplain Forest Plant Community, and a Mixed Mesophytic Forest Plant Community exist within a one-mile radius of the Project. However, none of these known locations occur within or immediately adjacent to the Project Area and no impacts are anticipated (see Appendix C). Correspondence received from the USFWS (see Appendix C) indicated that there are no federal wilderness areas, wildlife refuges, or designated critical habitat in the Project vicinity.

The FEMA Flood Insurance Rate Map was consulted to identify any floodplains/flood hazard areas that have been mapped in the Project Area (specifically, map number 39009C0095C). Based on this map, no mapped FEMA floodplains are located in the Project Area. Therefore, no floodplain permits will be required for this Project.

Wetland and stream delineation field surveys were completed within the Project Area by AEP Ohio Transco's consultant in November 2016. The results of the wetland and stream delineations are presented in the Ecological Resources Inventory Report included in Appendix C. No streams were identified in the Project Area. However, one emergent wetland and one scrub-shrub wetland are located in the Project Area (see Appendix C). Transmission line removal and relocation activities are not expected to result in the discharge of fill material in these wetlands, and timber mats will be utilized if equipment crossings are required.

B(10)(g) Unusual Conditions

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

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

Appendix A. Project Maps

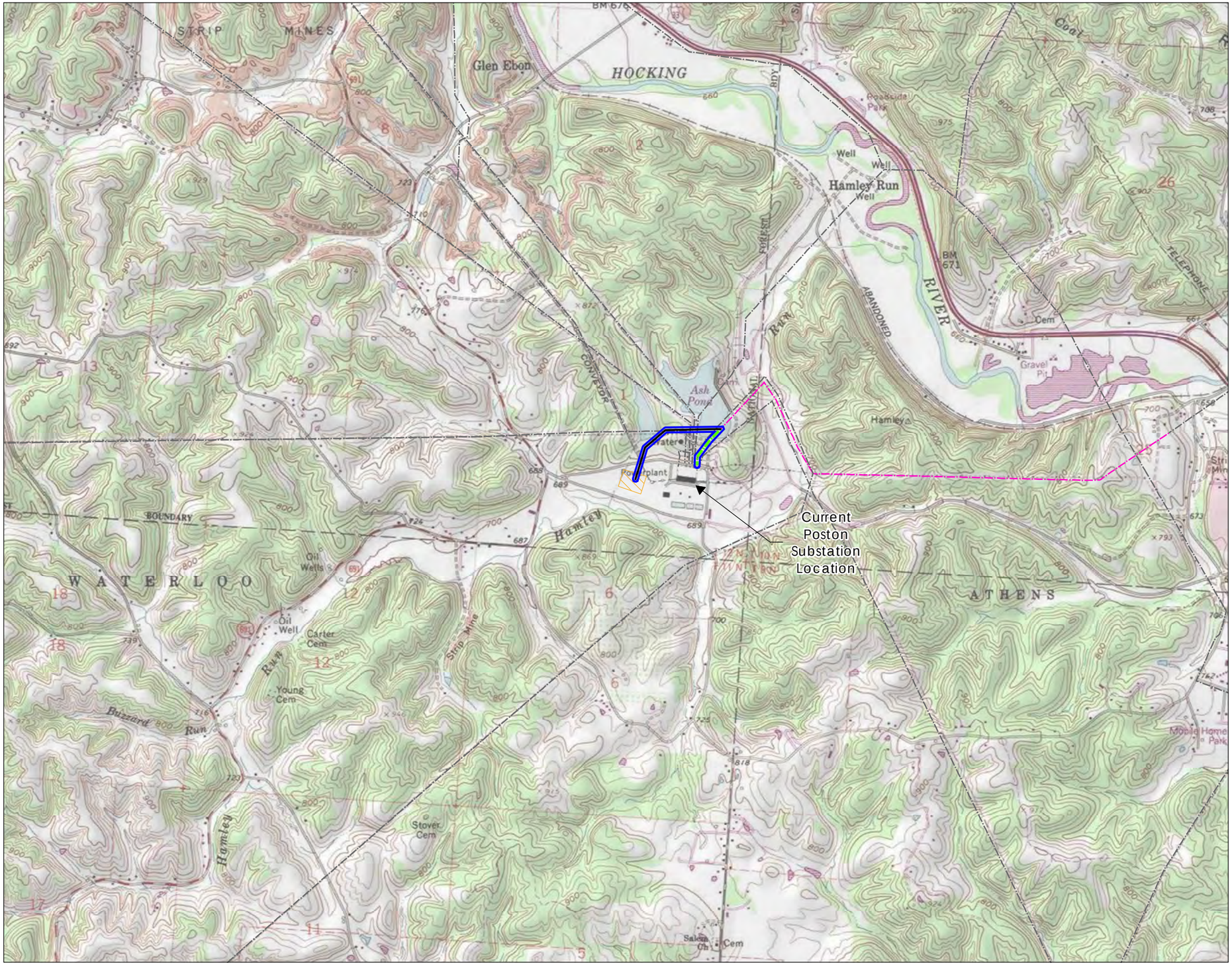

Figure No.
1.1

Title
Project Location Map

Client/Project
AEP Ohio Transmission Company, Inc.
Lemaster - Strouds Run 138kV
Transmission Line Relocation Project

Project Location
Athens County, Ohio

193704783

Prepared by HDB on 2017-03-03
Technical Review by CP on 2017-03-06
Independent Review by JB on 2017-03-13

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1:24,000 (At original document size of 11x17)

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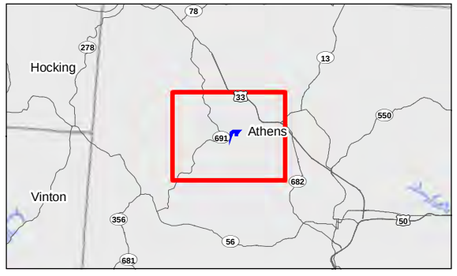
Legend

- Proposed Lemaster - Strouds Run Transmission Line Relocation
- Existing Lemaster - Strouds Run Transmission Line to be Removed
- Existing Lemaster - Strouds Run Transmission Line
- Other Existing Transmission Lines
- Project Area
- Proposed Lemaster Substation



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, NADS
3. Background: USGS 7.5' Topographic Quadrangles Nelsonville (OH, 1983) and The Plains (OH, 1975)

Stantec

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Figure No.
1.2

Title
Project Layout Map

Client/Project
AEP Ohio Transmission Company, Inc.
Lemaster - Strouds Run 138kV
Transmission Line Relocation Project

Project Location
Athens County, Ohio

193704783

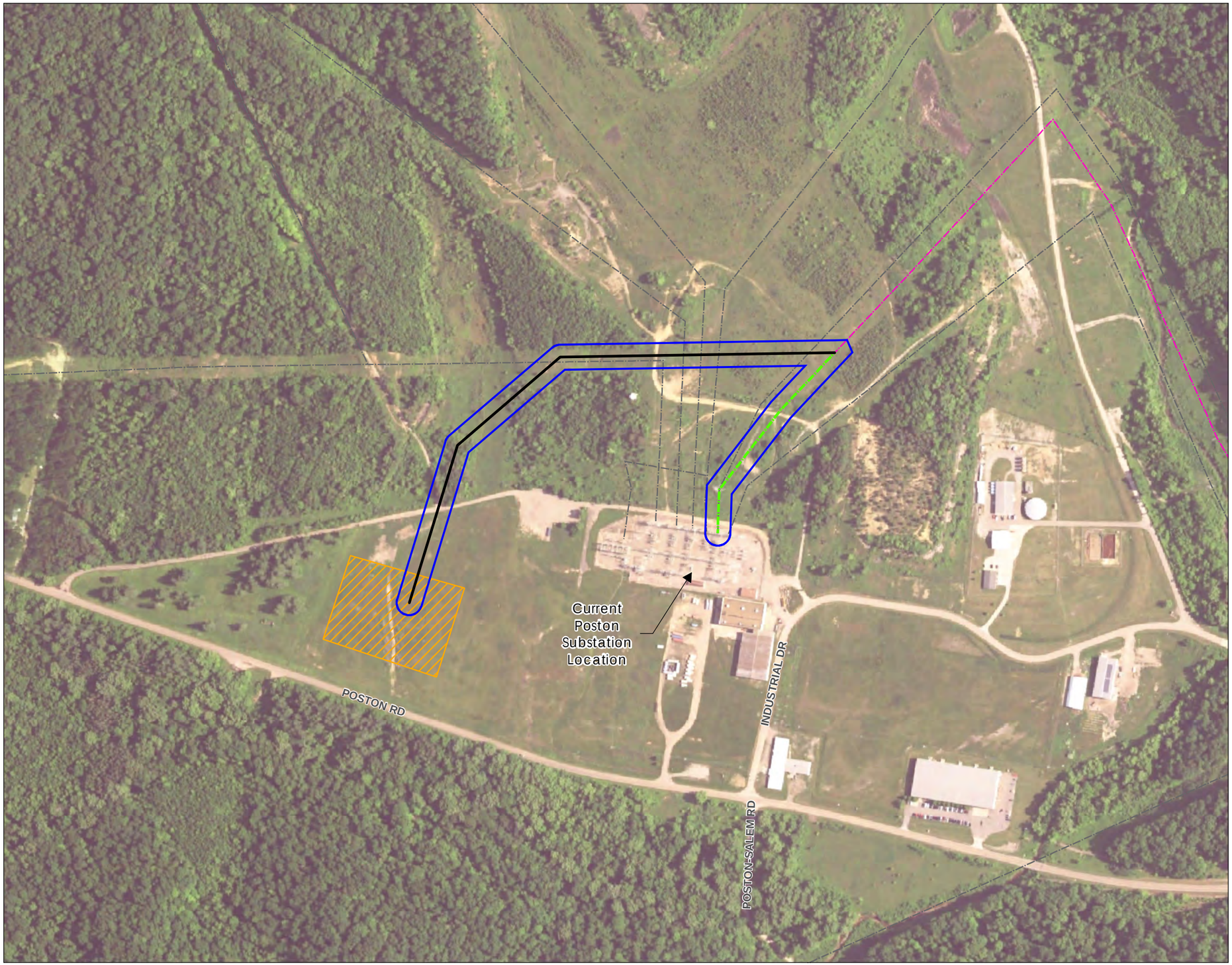
Prepared by HDB on 2017-03-03
Technical Review by CP on 2017-03-06
Independent Review by JB on 2017-03-13

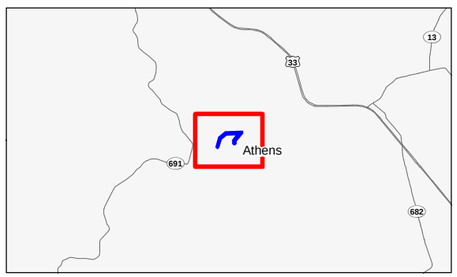
0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Proposed Lemaster - Strouds Run Transmission Line Relocation
- Existing Lemaster - Strouds Run Transmission Line to be Removed
- Existing Lemaster - Strouds Run Transmission Line
- Other Existing Transmission Lines
- Project Area
- Proposed Lemaster Substation





Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, NADS, OGRIP
3. Orthophotography: 2015, NAIP

Stantec

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Figure No.
1.3

Title
Land Use Map

Client/Project
AEP Ohio Transmission Company, Inc.
Lemaster - Strouds Run 138kV
Transmission Line Relocation Project

Project Location
Athens County, Ohio

193704783

Prepared by HDB on 2017-03-03
Technical Review by CP on 2017-03-06
Independent Review by JB on 2017-03-13

0 200 400 Feet

1:4,800 (At original document size of 11x17)

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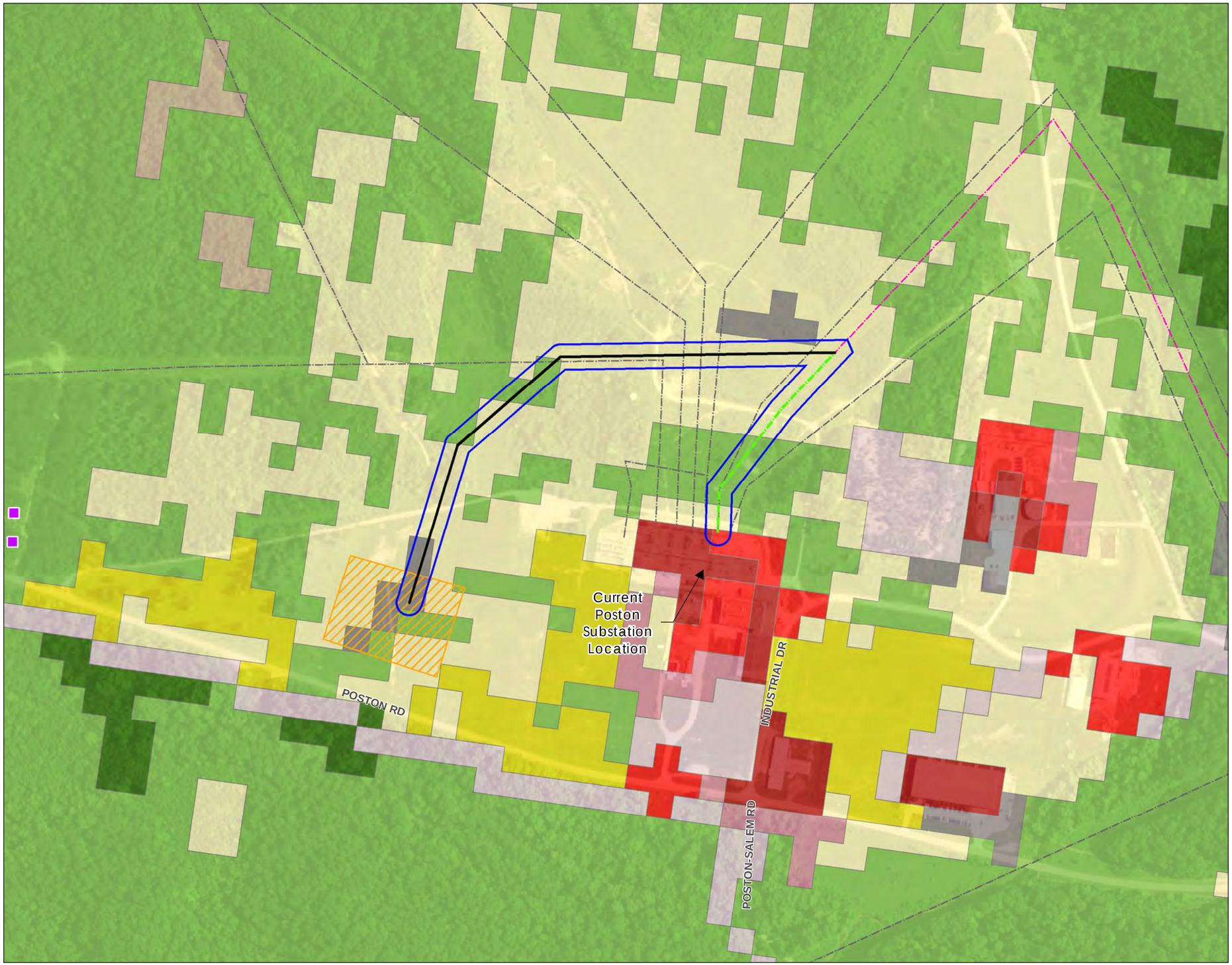


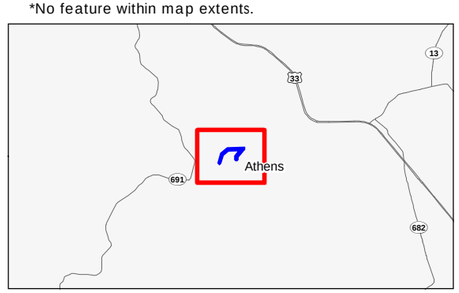
Legend

- Proposed Lemaster - Strouds Run Transmission Line Relocation
- Existing Lemaster - Strouds Run Transmission Line to be Removed
- Existing Lemaster - Strouds Run Transmission Line
- Other Existing Transmission Lines
- Project Area
- Proposed Lemaster Substation
- Residence
- Cemetery*
- Church*
- School*

National Land Cover Database

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Shrub/Scrub
- Grassland/ Herbaceous
- Pasture/Hay
- Cultivated Crops

*No feature within map extents.



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, NLCD, NADS, OGRIP
3. Orthophotography: 2015, NAIP

Stantec

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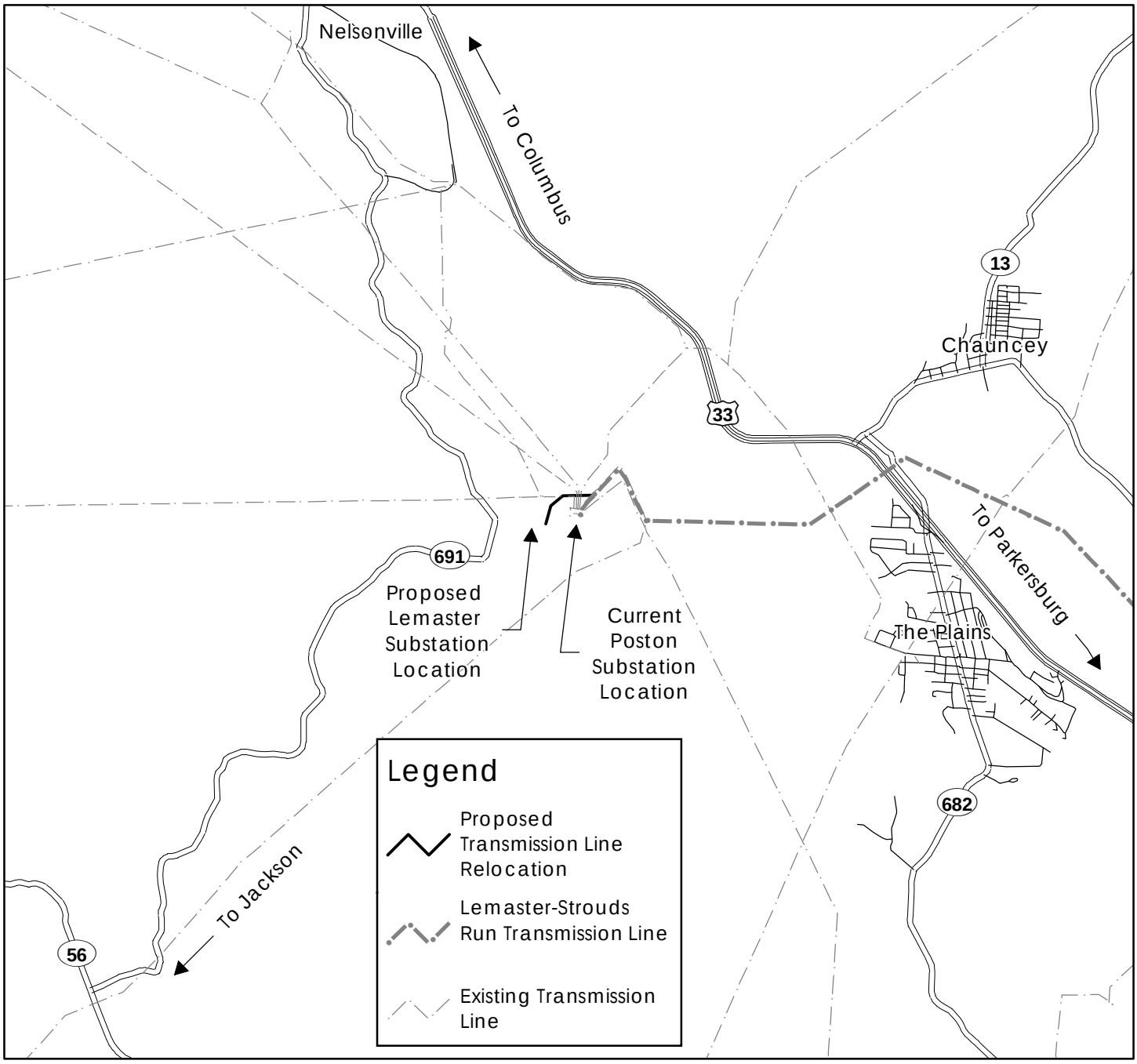
Figure 1.4 - Concept Map



Appendix B. Cultural Resources Survey Report

Phase I Cultural Resource Management Investigations for the Lemaster-Strouds Run 138kV Transmission Line Relocation Project in York Township, Athens County, Ohio

Ryan J. Weller

March 15, 2017

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Phase I Cultural Resource Management Investigations for the Lemaster-Strouds Run 138kV Transmission Line Relocation Project in York Township, Athens County, Ohio

By

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March 15, 2017

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W-2039

Abstract

In February and March 2017, Weller & Associates, Inc. conducted Phase I Cultural Resource Management Investigations for the Lemaster-Strouds Run 138kV Transmission Line Relocation Project in York Township, Athens County, Ohio. The lead agency for this project is the Ohio Power Siting Board and the work was conducted on behalf of American Electric Power. The field investigations were considerate of the footprint of the planned construction activity and accounted for the entire reroute corridor. No buildings or structures older than 50 years are being taken or directly impacted. The field investigations involved subsurface testing and visual inspection. This work verified that the project area has largely been severely disturbed and was previously investigated. There were no cultural resources identified during these investigations.

The plans in this area are to construct the Lemaster Station, a new electric substation that will eventually replace the outdated Poston Station. The shift in the location of the new Lemaster Station required rerouting the electric lines that converge in this area, including the former Poston-Strouds Run 138kV line. The survey for this corridor involved a 30.5 m (100 ft) wide corridor. This is within and near the Hamley Run Valley, which is comparably broader than the nearby upland drainages. This surrounding area is entrenched with treed unglaciated landscape. The area is to the north of Poston Road and northwest of Industrial Drive. A portion of this line crosses over Ash Pond.

A literature review that was conducted for this project indicated previous cultural resource management activity. However, there are no previously identified sites within the project area. The southwestern part of the project area was previously investigated (Weller 2016) as well as a very small part of the eastern aspect (Zink 2013). Weller's 2016 survey was for a tract where the new Lemaster Station is planned. The only recorded resource within the study area is the extant Poston Station (ATH0063302); this has not been regarded as significant.

The planned work will not directly involve any buildings, structures, or archaeological sites. The archaeological field reconnaissance determined that the majority of the project area has been severely altered and disturbed or previously investigated. There were no cultural materials identified during these investigations. The project will not involve or impact any significant cultural resources or landmarks; no further cultural resource management work is considered to be necessary.

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Introduction

In February and March 2017, Weller & Associates, Inc. conducted Phase I Cultural Resource Management Investigations for the Lemaster-Strouds Run 138kV Transmission Line Relocation Project in York Township, Athens County, Ohio (Figures 1-3). The work was conducted under contract with American Electric Power (AEP). The lead agency for this project is the Ohio Power Siting Board (OPSB) and a report will be submitted to the Ohio History Connection (OHC). The work efforts were designed to evaluate pertinent cultural resources in a manner that is reflective of the National Register of Historic Places (NRHP) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 [36 CFR 800]). This report summarizes the results of the fieldwork and literature review. The report format and design is similar to that established in *Archaeology Guidelines* (Ohio State Historic Preservation Office [SHPO] 1994).

Alex Thomas conducted the literature review on February 8, 2017. Ryan Weller served as the Principal Investigator and Senior Project Manager. Joshua Engle served as the Project Manager. The field crew included Alex Thomas, Craig Schaefer, and Justin Fryer. Ryan completed the textual portion of this document, Alex and Chad Porter completed the figures.

Project Description

The plans in this area are to construct the Lemaster Station, a new electric substation that will eventually replace the outdated Poston Station. The shift in the location of the new Lemaster Station required rerouting the electric lines that converge in this area, including the former Poston-Strouds Run 138kV line. The survey for this corridor involved a 30.5 m (100 ft) wide corridor. The project's corridor stems from the existing Poston (now Lemaster)-Strouds Run corridor westward and across Ash Pond then southwesterly into the Hamley Run Valley, where the Lemaster Station is to be constructed. The new route is about 802 m (2,631 ft) long while the removal/abandoned route is about 304 m (997 ft) long.

Environmental Setting

Climate

Athens County, like all of Ohio, has a continental climate, with hot and humid summers and cold winters. About 102.4 cm (40.3 in) of precipitation falls annually with the majority, about 59 percent, falling between the months of April and September. February is the driest month, while July tends to be the wettest month for the Athens and Hocking County area [United States Department of Agriculture, Soil Conservation Service (USDA, SCS) 1985, 1989].

Physiography, Relief, and Drainage

This part of Athens County is located within the Muskingum-Pittsburgh Plateau physiographic region of Ohio (Brockman 1998). This region has moderately high relief,

dissected plateaus, coal-bearing rocks, and valleys having been affected by Teays-age deposits (Brockman 1998). The relief within the project area is nearly level as it is within an upland stream valley. Most of Athens County is drained by the Hocking River and its tributaries. The project area is drained by Hamley Run, which is a tributary of the Hocking River.

Geology

The project area is situated in the Muskingum-Pittsburgh Plateau having an underlying geology that is of the Pennsylvanian era. The Pennsylvanian-age siltstones, shales, sandstone and economically important coals and claystones underlie the project area; Wisconsin-age sand, gravel, and lacustrine silt" (Brockman 1998). The valley area that includes the project was formed from pre-Illinoisan lacustrine deposits (Pavey et al. 1999).

Soils

The project area is small and within the Hamley Run stream valley; this is within the Chagrin-Nolin soil association and the upland terrain to the north of the valley is within the Omulga-Licking association. The upland areas that are north of the stream valley are contained in steeply sloped conditions for the most part. The Omulga series soils can be suitable testing landforms and the valley area is comprised of Fitchville soils; which are typically broad terraces that are above the alluvial floodplain (USDA, SCS 2017).

Table 1. Soils in the project area.

Soil Symbol	Soil Name	% Slope	Location
FcA	Fitchville silt loam	0-3	Slack water terraces
WhE	Westmoreland-Guernsey silt loams	8-15, 25-40	Upland; side slopes
OtC	Omulga silt loam	8-15	Ancient terraces
DtF	Dekalb-Westmoreland complex	40-70	Upland; side slopes
RcD	Richland loam	15-25	Upland; side slopes

Flora

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

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

in Wyandot and Marion County areas would contain islands of forests, but were mostly expansive open terrain dominated by grasses.

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

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

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

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

The project area is located in central Athens County. The valleys in this area are consistent with Beech forestation (Gordon 1966).

Fauna

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

also an integral part of the prehistoric diet. Ohio muskellunge, yellow perch, white crappie, long nose gar, channel catfish, pike, and sturgeon were several of the fish, whereas, the Ohio naiad mollusc, butterfly's shell, long solid, common bullhead, knob rockshell, and cod shell were the major varieties of shellfish. Reptiles and amphibians, such as several varieties of snakes, frogs, and turtles, were also part of the prehistoric diet (Trautman 1981; Lafferty 1979; Mahr 1949).

Cultural Setting

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

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

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

The Middle Archaic period (8000-6000 B.P.) is poorly known or understood in archaeological contexts within Ohio. Some (e.g., Justice 1987) regard small bifurcate points as being indicative of this period. Ground stone artifacts become more prevalent at this time. Other hafted bifaces exhibit large side notches with squared bases, but this same trait can extend back to the Paleoindian period. The climate at this time is much like that of the modern era. Middle Archaic period subsistence tended to be associated with small patch foraging that involved a consistent need for mobility with a shift towards stream valleys (Stafford 1994). Sites encountered from this time period throughout most of Ohio tend to be lithic scatters or isolated finds. The initial appearance of regional traits may be apparent at this time.

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

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

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

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

The Middle Woodland period (ca 2200-1600 B.P.) is often considered to be equivalent with the Hopewell culture. The largest earthworks in Ohio date from this period. There is dramatic increase in the appearance of exotic materials that appear most

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

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

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

highly variable attributes and rim treatment. There have been few structures encountered from this period, but those that have are typically rounded or circular (Pratt and Bush 1981; Weller 2005b).

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

Protohistoric to Settlement

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

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

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

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

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

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

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

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

Athens County History

Athens County along with its neighboring counties was originally part of the Ohio Company's land purchase. This group bought a large tract of the Ohio Territory from the Congress in 1787. The new Federal Government had just recently claimed Ohio from the British, French and Native Americans who had lightly inhabited it and the new American government needed its people to populate the territory so that its claims would stand (Beatty and Stone 1984; Daniel 1997; Howe 1888; Walker 1869).

Athens County's first permanent settlers came in 1797 to what would later become the town of Athens (Daniel 1997). These early immigrants were from New

England and settled here for the express purpose of populating the land in order to realize a college in this new western frontier of the Ohio Territory (Beatty and Stone 1984). In 1799, Rufus Putnam and others laid out a town at a place called Middletown where people had been living a short time. The name changed to Athens after the ancient Greek center of learning because there was to be a college built within its limits; and in 1805 when Athens County became organized, it too adopted this name (Martzolff 1916). Nelsonville was platted in 1818. Athens was intended to have a university, and in 1804 Ohio University was established. Ohio University was the earliest college in Ohio and the first west of the Appalachians (Beatty and Stone 1984; Inter-state Publishing Co. 1883).

Early settlers relied heavily on agriculture for subsistence and found the Hocking River valley to be quite suitable to their needs. The first products of course were the staple grains. This fed not only the farmer but also his sheep, cattle, hogs and horses. The importance of dairy products, particularly butter and cheese, rose by the 1850s (Martzolff 1916). And with the Hocking River to transport goods to the Ohio River and beyond trade of agricultural stuffs became an asset to the local economy. Much of the early development of Athens and Nelsonville, both located on the Hocking River, is related to agriculture and agricultural trade. The completion of the Hocking Canal in 1840 increased this trend. While agriculture was still very important, it began to bow in importance to Athens County's mineral resources in the 1830s and 1840s (Howe 1888; Inter-state Publishing Co. 1883; Walker 1869). However, agriculture remains a significant source of income today and the county's mineral resources are on the decline (Beatty and Stone 1984).

The very first Europeans in the area were the French fur traders. Many of the American settlers also traded skins to supplement their agricultural incomes. In 1815, Lewis Columbia ran the first tannery (Beatty and Stone 1984). Grist and sawmills appeared across the county during the 1800s and 1810s. In 1832, salt mining became important along the Hocking and its tributaries. Salt mining grew in importance up until 1873 when it rapidly declined and eventually disappeared in the 1880s (Beatty and Stone 1984).

By the second half of the nineteenth century, coal mining became the principal industrial pursuit in Athens County. Coal was initially mined in the 1830s to help in the salt making process. However, Hocking Canal allowed easier transportation to the larger national markets, which led to a dramatic increase in mining during the 1840s. Nelsonville became the center for coal mining in the county. As it had with the canal, the coal industry, as well as the coal towns of Nelsonville and Athens grew considerably with the progress of railroad transportation. The Marietta and Cincinnati Railroad came first in 1851 and ran through Athens. The Columbus and Hocking Valley Railroad, built in 1869, connected Nelsonville and Athens to Columbus. The railroad would replace the canal as the primary form of goods transportation, and by 1873, the canal was closed due to flood damage (Beatty and Stone 1984; Martzolff 1916; Walker 1869).

Coal production reached its peak in 1920. However, coal mining declined through the1930s and strip mining has taken the place of the old deep mines. This was

the mining method of choice until the 1960s. Strip mining continues today, but is much less frequent (Beatty and Stone 1984).

Coal was not the only businesses to develop in the county. In 1866, Athens possessed the typical industries and mercantile interests and, of course, the university (Walker 1869). Brick making and ceramic production was considerable between 1870 and 1920. People in the county have drilled for oil and gas as well (Beatty and Stone 1984; Daniel 1997). During the 1950s, increased road construction, particularly the creation of SR 33 and US 50 have made the automobile the dominant form of transportation and increased the ability to move goods to and from the county quickly. Presently retail, light business, and manufacturing are significant sources of income for the county (Beatty and Stone 1984).

York Township History

York Township was created in 1818 from Dover Township. Prior to 1811 the area had been included in Ames Township. The principle towns are Nelsonville and Buchtel. The township is drained by the Hocking River and is comprised of generally rough terrain.

Nelsonville is one of the larger communities of the area and was laid-out in 1818. It was named after Daniel Nelson, the owner of the land upon which the town was located. The first Euro-American settlers had arrived at the location in 1814 and a mill was constructed in 1815. The first bridge to span the Hocking River was built at Nelsonville in 1827 and a library was built the same year as well. The town was incorporated in 1838. The Hocking Canal reached Nelsonville in 1842 (Martzolff 1916; Walker 1869). Buchtel was laid-out in 1876 and named after John R. Buchtel who built an iron furnace there.

Coal and iron resources have been a major industry throughout the early years of the township. During the Civil War, Confederate cavalry leader, General John Morgan passed through Nelsonville and Buchtel in 1863. In Nelsonville, he burned canal boats and the bridge spanning the Hocking River. He camped his men in a field where Buchtel now lies (Martzolff 1916). Hocking College, founded in 1968 as Tri-County Technical Institute, is located in Nelsonville (Ohio History Central 2006).

Research Design

The purpose of a Phase I survey is to locate and identify cultural resources that will be affected within the proposed construction limits of this project. Once these resources are identified and sampled, they are evaluated for their eligibility or potential eligibility to the NRHP. These investigations are directed to answer or address the following questions:

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

These questions are addressed in a section following the literature review.

Archaeological Field Methods

Three methods of sampling and testing were intended to identify and evaluate cultural resources. These investigations were limited to visual inspection and photographic documentation.

> *Visual Inspection*. Severely disturbed locations such as mined landscape and those that were steeply sloped were inspected for cultural remains, rock shelters, utilized chert outcrops, mine adits, etc.

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

Curation

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

Literature Review

The literature review study area is considered to be a 305 m (1,000 ft) area from the project, per OPSB guidelines. In conducting the literature review, the following resources were consulted at SHPO and the State Library of Ohio:

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

Mills Atlas

A review of the Atlas (Mills 1914) was conducted. There were no resources situated within, or adjacent to, the Study Area or Project area.

OAI files

The SHPO topographic maps were inspected and there are no archaeological sites within the study area. There is one site that was recently identified during survey for the new Lemaster Station. This site, 33AT1057, is a nineteenth century historic period

component that was recommended for additional work if it could not be avoided (Weller 2016). This site is well to the west of the project area and will not be impacted/affected.

OHI Files

The OHI files did not indicate any previously recorded OHIs within the project area. There is only one resource located within the study area, the EM Poston Generating Station (Figures 2-3, Table 2). This resource will not be directly affected by the proposed construction/development.

Table 2. Ohio Historic Inventory resources identified in the study area.

OHI #	Present Name	Other Name	Address	ArchStyle1	HistUse1	Date	In National Forest
ATH0063302	EM Poston Generating Station		RFD2	Vernacular	Energy Facility	1949	N

National Register of Historic Places/Determination of Eligibility Files

A review of the NRHP files and determinations of eligibility (DOE) files did not indicate any resources within the project area. There are no NRHP sites or DOE resources identified in the study area.

SHPO CRM/contract archaeology files

A review of this resource file indicated that there were four surveys conducted that involves the study area. Otto (1976) conducted investigations for the Poston-Kirk electric line; this survey intercepts the central part of the project and did not identify any sites. Weller (2016) conducted a survey for the Lemaster Station, which pertains to the southern aspect of the current project area. This survey identified a historic period site, 33AT1057, and Phase II assessment was recommended if it could not be effectively avoided. This site is to the west of the station and project area; it is not near the project area. Another survey was conducted for a waterline corridor (Leary and Bergman 2005) and this is to the south of the project area (Figure 2). Zink (2013) conducted a survey for a narrow access corridor for an electric line that includes the easternmost aspect of the project; not sites were identified by this survey. There were no pertinent cultural resources identified during this survey relative to the project area.

Atlas & Cartographic Maps

The historic atlases were reviewed in order to see if past buildings/structures were located in or immediately adjacent to the project area and who might have owned these. The *Atlas of Athens County, Ohio* (Lake 1875) indicates the project area is within Section 1 of York Township; this was on the George Putnam property with no relative buildings near the current area of investigation. The USGS *1903 Athens, Ohio 15 Minute Series (Topographic)* map indicates that the project cuts through upland terrain with a single residence in the vicinity (Figure 4). The USGS *1985 Nelsonville, Ohio 15 Minute Series*

(Topographic) map indicates that the project area traverses between ash ponds, through a conveyor belt area, and onto lowlands in the vicinity of a power plant (Figure 2); the area where a house was formerly noted appears truncated according to topographic lines.

A review of the online OGS/cemetery resources was conducted to determine if there were any cemeteries located near the project. There are no cemeteries identified in the study area.

Evaluation of Research Questions 1 and 2

Based on the results of the literature review, the first two research questions can be addressed.

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

The project area is a narrow, linear corridor that extends from an upland situation to the Hamley Run floodplain. The majority of the area has been the subject of previous investigations and there are no sites located within it. The terrain in this area is expected to be a combination of steep slope and severe disturbance. Cultural materials are not anticipated from the project.

Archaeological Survey Results

The field investigations for this project were conducted February 8th and March 13th, 2017 (Figures 5-8). The field reconnaissance work was conducted with good weather conditions and temperatures at about 45 degrees Fahrenheit. At the time of survey, the project conditions involved a grass/weed cover, graded situations, gravel drives, and scrub (Figure 5). The fieldwork for this project involved visual inspection and photographic documentation. Visual inspection noted that there were no intact soils present within the project area; it has been severely disturbed as well as having steeply sloped situations. There were no cultural materials identified during these investigations.

Aspects of this project were the subject of previous investigations (Figure 2). A small part of the central part was investigated in the mid-1970s for an electric line corridor easement (Otto 1976). A small part of the eastern aspect was previously investigated for an electric line access corridor (Zink 2013). There were no sites identified in the vicinity of the project relative to this survey. The southern part of the project area was investigated more recently. Weller investigated a somewhat triangular-shaped area that includes the southern part (Weller 2016). This survey mostly identified severely disturbed conditions, especially in the vicinity of the project; however, intact areas/soils in the western part of the project were identified as well as site 33AT1057. This historic period component is small, but yielded sub-plowzone contexts. Additional work was recommended for this site; however, it is clearly located to the west and at the edge of the study area. This site will not be impacted or involved in this project.

On March 13th, 2017 field investigations were conducted for the planned line removal corridor (Figures 5-9). This area is located to the north of the extant Poston Station and was visually inspected. The entire removal route corridor was found to be contained in severely disturbed contexts and was partially the subject of previous investigations. The nature of the disturbance is within prior mining and mining-related activity. There were no cultural resources identified in the removal corridor area.

Visual inspection conducted within the project area indicated that it was contained in severely disturbed conditions. Severe disturbance in the northern and eastern parts was due a former ash (Ash) pond that has since been drained. The disturbances are the byproduct of this areas past use for ash pond/pond excavations as well as mining related activities. Modern topographic maps depict conveyor corridors through this area. Inspection noted that there was no present topsoil in the area as the subsoil was often present at the surface. Gravel drives were graded and extended into the area. The localized terrain was noticeably disturbed as evidenced from unnatural soil piles, fill, and grasses that are commonly encountered in disturbed conditions. There were no cultural materials identified during these investigations.

APE Definition and NRHP Determination

The APE is a term that must be applied on an individual project basis. The nature of the project or undertaking is considered in determining the APE. This may include areas that are off the property or outside of the actual project's boundaries to account for possible visual impacts. When construction is limited to underground activity, the APE may be contained within the footprint of the project. The APE includes the footprint of the project and a limited area surrounding it. The project area is located in a rural, upland landscape and within a stream valley and its abutting uplands. The visual APE for the project, is limited as the construction will be within an entrenched valley that has been greatly altered. The nearest construction identified in the study area, is the Poston Generating Station (ATH0063302); which is not regarded as being significant. The project plans are to reroute a small segment of an electric line in an area that is dense with electric company-related activity; this includes the soon-to-be defunct Poston Generating Station.

These investigations did not result in the identification of any cultural materials. The entire area was found to be severely disturbed or altered by previous industrial-related activity. This pertains to mining as well as activities affiliated with the nearby electric station, especially an ash pond. No further work is considered as an appropriate recommendation; there were no cultural resources identified and there are no significant resources in the viewshed/study area.

Recommendations

In February and March 2017, Weller & Associates, Inc. conducted Phase I Cultural Resource Management Investigations for the Lemaster-Strouds Run 138kV Transmission Line Relocation Project in York Township, Athens County, Ohio. The project consists of the rerouting of a small electric line segment. The overall project is

within a stream valley and has a limited viewshed. The testing was limited to visual inspection and photographic documentation since the entire project's corridor was found to be severely disturbed and/or contained in a previously disturbed area. This project is not considered to have any affects to historic properties or landmarks. No further cultural resource management is deemed necessary for this project.

References Cited

Baby, R. S., and M. A. Potter
1965 "The Cole Complex: A Preliminary Analysis of the Late Woodland Ceramics in Ohio and Their Relationship to the Ohio Hopewell Phase." In: *Papers in Archaeology of the Ohio Historical Society*, February 1965, No. 2. Ohio Historical Society, Columbus.

Bamforth, D.
1988 *Ecology and Human Organization on the Great Plains.* Plenum, New York.

Barkes, B. M.
1982 *Analysis of Late Woodland Ceramics from the Decco (33DL28), Ufferman (33DL12), and W. S. Cole (33DL11) Sites: The Cole Complex Reconsidered.* Copy available at the Ohio Historic Preservation Office, Columbus.

Beatty, E. G. and M. S. Stone
1984 *Getting to Know Athens County*. The Stone House, Athens.

Brockman, C. S.
1998 *Physiographic Regions of Ohio*. Ohio Department of Natural Resources, Division of Geological Survey, Columbus.

Brose, D. S.
1994 "Archaeological Investigations at the Paleo Crossing Site, a Paleoindian Occupation in Medina County, Ohio." In: *The First Discovery of America: Archaeological Evidence of the Early Ohio Area,* edited by W. S. Dancey, pp. 61-76. The Ohio Archaeological Council, Columbus.

Core, E.
1966 *Vegetation of West Virginia*. McClain, Parsons, West Virginia.

Cowan, W. C.
1987 *First Farmers of the Middle Ohio Valley: Fort Ancient Societies, A.D. 1000-1670*. The Cincinnati Museum of Natural History, Cincinnati.

Cramer, A.
1989 *The Dominion Land Company Site: An Early Adena Mortuary Manifestation in Franklin County, Ohio.* M.A. Thesis, Kent State University, Kent, Ohio.

Cunningham, R. M.
1973 "Paleo Hunters along the Ohio River." In: *Archaeology of Eastern North America* 1(1): 116-118. Eastern States Archeological Federation, Bethlehem, Connecticut.

Dancey, W. S.
1992 "Village Origins in Central Ohio: The Results and Implications of Recent Middle and Late Woodland Research." In: *Cultural Variability in Context: Woodland Settlements of the Mid-Ohio Valley*, edited by M. F. Seeman, pp. 24-29. Special Papers 7, *Midcontinental Journal of Archaeology*, Kent State University Press, Kent, Ohio.

Daniel, R. L.
1997 *Athens, Ohio: The Village Years*. Ohio University Press, Athens.

Dragoo, D.
1976 "Some Aspects of Eastern North American Prehistory: A Review 1975." In: *American Antiquity* 41(1):3-27. The Society for American Archaeology, Washington, DC.

Drooker, P. B.
1997 "The View from Madisonville: Protohistoric Western Fort Ancient Interaction Patterns." In: *Memoirs of the Museum of Anthropology* No. 31. Museum of Anthropology, University of Michigan, Ann Arbor, Michigan.

Fitting, J.
1963 "The Hi-Lo Site: A Paleo-Indian Site in Western Michigan." In: *Wisconsin Archaeologist* 44:87-96. Wisconsin Historical Society, Madison, Wisconsin.

Forsyth, J. L.
1970 "A Geologist Looks at the Natural Vegetation Map of Ohio." In: *The Ohio Journal of Science* 70(s):180-191. The Ohio Academy of Science, Columbus.

Gordon, R. B.
1969 "The Natural Vegetation of Ohio in Pioneer Days." In: *Bulletin of the Ohio Biological Survey, New Series 3(2)*. Ohio State University, Columbus.

1966 *Natural Vegetation of Ohio at the Time of the Earliest Land Surveys*. Ohio Biological Survey and the Natural Resources Institute of the Ohio State University, Columbus.

Howe, H.
1888 *Historical Collections of Ohio, Vol. I*. H. Howe & Son, Columbus.

Inter-state Publishing Co.
1883 *History of Hocking Valley, Ohio*. Inter-state Publishing Co., Chicago.

Justice, N.
1987 *Stone Age Spears and Arrow Points of the Midcontinental and Eastern United States*. Indiana University Press, Bloomington and Indianapolis.

Lafferty, M. B.
1979 *Ohio's Natural Heritage*. Ohio Academy of Science, Columbus.

Lake, D. J.
1875 *Atlas of Athens County, Ohio*. Titus, Simon & Titus, Chicago.

Leary, C. and C. Bergman
2005 *Phase I Cultural Resources Survey of ca. 52 miles of Waterline Corridor for the LE-AX Water District's Hocking Expansion in Hocking and Athens Counties, Ohio*. BHE Environmental. Copy available for review from Ohio History Central.

Mahr, A. C.
1949 "A Chapter of Early Ohio Natural History." In: *Ohio Journal of Science* 49(1). The Ohio Academy of Science, Columbus.

Martzolff, C. L.
1916 *A Brief History of Athens County, Ohio*. Clement L. Martzolff, Athens.

McDonald, H.
1994 "The Late Pleistocene Vertebrate Fauna in Ohio: Coinhabitants with Ohio's Paleoindians." In: *The First Discovery of America: Archaeological Evidence of the Early Ohio Area,* edited by W. S. Dancey, pp. 23-41. The Ohio Archaeological Council, Columbus.

Mills, W.
1914 *An Archeological Atlas of Ohio*. Ohio State Archaeological and Historical Society, Columbus.

Ohio Historic Preservation Office
1994 *Archaeology Guidelines*. The Ohio Historical Society and Ohio Historic Preservation Office, Columbus, Ohio.

Ohio History Central
2006 *Hocking College.* http://www.ohiohistorycentral.org/entry.php?rec=2520 Accessed April 11, 2013.

Otto, M.
1976 *AN ARCHAEOLOGICAL SURVEY OF THE POSTON-KIRK TRANSMISSION LINE*. Ohio Historical Society. Copy available for review from Ohio History Connection.

Pacheco, P.
1996 "Ohio Hopewell Regional Settlement Patterns." In: *A View From The Core: A Synthesis of Ohio Hopewell Archaeology,* edited by P. Pacheco, pp. 16-35. The Ohio Archaeological Council, Columbus.

Pavey, R.R., R.P. Goldthwait, C.S. Brockman, D.N. Huyll, E. MacSwinford, and R.G. Van Horn
1999 *Quaternary Geology of Ohio*. Ohio Division of Geological Survey Map No. 2.

The Ohio Department of Natural Resources, Division of Geological Survey, Columbus.

Potter, M. A.
1966 "Cole Ceramics: A Study of Late Woodland Pottery." Unpublished M.A. thesis on file at the Ohio Historical Society, Department of Archaeology, Columbus.

Pratt, G. M., and D. R. Bush
1981 *Archaeological Resource Management in Ohio: A State Plan for Archaeology (Draft).* Copy available for review at the Ohio Historic Preservation Office, Columbus.

Prufer, O. H., and D. A. Long
1986 "The Archaic of Northeastern Ohio." In: *Kent Research Papers in Archaeology, No. 6*, Kent State University Press, Kent, Ohio.

Sheaffer, C., and M. A. Rose
1998 *The Native Plants of Ohio, Bulletin 865*. The Ohio State University Extension (College of Food, Agricultural & Environmental Sciences) Department of Horticulture. Electronic document, http://ohioline.osu.edu/b865/b865_01.html, accessed November 28, 2005.

Shane, L.
1987 "Late-glacial Vegetational and Climatic History of the Allegheny Plateau and the Till Plains of Ohio and Indiana, U.S.A." In: *Boreas* 16:1-20. The Boreas Collegium, Blackwell Publishing Ltd., Edinburgh.

Sprague, R.
2002 "China or Prosser Button Identification and Dating." In: *Historical Archaeology*, 36(2): 111-127. The Society for Historical Archaeology, Stone Mountain, Georgia.

Stafford, R.
1994 "Structural Changes in Archaic Landscape Use in the Dissected Uplands of Southwestern Indiana." In: *American Antiquity,* 59:219-237. The Society for American Archaeology, Washington, DC.

Tankersley, K.
1994 "Was Clovis a Colonizing Population in Eastern North America?" In: *The First Discovery of America: Archaeological Evidence of the Early Ohio Area,* edited by W. S. Dancey, pp. 95-116. The Ohio Archaeological Council, Columbus.

1989 "Late Pleistocene Lithic Exploitation and Human Settlement Patterns in the Midwestern United States." Unpublished Ph.D. dissertation, Department of Anthropology, Indiana University, Bloomington.

Tanner, H.
1987 *Atlas of Great Lakes Indian History*. University of Oklahoma Press, Norman.

Trautman, M. B.
1981 *The Fishes of Ohio*. The Ohio State University Press, Columbus.

United States Department of Agriculture, Soil Conservation Service (USDA, SCS)
2017 *Soil Survey of Athens County Ohio.* United States Department of Agriculture, Soil Conservation Service in cooperation with the Ohio Department of Natural Resources, Division of Lands and Soil, and Ohio Agricultural Research and Development Center.

Visser, T. D.
1997 *Field Guide to New England Barns and Farm Buildings*. University Press of New England, Hanover, New Hampshire.

Walker, C. M.
1869 *History of Athens Co., Ohio*. Robert Clarke & Co., Cincinnati.

Webb, W. S., and R. S. Baby
1963 *The Adena People No. 2*. The Ohio Historical Society, The Ohio State University Press, Columbus.

Weller, R. J.
2016 *Phase I Cultural Resource Management Investigations for the Approximately 1.57 ha (3.89 ac) Lemaster 138kV Station Project in York Township, Athens County, Ohio*. Weller & Associates, Inc. Copy available for review from Ohio History Connection.

2005a *Data Recovery at the Haven Site (33DL1448) Located in Liberty Township, Delaware County, Ohio*. Weller & Associates, Inc. Submitted to the Delaware County Sanitary Engineer's Office. Copy available for review at the Ohio History Connection.

2005b *Data Recovery at the Knowlton Site (33DL1450) Located in Liberty Township, Delaware County, Ohio*. Weller & Associates, Inc. Submitted to the Delaware County Sanitary Engineer's Office. Copy available for review at the Ohio History Connection.

Zink, J.
2013 *Phase I Cultural Resources Management Survey for American Electric Power's 5.0 km (3.1 mi) Poston-Rosewood 138 kV Line Project in Athens, Dover, and York Townships, Athens County,* Ohio. Weller & Associates, Inc. Copy available for review from Ohio History Connection.

Figures

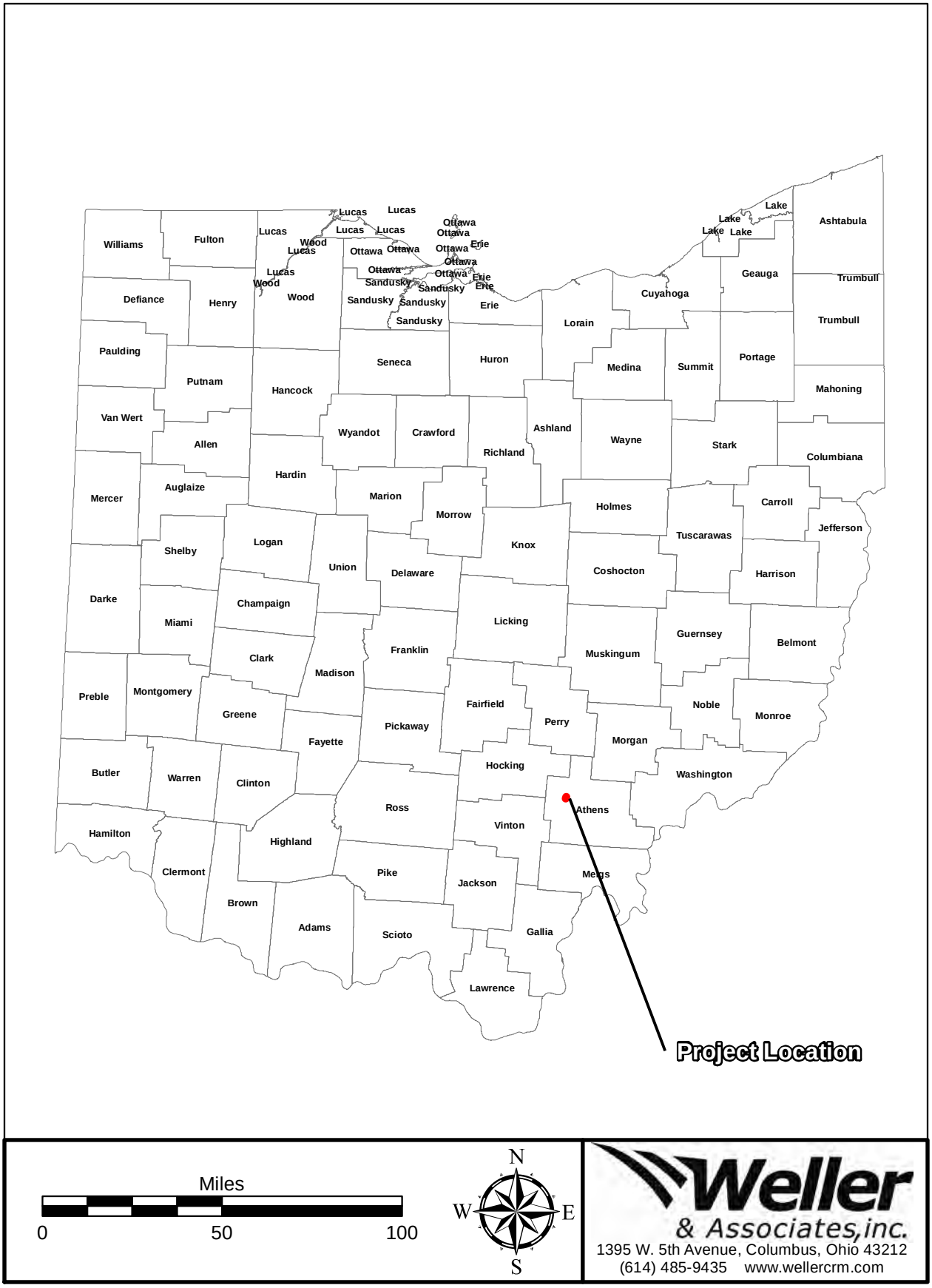

Figure 1. Political map of Ohio showing the approximate location of the project.

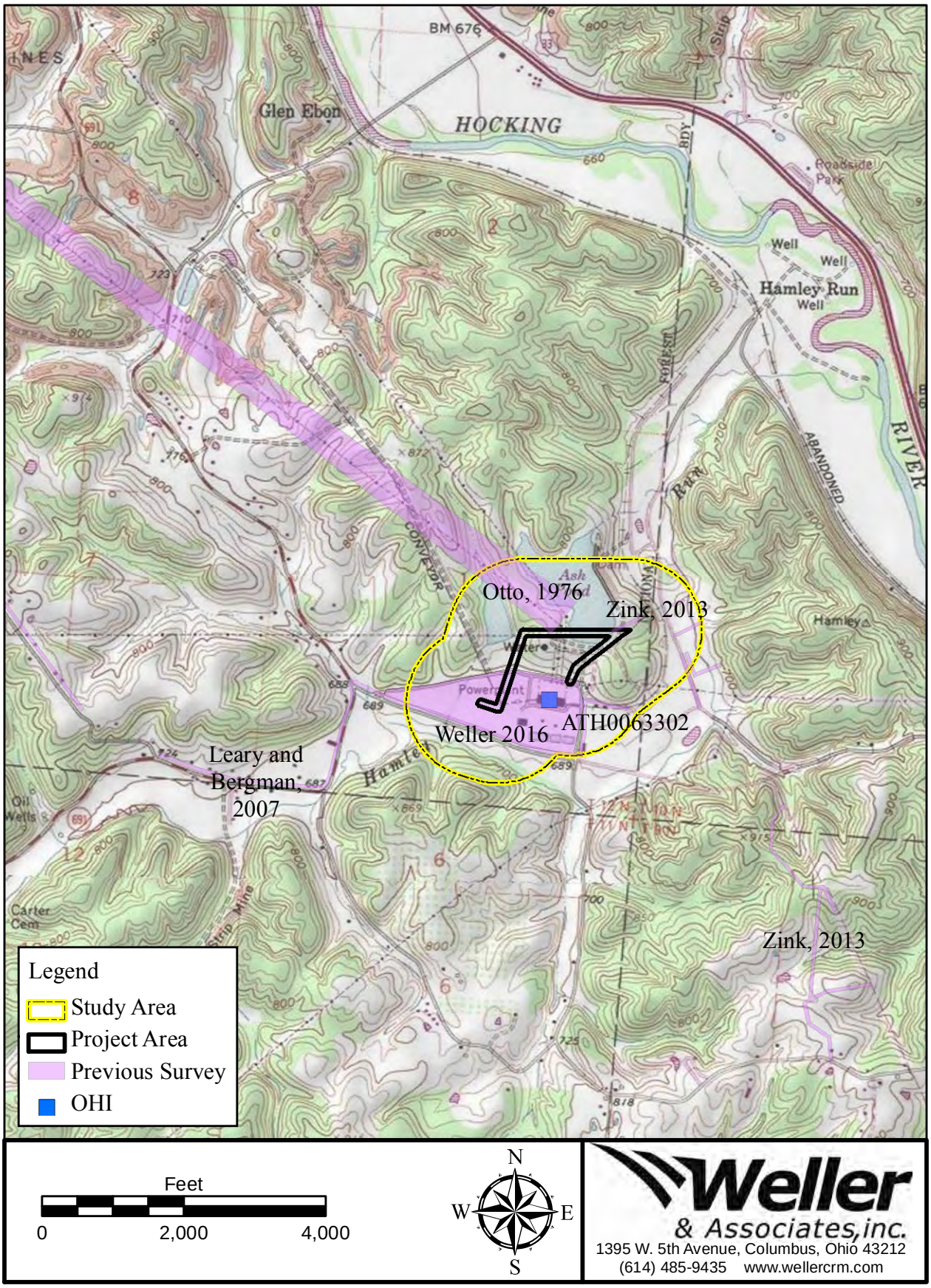

Figure 2. Portions of the USGS *1985 Nelsonville, and 1977 The Plains, Ohio 7.5 Minute Series (Topographic)* maps indicating the location of the project and recorded resources in the study area.

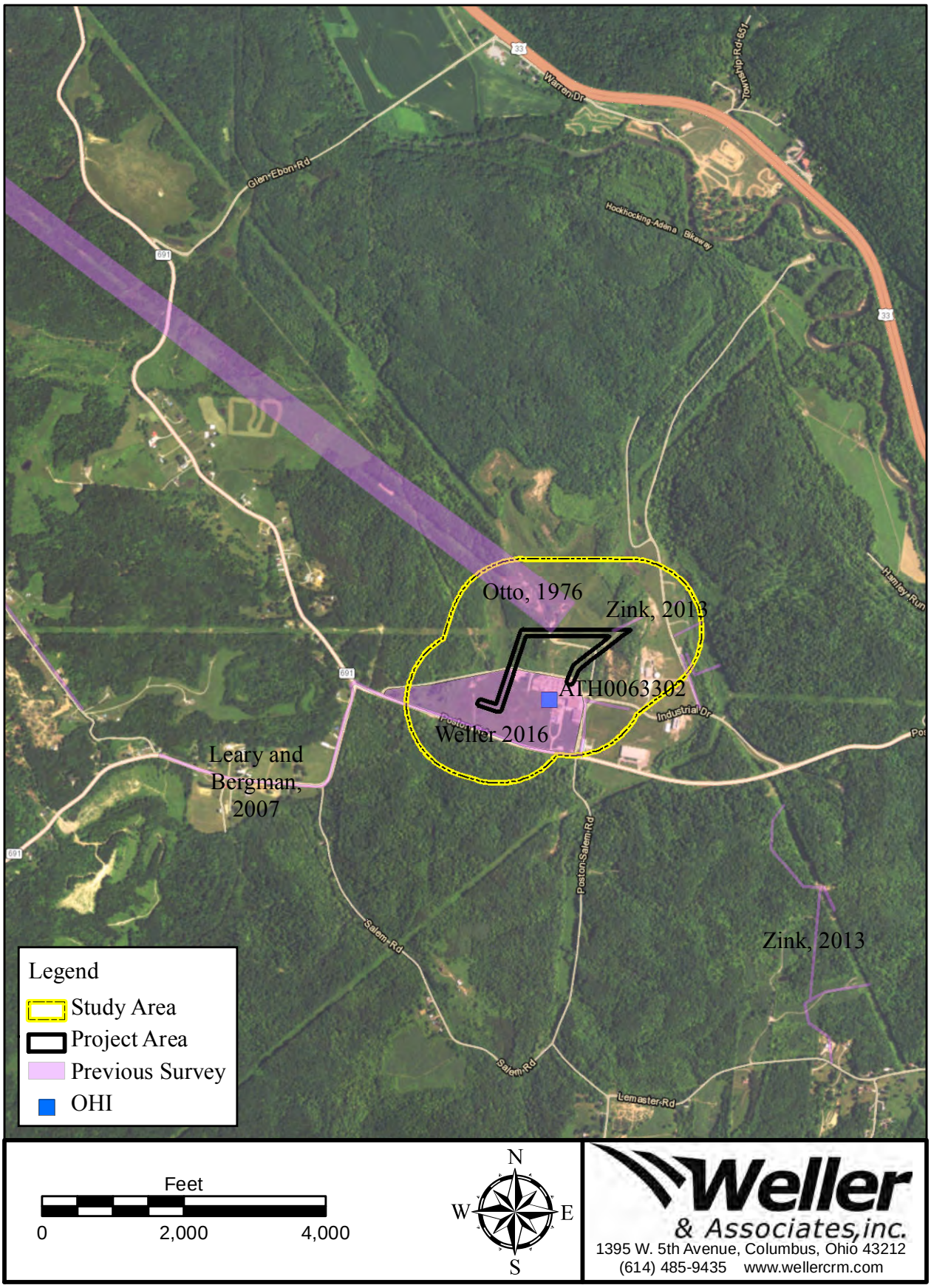

Figure 3. Aerial map indicating the location of the project and recorded resources in the study area.

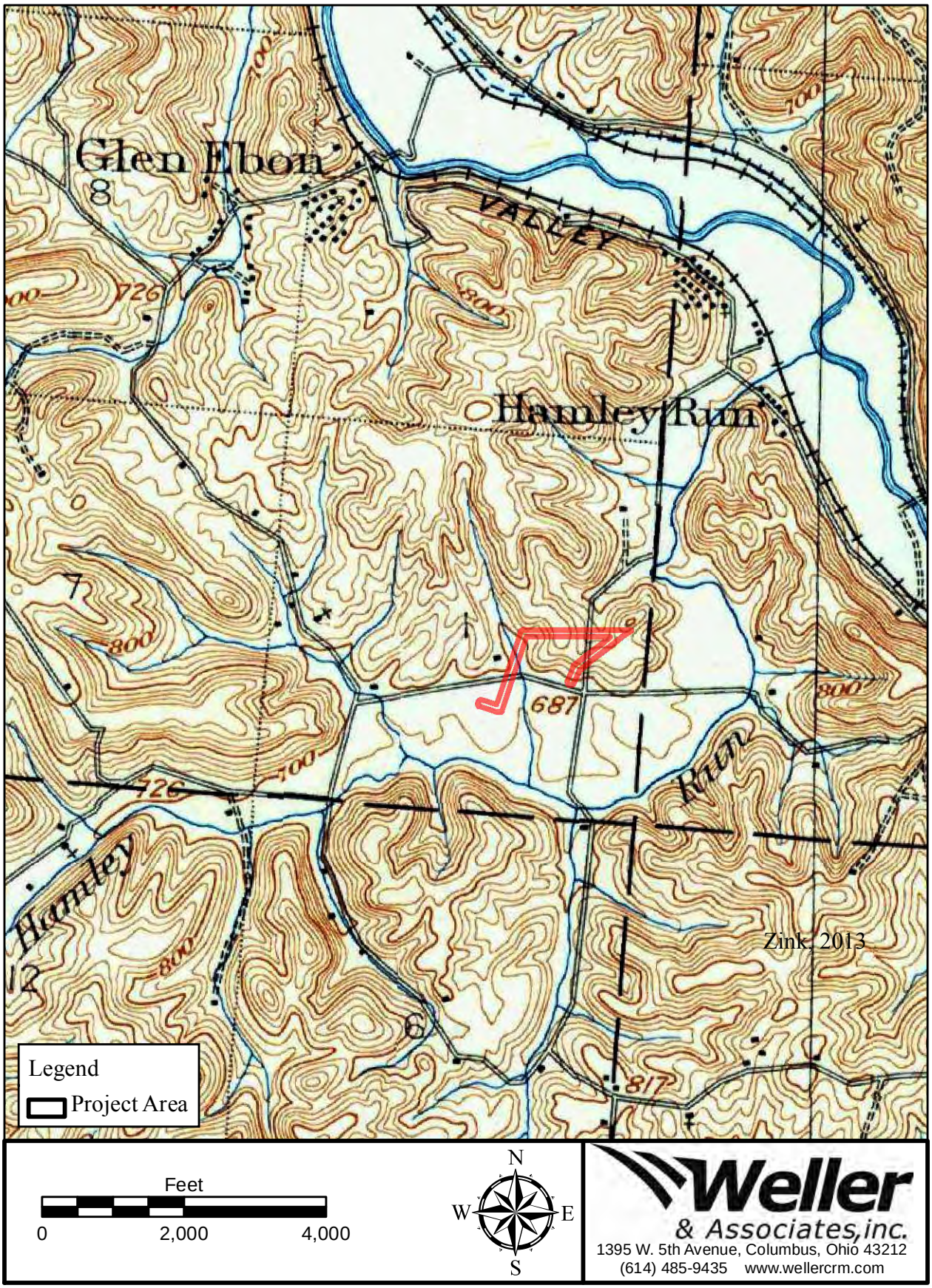

Figure 4. Portion of the USGS *1903 Athens, Ohio 15 Minute Series (Topographic)* map indicating the approximate location of the project.

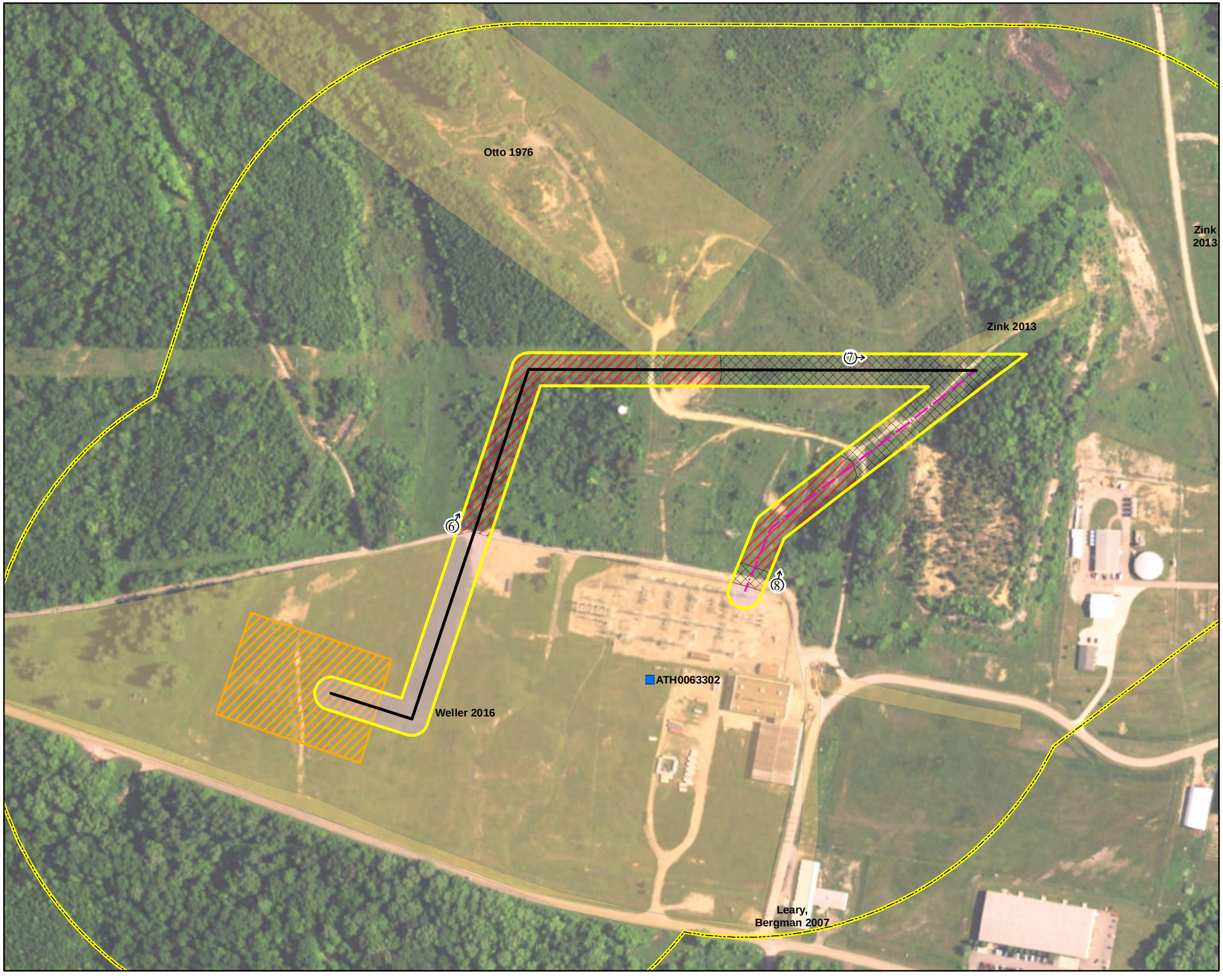

Figure No.

5

Title

Fieldwork results and photo orientations.

Client/Project

AEP Ohio Transmission Company, Inc.
Lemaster-Strouds Run 138kV
Transmission Line Relocation Project.

Project Location

Athens County, Ohio

Prepared by AT on 2017-03-15
Reviewed by CP on 2017-03-15

0 75 150 300 Feet

N

Legend

- Proposed Lemaster-Strou... Run Transmission Line Relocation
- Existing Lemaster-Strou... Run Transmission Line to be Removed
- Study Area
- Project Area
- Proposed Substation
- Disturbed (Visually Inspected)
- Sloped (Visually Inspected)
- Previously Surveyed Project Area
- Previous Survey
- OAI

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\\LS220D34F\share\W-#2000-2099\W-2040 Lemaster Poston-Rosewood Rel\GIS\mxd\Updated 11x17 FW.mxd LS:(3/14/2017 - Alex) - LP:never never - LExported:3\5\2017 9:47:46 AM

Figure 6. View of the sloped areas in the central portion of the project area.

Figure 7. View of the disturbed conditions in the central portion of the project.

Figure 8. View of the sloped, and disturbed, conditions in the eastern portion of the project.

Appendix C. Ecological Resources Inventory Report

Lemaster-Strouds Run 138 kV Transmission Line Relocation Project, Athens County, Ohio

Ecological Resources Inventory Report

Prepared for:
AEP Ohio Transmission Company, Inc.
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Gahanna, Ohio 43230

Prepared by:

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Cincinnati, Ohio 45241

March 15, 2017

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LIST OF APPENDICES

1.0 Introduction

AEP Ohio Transmission Company, Inc. (AEP) is proposing to relocate a portion of the Lemaster-Strouds Run 138 kV electric transmission line in Athens County, Ohio (Figure 1, Appendix A). The Project includes removing approximately 0.17 miles of existing 138 kV transmission line which terminates at AEP's existing Poston Station and constructing approximately 0.43 miles of new 138 kV transmission line which will terminate at AEP's proposed Lemaster Station (Figure 1, Appendix A). The proposed Lemaster Station is a separate AEP project. The Project area (as depicted on Figures 1, 2, and 3 in Appendix A) was surveyed for wetlands, waterbodies, and potential threatened, endangered and rare species habitat by Stantec Consulting Services Inc. (Stantec) biologists on November 7-8, 2016. The approximate locations of features adjacent to the Project area were also recorded during field surveys. These features are shown on the Figure 2 maps in Appendix A as "approximate" wetlands, streams, open waters, and upland drainage features.

2.0 Methods

2.1 WETLAND DELINEATION

Prior to completing the field surveys, a desktop review of the Project area was conducted using U.S. Geological Survey (USGS) topographic mapping, National Wetlands Inventory (NWI) maps, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil surveys, and aerial imagery mapping. Stantec completed a wetland delineation study in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Version 2.0) (USACE 2012). Wetland categories were classified using the Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001).

2.2 STREAM DELINEATION

Streams that demonstrated a continuously defined channel (bed and bank), ordinary high water mark (OHWM), and the disturbance of terrestrial vegetation were delineated within the Project area, per the protocols outlined in the USACE's Guidance on Ordinary High Water Mark Identification (Regulatory Guidance Letter, No. 05-05) (USACE 2005). Delineated streams were classified as ephemeral, intermittent, or perennial per definitions in the Federal Register/Vol. 67, No. 10 (USACE 2002). Functional assessment of streams within the Project area was based on completion of the Ohio Environmental Protection Agency's (OEPA) Headwater Habitat Evaluation Index (HHEI) and/or Qualitative Habitat Evaluation Index (QHEI). The centerline of each waterway was identified and surveyed using a handheld sub-meter accuracy GPS unit and mapped with GIS software. Additionally, the locations of ponds/open water features and upland drainage features (which lacked a continuously defined bed and bank/OHWM)

identified within the Project area were also recorded with a sub-meter accuracy GPS unit during the field surveys.

2.3 RARE SPECIES

Prior to conducting the field surveys, Stantec contacted the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) for information regarding rare, threatened, or endangered species and their habitats of concern within the vicinity of the Project area (Appendix B – Agency Correspondence). To assess potential impacts to rare, threatened, or endangered species, Stantec scientists conducted a pedestrian reconnaissance of the proposed Project area, collected information on existing habitats within the Project area, and assessed the potential for these habitats to be used by these species.

3.0 Results

3.1 TERRESTRIAL HABITAT

Stantec completed field surveys within the Project area on November 7-8, 2016, 2016, for threatened and endangered species or their habitats. Figure 3 (Appendix A) shows the vegetation communities/habitats and locations of any identified rare, threatened or endangered species habitat observed within the Project area. Representative photographs of the vegetation communities/habitats identified within the Project area are included in Appendix C of this report (photo locations are shown on Figures 2 and 3, Appendix A). Information regarding the vegetation communities/habitats identified within the Project area is provided in Table 1.

Table 1. Vegetation Communities and Land Cover Found within the Lemaster-Strouds Run 138 kV Transmission Line Project Area, Athens County, Ohio

Vegetation Communities and Land Cover Types within the Project Area	Degree of Human-Related Ecological Disturbance	Unique, Rare, or High Quality?	Approximate Acreage Within Project Area
Old Field	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders or native highly tolerant taxa). Dominant species include tall fescue (*Schedonorus arundinaceus*), broomsedge bluestem (*Andropogon virginicus*), goldenrod (*Solidago sp.*), and aster (*Symphyotrichum sp.*).	No	6.04
Mixed Early Successional/ Second Growth Deciduous Forest	Some past disturbance but trending to naturalized. Dominated by sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*), and American elm (*Ulmus americana*).	No	1.11
Industrial	Extreme Disturbance/existing gravel pad. Dominated by dandelion (*Taraxacum offinionale*) and white clover (*Trifolium repens*).	No	0.27
		Total	7.42

3.2 WETLANDS

Stantec completed field surveys within the Project area on November 7-8, 2016, for wetlands and waterbodies. Figure 2 (Appendix A) shows the wetlands identified by Stantec within the Project area. Representative photographs of the wetlands identified within the Project area are included in Appendix C of this report (photo locations are shown on Figure 2, Appendix A). Completed wetland determination and ORAM data forms are included in Appendix D.

Information regarding the Cowardin classification and ORAM categories of wetlands identified within the Project is provided in Table 2.

Table 2. Summary of Wetland Resources Found within the Lemaster-Strouds Run 138 kV Transmission Line Project Area, Athens County, Ohio

Wetland Name	Figure 2 Photo Location[1]	Isolated?	Wetland Classification[2]	ORAM Score[5]	ORAM Category[5]	Delineated Area (acres) within Project Area
Wetland 1	1	No	PEM[3]	12	1	0.02
Wetland 2	2-4	No	PSS[4]	35	2	0.002
					TOTAL	0.022

[1] Figure 2 and Appendix C – Representative Photographs

[2] Wetland classification is based on Cowardin et al. (1979).

[3] PEM = Palustrine Emergent Wetland

[4] PSS = Palustrine Scrub Shrub Wetland

[5] ORAM Score and Category are based on the Ohio Rapid Assessment Method for Wetlands v. 5.0 (Mack 2001).

3.3 STREAMS

Stantec completed field surveys within the Project area on November 7-8, 2016, for wetlands and waterbodies. No streams were identified within the Project area. However, Figure 2 (Appendix A) shows the locations of upland drainage features identified within the Project area. Representative photographs of upland drainage features identified within the Project area are included in Appendix C of this report (photo locations are shown on Figure 2, Appendix A).

3.4 RARE, THREATENED, OR ENDANGERED SPECIES HABITAT

Table 3. Summary of Potential Ohio State-Listed Species within the Lemaster-Strouds Run 138 kV Transmission Line Project Area, Athens County, Ohio

Common Name	Scientific Name	State Listing[1]	Known to Occur in Athens County?[2]	Known Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Insects								
Regal Fritillary	*Speyeria idalia*	E	Yes	No	Occurs in tall grass prairie remnants (Butterflies and Moths of North America 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Grizzled Skipper	*Pyrgus centaureae wyandot*	E	Yes	No	This species is associated with openings in mature oak forests that support stands of Canada cinquefoil. Most of these areas are highly disturbed, and are characterized by fair amounts of exposed soil and rock (ODNR 2016b).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
American Burying Beetle	*Nicrophorus americanus*	E	Yes	No	Current information suggests this species is a habitat generalist, or one that lives in many types of habitat, but with a slight preference for grasslands and the open understory of oak-hickory forests (ODNR 2016b).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Caddisfly	*Brachycentrus numerosus*	E	Yes	Yes	Habitat preference has not been assessed at this time (NatureServe 2016), though caddisflies normally occur in streams, rivers, and ponds.	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Marsh Fern Moth	*Fagitana littera*	T	Yes	No	This species typically occurs in unforested wetlands such as bogs, shrub swamps, and marshes. This species also occurs along wet powerlines and wet open pinelands (New York Natural Heritage Program 2015).	Yes	Some potentially suitable habitat was observed within the Project area. However, this species is not known to occur within the vicinity of the Project area. Therefore, no impacts are anticipated.	No comments received.
Fishes								
Channel Darter	*Etheostoma tippecanoe*	T	Yes	No	This fish prefers medium to large streams in the Ohio River drainage system and are found in riffles of moderate current with substrate of gravel or cobble sized rocks (ODNR 2016b).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	ODNR 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 species or other aquatic species.

Common Name	Scientific Name	State Listing[1]	Known to Occur in Athens County?[2]	Known Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
River Darter	*Percina shumardi*	T	Yes	No	Large rivers and lower portions of tributaries; deep chutes and riffles where current is swift and substrates are coarse gravel or rock (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	ODNR 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 species or other aquatic species.
Amphibians								
Midland Mud Salamander	*Pseudotriton montanus diastictus*	T	Yes	No	Muddy springs, slow floodplain streams, and swamps along slow streams; backwater ponds and marshes created by beaver activity (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	Due to the Project location and type of work proposed, the Project is not likely to impact this species.
Eastern Spadefoot	*Scaphiopus holbrookii*	E	Yes	No	Eastern spadefoots occur in areas of sandy, gravelly, or soft, light soils in wooded or unwooded terrain. On land, they range up to at least several hundred meters from breeding sites. When inactive, they remain burrowed in the ground. Eggs and larvae develop in temporary pools formed by heavy rains. Breeding sites include temporary pools and areas flooded by heavy rains (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	Due to the Project location and type of work proposed, the Project is not likely to impact this species.
Eastern Hellbender	*Cryptobranchus alleganiensis alleganiensis*	E	Yes	No	Rocky, clear creeks and rivers, usually where there are large shelter rocks. The species prefers cool waters with temperatures usually lower than 20 degrees Celsius. High amounts of instream cover are needed for shelter/reproduction, including large flat rocks or submerged logs (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Mussels								
Clubshell	*Pleurobema clava*	E	Yes	No	The clubshell is found in small to medium rivers, but occasionally found in large rivers, especially those having large shoal areas. It is generally found in clean, coarse sand and gravel in runs, often just downstream of a riffle and cannot tolerate mud or slackwater conditions (USFWS 1994). Badra and Goforth (2001) found the clubshell in gravel/sand substrate, in runs having laminar flow (0.06-0.25 m/sec) within small to medium sized streams.	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	Due to the Project location and that there is no in-water work proposed in a perennial stream of sufficient size, the Project is not likely to impact this species.
Snuffbox	*Epioblasma triquetra*	E	Yes	No	Occurs in medium-sized streams to large rivers generally on mud, rocky, gravel, or sand substrates in flowing water. Often deeply buried in substrate and overlooked by collectors (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	Due to the Project location and that there is no in-water work proposed in a perennial stream of sufficient size, the Project is not likely to impact this species.

Common Name	Scientific Name	State Listing[1]	Known to Occur in Athens County?[2]	Known Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Fanshell	*Cyprogenia stegaria*	E	Yes	No	Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (Natureserve 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	Due to the Project location and that there is no in-water work proposed in a perennial stream of sufficient size, the Project is not likely to impact this species.
Pink Mucket	*Lampsilis orbiculata*	E	Yes	No	Large rivers in habitats ranging from silt to boulders, but apparently more commonly from gravel and cobble. Collected from shallow and deep water with current velocity ranging from zero to swift, but never standing pools of water (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	Due to the Project location and that there is no in-water work proposed in a perennial stream of sufficient size, the Project is not likely to impact this species.
Sheepnose	*Plethobasus cyphyus*	E	Yes	No	Although it does inhabit medium-sized rivers, this mussel generally has been considered a large-river species. It may be associated with riffles and gravel/cobble substrates but usually has been reported from deep water with slight to swift currents and mud, sand, or gravel bottoms. It also appears capable of surviving in reservoirs. Specimens in larger rivers may occur in deep runs (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	Due to the Project location and that there is no in-water work proposed in a perennial stream of sufficient size, the Project is not likely to impact this species.
Black Sandshell	*Ligumia recta*	T	Yes	No	Typically found in medium-sized to large rivers in locations with strong current and substrates of coarse sand and gravel with cobbles in water depths from several inches to six feet or more (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	Due to the Project location and that there is no in-water work proposed in a perennial stream of sufficient size, the Project is not likely to impact this species.
Threehorn Wartyback	*Obliquaria reflexa*	T	Yes	No	This species is typical of the large rivers where there is moderately strong current and a stable substrate composed of gravel, sand, and mud (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	Due to the Project location and that there is no in-water work proposed in a perennial stream of sufficient size, the Project is not likely to impact this species.
Fawnsfoot	*Truncilla donaciformis*	T	Yes	No	This species occurs in both large and medium-sized rivers at normal depths varying from less than three feet up to 15 to 18 feet in big rivers such as the Tennessee. Substrates of either sand or mud are suitable and although it is typically found in moderate current, it can adapt to a lake or embayment environment lacking current (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	Due to the Project location and that there is no in-water work proposed in a perennial stream of sufficient size, the Project is not likely to impact this species.
Mammals								
Indiana Bat	*Myotis sodalis*	E	Yes	No	The Indiana bat is likely distributed over the entire State of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Brack et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important factors for roost trees include relative location to other trees, a permanent water source and foraging areas; Dead trees are preferred as maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007; USFWS 2015b). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Primarily use caves for hibernacula, although are also known	No	No hibernacula or suitable roost trees were observed within the Project area. If AEP determines trees >3" dbh must be removed for this project, AEP anticipates clearing the trees between October 1 and March 31. Therefore, no adverse effects are anticipated.	The project is within the vicinity of records for the Indiana bat. Presence of the Indiana bat has been established in the area, and therefore additional summer surveys would not constitute presence/absence in the area. If suitable habitat occurs within the project area, ODNR recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, ODNR recommends cutting occur between October 1 and March 31. If no tree removal is proposed, this project is not likely to

Common Name	Scientific Name	State Listing[1]	Known to Occur in Athens County?[2]	Known Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
					to hibernate in abandoned underground mines (Brack et al. 2010).			impact this species.
Allegheny Woodrat	*Neotoma magister*	E	Yes	No	Typical habitat is rocky cliffs and slopes (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Black Bear	*Ursus americanus*	E	Yes	No	Black bears inhabit forests and nearby openings, including forested wetlands. When inactive, they occupy dens under fallen trees, ground-level or above-ground tree cavities or hollow logs, underground cave-like sites, or the ground surface in dense cover (NatureServe 2016)	Yes	Habitat was observed within the Project area, but due to the mobility of this species no impacts are anticipated.	Due to the mobility of this species, the Project is not likely to impact this species.
Northern Long-eared Bat	*Myotis septentrionalis*	SOC	Yes	No	The northern long-eared bat is found throughout Ohio. This species generally forages in forested habitat and openings in forested habitat and utilizes cracks, cavities, and loose bark within live and dead trees, as well as buildings as roosting habitat (Brack et al. 2010; USFWS 2016). The species utilizes caves and abandoned mines as winter hibernacula. Various sized caves are used providing they have a constant temperature, high humidity, and little to no air current (Brack et al. 2010).	No	No hibernacula or suitable roost trees were observed within the Project area. If AEP determines trees >3" dbh must be removed for this project, AEP anticipates clearing the trees between October 1 and March 31. Therefore, no adverse effects are anticipated.	No comments received.
Reptiles								
Timber Rattlesnake	*Crotalus horridus horridus*	E	Yes	No	In the central Midwest, optimum habitat is a high, dry ridge with oak-hickory forest interspersed with open areas. Hibernacula are typically located in a rocky area where underground crevices provide retreats for overwintering, such as a fissure in a ledge, a crevice between ledge and ground, and fallen rock associated or unassociated with cliffs (NatureServe 2016).	Yes	Potential habitat (open areas adjacent to hilly forested areas) was observed within the Project area, but typical habitat was not observed and due to the mobility of this species, no impacts are anticipated.	Due to the location, the type of habitat at the project site, and the type of work proposed, this project is not likely to impact this species.
Spotted Turtle	*Clemmys guttata*	T	Yes	No	Spotted turtles inhabit mostly unpolluted, shallow bodies of water with a soft bottom and aquatic vegetation, such as small marshes, marshy pastures, bogs, fens, woodland streams, swamps, small ponds, vernal pools, and lake margins: in some areas they occur in brackish tidal streams (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.

Common Name	Scientific Name	State Listing[1]	Known to Occur in Athens County?[2]	Known Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Eastern Box Turtle	*Terrapene carolina*	SOC	Yes	Yes	This species prefers forests, fields, and scrub shrub habitats. Eastern box turtles use lose soil, debris, and leaf litter for cover. Areas with loose, loamy soils are preferred for egg laying sites (NatureServe 2016).	Yes	This species typically prefers moist forest and scrub shrub habitat as opposed to the open, old field habitat observed in the majority of the Project area. Small amounts of forested habitat are present within the Project area. Due to this and the mobility of this species, no impacts are anticipated.	No comments received.
Plants								
Rough Boneset	*Eupatorium pilosum*	Status Not Determined	Yes	Yes	This species prefers wet meadows and open, swampy woods dominated by native species (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.

[1]E=Endangered; T=Threatened; SOC=Species of Concern
[2]According to Ohio Department of Natural Resources, State Listed Wildlife Species by County (ODNR 2016a).
[3]According to Ohio Natural Heritage Program (Appendix B).

Table 4. Summary of Potential Federally-Listed Species within the Lemaster-Strouds Run 138 kV Transmission Line Project Area, Athens County, Ohio

Common Name	Scientific Name	Federal Listing[1]	Known to Occur in Athens County?[2]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	USFWS Comments/ Recommendations
Mammals							
Indiana bat	*Myotis sodalis*	E	Yes	The Indiana bat is likely distributed over the entire State of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Brack et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important factors for roost trees include relative location to other trees, a permanent water source and foraging areas; Dead trees are preferred as maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007; USFWS 2015b). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Primarily use caves for hibernacula, although are also known to hibernate in abandoned underground mines (Brack et al. 2010).	No	No hibernacula or suitable roost trees were observed within the Project area. If AEP determines trees >3" dbh must be removed for this project, AEP anticipates clearing the trees between October 1 and March 31. Therefore, no adverse effects are anticipated.	The proposed project is in the vicinity of one or more confirmed records of Indiana bats. Therefore, USFWS recommends that trees >3 inches dbh be saved wherever possible. Since Indiana bat presence in the vicinity of the project has been confirmed, clearing of trees >3 inches dbh during the summer roosting season may result in direct take of individuals. If any caves or abandoned mines may be disturbed, further coordination with USFWS is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and tree removal is unavoidable, USFWS recommends that removal of any trees >3 inches dbh only occur between October 1 and March 31. Following this seasonal tree clearing recommendation should ensure that any effects to Indiana bats and northern long-eared bats are insignificant or discountable
Northern Long-eared Bat	*Myotis septentrionalis*	T	Yes	The northern long-eared bat is found throughout Ohio. This species generally forages in forested habitat and openings in forested habitat and utilizes cracks, cavities, and loose bark within live and dead trees, as well as buildings as roosting habitat (Brack et al. 2010; USFWS 2016). The species utilizes caves and abandoned mines as winter hibernacula. Various sized caves are used providing they have a constant temperature, high humidity, and little to no air current (Brack et al. 2010).	No	No hibernacula or suitable roost trees were observed within the Project area. If AEP determines trees >3" dbh must be removed for this project, AEP anticipates clearing the trees between October 1 and March 31. Therefore, no adverse effects are anticipated.	No specific comments received (other than discussion of suitable habitat).
Birds							
Bald Eagle	*Haliaeetus leucocephalus*	SOC	Yes	Breeding habitat most commonly includes areas close to (within 4 km) coastal areas, bays, rivers, lakes, reservoirs, or other bodies of water that reflect the general availability of primary food sources including fish, waterfowl, or seabirds. This species typically nests in large trees or on cliffs (NatureServe 2016).	No	No nests or suitable nesting habitat was observed in the Project area. Therefore, no impacts are anticipated.	No comments received.
Mussels							
Snuffbox	*Epioblasma triquetra*	E	Yes	Occurs in medium-sized streams to large rivers generally on mud, rocky, gravel, or sand substrates in flowing water. Often deeply buried in substrate and overlooked by collectors (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Fanshell	*Cyprogenia stegaria*	E	Yes	Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.

Common Name	Scientific Name	Federal Listing[1]	Known to Occur in Athens County?[2]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	USFWS Comments/ Recommendations
Pink Mucket	*Lampsilis orbiculata*	E	Yes	Large rivers in habitats ranging from silt to boulders, but apparently more commonly from gravel and cobble. Collected from shallow and deep water with current velocity ranging from zero to swift, but never standing pools of water (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Sheepnose	*Plethobasus cyphyus*	E	Yes	Although it does inhabit medium-sized rivers, this mussel generally has been considered a large-river species. It may be associated with riffles and gravel/cobble substrates but usually has been reported from deep water with slight to swift currents and mud, sand, or gravel bottoms. It also appears capable of surviving in reservoirs. Specimens in larger rivers may occur in deep runs (NatureServe 2016).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Insects							
American Burying Beetle	*Nicrophorus americanus*	E	Yes	Current information suggests this species is a habitat generalist, or one that lives in many types of habitat, but with a slight preference for grasslands and the open understory of oak-hickory forests (ODNR 2016b).	No	No habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Reptiles							
Timber Rattlesnake	*Crotalus horridus horridus*	SOC	Yes	In the central Midwest, optimum habitat is a high, dry ridge with oak-hickory forest interspersed with open areas. Hibernacula are typically located in a rocky area where underground crevices provide retreats for overwintering, such as a fissure in a ledge, a crevice between a ledge and ground, and fallen rock associated or unassociated with cliffs (NatureServe 2016).	Yes	Potential habitat (open areas adjacent to hilly forested areas) was observed within the Project area, but typical habitat was not observed and due to the mobility of this species, no impacts are anticipated.	No comments received.

[1]E=Endangered; T=Threatened; SOC=Species of Concern
[2]According to USFWS (2015a).

4.0 Conclusions and Recommendations

Stantec conducted a wetland and waterbodies delineation and a preliminary habitat assessment for threatened and endangered species or their habitats within the Project area on November 7-8, 2016. During the field surveys, one palustrine emergent wetland totaling approximately 0.02 acre and one palustrine scrub shrub wetland totaling 0.002 acre were identified within the Project area. See Table 2 for more information regarding the wetland classifications and ORAM categories for wetlands identified within the Project area. No streams or open waters were identified within the Project area.

The information provided by Stantec regarding wetland boundaries is based on an analysis of the wetland and upland conditions present within the Project area at the time of the fieldwork. The delineations were performed by experienced and qualified professionals using regulatory agency-accepted practices and sound professional judgment.

Three state-listed species are known to occur within a one-mile radius of the Project area according to correspondence received from the ODNR Natural Heritage Program (NHP), including rough boneset, a caddisfly, and eastern box turtle (Appendix B). None of these known locations are within or in the immediate vicinity of the Project area. Some small amounts of habitat for eastern box turtle is present in the Project area, though this species typically prefers moist forest and scrub shrub habitats. No box turtles were observed in the Project area and due to the mobility of this species and the dominant habitat observed in the Project area (open, non-forested), the proposed Project is not expected to impact this species. No habitat for rough boneset or caddisfly occurs in the Project area and no impacts to these species are anticipated. Potential habitat for two other state-listed species, black bear, and timber rattlesnake, were also observed in the Project area. However, neither of species is known to occur within a mile of the Project area, and due to their mobility, no impacts to these species are anticipated. The ODNR NHP also responded that they are unaware of any unique geological features or scenic rivers within a mile of the Project area, but did state that the Wayne National Forest, the Hamley Run Floodplain Forest Conservation Site, a Breeding Amphibian Site, a Floodplain Forest Plant Community, and a Mixed Mesophytic Forest Plant Community exist within a mile of the Project area (Appendix B). However, none of these known locations occur within or immediately adjacent to the Project area and no impacts are anticipated.

According to the ODNR - Office of Real Estate, the project is within the vicinity of records for the Indiana bat and presence of the Indiana bat has been established in the area. If suitable habitat occurs within the project area, ODNR recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, ODNR recommends cutting occur between October 1 and March 31. If no tree removal is proposed, this Project is not likely to impact this species. No hibernacula or suitable summer roost habitat for Indiana bat (or northern long-eared bat) was identified in the project area during field surveys. If trees >3" dbh must be removed for this project, AEP anticipates clearing the trees between October 1 and March 31.

The ODNR - Office of Real Estate also indicated that due to the Project location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact federal and state-listed mussel species. The project is also within the range of the channel darter, a state threatened fish, and the river darter, a state threatened fish. The ODNR - Office of Real Estate recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this Project is not likely to impact these or other aquatic species. No streams were identified in the Project area during field surveys and therefore no suitable mussel habitat or fish habitat is located in the Project area. The project is also within the range of the timber rattlesnake, a state endangered species and a federal species of concern, the eastern spadefoot toad, a state endangered species, mud salamander, a state threatened species, and black bear, a state endangered species. The ODNR - Office of Real Estate indicated that due to the location, the type of habitat present at the project site, and the type of work proposed, this Project is not likely to impact these species.

A technical assistance letter was submitted to the USFWS for this Project. The USFWS response letter (Appendix B) indicates the proposed project is in the vicinity of one or more confirmed records of Indiana bats. Therefore, USFWS recommends that trees >3 inches dbh be saved wherever possible. Because the project will result in a small amount of forest clearing relative to the available habitat in the immediately surrounding area, habitat removal is unlikely to result in significant impacts to these species. Since Indiana bat presence in the vicinity of the project has been confirmed, clearing of trees >3 inches dbh during the summer roosting season may result in direct take of individuals. If any caves or abandoned mines may be disturbed, further coordination with USFWS is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and tree removal is unavoidable, USFWS recommends that removal of any trees >3 inches dbh only occur between October 1 and March 31. Following this seasonal tree clearing recommendation should ensure that any effects to Indiana bats and northern long-eared bats are insignificant or discountable. No hibernacula or suitable summer roost habitat for Indiana bat (or northern long-eared bat) was identified in the project area during field surveys. If trees >3" dbh must be removed for this project, AEP anticipates clearing the trees between October 1 and March 31. The USFWS also stated that there are no federal wilderness areas, wildlife refuges, or designated critical habitat in the Project area, but recommended that impacts to wetlands and other water resources be avoided or minimized to the maximum extent possible, and that best management practices be utilized to minimize erosion and sedimentation and prevention of non-native, invasive plant establishment.

5.0 References

Badra, P. J., and R. R. Goforth. 2001. Surveys for the clubshell (Pleurobema clava) and other rare clams in Michigan: Final Report – 2000. Michigan Natural Features Inventory Technical Report 2001-07.

Brack, Virgil Jr., Dale W. Sparks, John O. Whitaker Jr., Brianne L. Walters, and Angela Boyer. 2010. Bats of Ohio. Indiana State University Center for North American Bat Research and Conservation.

Cowardin, L.M., V. Carter V., F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service Report No. FWS/OBS/-79/31.Washington, D.C.

Lichvar, R.W. 2013. The National Wetland Plant List: 2013 wetland ratings. Phytoneuron 2013-49:1-241.

Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. The National Wetland Plant List: 2014 Update of Wetland Ratings. Phytoneuron 2014-41: 1-42.

Mack, J.J. 2001. Ohio Rapid Assessment Method for Wetlands, Manual for Using Version 5.0. Ohio EPA Technical Bulletin Wetland/2001-1-1. Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit, Columbus, Ohio.

NatureServe. 2016. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.0. NatureServe, Arlington, VA. U.S.A. Available at http://explorer.natureserve.org. Accessed December 6, 2016.

New York Natural Heritage Program. 2015. Online Conservation Guide for *Fagitana littera*. Available at http://www.acris.nynhp.org/guide.php?id=8127. Accessed December 12, 2016.

Ohio Department of Natural Resources (ODNR) Division of Wildlife. 2016a. State Listed Wildlife Species by County. Available at http://wildlife.ohiodnr.gov/species-and-habitats/state-listed-species/state-listed-species-by-county. Accessed December 6, 2016.

ODNR Division of Wildlife. 2016b. Species Guide Index. Available at http://wildlife.ohiodnr.gov/species-and-habitats/species-guide-index/. Accessed November 15, 2016.

ODNR, Division of Natural Areas and Preserves. 2016c. Rare Plants of Ohio. Available at: http://naturepreserves.ohiodnr.gov/rareplants. Accessed December 2016.

Ohio Environmental Protection Agency (OEPA). 2006. Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI).

OEPA. 2012. Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, Version 3.0. Ohio EPA Division of Surface Water, Columbus, Ohio. 117 pp.

Parmalee, P. W. and A. E. Bogan. 1998. The Freshwater Mussels of Tennessee. University of Tennessee Press: Knoxville, Tennessee. 328 pp.

Pfingsten, R.A., J.G. Davis, T.O. Matson, G.J. Lipps, Jr. D. Wynn, and B.J. Armitage (Editors). 2013. Amphibians of Ohio. Ohio Biological Survey Bulletin New Series. Volume 17 Number 1. Xiv +899 p.

U.S. Army Corps of Engineers (USACE), Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterway Experiment Station, Vicksburg, Mississippi.

USACE. 2002. Issuance of Nationwide Permits; Notice, 67 Fed. Reg. 10. January 15, 2002. Federal Register: The Daily Journal of the United States. Available at https://www.gpo.gov/fdsys/pkg/FR-2002-01-15/pdf/02-539.pdf.

USACE. 2005. Guidance on Ordinary High Water Mark Identification (Regulatory Guidance Letter, No. 05-05). Available online at http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl05-05.pdf. Accessed December 6, 2016.

USACE. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

United States Fish and Wildlife Service (USFWS). 1994. Clubshell (Pleurobema clava) and Northern Riffleshell (*Epioblasma torulosa rangiana*) Recovery Plan. Prepared for the U.S. Fish and Wildlife Service, Hadley, Massachusetts. 68 pp.

United States Fish and Wildlife Service (USFWS). 2007. Indiana bat (*Myotis sodalis*) draft recovery plan: First revision. U.S. Fish and Wildlife Service, Ft. Snelling, Minnesota. 258 pp.

USFWS. 2015a. Federally Listed Species by Ohio Counties. Available at https://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyListJan2017.pdf. Accessed December 6, 2016.

USFWS. 2015b. 2015 Range-wide Indiana Bat Summer Survey Guidelines, April 2015. Available at http://www.fws.gov/arkansases/docs/FINAL%202015%20Indiana%20Bat%20Summer%20Survey%20Guidelines%20(with%20blue%20revisions)%2004-01-2015.pdf. Accessed December 6, 2016.

Appendix A Figures

A.1 FIGURE 1 – PROJECT LOCATION MAP

Figure No.
1

Title
Project Location Map

Client/Project
AEP Ohio Transmission Company, Inc.
Lemaster-Strouds Run 138kV
Transmission Line Relocation Project

Project Location
Athens County, Ohio

193704783

Prepared by JD on 2017-03-08
Technical Review by MP on 2017-03-09
Independent Review by DG on 2017-03-13

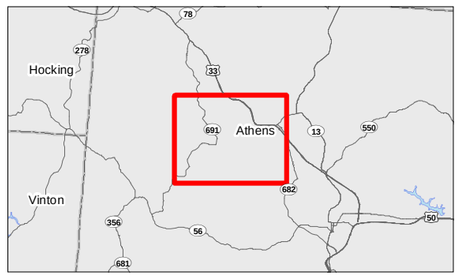
0 1,000 2,000 Feet

1:24,000 (At original document size of 11x17)

N

Legend

- Existing Lemaster-Strouds Run Transmission Line to be Removed
- Proposed Lemaster-Strouds Run Transmission Line Relocation
- Project Area (100' ROW)
- Proposed Lemaster Substation



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, NADS
3. Background: USGS 7.5' Topographic Quadrangles - Nelsonville (OH, 1983) and The Plains (OH, 1975)

Stantec

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X:\1693\Active\193704783\03 data\gis_cad\gis\mxd\line relocation eca\strouds_run\fig1_topo_strouds_run_193704783.mxd Revised: 2017-03-15 By: JHERDMAN

A.2 FIGURE 2 – WETLAND AND WATERBODY DELINEATION MAP

Figure No.
2

Title
Wetland and Waterbody Delineation Map

Client/Project
AEP Ohio Transmission Company, Inc.
Lemaster-Strouds Run 138kV
Transmission Line Relocation Project

Project Location 193704783
Athens County, Ohio

Prepared by JD on 2017-03-08
Technical Review by BT on 2017-03-09
Independent Review by DG on 2017-03-13

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1:3,600 (At original document size of 11x17)

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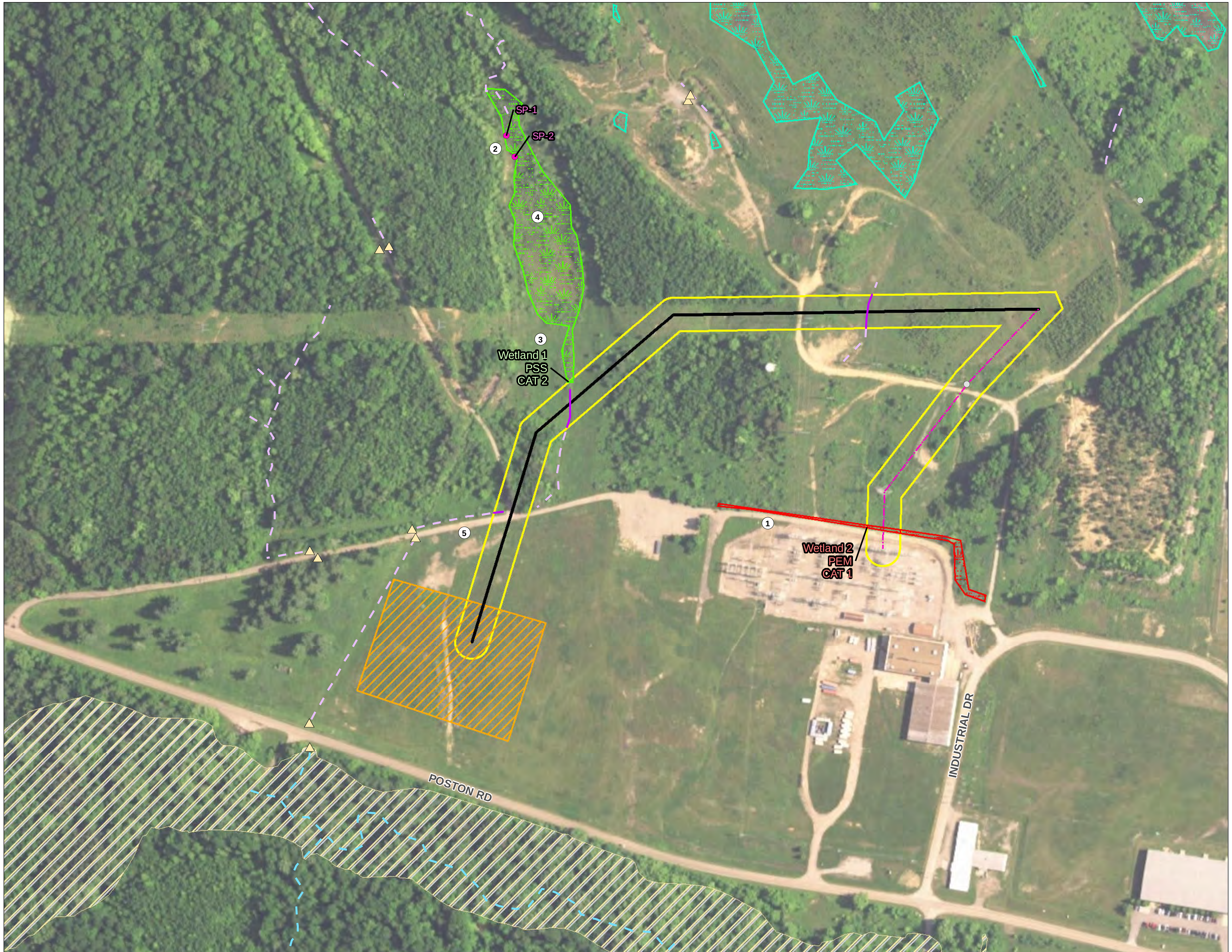
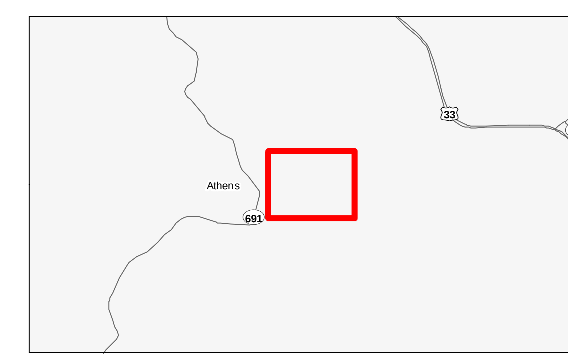


Legend

- Existing Structure
- Existing Lemaster-Strouds Run Transmission Line to be Removed
- Proposed Lemaster-Strouds Run Transmission Line Relocation
- Project Area (100' ROW)
- Proposed Substation
- Wetland Determination Sample Point
- Existing Culvert
- Photo Location
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Approximate Waterway
- Field Delineated Emergent Wetland
- Field Delineated Scrub-Shrub Wetland
- Approximate Wetland

FEMA Flood Hazard Areas
- 100-year Flood Zone
- 100-year Floodway



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, NADS, FEMA, USGS, OGRIP
3. Orthophotography: 2015 NAIP

Stantec

V:\1937\Active\193704783\03_data\gis_cad\gis\mxds\line_relocation_eco\strouds_run\fig2_envfeats_strouds_run_193704783.mxd Revised: 2017-03-14 By: jdelprete

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A.3 FIGURE 3 – HABITAT ASSESSMENT MAP

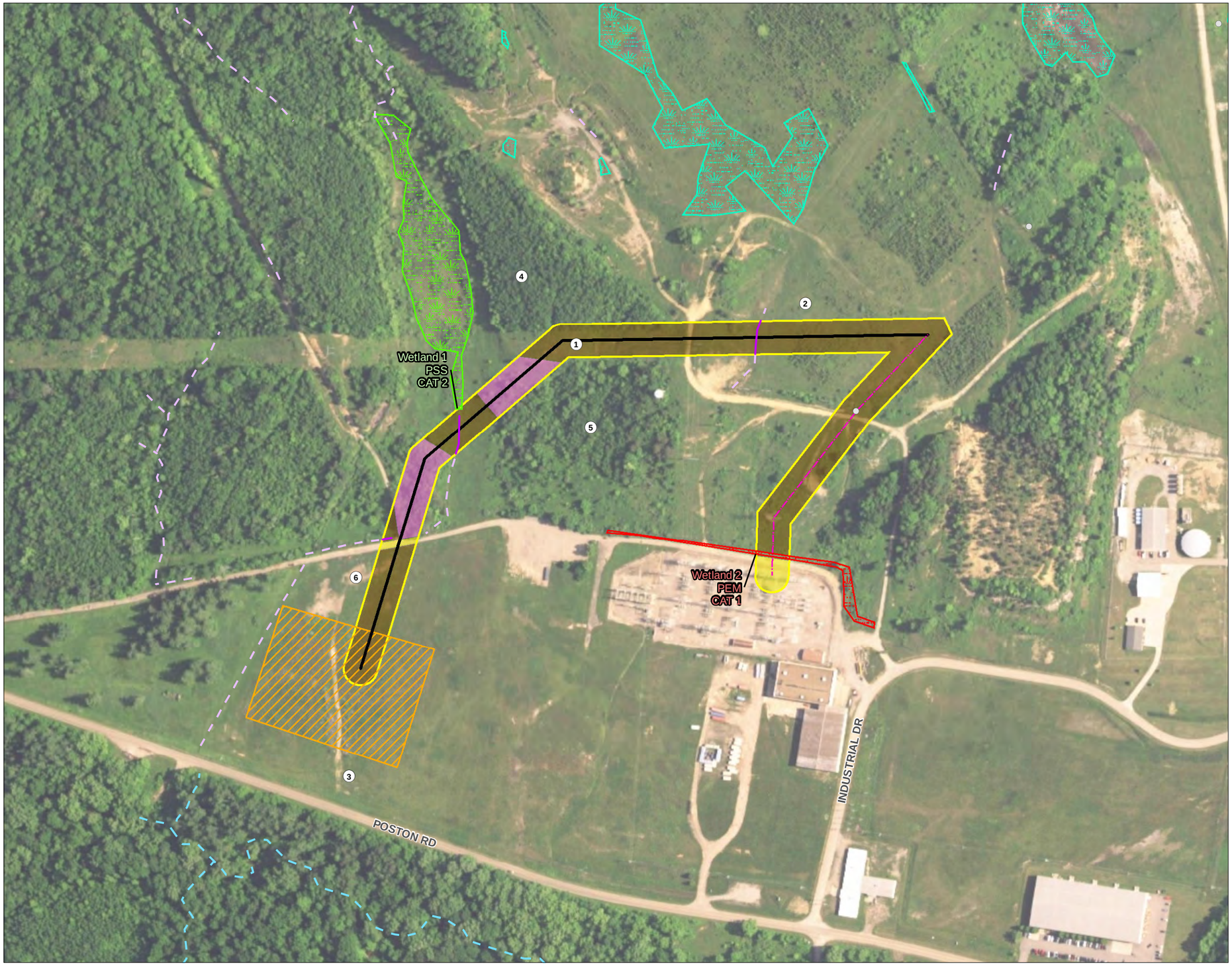


Figure No.
3

Title
Habitat Assessment Map

Client/Project
AEP Ohio Transmission Company, Inc.
Lemaster-Strouds Run 138kV
Transmission Line Relocation Project

Project Location
Athens County, Ohio

193704783

Prepared by JD on 2017-03-08
Technical Review by BT on 2017-03-09
Independent Review by XX on 2017-XX-XX

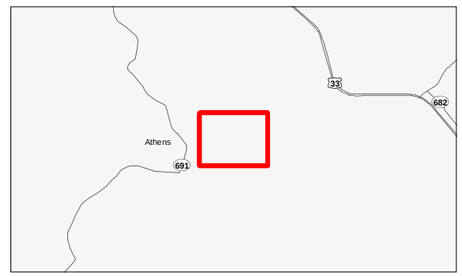
0 150 300 Feet
1:3,600 (At original document size of 11x17)

N

Legend

- Existing Structure
- Existing Lemaster-Strouds Run Transmission Line to be Removed
- Proposed Lemaster-Strouds Run Transmission Line Relocation
- Project Area (100' ROW)
- Proposed Substation
- Photo Location
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Approximate Waterway
- Field Delineated Emergent Wetland
- Field Delineated Scrub-Shrub Wetland
- Approximate Wetland

Habitat Area
- Industrial
- Mixed Early Successional/Second Growth Deciduous Forest
- Old Field



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, NADS, USGS, OGRIP
3. Orthophotography: 2015 NAIP

Stantec

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

V:\1937\Active\193704783\03-data\gis\mxds\tline_relocation_ecostrouds_run\fig3_habitat_strouds.mxd Revised: 2017-03-14 By: JHEDEMAN

Appendix B Agency Correspondence

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

December 30, 2016

Dan Godec
Stantec Consulting Services Inc.
11687 Lebanon Road
Cincinnati, Ohio 45241

Re: 16-865; Request for Technical Assistance, AEP Lemaster Station Project

Project: The proposed project involves the construction of the Lemaster Station.

Location: The proposed project is located in York, Dover, and Waterloo Townships, Athens 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 data request response is included on pages 3-4 of the project documentation.

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

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

The project is within the 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: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of

trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the club shell (*Pleurobema clava*), a state endangered and federally endangered mussel, the sheepnose (*Plethobasus cyphyus*), a state endangered and federally endangered mussel, the fanshell (*Cyprogenia stegaria*), a state endangered and federally endangered mussel, the pink mucket (*Lampsilis orbiculata*), a state endangered and federally endangered mussel, the snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel, the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel, and the black sandshell (*Ligumia recta*), a state threatened mussel. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the channel darter (*Percina copelandi*), a state threatened fish, and the river darter (*Percina shumardi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact these or other aquatic species.

The project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species. In addition to using wooded areas, the timber rattlesnake also utilizes sunlit gaps in the canopy for basking and deep rock crevices known as den sites for overwintering. Due to the location, the type of habitat at the project site, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species. This species is found in areas of sandy soils that are associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions. Due to the location, the type of habitat at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the mud salamander (*Pseudotriton montanus*), a state threatened species. Due to the location, the type of habitat present at the project site, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the black bear (*Ursus americanus*), a state endangered species. Due to the mobility of this species, this project is not likely to impact this species.

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

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

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

http://water.ohiodnr.gov/water-use-planning/floodplain-management#PUB

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

Ohio Department of Natural Resources
JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, DIRECTOR

Ohio Division of Wildlife
Raymond W. Petering, Chief
2045 Morse Rd., Bldg. G
Columbus, OH 43229-6693
Phone: (614) 265-6300

November 17, 2016

Dan Godec
Stantec Consulting Services, Inc.
11687 Lebanon Rd.
Cincinnati, OH 45241

Dear Mr. Godec,

I have reviewed the Natural Heritage Database for the Lemaster Station project area, including a one mile radius, in York, Dover and Waterloo Townships, Athens County, Ohio. The numbers/letters on the list below correspond to the areas marked on the accompanying map. Common name, scientific name and status are given for each species.

A. Wayne National Forest – US Forest Service
B. Hamley Run Floodplain Forest Conservation Site
1. *Eupatorium pilosum* – Rough Boneset, recently added to inventory, status not determined
2. Breeding Amphibian Site
3. *Brachycentrus numerosus* – caddisfly, endangered
4. Floodplain Forest Plant Community
5. *Terrapene carolina* – Eastern Box Turtle, species of concern
6. Mixed Mesophytic Forest Plant Community

A Conservation Site is an area deemed by the Natural Heritage Program to be a high quality natural area not currently under formal protection. It may, for example, harbor one or more rare species, be an outstanding example of a plant community or have geologically significant features, etc. These sites may be in private ownership and our listing of them does not imply permission for access.

We are unaware of any geologic features, scenic rivers, state wildlife areas, nature preserves, parks or forests or national wildlife refuges or parks within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does 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.

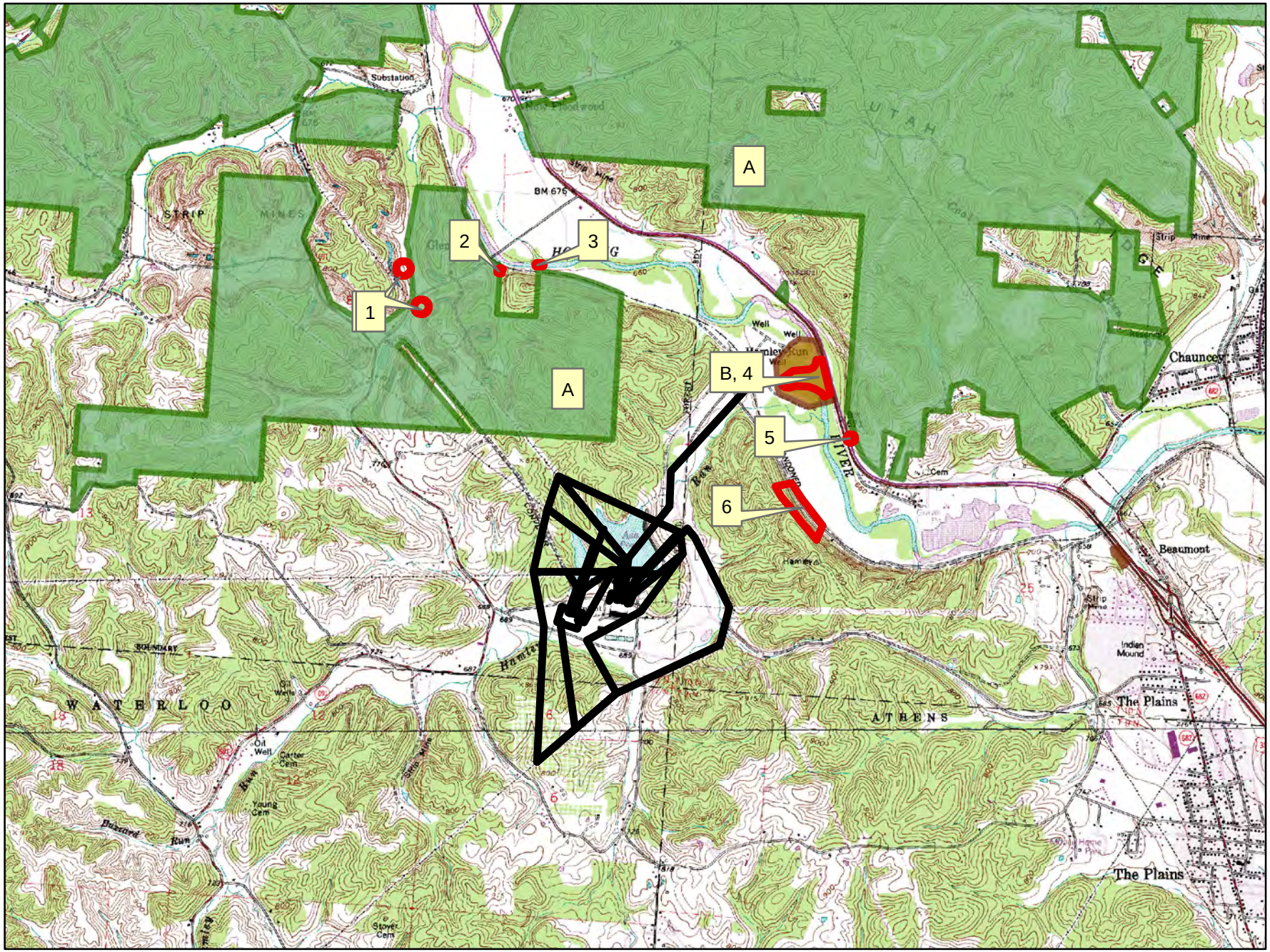
Please contact me at 614-265-6818 if I can be of further assistance.

Sincerely,

Debbie Woischke

Debbie Woischke
Ohio Natural Heritage Program

Lemaster Station Project



Godec, Daniel

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Monday, November 28, 2016 11:29 AM
To: Godec, Daniel
Cc: nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject: Lemaster Electric Transmission Substation Project, Athens 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: 03E15000-2017-TA-0252

Dear Mr. Godec,

We have received your recent correspondence requesting information about the subject proposal. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

The proposed project is in the vicinity of one or more confirmed records of Indiana bats. Therefore, we recommend that trees ≥3 inches dbh be saved wherever possible. Because the project will result in a small amount of forest clearing

relative to the available habitat in the immediately surrounding area, habitat removal is unlikely to result in significant impacts to these species. Since Indiana bat presence in the vicinity of the project has been confirmed, clearing of trees ≥3 inches dbh during the summer roosting season may result in direct take of individuals. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and tree removal is unavoidable, we recommend that removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Following this seasonal tree clearing recommendation should ensure that any effects to Indiana bats and northern long-eared bats are insignificant or discountable. **Please note that, because Indiana bat presence has already been confirmed in the project vicinity, any additional summer surveys would not constitute presence/absence surveys for this species.**

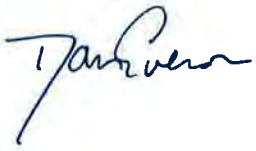
If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend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

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

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

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

Sincerely,



Dan Everson

Field Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW

Appendix C Representative Photographs

Wetland and Waterbody Photographs

Photo Location 1. View of Wetland 1. Photograph taken facing northeast.

Photo Location 1. View of Wetland 1. Photograph taken facing east.

Photo Location 2. View of Wetland 2. Photograph taken facing east.

Photo Location 2. View of Wetland 2. Photograph taken facing southeast.

Photo Location 3. View of Wetland 2. Photograph taken facing south.

Photo Location 4. View of Wetland 2. Photograph taken facing east.

Photo Location 5. Representative view of upland drainage feature along existing roadway.

Habitat Photographs

Photo Location 1. Representative view of old field habitat. Photograph taken facing west.

Photo Location 2. Representative view of old field habitat. Photograph taken facing north.

Photo Location 3. Representative view of old field habitat. Photograph taken facing north.

Photo Location 4. Representative view of mixed early successional/second growth deciduous forest habitat. Photograph taken facing north.

Photo Location 5. Representative view of mixed early successional/second growth deciduous forest habitat. Photograph taken facing south.

Photo Location 6. Representative view of industrial habitat. Photograph taken facing southwest.

Appendix D Data Forms

D.1 WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM
Eastern Mountains and Piedmont Region

Project/Site:	Lemaster-Strouds Run 138 kV Transmission Line Relocation Project	Stantec Project #:	193704783
Applicant:	American Electric Power		
Investigator #1:	Aaron Kwolek	Investigator #2:	Jody Nicholson
Soil Unit:	Water	NWI/WWI Classification:	PEM1C
Landform:	Terrace	Local Relief:	Concave
Slope (%):	4%	Latitude: 39.38628155920	Longitude: -82.1828612
Datum:	NAD83		

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

Are Vegetation ☐ , Soil ☐, or Hydrology ☐significantly disturbed?
Are Vegetation ☐ , Soil ☐, or Hydrology ☐naturally problematic?

Are normal circumstances present? ☑ Yes ☐No

Date:	11/07/16
County:	Athens
State:	Ohio
Wetland ID:	Wetland 1
Sample Point:	**SP-1**
Community ID:	PSS
Section:	1
Township:	12N
Range:	15W Dir: --

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No
Wetland Hydrology Present? ☑ Yes ☐ No
Hydric Soils Present? ☑ Yes ☐ No
Is This Sampling Point Within A Wetland? ☑ **Yes** ☐ **No**

Remarks: Remnant bed of fly ash pond.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present): ☐

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B14 - True Aquatic Plants
- ☐ C1 - Hydrogen Sulfide Odor
- ☑ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☐ Yes	☑ No	Depth:	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

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

Remarks:

SOILS

Map Unit Name: Water — Series Drainage Class: Moderately Well Drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	4	1	10YR 4/2	70	5YR 6/8	30	C	PL	silty clay loam
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--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): ☐

- ☐ 1- Histosol
- ☐ 2 - Histic Epipedon
- ☐ 3 - Black Histic
- ☐ 4 - Hydrogen Sulfide
- ☐ 5 - Stratified Layers
- ☐ 10 - 2 cm Muck (LRR N)
- ☐ 11 - Depleted Below Dark Surface
- ☐ 12 - Thick Dark Surface
- ☐ 1 - Sandy Muck Mineral (LRR N, MLRA 147, 148)
- ☐ 4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface
- ☐ S8 - Polyvalue Below Dark Surface (MLRA 147, 148)
- ☐ S9 - Thin Dark Surface (MLRA 147, 148)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matirx
- ☐ F6 - Redox Dark Surface
- ☑ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions
- ☐ F12 - Iron-Manganese Masses (LRR N, MLRA 136)
- ☐ F13 - Umbric Surface (MLRA 122, 136)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 148)
- ☐ F21 - Red Parent Material (MLRA 127, 147)

Indicators for Problematic Soils [1]
- ☐ A10 - 2cm Muck (MLRA 147)
- ☐ A16 - Coast Prairie Redox (MLRA 147, 148)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 136, 147)
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☑ Yes ☐ No

Remarks:

WETLAND DETERMINATION DATA FORM
Eastern Mountains and Piedmont Region

Project/Site:	Lemaster-Strouds Run 138 kV Transmission Line Relocation Project	Wetland ID: Wetland 1	Sample Point: **SP-1**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	*Salix interior*	70	Y	FACW
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	70		

Herb Stratum (Plot size: 5 ft radius)

1.	*Juncus effusus*	85	Y	FACW
2.	*carex frankii*	5	N	OBL
3.	*Agrimonia parviflora*	20	N	FACW
4.	*Scirpus atrovirens*	5	N	FACW
5.	--	--	--	--
6	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	115		

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

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 spp.	5	x 1 =	5
FACW spp.	180	x 2 =	360
FAC spp.	0	x 3 =	0
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0
Total	185 (A)		365 (B)

Prevalence Index = B/A = ***1.973***

Hydrophytic Vegetation Indicators:

Yes	No	
		Rapid Test for Hydrophytic Vegetation
☑	☐	Dominance Test is > 50%
☑	☐	Prevalence Index is ≤ 3.0 *
☑	☐	Morphological Adaptations (Explain) *
☐	☑	Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present Yes ☑ No ☐

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Eastern Mountains and Piedmont Region

Project/Site:	Lemaster-Strouds Run 138 kV Transmission Line Relocation Project	Stantec Project #:	193704783
Applicant:	American Electric Power		
Investigator #1:	Aaron Kwolek	Investigator #2:	Jody Nicholson
Soil Unit:	Omulga silt loam, 6 to 12 percent slopes	NWI/WWI Classification:	PEM1C
Landform:	Terrace	Local Relief:	Concave
Slope (%):	4%	Latitude: 39.38610991870	Longitude: -82.1827750721 Datum: NAD83

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

Are Vegetation ☐ , Soil ☑, or Hydrology ☐significantly disturbed? Are normal circumstances present? ☑ Yes ☐No

Are Vegetation ☐ , Soil ☐, or Hydrology ☐naturally problematic?

Date:	11/07/16
County:	Athens
State:	Ohio
Wetland ID:	Wetland 1
Sample Point:	**SP-2**
Community ID:	Upland
Section:	1
Township:	12N
Range:	15W Dir: --

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☑ No

Hydric Soils Present? ☐ Yes ☑ No

Is This Sampling Point Within A Wetland? ☐ **Yes** ☑ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present): ☑

Primary:

- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B14 - True Aquatic Plants
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:

- ☐ B6 - Surface Soil Cracks
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☐ Yes	☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

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

Remarks:

SOILS

Map Unit Name: Omulga silt loam, 6 to 12 percent slopes Series Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)		Matrix %	Mottles Color (Moist)		Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	16	1	10YR	4/4	100	--	--	--	--	--	silt loam
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): ☐

- ☐ 1- Histosol
- ☐ 2 - Histic Epipedon
- ☐ 3 - Black Histic
- ☐ 4 - Hydrogen Sulfide
- ☐ 5 - Stratified Layers
- ☐ 10 - 2 cm Muck (LRR N)
- ☐ 11 - Depleted Below Dark Surface
- ☐ 12 - Thick Dark Surface
- ☐ 1 - Sandy Muck Mineral (LRR N, MLRA 147, 148)
- ☐ 4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface
- ☐ S8 - Polyvalue Below Dark Surface (MLRA 147, 148)
- ☐ S9 - Thin Dark Surface (MLRA 147, 148)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matirx
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions
- ☐ F12 - Iron-Manganese Masses (LRR N, MLRA 136)
- ☐ F13 - Umbric Surface (MLRA 122, 136)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 148)
- ☐ F21 - Red Parent Material (MLRA 127, 147)

Indicators for Problematic Soils [1]

- ☐ A10 - 2cm Muck (MLRA 147)
- ☐ A16 - Coast Prairie Redox (MLRA 147, 148)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 136, 147)
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☐ Yes ☑ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Eastern Mountains and Piedmont Region

Project/Site:	Lemaster-Strouds Run 138 kV Transmission Line Relocation Project	Wetland ID: Wetland 1	Sample Point: **SP-2**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	*Pinus strobus*	10	Y	FACU
2.	*Lonicera morrowii*	3	N	FACU
3.	*Salix interior*	5	Y	FACW
4.	*Platanus occidentalis*	2	N	FACW
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	20		

Herb Stratum (Plot size: 5 ft radius)

1.	*Rumex crispus*	5	N	FAC
2.	*Andropogon virginicus*	25	Y	FACU
3.	*Solidago altissima*	10	N	FACU
4.	*Agrimonia parviflora*	25	Y	FACW
5.	*Daucus carota*	5	N	UPL
6	*Symphyotrichum lateriflorum*	2	N	FACW
7.	*Juncus torreyi*	2	N	FACW
8.	*Juncus effusus*	3	N	FACW
9.	*Poa palustris*	10	N	FACW
10.	*Viola sororia*	2	N	FAC
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	89		

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

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

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	49	x 2 =	98
FAC spp.	7	x 3 =	21
FACU spp.	48	x 4 =	192
UPL spp.	0	x 5 =	0
Total	104 (A)		311 (B)

Prevalence Index = B/A = ***2.990***

Hydrophytic Vegetation Indicators:

Yes	No	Rapid Test for Hydrophytic Vegetation
☐ Yes	☑ No	Dominance Test is > 50%
☑ Yes	☐ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☑ No	Morphological Adaptations (Explain) *
☐ Yes	☑ No	Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

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

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

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

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present Yes ☑ No ☐

Additional Remarks:

D.2 ORAM DATA FORMS

wetland 1

Version 5.0	**Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization**	
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

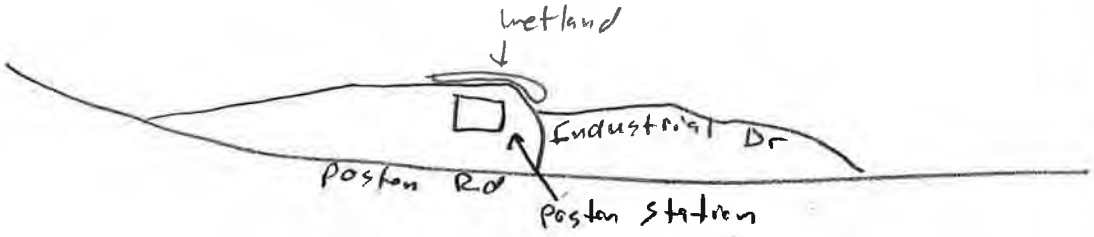
The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

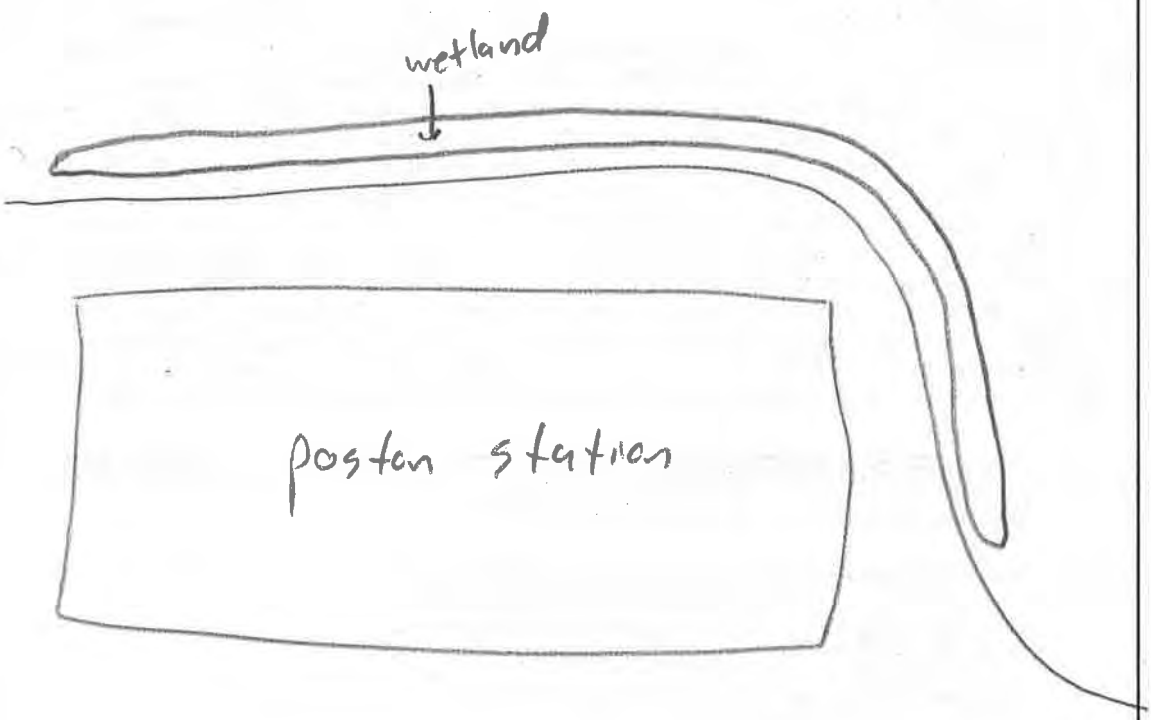
Name: Aaron Kwolek	
Date: 11/14/16	
Affiliation: Stantec	
Address: 11687 Lebanon Rd, Cincinnati, OH 45241	
Phone Number: 513 842 8200	
e-mail address: Aaron.Kwolek@stantec.com	
Name of Wetland: Wetland 1	
Vegetation Communit(ies): PEM	
HGM Class(es): Depressional	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	



Lat/Long or UTM Coordinate 39.383058, -82.178780	
USGS Quad Name Nelsonville	
County Athens	
Township The Plains	
Section and Subsection Sec 1 T12N R15W	
Hydrologic Unit Code 050302040801	
Site Visit 11/7/16	
National Wetland Inventory Map	
Ohio Wetland Inventory Map None	
Soil Survey FcA - Fitchville silt loam, 0-3% slopes	
Delineation report/map See Jurisdictional Waters Delineation Report	

Name of Wetland: wetland 1	
Wetland Size (acres, hectares): 0.06 ac	

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

Final score : 12	**Category:** 1

Scoring Boundary Worksheet Wetland 1

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately	✓	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	✓	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

wetland 1

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap . The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	**Category 1 Wetlands.** Is the wetland less than 0.5 hectares (1 acre) in size and **hydrologically isolated** and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis*, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

wetland 1

8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands.** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	**Relict Wet Prairies.** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

wetland 1

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland 1	Rater(s): AJK	Date: 11/7/16

Metric 1. Wetland Area (size).

max 6 pts. | subtotal: 0 | 0

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)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal: 3 | 3

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)
- [x] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

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

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

Metric 3. Hydrology.

max 30 pts. | subtotal: 4 | 7

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

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

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

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

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

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal: 4 | 11

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

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] 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)
- [x] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

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

subtotal this page: 11

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: wetland 1	Rater(s): AJK	Date: 11/7/16

11 subtotal first page

Metric 5. Special Wetlands.

0 max 10 pts. | 11 subtotal

Check all that apply and score as indicated

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

Metric 6. Plant communities, interspersion, microtopography.

1 max 20 pts. | 12 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale

- [ ] Aquatic bed
- [3] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

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

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

- [ ] Extensive >75% cover (-5)
- [X] 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 hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [1] Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

12

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

wetland 1

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	6	
	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	4	
	Metric 4. Habitat	21	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	12	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet wetland 1

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score *less* than the Category 2 scoring threshold (*excluding* gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score *greater* than the Category 2 scoring threshold *(including* any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the *"gray zone"* for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit *moderate OR superior* hydrologic OR habitat, OR recreational functions AND the wetland was *not* categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

wetland 2

Version 5.0	**Ohio Rapid Assessment Method for Wetlands** **10 Page Form for Wetland Categorization**	
	Background Information **Scoring Boundary Worksheet** **Narrative Rating** **Field Form Quantitative Rating** **ORAM Summary Worksheet** **Wetland Categorization Worksheet**	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

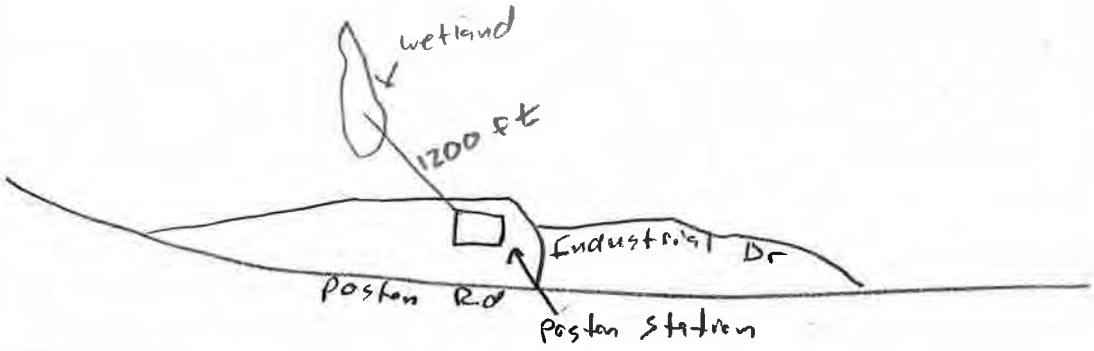
It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name:	Aaron Kwolek
Date:	11/14/16
Affiliation:	Stantec
Address:	11687 Lebanon Rd, Cincinnati, OH 45241
Phone Number:	513 842 8200
e-mail address:	Aaron.Kwolek@stantec.com
Name of Wetland:	wetland 2
Vegetation Communit(ies):	PSS
HGM Class(es):	Depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

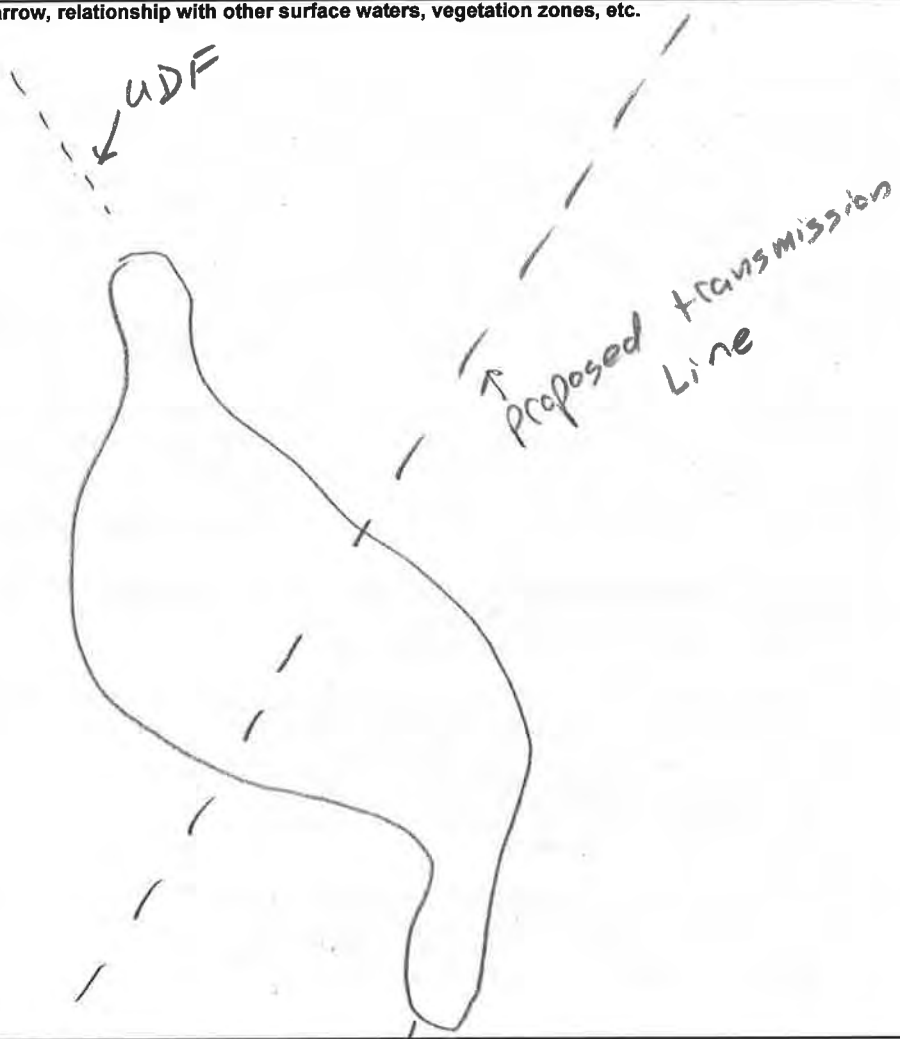


Lat/Long or UTM Coordinate	39.385364, -82.182403
USGS Quad Name	Nelsonville
County	Athens
Township	The Plains
Section and Subsection	Sec 1 T12N R15W
Hydrologic Unit Code	050302040801
Site Visit	11/7/16
National Wetland Inventory Map	PSS 1C
Ohio Wetland Inventory Map	None
Soil Survey	WhE, Westmoreland-Guernsey silt loams 25-40% slopes
Delineation report/map	See Jurisdictional Waters Delineation Report

Name of Wetland: Wetland 2

Wetland Size (acres, hectares):

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

Final score : 35 **Category:** 2

Scoring Boundary Worksheet Wetland 2

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	✓	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	✓	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating wetland 2

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap . The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	**Category 1 Wetlands.** Is the wetland less than 0.5 hectares (1 acre) in size and **hydrologically isolated** and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis*, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

wetland 2

8b	**Mature forested wetlands**. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands**. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	**Relict Wet Prairies**. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

wetland 2

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

ORAM v. 5.0 Field Form Quantitative Rating

Site: wetland2	Rater(s): AJK	Date: 11/7/16

Metric 1. Wetland Area (size).

max 6 pts: 2 | subtotal: 2

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)
- [x] 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)

Metric 2. Upland buffers and surrounding land use.

max 14 pts: 13 | subtotal: 15

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

- [x] 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.

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

Metric 3. Hydrology.

max 30 pts: 16 | subtotal: 25

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

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

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [x] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

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

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

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

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

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

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [x] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Fly ash landfill

Metric 4. Habitat Alteration and Development.

max 20 pts: 6 | subtotal: 31

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

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] 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)
- [x] Poor to fair (2)
- [ ] Poor (1)

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

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

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

subtotal this page: 31

last revised 1 February 2001 jjm

Site: wetland 2	Rater(s): AJK	Date: 11/7/16

31
subtotal first page

0 | 31
max 10 pts. | subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

4 | 35
max 20 pts. | subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [ ] Emergent
- [3] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

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

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

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

6d. Microtopography.
Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

35

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet wetland 2

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
	Metric 2. Buffers and surrounding land use	13	
	Metric 3. Hydrology	10	
	Metric 4. Habitat	6	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	4	
	TOTAL SCORE	35	Category based on score breakpoints 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet wetland 2

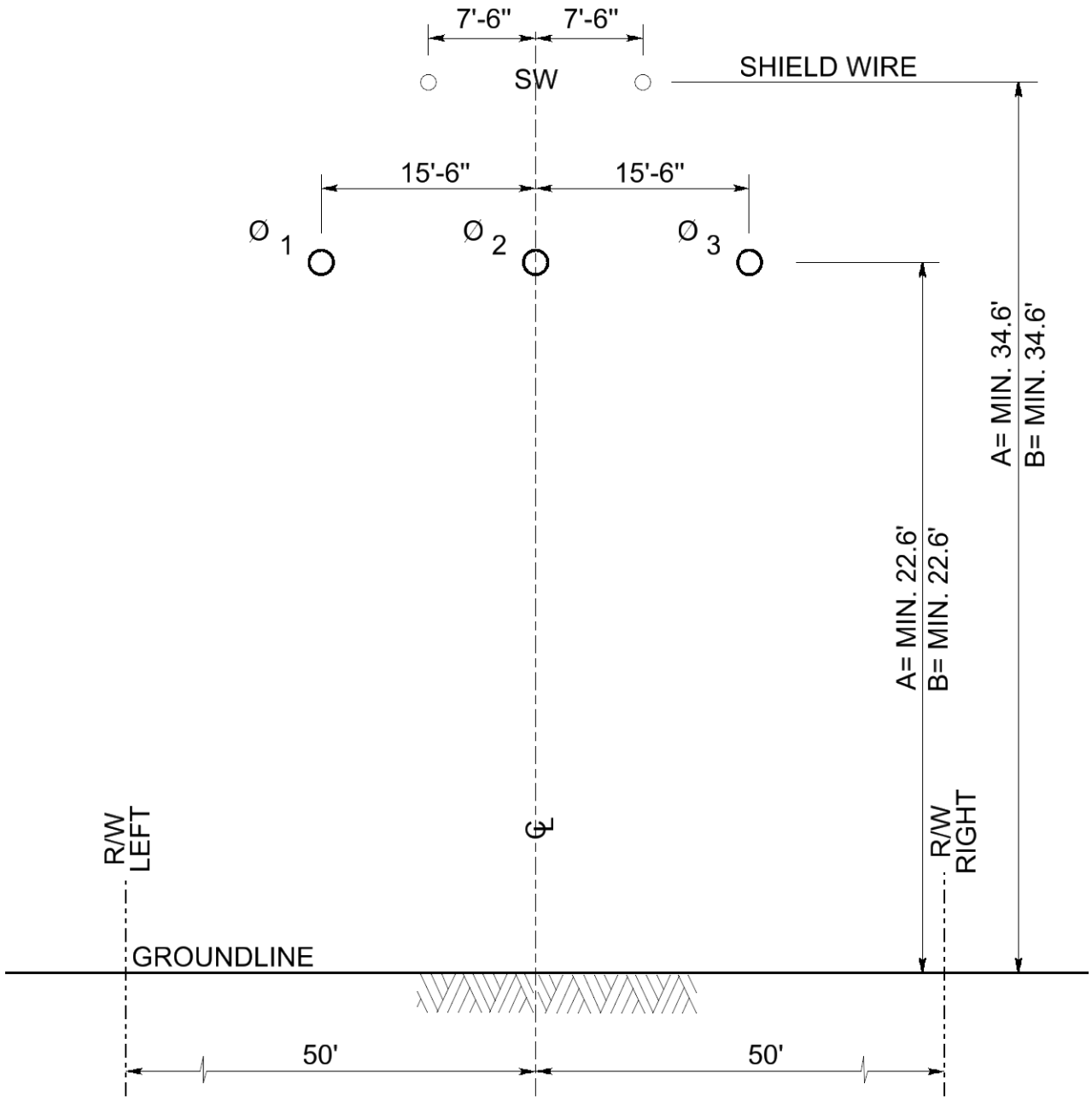
Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score *less* than the Category 2 scoring threshold (*excluding* gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score *greater* than the Category 2 scoring threshold *(including* any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the *"gray zone"* for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit *moderate OR superior* hydrologic OR habitat, OR recreational functions AND the wetland was *not* categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Appendix D. Structure Design and Phasing Diagrams



DIMENSION "A" SINGLE CIRCUIT - HOR. CONFIGURATION (STEEL POLE)
(UNDER EMERGENCY & NORMAL MAX. LINE LOADING)

DIMENSION "B" SINGLE CIRCUIT - HOR. CONFIGURATION (STEEL POLE)
(UNDER WINTER NORMAL CONDUCTOR RATING)

AEP AMERICAN® ELECTRIC POWER

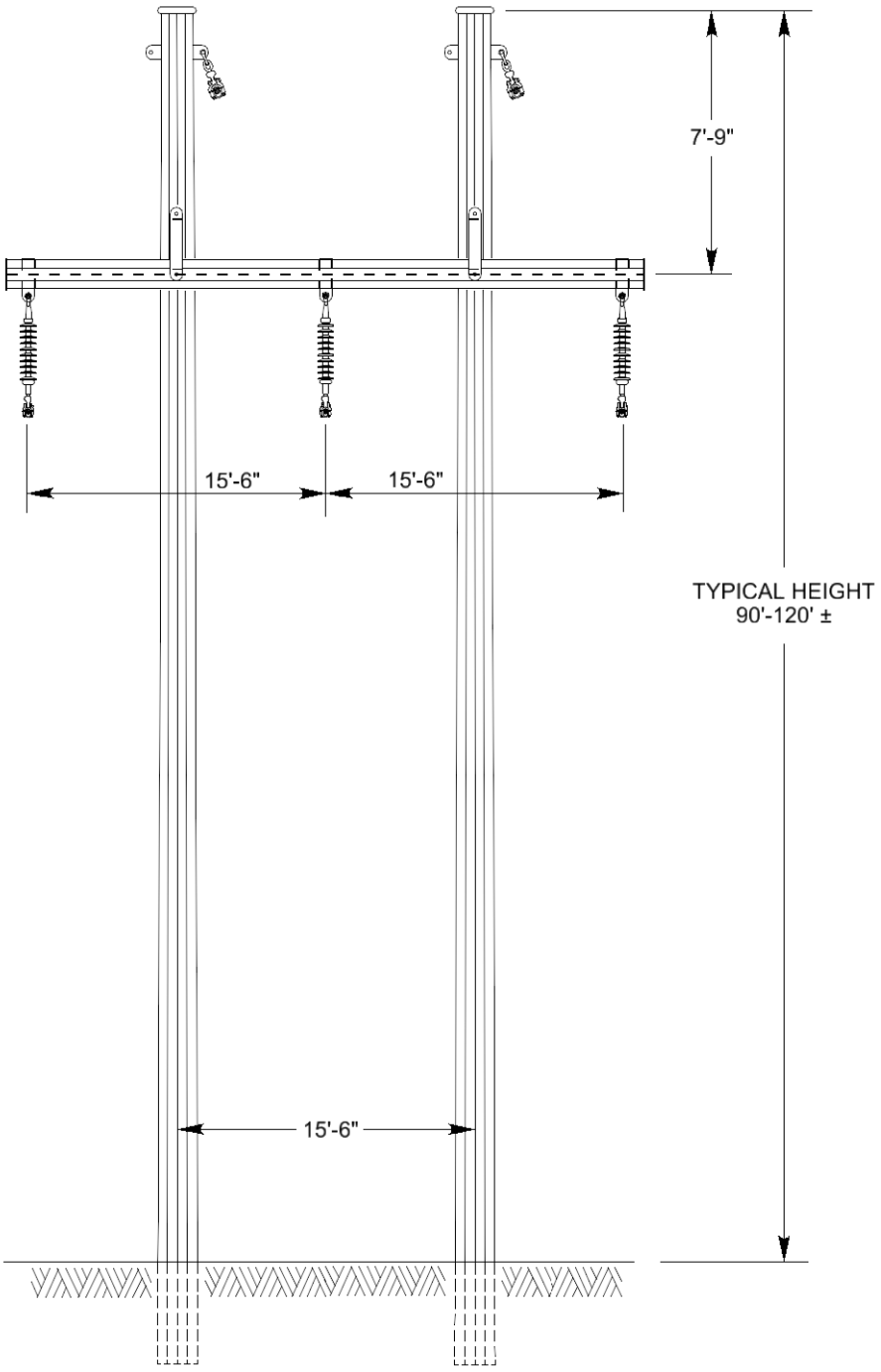
LEEMASTER - STROUDS RUN
138kV LINE

TYPICAL PHASE ARRANGEMENT
STEEL POLE

NOT TO SCALE

FIGURE 2

COMPUTER GENERATED DWG. , DO NOT MANUALLY REVISE



AEP AMERICAN ELECTRIC POWER

LEEMASTER - STROUDS RUN
138kV LINE

TYPICAL TANGENT STRUCTURE
TUBULAR STEEL
H-FRAME SUSPENSION

NOT TO SCALE

FIGURE 1

This foregoing document was electronically filed with the Public Utilities

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4/4/2017 11:45:07 AM

in

Case No(s). 17-0635-EL-BLN

Summary: Letter of Notification electronically filed by Mr. Hector Garcia on behalf of AEP Ohio Transmission Company