

Letter of Notification for the Waverly-Lick 138 kV Transmission Line Relocation Project



An **AEP** Company

PUCO Case No. 23-1044-EL-BLN

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

Submitted by:
Ohio Power Company

December 12, 2023

Letter of Notification for the Waverly-Lick 138 kV Transmission Line Relocation Project

Letter of Notification

Ohio Power Company Waverly-Lick 138 kV Transmission Line Relocation Project

4906-6-05

Ohio Power Company (the “Company”) provides the following information to the Ohio Power Siting Board (“OPSB”) pursuant to Ohio Administrative Code Section 4906-6-05.

4906-6-5(B) General Information

B(1) Project Description

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

The Company proposes the Waverly - Lick 138 kV Transmission Line Relocation Project (the “Project”) in the Seal Township, Pike County, Ohio. The purpose of the Project is to relocate approximately 0.5 mile of 138 kV transmission line, and replace the existing single circuit, wood monopoles with single circuit, steel monopoles. The Project will require new and supplemental right-of-way (“ROW”) to relocate a portion of the existing transmission line. The location of the Project is shown in Appendix A, Figures 1 and 2.

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

- (1) New construction, extension, or relocation of single or multiple circuit electric power transmission line(s), or upgrading existing transmission or distribution line(s) for operation at a higher transmission voltage, as follows:*
 - (b) Line(s) greater than 0.2 miles in length but not greater than two miles in length.*

The Project has been assigned PUCO Case No. 23-1044-EL-BLN.

B(2) Statement of Need

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

A customer is developing a property crossed by the existing Waverly - Lick 138 kV transmission line, where the transmission line conflicts with their development plans. As such, the customer requested that the Company relocate approximately 0.5 mile of the existing 138 kV line to allow for their proposed expansion plans. The Company has agreed to relocate the facilities at the customer’s expense. Removing the Waverly-

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Lick 138 kV transmission line is not a viable alternative as the line provides looped service to a customer and removal would eliminate the reliability of service.

Failure to move forward with the Project would limit the customer's ability to expand their operation.

The Project will not be submitted through the PJM M-3 process since it will not impact the existing grid topology. In addition, the cost will be borne by the customer. The Project was not listed in the Company's 2023 Long-Term Forecast Report because the Project was unknown at the time of filing.

B(3) Project Location

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

The location of the Project in relation to existing transmission facilities is shown in Figure 1 of Appendix A.

B(4) Alternatives Considered

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

The Project was requested by a customer to allow expansion of an existing landfill. The existing Waverly-Lick 138 kV transmission line bisects a portion of the customer's property. Conceptual alternatives were identified north and further to the south of the landfill expansion area. However, the proposed route was selected because it minimizes impacts to additional property owners and improves the location of the alignment on existing properties by locating it along property boundaries and paralleling the road. The relocation also considers future use of the customer's property by shifting the alignment between an abandoned railroad spur and State Route 220, which is unusable space for the landfill. Other route alternatives considered would require additional right-of-way (ROW) on additional property owners, not currently impacted by the existing transmission line. Further, the proposed route avoids impacts to wetlands, streams, and cultural resources. The Project, as proposed, is the most appropriate solution for meeting the Company's and customer's needs in the 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 Company will inform affected property owners and tenants about this Project through several different mediums. Within seven days of filing this LON, the Company will issue a public notice in a newspaper of general circulation in the Project area. The notice will comply with all requirements of Ohio Revised Code

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("OAC") Section 4906-6-08(A)(1-6). Further, the Company will mail a letter, via first class mail, to affected landowners, tenants, contiguous owners and any other landowner the Company may approach for an easement necessary for the construction, operation, or maintenance of the Project. The letter will comply with all requirements of OAC Section 4906-6-08(B). The Company 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. An electronic copy of the LON will be served to the public library in each political subdivision for this Project. The Company retains ROW land agents that discuss Project timelines, construction and restoration activities and convey information to affected owners and tenants throughout the Project.

B(6) Construction Schedule

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

Construction of the Project is planned to begin in March 2024, and the anticipated in-service date will be October 2024.

B(7) Area Map

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

Figure 1 in Appendix A provides the proposed Project area on a map of 1:24,000-scale (1 inch equals 2,000 feet), showing the Project on the United States Geological Survey (USGS) 7.5-minute topographic map of the Waverly South, Ohio quadrangle. Figure 2 in Appendix A shows the Project Area on recent aerial photography, dated 2020, as provided by ESRI World Imagery at a scale of 1:6,000 scale (1 inch equals 500 feet).

To visit the Project site from Columbus, Ohio, take I-71 South to Exit 101 for I-270 East. Merge onto I-270 East and continue for 1.9 miles to Exit 52 for U.S. 23 South/Corridor C toward Circleville. Continue on U.S. 23 for 39.9 miles. Use the right two lanes to continue onto U.S. 23 toward Waverly/U.S. 50 West. Continue for 14.3 miles on U.S. 23 South/Corridor C. Turn left onto North Market Street. After 0.1 mile, turn right onto West 3rd Street. Continue for 0.1 mile and turn left onto OH 220 East/Bridge Street. After 2.4 miles, turn left to stay on OH 220 East. Continue for 1.4 miles and then turn left onto Miller Lane. The destination will be on the left after 0.4 mile at the approximate address of 345 Millers Lane, Waverly, Ohio 45690 at latitude 39.075283, longitude -82.956560.

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B(8) Property Agreements

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

The property required for the Project is provided in the table below.

Property Parcel Number	Agreement Type	Easement/ Option Obtained (Yes/No)
210184000000	Supplemental Easement	No

B(9) Technical Features

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

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

The transmission line construction is estimated to include the following:

- Voltage: 138 kV
- Conductors: (3) 636 KCM ACSR 26/7 Grosbeak (Same conductor type as existing)
- Static Wire: 7#8 Alumoweld
- Insulators: Polymer
- ROW Width: 100 feet
- Structure Type: (3) Three steel monopole braced post structures
(3) Three steel monopole custom dead end structures

B(9)(b) Electric and Magnetic Fields

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

No occupied residences or institutions are located within 100 feet of the Project.

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B(9)(c) Project Cost

The estimated capital cost of the project.

The capital cost estimate for the proposed Project, which is comprised of applicable tangible and capital costs, is approximately \$1,747,000 using a Class 4 estimate. However, the customer is responsible for all costs associated with the relocation.

B(10) Social and Economic Impacts

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

B(10)(a) Land Use Characteristics

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

Aerial photography of the Project vicinity is provided as Figure 2 in Appendix A. The Project is located in Seal Township, Pike County, Ohio. Land use in the Project area is dominated by the existing landfill with scattered adjacent residences. The closest residence is approximately 160 feet to the south of the existing proposed transmission line.

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.

No agricultural land is located within the Project footprint. The Pike County Auditor reviewed the Project on November 10, 2023. The parcel crossed by the Project was not identified as an Agricultural District Land parcel.

B(10)(c) Archaeological and Cultural Resources

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

The Company's consultant completed a Phase I Cultural Resource Management Investigation of the Project Area. No further investigation was recommended by the Company's consultant to the Ohio Historic Preservation Office ("SHPO"). The SHPO agreed that the Project will not impact any cultural resources eligible for listing on the NRHP and no additional coordination is necessary prior to construction. A copy of the November 6, 2023, concurrence letter from SHPO is provided in Appendix B.

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

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

A Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHCD000006. The Company will implement and maintain best management practices as outlined in the Project-specific Storm Water Pollution Prevention Plan (“SWPPP”) to minimize erosion, control sediment, and to protect surface water quality during storm events.

A wetland and stream delineation was conducted for the Project area, see Appendix C. One intermittent stream was identified and is proposed to be crossed by the Project, however, no impacts to this stream are anticipated. Therefore, the Project will not require a Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers or a Section 401 Water Quality Certification from the OEPA.

The FEMA Flood Insurance Rate Map was reviewed to identify any floodplains/flood hazard areas that have been mapped within the Project Area (specifically, map number **39131C0229C**). Based on this mapping, no mapped FEMA floodplains are located in the Project Area. Therefore, no floodplain permit will be required for this Project.

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

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

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

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 August 31, 2023 response letter from the USFWS (see Appendix B) identified the Indiana bat and northern long-eared bat as occurring within the Project area. In accordance with current Ohio Department of Natural Resources (“ODNR”) Division of Wildlife (“DOW”) /USFWS Joint Guidance for at Surveys and tree clearing, no known karst, mines and/or caves were identified within 0.25 mile of the project survey area. The USFWS recommends that if no caves or abandoned mines are present and trees ≥ 3 inches cannot be avoided, trees should be removed between October 1 and March 31 to avoid adverse effects to Indiana bats and northern long-eared bats during the brood-rearing months. If seasonal tree cutting is not possible, the USFWS indicated that presence of these bats has already been confirmed in

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the Project vicinity, so any additional summer surveys would not constitute presence/absence surveys for these species.

A coordination letter was submitted 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 August 2023, 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 and the ODNR – Office of Real Estate was received on October 2, 2023 (see Appendix B).

According to the ODNR-DOW, the Project is within the range of the Indiana bat, northern long-eared bat, little brown bat, and tricolored bat, with records of the northern long-eared bat in the Project vicinity. The ODNR recommends cutting between October 1 and March 31, if necessary. No winter hibernacula were observed within the Project Area and no potential hibernaculum were identified within 0.25 mile of the Project Area based on review of karst and mining GIS data as well as topographic quadrangle maps and aerial photography. Approximately one acre of tree clearing is expected to adhere to the seasonal restrictions.

The ODNR-DOW indicated that the Project is within the range of the six federally or state endangered mussel species and ten state endangered or threatened fish species. Due to no in-water work and no perennial streams, these species are not anticipated to be impacted by the Project.

The ODNR-DOW indicated that the Project is within the range of the timber rattlesnake, a state endangered species, the eastern spadefoot toad, a state endangered species, and the midland mud salamander, a state threatened species. Due to the location, the type of habitat within the Project area, and the type of work proposed, ODNR stated that the Project is not likely to impact these species.

The ODNR-DOW also indicated that the Project is within the range of the eastern harvest mouse, a state threatened species. This species relies on early successional habitats dominated by herbaceous vegetation with less than 30% woody material. Further coordination with ODNR was conducted based on the potential presence of this habitat. ODNR stated that suitable habitat could not be ruled out, but project activities would not have an impact on the species. ODNR recommended that suitable habitat be conserved where possible, and the at habitat is not unnecessarily disturbed. A copy of the November 30, 2023 additional coordination is provided in Appendix B.

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 response indicated that unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, or other protected natural areas were not identified within the Project Area (see Appendix B).

FEMA Flood Insurance Rate Maps were consulted to identify any floodplains/flood hazard areas that have been mapped in the Project Area (specifically, map number **39131C0229C**). Based on these maps, no mapped FEMA floodplains are located in the Project area.

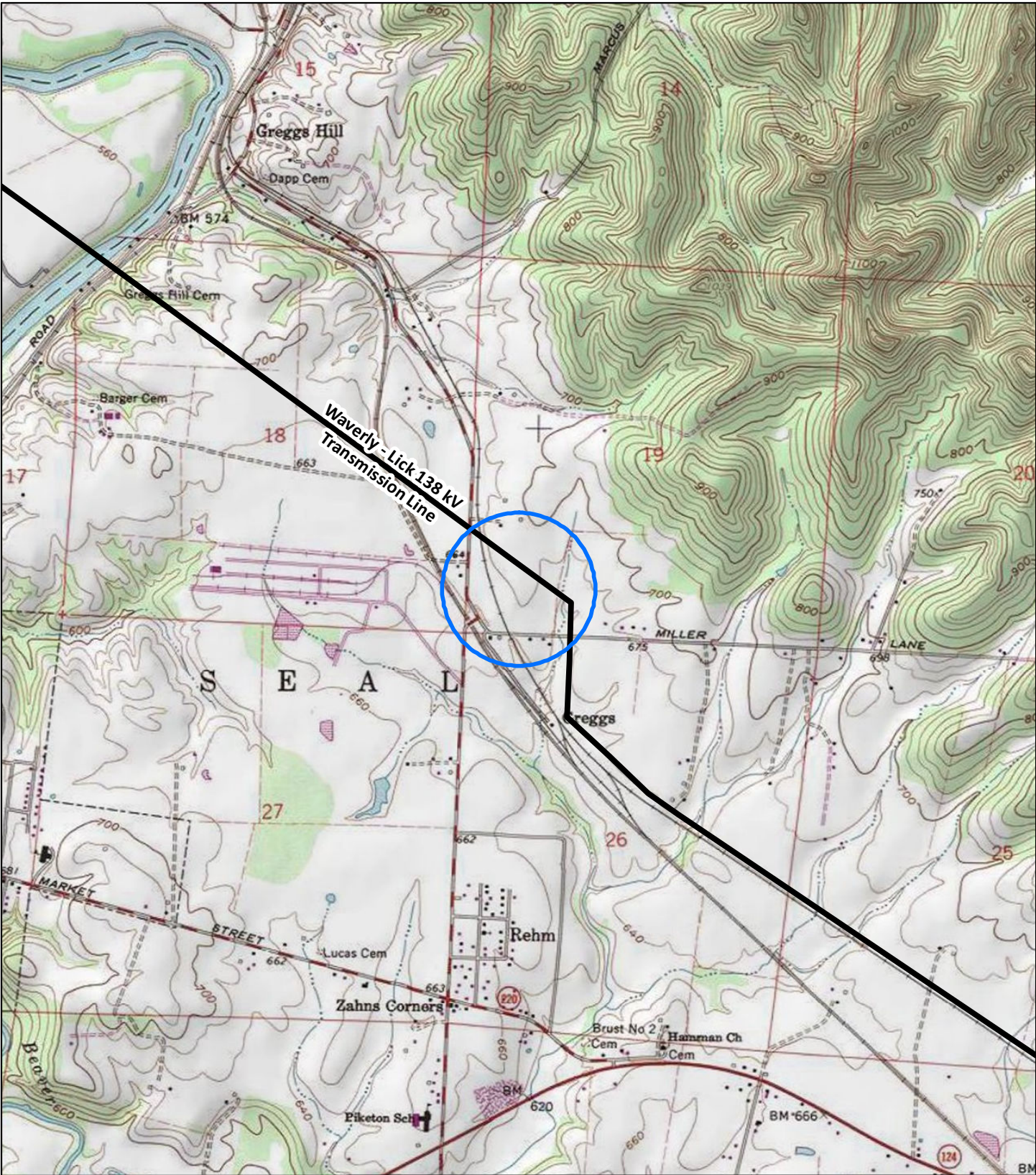
Wetland and stream delineation field surveys were completed within the Project area by the Company's consultant in August 2023. One intermittent stream was identified within the Project area but is not anticipated to be impacted by the Project.

B(10)(g) Unusual Conditions

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

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

Appendix A
Project Maps



Legend:

- Project Area
- Existing Transmission Line

Data Sources: AEP, USGS 7.5' Topographic Quadrangle (Waverly South, Ohio)

Ohio State Plane North NAD 1983



November 08, 2023

PROJECT LOCATION



PIKE COUNTY, OHIO

**FIGURE 1
TOPOGRAPHIC OVERVIEW**

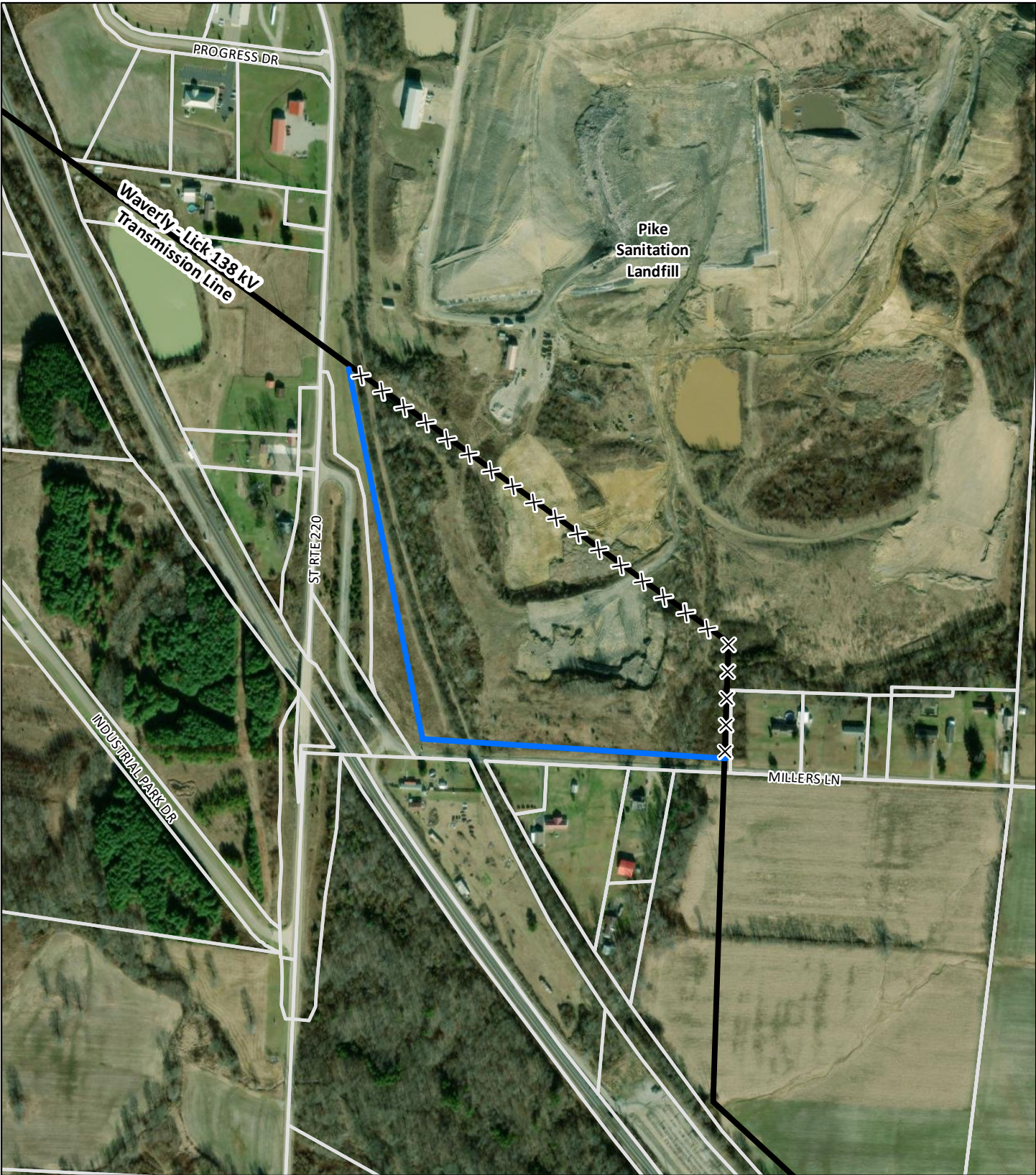


Waverly-Lick 138 kV
Transmission Line
Relocation

0 1,000 2,000 3,000



Feet



Legend:

- Proposed Transmission Line
- × × Proposed Transmission Line Removal
- Existing Transmission Line
- Parcel Boundary

Data Sources: AEP,
ESRI World Imagery, 2020

Ohio State Plane South
NAD 1983



December 03, 2023

PROJECT LOCATION

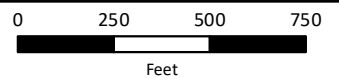


PIKE COUNTY, OHIO

**FIGURE 2
PROJECT AERIAL MAP**



Waverly-Lick 138 kV
Transmission Line
Relocation



Appendix B

Agency Coordination



In reply, refer to
2023-PIK-59416

November 6, 2023

Ryan Weller
Weller & Associates, Inc.
1395 W. Fifth Ave.
Columbus, OH 43212
rweller@wellercrm.com

RE: Waverly-Lick 138kV Relocation Project, Seal Township, Pike County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received October 18, 2023 regarding the proposed Waverly-Lick 138kV Relocation Project, Seal Township, Pike County, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-4 & 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The following comments pertain to the letter report titled *Phase I Cultural Resource Management Investigations for the Waverly-Lick 138kV Relocation Project in Seal Township, Pike County, Ohio* by Seth T. Cooper and Scott McIntosh (Weller & Associates, Inc. 2023).

A literature review, visual inspection, and shovel probe excavation was completed as part of the investigations. No previously identified archaeological sites are located within the project area and no new archaeological sites were identified during survey. The project area was found to be highly disturbed. Our office agrees no additional archaeological survey is needed.

A literature review and field survey were conducted as part of the investigations. A total of seven (7) extant resources fifty years of age or older were identified in the Area of Potential Effects (APE). It is Weller's recommendation that none of the resources are eligible for listing in the National Register of Historic Places (NRHP). Our office agrees with Weller's recommendations of eligibility.

Based on the information provided, we agree the project as proposed will have no effect on historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional historic properties are discovered during implementation of this project. In such a situation, this office should be contacted. If you have any questions, please contact me at (614) 298-2022, or by e-mail at khorrocks@ohiohistory.org. Thank you for your cooperation.

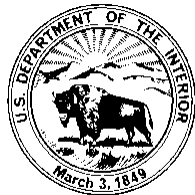
Sincerely,

A handwritten signature in blue ink, appearing to read "Krista Horrocks".

Krista Horrocks, Project Reviews Manager
Resource Protection and Review

RPR Serial No: 1100269

United States Department of the Interior



FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994



August 31, 2023

Project Code: 2023-0118076

Dear Ms. Olivia Speckman:

The U.S. Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found 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 breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥ 3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet 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, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: The proposed project is in the vicinity of one or more confirmed records of Indiana bats and/or northern long-eared bats. Should the proposed project site contain trees ≥ 3 inches dbh, we recommend avoiding tree removal wherever possible. 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 trees ≥ 3 inches dbh cannot be avoided, we recommend removal of any trees ≥ 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared bats. Please note that, because Indiana bat and/or northern long-eared bat presence has already been confirmed in the project vicinity, any additional summer surveys would not constitute presence/absence surveys for these species.

Federally Proposed Species: On September 14, 2022, the Service proposed to list the tricolored bat (*Perimyotis subflavus*) as endangered under the ESA. The bat faces extinction due to the impacts of white-nose syndrome, a deadly disease affecting cave-dwelling bats across the continent. During spring, summer, and fall, this species roosts primarily among leaf clusters of live or recently dead trees, emerging at dusk to hunt for insects over waterways and forest edges. While white-nose syndrome is by far the most serious threat to the tricolored bat, other threats now have an increased significance due to the dramatic decline in the species' population. These threats include disturbance to bats in roosting, foraging, commuting, and over-wintering habitats. Mortality due to collision with wind turbines, especially during migration, has also been documented across their range. Conservation measures for the Indiana bat and northern long-eared bat will also help to conserve the tricolored bat.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then 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 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. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

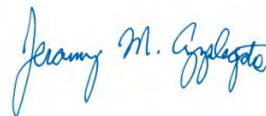
Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army 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. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or 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, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.ohio.gov.

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,



Jeromy Applegate
Acting Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Eileen Wyza, ODNR-DOW



Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate
Tara Paciorek, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6661
Fax: (614) 267-4764

October 2, 2023

Olivia Speckman
V3 Companies
619 North Pennsylvania Street
Indianapolis, Indiana 46204

Re: 23-1009; Waverly-Lick Rebuild

Project: The proposed project involves the relocation of approximately 0.5 miles of transmission line.

Location: The proposed project is located in Seal Township, Pike 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: A review of the Ohio Natural Heritage Database indicates there are no records of state or federally listed plants or animals within one mile of the specified project area. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

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 northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH ≥ 20 if possible.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS “[RANGE-WIDE INDIANA BAT & NORTHERN LONG-EARED BAT SURVEY GUIDELINES](#).” If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species.

Federally Endangered

clubshell (*Pleurobema clava*)
Northern riffleshell (*Epioblasma torulosa rangiana*)
rayed bean (*Villosa fabalis*)

State Endangered

Ohio pigtoe (*Pleurobema cordatum*)
washboard (*Megaloniais nervosa*)
yellow sandshell (*Lampsilis teres*)

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 following listed fish species.

State Endangered

bigeye shiner (*Notropis boops*)
goldeye (*Hiodon alosoides*),
popeye shiner (*Notropis ariommus*),
shoal chub (*Macrhybopsis hyostoma*),
shortnose gar (*Lepisosteus platostomus*),
shovelnose sturgeon (*Scaphirhynchus platyrhynchus*),

State Threatened

blue sucker (*Cycleptus elongatus*),
channel darter (*Percina copelandi*),
paddlefish (*Polyodon spathula*)
river darter (*Percina shumardi*),

The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the timber rattlesnake (*Crotalus 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 within the project area, and the type of work proposed, this project is not likely to impact this species.

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

The project is within the range of the eastern harvest mouse (*Reithrodontomys humulis*), a state threatened species. This species relies on early successional habitats dominated by herbaceous vegetation with less than 30% woody material. The DOW recommends that early successional habitats be preserved where possible. If early successional habitats won't be impacted, this project is not likely to impact this species.

Due to the potential for impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US 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.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator

Aaron Geckle

From: Nathan.Reardon@dnr.ohio.gov
Sent: Thursday, November 30, 2023 10:12 AM
To: Olivia Speckman
Cc: Shannon T Hemmerly; Jeff Moody
Subject: [EXTERNAL] RE: 23-1009; V3 - Waverly-Lick Rebuild ODNR Comments
Attachments: image002.gif

Hi Olivia,

I don't think we can rule out that suitable habitat may be present. However, I don't think that project activities will have an impact on the species. We only recommend that suitable habitat be conserved where possible, and that habitat is not unnecessarily disturbed.

Thank you,
Nathan



Nathan Reardon
Compliance Coordinator
ODNR Division of Wildlife
2045 Morse Road
Columbus, OH 43229
Phone: 614-265-6741
Email: nathan.reardon@dnr.ohio.gov

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Please consider the environment before printing this email.

From: Olivia Speckman <ospeckman@v3co.com>
Sent: Wednesday, November 29, 2023 3:51 PM
To: Reardon, Nathan <Nathan.Reardon@dnr.ohio.gov>
Cc: Shannon T. Hemmerly - AEP (STHEMMERLY@AEP.COM) <STHEMMERLY@AEP.COM>; Jeff Moody <jmoody@v3co.com>
Subject: FW: 23-1009; V3 - Waverly-Lick Rebuild ODNR Comments

Good Afternoon,

I wanted to follow up on the concurrence request below for the AEP Waverly Lick project. Please let me know if you have any questions or need additional information.

Thanks,
Olivia

Olivia D. Speckman | Project Scientist
V3 Companies | C 317.554.7968 | E ospeckman@v3co.com

From: Olivia Speckman
Sent: Friday, November 17, 2023 3:26 PM
To: Nathan.Reardon@dnr.ohio.gov
Cc: Shannon T. Hemmerly - AEP (STHEMMERLY@AEP.COM) <STHEMMERLY@AEP.COM>; Jeff Moody <jmoody@v3co.com>
Subject: FW: 23-1009; V3 - Waverly-Lick Rebuild ODNR Comments

Good Afternoon,

On behalf of AEP, we are reaching out in regard to the Waverly Lick 138kV Rebuild project located in Pike County, Ohio. The attached ODNR comment letter dated October 2, 2023 stated that the project is within range of the state threatened eastern harvest mouse. It was noted that this species relies on early successional habitats dominated by herbaceous vegetation with less than 30% woody material. The project is located in a setting that is highly disturbed by ongoing landfill activities and bordered by active roadways, therefore, the project lacks high quality habitat for the species. Please see the attached KMZ depicting the project area.

Based on this additional project information, we are requesting concurrence from ODNR that habitat is not likely present and impacts to the species are not anticipated. Please let me know if you need anything additional in order to provide a response.

Thank you,
Olivia

Olivia D. Speckman | Project Scientist
V3 Companies | C 317.554.7968 | E ospeckman@v3co.com

From: EnvironmentalReviewRequest@dnr.ohio.gov <EnvironmentalReviewRequest@dnr.ohio.gov>
Sent: Monday, October 2, 2023 1:57 PM
To: Olivia Speckman <ospeckman@v3co.com>
Cc: sthemmerly@aep.com; Jeff Moody <jmoody@v3co.com>
Subject: 23-1009; V3 - Waverly-Lick Rebuild ODNR Comments

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Please see the attached ODNR Environmental Review comment letter for your Environmental Review request.

Any questions regarding the letter should be directed to Mike Pettegrew at mike.pettegrew@dnr.ohio.gov.

Thank you,

Appendix C

Ecological Survey Report

WAVERLY – LICK 138kV REBUILD ECOLOGICAL REPORT



PROJECT SITE:

Northeast of State Road 220 and Miller Lane
Pike County, Ohio

PREPARED FOR:

AEP Ohio Transmission Company, Inc.
8600 Smiths Mill Road
New Albany, Ohio 43054



An **AEP** Company

BOUNDLESS ENERGY™

PREPARED BY:

V3 Companies, Ltd.
619 North Pennsylvania Street
Indianapolis, Indiana 46204
(317) 423-0690

October 2023

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EXECUTIVE SUMMARY

V3 Companies, Ltd. (V3) performed an ecological survey and report for the proposed Waverly – Lick 138kV Rebuild project on 29 August 2023. The project consists of removing two structures, installing six structures to reroute the line, and associated access roads northeast of State Road 220 and Millers Lane in Pike County, Ohio (SITE). V3 reached the following conclusions based on review of available and reasonably ascertainable federal, state, and local resources, and a SITE inspection conducted on the date referenced above.

- Two streams, ST-32F-INT and ST-32-INT, were identified within the SITE area. The streams may qualify as a federally jurisdictional “Water of the U.S.” subject to U.S. Army Corps of Engineers (USACE) and Ohio Environmental Protection Agency (OEPA) authority. However, at the time of this writing, guidance from the agencies to determine the jurisdictional status of these streams is pending.
- Two wetlands, WL-32F-PEM and WL-32A-PEM, were identified within the SITE. WL-32F-PEM appears to have a connection to ST-32F-INT and therefore may be subject to USACE and OEPA authority. WL-32A-PEM does not appear to have a connection to a “Waters of the U.S.” and would likely be considered isolated and subject to OEPA.
- An official species list obtained from the United States Fish and Wildlife Service (USFWS) Information Planning and Consultation (IPaC) website indicated that the SITE is within the range of the federally endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*), the proposed endangered tricolored bat (*Perimyotis subflavus*), and the monarch butterfly (*Danaus plexippus*), a candidate for listing under the Endangered Species Act. V3 did observe potential roost trees on-SITE at the time of the SITE reconnaissance. The USFWS made recommendations to avoid impacts to on-SITE streams and to avoid clearing potential roost trees for the federally listed bat species outside the recommended seasonal clearing dates, 31 March to 1 October. The USFWS stated the due to the project, type, size, and location, the agency does not anticipate adverse effects to any other federally endangered, threatened, or proposed species or proposed or designated critical habitat.
- A review of the Ohio Natural Heritage Database with the Ohio Department of Natural Resources (ODNR) indicates there are no records of state or federally listed plants or animals within one mile of the project area. Additionally, the ODNR Division of Fish and Wildlife stated that the project is within range of 23 threatened or endangered species. The ODNR stated that the project is not likely to impact these species and provided recommendations to avoid and minimize impact to these species and their habitats.



CHAPTER 1 INTRODUCTION

This report has been prepared solely in accordance with an agreement between American Electric Power (“CLIENT”) and V3 Companies (“V3”), Ltd.

The services performed by V3 have been conducted in a manner consistent with the level of quality and skill generally exercised by members of its profession and consulting practices relating to this type of engagement.

This report is solely for the use of CLIENT and was prepared based upon an understanding of CLIENT’s specific objective(s) and based upon information obtained by V3 in furtherance of CLIENT’s specific objective(s). Any reliance of this report by third parties shall be at such third party's sole risk as this report may not contain, or be based upon, sufficient information for purposes of other parties, for their objectives, or for other uses. This report shall only be presented in full and may not be used to support any other objectives than those for CLIENT as set out in the report, except where written approval and consent are expressly provided by CLIENT and V3.

1.1 INTRODUCTION

The purpose of this investigation was to conduct an ecological survey and report of the SITE to evaluate potential land development permitting requirements regarding natural resources. In this report, V3 provides a detailed description of the information reviewed and collected as part of the scope of work for this project. V3 summarizes the jurisdictional framework applicable to this project, provides a desktop review of relevant and publicly available documents, and details information collected during the SITE reconnaissance including a wetlands determination, an evaluation of the potential presence of other natural resources within the SITE boundary, and a discussion of endangered, threatened, and rare (ETR) species and habitat. The Conclusions section summarizes V3’s findings, addresses potential areas of concern and permitting, regulatory, and other relevant issues.

The SITE is located northeast of State Road 220 and Miller Lane in Pike County, Ohio (**Figure 1**).



CHAPTER 2 JURISDICTIONAL RESOURCES

2.1 WETLANDS

Wetlands offer a variety of functions and values that may include, but are not limited to, groundwater recharge/discharge, flood flow alteration, sediment/toxicant retention, and fish and wildlife habitat. Because of the perceived functions and values of wetlands, USACE developed the Wetlands Delineation Manual, (*1987 Manual*)¹ to identify wetlands.

Wetlands are defined in the *1987 Manual* as, “Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”² The *1987 Manual* outlines the protocol for distinguishing wetland areas from “upland” areas. Wetland areas are delineated according to three primary criteria: vegetation, soil, and hydrology. An area is determined to qualify as a wetland if it meets the following “general diagnostic environmental characteristics:”

- Hydrophytic vegetation
- Hydrology
- Hydric Soil

¹ USACE. Waterways Experiment Station. Wetlands Research Program. “Corps of Engineers Wetlands Delineation Manual.” Vicksburg, MS: Environmental Laboratory, 1987



CHAPTER 3 DESKTOP REVIEW

V3 reviewed applicable, readily available, and accessible historical information for the potential presence of wetlands, “Waters of the U.S.,” and other natural resources.

3.1 UNITED STATES GEOLOGICAL SURVEY 7.5-MINUTE QUADRANGLE MAP

A USGS 7.5-Minute Quadrangle map displays contour lines to portray the shape and elevation of the land surface. Quadrangle maps render the three-dimensional changes in elevation of the terrain on a two-dimensional surface. The maps usually portray both manmade and natural topographic features. Although they show lakes, rivers, various surface water drainage trends, vegetation, etc., they typically do not provide the level of detail needed for accurate evaluation of wetlands. However, the existence of these features may suggest the potential presence of wetlands.

The SITE is situated in the Waverly South, Ohio, USGS 7.5-Minute Quadrangle. V3 evaluated the topography and concluded that the SITE elevation ranges from approximately 655 to 695 feet above mean sea level. One intermittent stream is mapped within the eastern portion of the SITE (**Figure 1**).

3.2 NATIONAL WETLANDS INVENTORY MAP

National Wetlands Inventory (NWI) maps were developed to meet a USFWS mandate to map the wetland and deepwater habitats of the U.S. These maps were developed using high altitude aerial photographs and USGS Quadrangle maps as a topographic base. Indicators that exhibited pre-determined wetland characteristics, visible in the photographs, were identified according to a detailed classification system. The NWI map retains some of the detail of the Quadrangle map; however, it is used primarily for demonstration of wetland areas identified by the agency. The maps are accurate to a scale of 1:24,000. In general, the NWI information requires field verification.

NWI data is shown projected over aerial photography in **Figure 2**. One NWI feature, a riverine, intermittent, streambed, seasonally flooded (R4SBC) polygon is mapped within the SITE. The presence of NWI features mapped partially or fully within the SITE area suggests the potential presence of wetlands or other regulated aquatic features on-SITE.

3.3 FLOOD INSURANCE RATE MAP

The Federal Emergency Management Agency (FEMA) was developed in 1979 to reform disaster relief and recovery, civil defense, and to prepare and mitigate for natural hazards. The Mitigation Division of FEMA manages the National Flood Insurance Program which provides guidance on how to lessen the impact of disasters on communities through flood insurance, floodplain management, and flood hazard mapping. Proper floodplain management has the ability to minimize the extent of flooding and flood damage and improve stormwater quality by reducing stormwater velocities and erosion. The one percent annual chance flood (100-year flood) boundary must be kept free of encroachment as the national standard for the program.

V3 reviewed National Flood Hazard Zone data for Pike County, Ohio. No portion of the SITE is mapped within a Flood Zone or Floodway (**Figure 2**).

3.4 UNITED STATES DEPARTMENT OF AGRICULTURE SOIL SURVEY

V3 reviewed the soils mapped on-SITE in the Natural Resource Conservation Service (NRCS) digital soil survey data for Pike County, Ohio. This data is projected over aerial photography, illustrating distinct soil map unit boundaries, in **Figure 3**. Two soil units are classified on-SITE (**Table 1**).



Table 1 : Soil Units On-SITE

Map Soil Symbol	Description	Hydric Soil
Omu1A1	Omulga silt loam, 0 to 2 percent slopes	No
Omu1B1	Omulga silt loam, 2 to 6 percent slopes	No

None of the soil units mapped within the SITE area is considered hydric in Pike County, Ohio. Soils are considered hydric if more than 50 percent of the soil contains hydric components according to the NRCS Web Soil Survey. The presence of hydric soil units within the SITE area suggests appropriate wetland soils are located on-SITE.

3.5 ENDANGERED, THREATENED, AND RARE SPECIES EVALUATION

An official species list obtained from the USFWS IPaC website indicated that the SITE is within the ranges of the federally endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*), the proposed endangered tricolored bat (*Perimyotis subflavus*), and the monarch butterfly (*Danaus plexippus*), a candidate for listing under the Endangered Species Act. The USFWS made recommendations to avoid impacts to on-SITE streams and wetlands, and to avoid clearing potential roost trees for the federally listed bat species outside the recommended seasonal clearing dates, 31 March to 1 October. The USFWS stated the due to the project, type, size, and location, the agency does not anticipate adverse effects to any other federally endangered, threatened, or proposed species or proposed or designated critical habitat.

A review of the Ohio Natural Heritage Database with the ODNR indicates there are no records of state or federally listed species within one mile of the project area. Additionally, the ODNR Division of Fish and Wildlife stated that the project is within range of 23 threatened or endangered species (**Table 2**). The ODNR stated that the project is not likely to impact these species and provided recommendations to avoid and minimize impact to these species and their habitats.

ODNR recommended a desktop habitat assessment followed by a field assessment, if needed, to identify if potential bat hibernacula are present within the Project area. V3 completed a desktop assessment including data on known abandoned or active mines and locations known or suspected of karst geology. The desktop assessment identified no karst features or mine openings within 0.25 mile of the Project area. Further, no suitable bat hibernacula were observed during the field reconnaissance.

Based on the documentation referenced above, additional correspondence with the agencies does not appear to be warranted at this time. If federal permitting or federal financing will be used in future development, additional coordination may be necessary. Copies of agency correspondence can be referenced in **Appendix A**.



Table 2 : ETR Species List

Scientific Name	Common Name	State Listed Status	Federally Listed Status	Typical Habitat Description	Habitat Observed In Survey Area	Avoidance Dates	Agency Comment (Appendix A)	Potential Impacts
Mussels								
<i>Pleurobema clava</i>	Club shell	Endangered	Endangered	Perennial streams	No	N/A	ODNR - Proposed project not likely to impact this species.	No
<i>Villosa fabalis</i>	Rayed bean	Endangered	Endangered	Perennial streams	No	N/A		No
<i>Epioblasma torulosa rangiana</i>	Northern riffleshell	Endangered	Endangered	Perennial streams	No	N/A		No
<i>Megalonaias nervosa</i>	Washboard	Endangered	N/A	Perennial streams	No	N/A		No
<i>Pleurobema cordatum</i>	Ohio pigtoe	Endangered	N/A	Perennial streams	No	N/A		No
<i>Lampsilis teres</i>	Yellow sandshell	Endangered	N/A	Perennial streams	No	N/A		No
Fishes								
<i>Notropis boops</i>	Bigeye shiner	Endangered	N/A	Perennial streams	No	15 March to 30 June	ODNR - Proposed project not likely to impact this species.	No
<i>Hiodon alosoides</i>	Goldeye	Endangered	N/A	Perennial streams	No	15 March to 30 June		No
<i>Notropis ariommus</i>	Popeye shiner	Endangered	N/A	Perennial streams	No	15 March to 30 June		No
<i>Macrhybopsis hyostoma</i>	Shoal club	Endangered	N/A	Perennial streams	No	15 March to 30 June		No
<i>Lepisosteus platostomus</i>	Shortnose gar	Endangered	N/A	Perennial streams	No	15 March to 30 June		No
<i>Scaphirhynchus platyrhynchus</i>	Shovelnose sturgeon	Endangered	N/A	Perennial streams	No	15 March to 30 June		No
<i>Percina copelandi</i>	Channel darter	Threatened	N/A	Perennial streams	No	15 March to 30 June		No
<i>Polyodon spathula</i>	Paddlefish	Threatened	N/A	Perennial streams	No	15 March to 30 June		No
<i>Percina shumardi</i>	River darter	Threatened	N/A	Perennial streams	No	15 March to 30 June		No



Mammals							
<i>Myotis lucifugus</i>	Little brown bat	Endangered	N/A	Predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. These species are also dependent on the forest structure surrounding roost trees	Yes	1 April to 30 September	<p>ODNR/USFWS – Cutting of trees is recommended between 1 October and 31 March. If seasonal tree cutting is not possible, a mist net survey or acoustic survey may be conducted by an approved surveyor between 1 June and 15 August.</p> <p>ODNR - If a habitat assessment finds that potential hibernacula are present within 0.25 mile of the project area, please send this information to Eileen Wyza for project recommendations. If a potential or known hibernaculum is found, the Division of Wildlife (DOW) recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.</p>
<i>Myotis septentrionalis</i>	Northern long-eared bat	Endangered	Threatened		Yes	1 April to 30 September	
<i>Myotis sodalis</i>	Indiana bat	Endangered	Endangered		Yes	1 April to 30 September	
<i>Perimyotis subflavus</i>	Tricolored bat	Endangered	Proposed Endangered		Yes	1 April to 30 September	
No - Impacts are avoided with winter tree clearing. If winter tree clearing is not feasible, presence/absence surveys may be needed.							



<i>Reithrodontomys humulis</i>	Eastern harvest mouse	Threatened	N/A	Early successional habitats dominated by herbaceous vegetation with less than 30% woody material	Yes	N/A	ODNR - The DOW recommends that early successional habitats be preserved where possible.	TBD - If early successional habitats won't be impacted, this project is not likely to impact this species.
Reptiles								
<i>Crotalus horridus</i>	Timber rattlesnake	Endangered	Special Concern	Woodland species, utilizing dry slopes and rocky outcrops. Utilizes sunlit gaps in the canopy for basking and deep rock crevices for overwintering	No	N/A	ODNR – Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.	No
Amphibians								
<i>Scaphiopus holbrookii</i>	Eastern spadefoot toad	Endangered	N/A	Areas of sandy soils associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions	No	N/A	ODNR – Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.	No
<i>Pseudotriton montanus diastictus</i>	Midland mud salamander	Threatened	N/A	Under large, flat stones along shallow, sluggish woodland streams, springs, and seeps ²	No	N/A		No

² Ohio Partners in Amphibian and Reptile Conservation. Accessed October 2023. [Midland Mud Salamander \(*Pseudotriton montanus diastictus*\) - Ohio Herp Atlas – OHPARC](#)



CHAPTER 4 SITE RECONNAISSANCE

4.1 METHODOLOGY

V3 conducted a field investigation at the SITE on 29 August 2023. During this investigation, V3 noted the presumed land use of the SITE and surrounding area and evaluated the SITE for the potential presence of wetlands, “waters of the U.S.,” and natural resources using the findings of the desktop review and field observations. Photographs were taken during the field investigation and are provided in **Appendix B**.

V3 used the Routine Determination Method (RDM) with an established baseline and transects as described in the *1987 Manual* for typical sites over five acres. V3 recorded data from a number of data points (DP) along the transect as a function of diversity of vegetation, property size, soil types, habitat variability, and other SITE features as deemed appropriate by V3. Where evidence of a wetland was suspected, three wetland criteria were applied to determine if the area in question was representative of a wetland using the methodology set forth by USACE. More specifically, V3 visually examined and recorded the dominant vegetation, recorded soil properties such as texture and color using the Munsell Soil Color Chart (Munsell Color Chart), excavated soil pits, and evaluated the primary and secondary hydrologic indicators as discussed in **Section 2.1.2**.

If all three criteria were met, i.e. vegetation, soil properties, and hydrologic indicators, a second DP was established adjacent to the wetland DP in an area outside of the presumed wetland boundary for the purpose of delineating between the wetland and non-wetland areas. Once delineated, V3 continued the RDM to evaluate the remainder of the SITE.

4.2 SITE AND ADJACENT PROPERTY LAND USE

Land use on-SITE is an active landfill and fallow land. Adjacent land use consists of woodland, agricultural land, residential areas, and turf.

4.3 WETLAND SUMMARY

Two wetlands were identified during this investigation based upon the methodology set forth in the *1987 Manual* and the *Eastern Mountains and Piedmont Regional Supplement*. Information that V3 collected at each DP on 29 August 2023 is described in the following section. This information is summarized on the forms provided in **Appendix C**. The Ohio Rapid Assessment Method (ORAM) form for each of the wetlands is included as **Appendix D**. An overall SITE delineation map showing placement of the DPs is included as **Figure 4**.

4.3.1 Wetland WL-32F-PEM – (± 0.05 -acre PEM Delineated)

Wetland WL-34F-PEM was situated northwest of an existing structure and consisted of approximately 0.05 acres of PEM. WL-32F-PEM appears to continue north of the study area. WL-32F-PEM appears to have a connection to ST-32F-INT and therefore may be subject to USACE and OEPA authority. WL-32F-PEM has an ORAM score of 22 and is classified as a Category 1 wetland (**Appendix D**).

DP-WL-32F

This DP was collected in the southern portion of WL-32F-PEM. All three criteria were met which qualifies this area as a wetland. The dominant vegetation for each stratum present consisted of narrow-leaf cattail (*Typha angustifolia*, OBL, 30%), devil’s pitchfork (*Bidens frondosa*, FACW, 20%), and common boneset (*Eupatorium perfoliatum*, FACW, 20%). The soil profile met the depleted matrix (F3) indicator for hydric soil. Evidence of wetland hydrology included a high water table (A2) and saturation (A3) at



the surface, oxidized rhizospheres on living roots (C3), geomorphic position (D2), and FAC-neutral test (D5).

DP-UPL-32F

This DP was collected in the upland area adjacent to DP-WL-32F. This area met the soil criteria but did not meet any other wetland criteria. Since all three criteria were not met, this area does not qualify as a wetland. The dominant vegetation for each stratum present consisted of tall false rye grass (*Schedonorus arundinaceus*, FACU, 60%) and Japanese honeysuckle (*Lonicera japonica*, FACU, 25%). The soil profile met the depleted matrix (F3) indicator for hydric soil. No indicators of wetland hydrology were observed.

4.3.2 Wetland WL-32A-PEM – (±0.24-acre PEM Delineated)

Wetland WL-32A-PEM is situated in the northwestern portion of the SITE and consisted of approximately 0.24 acres of palustrine emergent wetland (PEM). Wetland WL-32A-PEM appears to continue north and south of the study area. Wetland WL-32A-PEM did not appear to have a hydrologic connection with any federally jurisdictional “Waters of the U.S.,” and as such would likely be considered isolated and subject to regulation by OEPA. WL-34A-PEM has an ORAM score of 29 and is classified as a Category 1 wetland (Appendix D).

DP-WL-32A

This DP was collected in the southern portion of Wetland WL-32A-PEM. All three criteria were met which qualifies this area as a wetland. The dominant vegetation for each stratum present consisted of rice cut grass (*Leersia oryzoides*, OBL, 70%) and large barnyard grass (*Echinochloa crus-galli*, FACW, 20%). The soil profile met the depleted matrix (F3) indicator for hydric soil. Evidence of wetland hydrology included oxidized rhizospheres on living roots (C3), geomorphic position (D2), and FAC-neutral test (D5).

DP-UPL-32A

This DP was collected in the upland area adjacent to DP-WL-32A. This area did not meet any wetland criteria. Since all three criteria were not met, this area does not qualify as a wetland. The dominant vegetation for each stratum present consisted of false boneset (*Brickellia eupatorioides*, Canadian horseweed (*Erigeron canadensis*, FACU, 30%), and devil’s pitchfork (FACW, 25%). No indicators of hydric soils were observed. No indicators of wetland hydrology were observed.

Table 3: Delineated Wetlands Identified within the Survey Area

Wetland ID	Location		Isolated?	Habitat Type	Delineated Area (acre)*	ORAM		Proposed Impacts	
	Latitude	Longitude				Score	Category	Temporary Matting Area (acre)	Permanent Impact Area (acre)
WL-32A-PEM	39.078065°	-82.959724°	Yes	PEM	±0.24	29	1	TBD	TBD
WL-32F-PEM	39.076581°	-82.956825°	No	PEM	±0.05	22	1	TBD	TBD

*Continues off-SITE



4.4 DATA POINT SUMMARY

Following is a description of the information collected at each DP during the 29 August 2023 field investigation. The data points named in reference to the nearest structure. Information that was collected at each DP is summarized on the forms provided in **Appendix C**. DP placement is shown in **Figure 4**.

DP 32B

This DP was collected south of Structure 32B. This area did not meet any criteria. Since all three criteria were not met, this area does not qualify as a wetland. The dominant vegetation for each stratum present consisted of red clover (*Trifolium pratense*, FACU, 30%), yellow bristle grass (*Setaria pumila*, FAC, 30%), and English plantain (*Plantago lanceolata*, FACU, 25%). No indicators of hydric soils were observed. No indicators of wetland hydrology were observed.

DP 32C

This DP was collected south of Structure 32C. This area did not meet any criteria. Since all three criteria were not met, this area does not qualify as a wetland. The dominant vegetation for each stratum present consisted of Kentucky blue grass (*Poa pratensis*, FACU, 30%), purple dead nettle (*Lamium purpureum*, UPL, 20%), and English plantain (*Plantago lanceolata*, UPL, 20%). No indicators of hydric soils were observed. No indicators of wetland hydrology were observed.

DP 32D

This DP was collected east of Structure 32D. This area did not meet any criteria. Since all three criteria were not met, this area does not qualify as a wetland. The dominant vegetation for each stratum present consisted of multiflora rose (*Rosa multiflora*, FACU, 30%), black raspberry (*Rubus occidentalis*, UPL, 15%), tall false rye grass (FACU, 30%), and Canadian goldenrod (*Solidago canadensis*, FACU, 20%). No indicators of hydric soils were observed. No indicators of wetland hydrology were observed.

DP 32E

This DP was collected east of Structure 32E. This area did not meet any criteria. Since all three criteria were not met, this area does not qualify as a wetland. The dominant vegetation for each stratum present consisted of box-elder (*Acer negundo*, FAC, 15%), shagbark hickory (*Carya ovata*, FACU, 10%), autumn olive (*Elaeagnus umbellata*, UPL, 30%), European privet (*Ligustrum vulgare*, FACU, 20%), and Johnson grass (*Sorghum halepense*, FACU, 40%). No indicators of hydric soils were observed. No indicators of wetland hydrology were observed.

DP 32F

This DP was collected north of Structure 32F. This area did not meet any criteria. Since all three criteria were not met, this area does not qualify as a wetland. The dominant vegetation for each stratum present consisted of autumn olive (UPL, 10%), black raspberry (UPL, 5%), Canadian thistle (*Cirsium arvense*, FACU, 30%), American pokeweed (*Phytolacca americana*, FACU, 20%), and Canadian goldenrod (FACU, 20%). No indicators of hydric soils were observed. No indicators of wetland hydrology were observed.

DP AR1

This DP was collected in the southern portion of the access road. This area did not meet any criteria. Since all three criteria were not met, this area does not qualify as a wetland. The dominant vegetation for each stratum present consisted of American sycamore (*Platanus occidentalis*, FACW, 15%), autumn olive (UPL, 30%), northern catalpa (*Catalpa speciosa*, FAC, 10%), tall false rye grass (FACU, 25%), alfalfa



(*Medicago sativa*, UPL), and red clover (FACU, 20%). No indicators of hydric soils were observed. No indicators of wetland hydrology were observed.

DP AR2

This DP was collected in the eastern portion of the access road. This area did not meet any criteria. Since all three criteria were not met, this area does not qualify as a wetland. The dominant vegetation for each stratum present consisted of red clover (FACU, 30%), yellow bristlegrass (*Setaria pumila*, FAC, 30%), and tall false rye grass (FACU, 20%). No indicators of hydric soils were observed. No indicators of wetland hydrology were observed.

4.5 DRAINAGE FEATURES, STREAMS, AND OTHER POTENTIAL “WATERS OF THE U.S.”

Two streams were identified during this investigation using the methods described in Chapter 2. Information that V3 collected at each feature on 29 August 2023 is described in the following section. An overall SITE delineation map is included as **Figure 4**. The Primary Headwater Habitat Evaluation Index (HHEI) for the streams is included as **Appendix E**.

4.5.1 ST-32F-INT – (±112-linear feet Delineated, Intermittent)

ST-32F-INT is located west of structure 32F and in the northern portion of the access road and consisted of approximately 112 linear feet of intermittent stream within the SITE area. The substrate of ST-32F-INT consisted of cobble, gravel, sand, clay, and silt. ST-32F-INT has an HHEI score of 65 and is classified as a Class II Primary Headwater. ST-32F-INT exhibited an OHWM and may qualify as federally jurisdictional “Waters of the U.S.” subject to USACE and OEPA authority.

4.5.2 ST-32-INT – (±140-linear feet Delineated, Intermittent)

ST-32-INT is located north of structure 32F and consisted of approximately 140 linear feet of intermittent stream within the SITE area. The substrate of ST-32-INT consisted of gravel, sand, clay, and silt. ST-32-INT has an HHEI score of 49 and is classified as a Class II Primary Headwater. ST-32-INT exhibited an OHWM and may qualify as federally jurisdictional “Waters of the U.S.” subject to USACE and OEPA authority.

Table 4: Delineated Stream Identified Within the Survey Area

Feature	Location		Stream Type	Delineated Length (LF)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			OEPA 401 Eligibility
	Latitude	Longitude					Method	Score	Category / Rating / OAC Designation	
ST-32F-INT	39.075281°	-82.957168°	Intermittent	±112 LF	10	5	HHEI	65	Class II Primary Headwater	Eligible
ST-32-INT	39.076016°	-82.956562°	Intermittent	±140 LF	9	3	HHEI	49	Class II Primary Headwater	Eligible



CHAPTER 5 CONCLUSIONS

On 29 August 2023, V3 performed an ecological survey and report for the SITE situated in Pike County, Ohio.

Two streams, ST-32F-INT and ST-32-INT, were identified within the SITE area. The streams may qualify as a federally jurisdictional “Water of the U.S.” subject to USACE and OEPA authority. However, at the time of this writing, guidance from the agencies to determine the jurisdictional status of these streams is pending.

Two wetlands, WL-32F-PEM and WL-32A-PEM, were identified within the SITE. WL-32F-PEM appears to have a connection to ST-32F-INT and may be subject to USACE and OEPA authority. WL-32A-PEM does not appear to have a connection to a “Waters of the U.S.” and should be considered isolated and subject to OEPA.

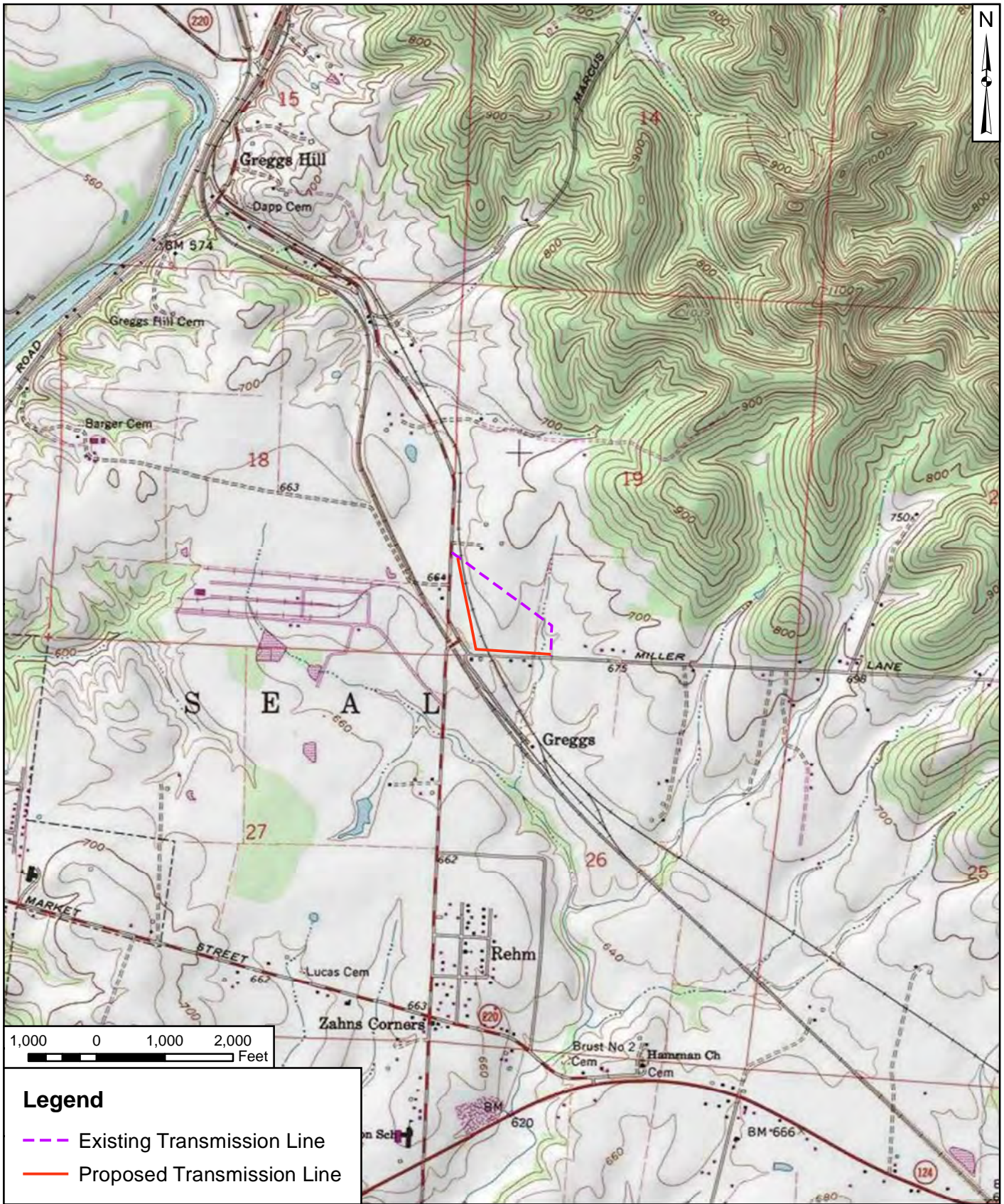
An official species list obtained from the USFWS IPaC website indicated that the SITE is within the ranges of the federally endangered Indiana bat and northern long-eared bat (*Myotis septentrionalis*), the proposed endangered tricolored bat, and the monarch butterfly, a candidate for listing under the Endangered Species Act. V3 did observe potential roost trees on-SITE at the time of the SITE reconnaissance. The USFWS made recommendations to avoid impacts to on-SITE streams and to avoid clearing potential roost trees for the federally listed bat species outside the recommended seasonal clearing dates, 31 March to 1 October. The USFWS stated the due to the project, type, size, and location, the agency does not anticipate adverse effects to any other federally endangered, threatened, or proposed species or proposed or designated critical habitat.

A review of the Ohio Natural Heritage Database with the ODNR indicates there are no records of state or federally listed species within one mile of the project area. Additionally, the ODNR Division of Fish and Wildlife stated that the project is within range of 23 threatened or endangered species. The ODNR stated that the project is not likely to impact these species and provided recommendations to avoid and minimize impact to these species and their habitats.



FIGURES

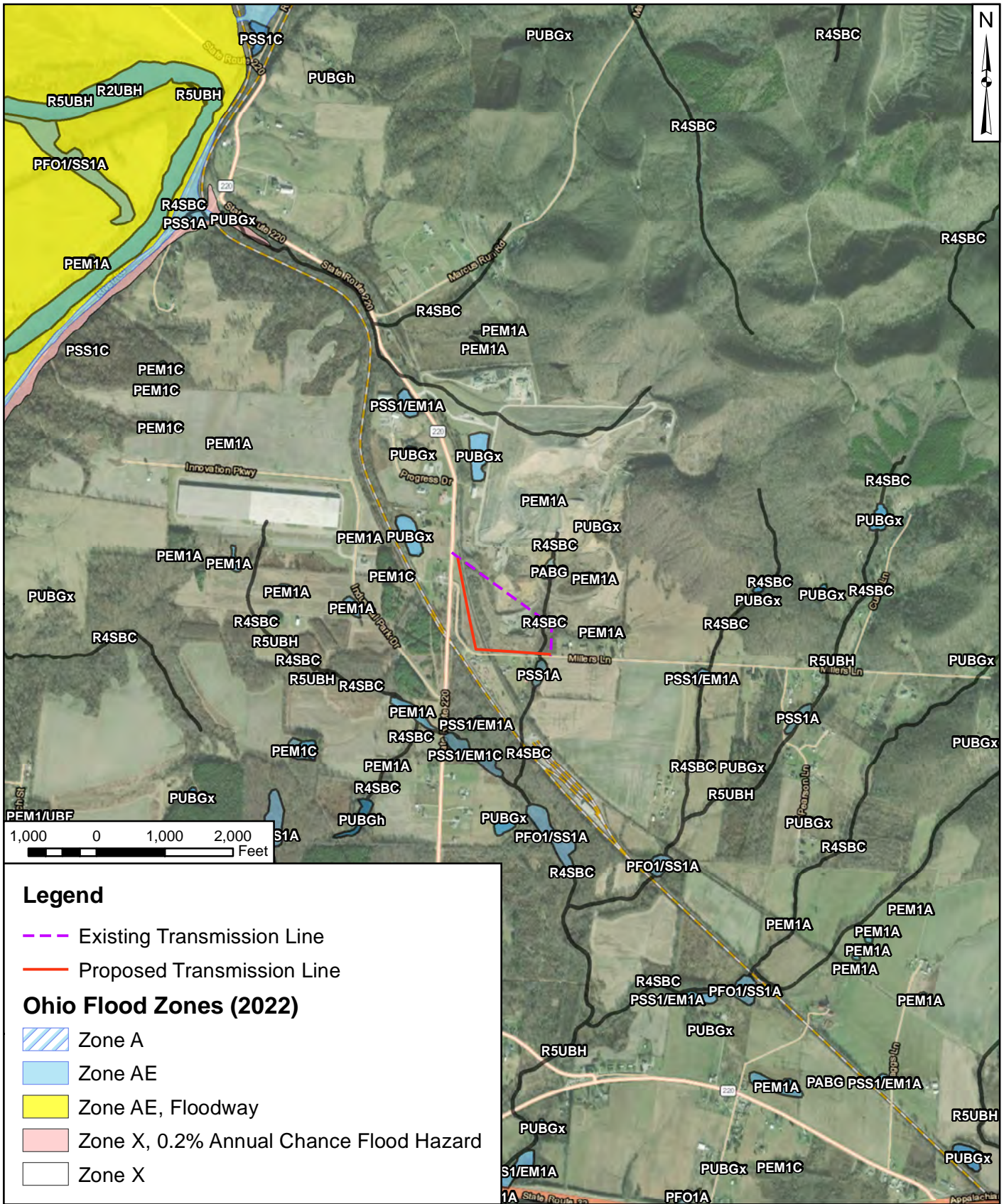




Legend

- Existing Transmission Line
- Proposed Transmission Line

 <p>619 N. Pennsylvania Street Indianapolis, IN 46204 317.423.0690 phone www.v3co.com</p>	PROJECT NO.: 210180.169	CLIENT: American Electric Power 8600 Smiths Mill Road New Albany, Ohio 43054	TITLE: USGS TOPOGRAPHIC MAP	
	CREATED BY: ODS	DATE: 09/07/2023	BASE LAYER: USGS Topographic Map Waverly South, Ohio Quadrangle	SITE: Waverly - Lick 138kV Rebuild Pike County, Ohio
Visio, Vertere, Virtute... "The Vision To Transform with Excellence"	SCALE: See Scale Bar			



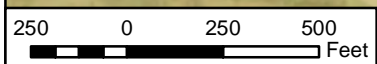
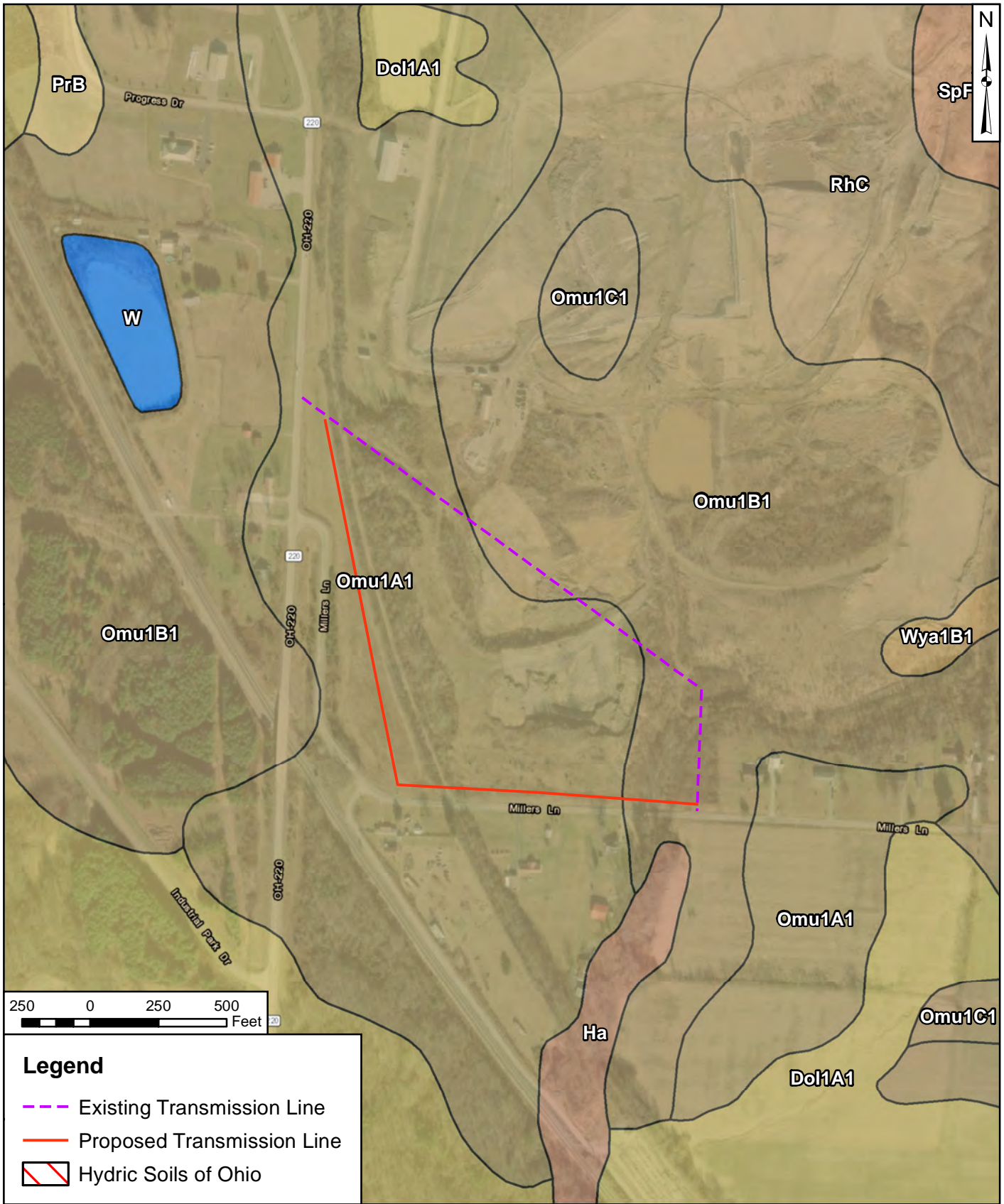
Legend

- Existing Transmission Line
- Proposed Transmission Line


Ohio Flood Zones (2022)

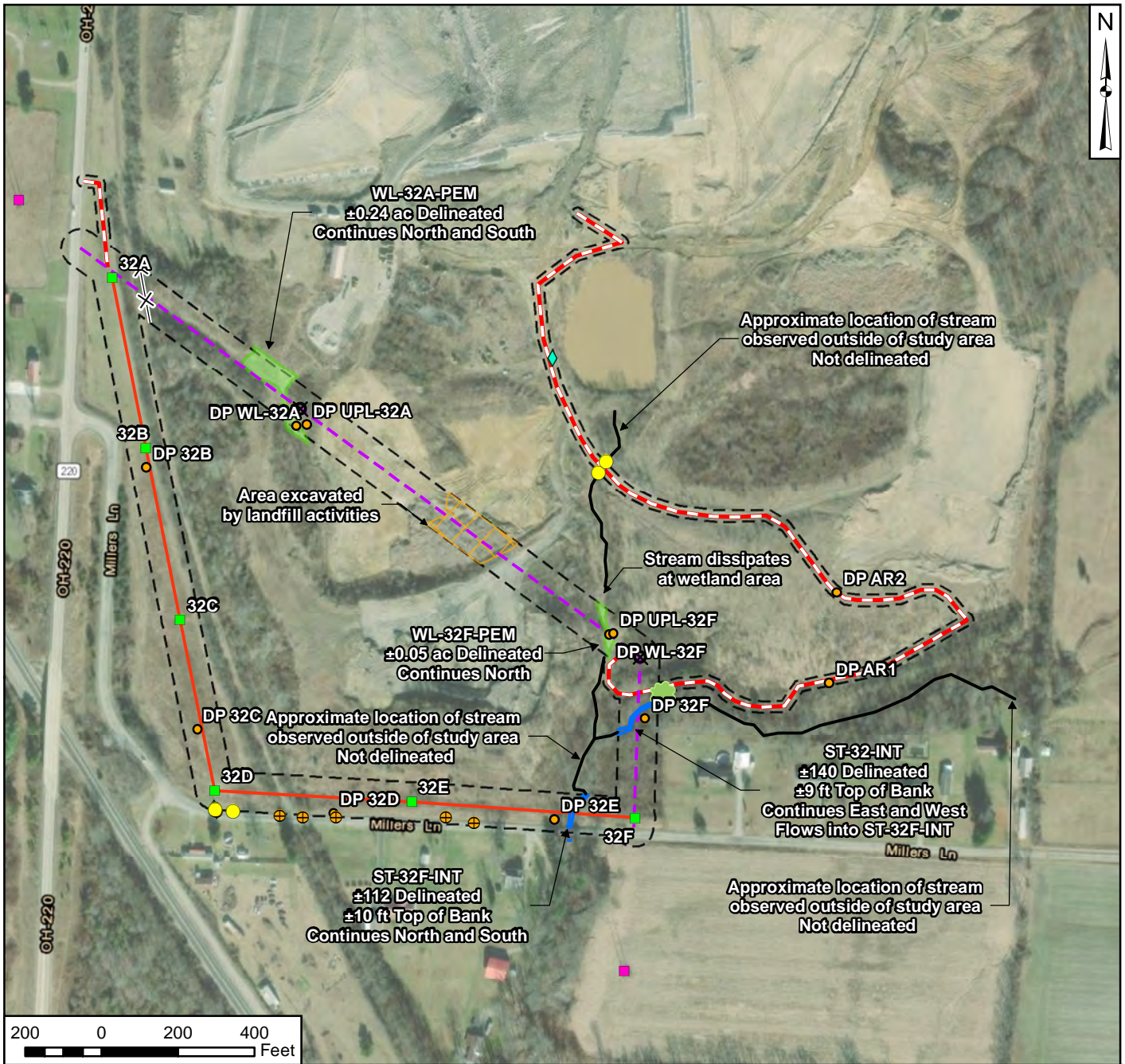
- Zone A
- Zone AE
- Zone AE, Floodway
- Zone X, 0.2% Annual Chance Flood Hazard
- Zone X

<p>619 N. Pennsylvania Street Indianapolis, IN 46204 317.423.0690 phone www.v3co.com</p>	PROJECT NO.:	210180.169	CLIENT:	NATIONAL WETLAND INVENTORY (NWI) & FLOOD ZONES OF PIKE COUNTY, OH MAP		
	CREATED BY:	ODS	AMERICAN ELECTRIC POWER 8600 SMITHS MILL ROAD NEW ALBANY, OHIO 43054			
DATE:	10/04/2023	BASE LAYER:	Aerial Imagery (2020)		TITLE:	
SCALE:	See Scale Bar			SITE:	Waverly - Lick 138kV Rebuild Pike County, Ohio	
Visio, Vertere, Virtute... "The Vision To Transform with Excellence"					FIGURE:	2



Legend	
	Existing Transmission Line
	Proposed Transmission Line
	Hydric Soils of Ohio

 619 N. Pennsylvania Street Indianapolis, IN 46204 317.423.0690 phone www.v3co.com	PROJECT NO.: 210180.169	CLIENT: American Electric Power 8600 Smiths Mill Road New Albany, Ohio 43054	TITLE: SOIL SURVEY OF PIKE COUNTY, OH MAP	
	CREATED BY: ODS	DATE: 09/07/2023	BASE LAYER: Aerial Imagery (2020)	SITE: Waverly - Lick 138kV Rebuild Pike County, Ohio
Visio, Vertere, Virtute... "The Vision To Transform with Excellence"	SCALE: See Scale Bar			



Legend

- ✕ Existing Structure to be Removed
- Existing Structure to Remain
- Proposed Structure
- ⊕ Existing Distribution Structure
- ◆ Existing Utility
- Existing Culvert
- Data Point
- ✿ Potential Roost Tree
- Existing Transmission Line
- Proposed Transmission Line
- Intermittent Stream - Field Delineated
- Approx. Stream - Not Delineated
- ✕ Existing Fence
- Existing Bridge
- Access Road
- Emergent Wetland
- ▨ Excavation Area
- Environmental Study Area

<p>619 N. Pennsylvania Street Indianapolis, IN 46204 317.423.0690 phone www.v3co.com</p>	PROJECT NO.: 210180.169	CLIENT: American Electric Power 8600 Smiths Mill Road New Albany, Ohio 43054	DELINEATION MAP	
	CREATED BY: ODS	DATE: 09/07/2023	BASE LAYER: Aerial Imagery (2020)	TITLE: Waverly - Lick 138kV Rebuild Pike County, Ohio
Visio, Vertere, Virtute... "The Vision To Transform with Excellence"	SCALE: See Scale Bar			

APPENDIX A

ETR SPECIES CORRESPONDENCE





United States Department of the Interior



FISH AND WILDLIFE SERVICE
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, OH 43230-8355
Phone: (614) 416-8993 Fax: (614) 416-8994

In Reply Refer To:
Project Code: 2023-0118076
Project Name: Waverly - Lick Rebuild

August 17, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Ohio Ecological Services Field Office

4625 Morse Road, Suite 104

Columbus, OH 43230-8355

(614) 416-8993

PROJECT SUMMARY

Project Code: 2023-0118076
Project Name: Waverly - Lick Rebuild
Project Type: Transmission Line - Maintenance/Modification - Above Ground
Project Description: The project involves the relocation of 2 structures with 0.5 miles of rebuild located northeast of State Road 220 and Millers Lane in Pike County, Ohio.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.0772726,-82.95803231546668,14z>



Counties: Pike County, Ohio

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

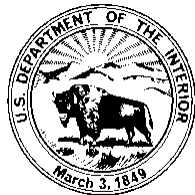
THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: V3 Companies
Name: Olivia Speckman
Address: 619 N Pennsylvania Street
City: Indianapolis
State: IN
Zip: 46204
Email: ospeckman@v3co.com
Phone: 3174230690

United States Department of the Interior



FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994



August 31, 2023

Project Code: 2023-0118076

Dear Ms. Olivia Speckman:

The U.S. Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found 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 breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥ 3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet 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, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: The proposed project is in the vicinity of one or more confirmed records of Indiana bats and/or northern long-eared bats. Should the proposed project site contain trees ≥ 3 inches dbh, we recommend avoiding tree removal wherever possible. 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 trees ≥ 3 inches dbh cannot be avoided, we recommend removal of any trees ≥ 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared bats. Please note that, because Indiana bat and/or northern long-eared bat presence has already been confirmed in the project vicinity, any additional summer surveys would not constitute presence/absence surveys for these species.

Federally Proposed Species: On September 14, 2022, the Service proposed to list the tricolored bat (*Perimyotis subflavus*) as endangered under the ESA. The bat faces extinction due to the impacts of white-nose syndrome, a deadly disease affecting cave-dwelling bats across the continent. During spring, summer, and fall, this species roosts primarily among leaf clusters of live or recently dead trees, emerging at dusk to hunt for insects over waterways and forest edges. While white-nose syndrome is by far the most serious threat to the tricolored bat, other threats now have an increased significance due to the dramatic decline in the species' population. These threats include disturbance to bats in roosting, foraging, commuting, and over-wintering habitats. Mortality due to collision with wind turbines, especially during migration, has also been documented across their range. Conservation measures for the Indiana bat and northern long-eared bat will also help to conserve the tricolored bat.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then 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 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. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

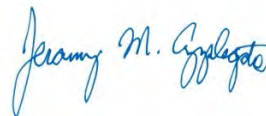
Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army 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. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or 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, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.ohio.gov.

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

Sincerely,

A handwritten signature in blue ink that reads "Jeromy M. Applegate". The signature is written in a cursive style with a large initial 'J'.

Jeromy Applegate
Acting Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Eileen Wyza, ODNR-DOW



Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate
Tara Paciorek, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6661
Fax: (614) 267-4764

October 2, 2023

Olivia Speckman
V3 Companies
619 North Pennsylvania Street
Indianapolis, Indiana 46204

Re: 23-1009; Waverly-Lick Rebuild

Project: The proposed project involves the relocation of approximately 0.5 miles of transmission line.

Location: The proposed project is located in Seal Township, Pike 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: A review of the Ohio Natural Heritage Database indicates there are no records of state or federally listed plants or animals within one mile of the specified project area. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

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 northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH ≥ 20 if possible.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS “[RANGE-WIDE INDIANA BAT & NORTHERN LONG-EARED BAT SURVEY GUIDELINES](#).” If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species.

Federally Endangered

clubshell (*Pleurobema clava*)
Northern riffleshell (*Epioblasma torulosa rangiana*)
rayed bean (*Villosa fabalis*)

State Endangered

Ohio pigtoe (*Pleurobema cordatum*)
washboard (*Megaloniais nervosa*)
yellow sandshell (*Lampsilis teres*)

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 following listed fish species.

State Endangered

bigeye shiner (*Notropis boops*)
goldeye (*Hiodon alosoides*),
popeye shiner (*Notropis ariommus*),
shoal chub (*Macrhybopsis hyostoma*),
shortnose gar (*Lepisosteus platostomus*),
shovelnose sturgeon (*Scaphirhynchus platyrhynchus*),

State Threatened

blue sucker (*Cycleptus elongatus*),
channel darter (*Percina copelandi*),
paddlefish (*Polyodon spathula*)
river darter (*Percina shumardi*),

The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the timber rattlesnake (*Crotalus 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 within the project area, and the type of work proposed, this project is not likely to impact this species.

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

The project is within the range of the eastern harvest mouse (*Reithrodontomys humulis*), a state threatened species. This species relies on early successional habitats dominated by herbaceous vegetation with less than 30% woody material. The DOW recommends that early successional habitats be preserved where possible. If early successional habitats won't be impacted, this project is not likely to impact this species.

Due to the potential for impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US 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.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator

APPENDIX B

SITE PHOTOGRAPHS



Photo: 1

WL-32A-PEM

Direction of View:

West

Date:

29 August 2023



Photo: 2

WL-32A-PEM

Direction of View:

Southeast

Date:

29 August 2023



Photo: 3

WL-32A-PEM

Direction of View:

Southwest

Date:

29 August 2023



Photo: 4

WL-32A-PEM

Direction of View:

North

Date:

29 August 2023



Photo: 5

DP UPL-32A

Direction of View:

East

Date:

29 August 2023



Photo: 6

DP UPL-32A

Direction of View:

Northwest

Date:

29 August 2023



Photo: 7

WL-32F-PEM

Direction of View:

West

Date:

29 August 2023



Photo: 8

WL-32F-PEM

Direction of View:

South

Date:

29 August 2023



Photo: 9

WL-32F-PEM

Direction of View:

West

Date:

29 August 2023



Photo: 10

WL-32F-PEM

Direction of View:

North

Date:

29 August 2023



Photo: 11

DP UPL-32F

Direction of View:

East

Date:

29 August 2023



Photo: 12

DP UPL-32F

Direction of View:

Northwest

Date:

29 August 2023



Photo: 13

ST-32F-INT off Millers Road

Direction of View:

East

Date:

29 August 2023



Photo: 14

ST-32F-INT off Millers Road

Direction of View:

West

Date:

29 August 2023



Photo: 15

ST-32F-INT off Access Road

Direction of View:

North

Date:

29 August 2023



Photo: 16

ST-32F-INT off Access
Road

Direction of View:

North

Date:

29 August 2023



Photo: 17

ST-32-INT

Direction of View:

Southwest

Date:

29 August 2023



Photo: 18

ST-32-INT

Direction of View:

West

Date:

29 August 2023



Photo: 19

DP 32B

Direction of View:

South

Date:

29 August 2023



Photo: 20

DP 32C

Direction of View:

North

Date:

29 August 2023



Photo: 21

DP 32D

Direction of View:

East

Date:

29 August 2023



Photo: 22

DP 32E

Direction of View:

West

Date:

29 August 2023



Photo: 23

DP 32F

Direction of View:

South

Date:

29 August 2023



Photo: 24

Excavation Area

Direction of View:

North

Date:

29 August 2023



Photo: 25

Access Road

Direction of View:

South

Date:

29 August 2023



Photo: 26

Access Road

Direction of View:

East

Date:

29 August 2023



APPENDIX C

DATA FORMS



WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: WL-32F
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform: Terraces Local Relief: Convex
 Slope (%): 1-3 Lat: _____ Long: _____ Datum: NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 2 to 6 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed
 Vegetation _____, Soil _____ or Hydrology _____ naturally problematic
 Are Normal Circumstances Present? Yes X No _____

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the DP within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	

Remarks: **Meets all wetland criteria**

VEGETATION

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of dominant species that are OBL, FACW, or FAC: <u>3</u> Total number of dominant species across all strata: <u>3</u> Percent of dominant species that are OBL, FACW, or FAC: <u>100.00</u>
1. _____	<u>30'</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		<u>0</u>	<u>Total Cover</u>		
Shrub Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet Total % cover of: OBL species <u>50</u> x <u>1</u> = <u>50</u> FACW species <u>50</u> x <u>2</u> = <u>100</u> FAC species <u>0</u> x <u>3</u> = <u>0</u> FACU species <u>0</u> x <u>4</u> = <u>0</u> UPL species <u>0</u> x <u>5</u> = <u>0</u> Total <u>100</u> = <u>150</u> Prevalence Index: <u>1.50</u>
1. _____	<u>15'</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		<u>0</u>	<u>Total Cover</u>		
Herb Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Veg. x Dominance Test is >50% x Prevalence Index is <3.0* Morphological Adaptations* Problematic Hydrophytic Vegetation* *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes <u>x</u> No _____
1. <u>Typha angustifolia</u>	<u>5'</u>	<u>30</u>	<u>Y</u>	<u>OBL 1</u>	
2. <u>Bidens frondosa</u>		<u>20</u>	<u>Y</u>	<u>FACW 2</u>	
3. <u>Eupatorium perfoliatum</u>		<u>20</u>	<u>Y</u>	<u>FACW 2</u>	
4. <u>Carex lurida</u>		<u>15</u>	<u>N</u>	<u>OBL 1</u>	
5. <u>Scirpus cyperinus</u>		<u>10</u>	<u>N</u>	<u>FACW 2</u>	
6. <u>Lycopus americanus</u>		<u>5</u>	<u>N</u>	<u>OBL 1</u>	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
_____		<u>100</u>	<u>Total Cover</u>		
Woody Vine Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	
1. _____	<u>15'</u>	_____	_____	_____	
2. _____		_____	_____	_____	
_____		<u>0</u>	<u>Total Cover</u>		

Remarks: _____

SOIL

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

Depth (inches)	Matrix			Redox Features					
	Color	%		Color	%	Type*	Loc**	Texture	Remarks
0-18	10YR 5/2	95		10YR 5/6	5	C	M	SiCL	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

_____ Histosol (A1)	_____ Sandy Mucky Mineral (S1)	_____ Redox Dark Surface (F6)	
_____ Histic Epipedon (A2)	_____ 5cm Mucky Peat or Peat	_____ Depleted Dark Surface (F7)	
_____ Black Histic (A3)	_____ Sandy Gleyed Matrix (S4)	_____ Redox Depressions (F8)	
_____ Hydrogen Sulfide (A4)	_____ Sandy Redox (S5)	Indicators for Problematic Hydric Soils	
_____ Stratified Layers (A5)	_____ Stripped Matrix (S6)		_____ Coast Prairie Redox (A16)
_____ 2 cm Muck (A10)	_____ Loamy Mucky Mineral (F1)		_____ Iron-Manganese Masses (F12)
_____ Depleted Below Dark Surface (A11)	_____ Loamy Gleyed Matrix (F2)		_____ Very Shallow Dark Surface (F12)
_____ Thick Dark Surface (A12)	<u>X</u> Depleted Matrix (F3)		_____ Other

Restrictive Layer (if observed): Type: _____ Depth (Inches): _____ **Hydric Soil Present?** Yes X No _____

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (check all that apply)			Secondary Indicators		
_____ Surface Water (A1)	_____ Water Stained Leaves (B9)	_____ Surface Soil Cracks (B6)			
<u>X</u> High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Drainage Patterns (B10)			
<u>X</u> Saturation (A3)	_____ True Aquatic Plants (B14)	_____ Dry-Season Water Table (C2)			
_____ Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)			
_____ Sediment Deposits (B2)	<u>X</u> Oxidized Rhizospheres on Living Roots	_____ Saturation Visible on Aerial Imagery (C9)			
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)			
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soil (C6)	<u>X</u> Geomorphic Position (D2)			
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	<u>X</u> FAC-Neutral Test (D5)			
_____ Inundation Visible on Aerial Imagery (B7)	_____ Gauge or Well Data (D9)				
_____ Sparsely Vegetated Concave Surface	_____ Other				

Field Observations: Surface Water Present? Yes _____ No X Depth (inches) _____
 Water Table Present? Yes X No _____ Depth (inches) 0"
 Saturation Present? Yes X No _____ Depth (inches) 0" **Hydrology Indicators Present?** Yes X No _____

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

Remarks: _____

WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: UPL-34F
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform: Terraces Local Relief: Convex
 Slope (%): 1-3 Lat: _____ Long: _____ Datum: NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 2 to 6 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed
 Vegetation _____, Soil _____ or Hydrology _____ naturally problematic
 Are Normal Circumstances Present? Yes X No _____

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the DP within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes _____ No <u>X</u>	

Remarks: **Does not meet all wetland criteria**

VEGETATION

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of dominant species that are OBL, FACW, or FAC: <u>0</u> Total number of dominant species across all strata: <u>2</u> Percent of dominant species that are OBL, FACW, or FAC: <u>0.00</u> Prevalence Index Worksheet Total % cover of: OBL species <u>0</u> x <u>1</u> = <u>0</u> FACW species <u>0</u> x <u>2</u> = <u>0</u> FAC species <u>0</u> x <u>3</u> = <u>0</u> FACU species <u>95</u> x <u>4</u> = <u>380</u> UPL species <u>5</u> x <u>5</u> = <u>25</u> Total <u>100</u> = <u>405</u> Prevalence Index: <u>4.05</u>
1. _____	<u>30'</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		<u>0</u>	Total Cover	_____	
Shrub Stratum Plot size: <u>15'</u>					
1. _____		_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		<u>0</u>	Total Cover	_____	
Herb Stratum Plot size: <u>5'</u>					
1. <u>Schedonorus arundinaceus</u>		<u>60</u>	<u>Y</u>	<u>FACU</u> <u>4</u>	
2. <u>Lonicera japonica</u>		<u>25</u>	<u>Y</u>	<u>FACU</u> <u>4</u>	
3. <u>Cirsium arvense</u>		<u>5</u>	<u>N</u>	<u>FACU</u> <u>4</u>	
4. <u>Ambrosia artemisiifolia</u>		<u>5</u>	<u>N</u>	<u>FACU</u> <u>4</u>	
5. <u>Lamium purpureum</u>		<u>5</u>	<u>N</u>	<u>UPL</u> <u>5</u>	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
		<u>100</u>	Total Cover	_____	
Woody Vine Stratum Plot size: <u>15'</u>					
1. _____		_____	_____	_____	
2. _____		_____	_____	_____	
		<u>0</u>	Total Cover	_____	

Remarks: _____

SOIL

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

Depth (inches)	Matrix		Redox Features						
	Color	%	Color	%	Type*	Loc**	Texture	Remarks	
0-4	10YR 5/2	100						SiCL	
4-18	10YR 5/2	95	10YR 5/6	5	C		M	SiCL	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

_____ Histosol (A1)	_____ Sandy Mucky Mineral (S1)	_____ Redox Dark Surface (F6)
_____ Histic Epipedon (A2)	_____ 5cm Mucky Peat or Peat	_____ Depleted Dark Surface (F7)
_____ Black Histic (A3)	_____ Sandy Gleyed Matrix (S4)	_____ Redox Depressions (F8)
_____ Hydrogen Sulfide (A4)	_____ Sandy Redox (S5)	Indicators for Problematic Hydric Soils
_____ Stratified Layers (A5)	_____ Stripped Matrix (S6)	_____ Coast Prairie Redox (A16)
_____ 2 cm Muck (A10)	_____ Loamy Mucky Mineral (F1)	_____ Iron-Manganese Masses (F12)
_____ Depleted Below Dark Surface (A11)	_____ Loamy Gleyed Matrix (F2)	_____ Very Shallow Dark Surface (F12)
_____ Thick Dark Surface (A12)	<u>X</u> Depleted Matrix (F3)	_____ Other

Restrictive Layer (if observed): Type: _____ Depth (Inches): _____ **Hydric Soil Present?** Yes X No _____

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (check all that apply)				Secondary Indicators		
_____ Surface Water (A1)	_____ Water Stained Leaves (B9)	_____ Surface Soil Cracks (B6)				
_____ High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Drainage Patterns (B10)				
_____ Saturation (A3)	_____ True Aquatic Plants (B14)	_____ Dry-Season Water Table (C2)				
_____ Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)				
_____ Sediment Deposits (B2)	_____ Oxidized Rhizospheres on Living Roots	_____ Saturation Visible on Aerial Imagery (C9)				
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)				
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soil (C6)	_____ Geomorphic Position (D2)				
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	_____ FAC-Neutral Test (D5)				
_____ Inundation Visible on Aerial Imagery (B7)	_____ Gauge or Well Data (D9)					
_____ Sparsely Vegetated Concave Surface	_____ Other					

Field Observations: Surface Water Present? Yes _____ No X Depth (inches) _____
 Water Table Present? Yes _____ No X Depth (inches) _____
 Saturation Present? Yes _____ No X Depth (inches) _____ **Hydrology Indicators Present?** Yes _____ No X

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

Remarks: _____

WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: WL-32A
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform: Terraces Local Relief: Convex
 Slope (%): 1-3 Lat. _____ Long. _____ Datum: NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 0 to 2 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed
 Vegetation _____, Soil _____ or Hydrology _____ naturally problematic
 Are Normal Circumstances Present? Yes X No _____

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the DP within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	

Remarks: **Meets all wetland criteria**

VEGETATION

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of dominant species that are OBL, FACW, or FAC: <u>2</u> Total number of dominant species across all strata: <u>2</u> Percent of dominant species that are OBL, FACW, or FAC: <u>100.00</u>
1. _____	<u>30'</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		<u>0</u>	<u>Total Cover</u>	_____	
Shrub Stratum Plot size: <u>15'</u>					
1. _____		_____	_____	_____	Prevalence Index Worksheet Total % cover of: OBL species <u>80</u> x <u>1</u> = <u>80</u> FACW species <u>0</u> x <u>2</u> = <u>0</u> FAC species <u>20</u> x <u>3</u> = <u>60</u> FACU species <u>0</u> x <u>4</u> = <u>0</u> UPL species <u>0</u> x <u>5</u> = <u>0</u> Total <u>100</u> = <u>140</u> Prevalence Index: <u>1.40</u>
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		<u>0</u>	<u>Total Cover</u>	_____	
Herb Stratum Plot size: <u>5'</u>					
1. <u>Leersia oryzoides</u>		<u>70</u>	<u>Y</u>	<u>OBL</u> <u>1</u>	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Veg. x Dominance Test is >50% x Prevalence Index is <3.0* Morphological Adaptations* Problematic Hydrophytic Vegetation* *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes <u>x</u> No _____
2. <u>Echinochloa crus-galli</u>		<u>20</u>	<u>Y</u>	<u>FAC</u> <u>3</u>	
3. <u>Typha angustifolia</u>		<u>10</u>	<u>N</u>	<u>OBL</u> <u>1</u>	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		<u>100</u>	<u>Total Cover</u>	_____	
Woody Vine Stratum Plot size: <u>15'</u>					
1. _____		_____	_____	_____	
2. _____		<u>0</u>	<u>Total Cover</u>	_____	

Remarks: _____

SOIL

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

Depth (inches)	Matrix		Redox Features						Texture	Remarks
	Color	%	Color	%	Type*	Loc**				
0-2	10YR 4/2	100						SiCL		
2-18	10YR 4/2	95	7.5YR 4/6	5	C		M	SiCL		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

_____ Histosol (A1)	_____ Sandy Mucky Mineral (S1)	_____ Redox Dark Surface (F6)	
_____ Histic Epipedon (A2)	_____ 5cm Mucky Peat or Peat	_____ Depleted Dark Surface (F7)	
_____ Black Histic (A3)	_____ Sandy Gleyed Matrix (S4)	_____ Redox Depressions (F8)	
_____ Hydrogen Sulfide (A4)	_____ Sandy Redox (S5)	Indicators for Problematic Hydric Soils	
_____ Stratified Layers (A5)	_____ Stripped Matrix (S6)		_____ Coast Prairie Redox (A16)
_____ 2 cm Muck (A10)	_____ Loamy Mucky Mineral (F1)		_____ Iron-Manganese Masses (F12)
_____ Depleted Below Dark Surface (A11)	_____ Loamy Gleyed Matrix (F2)		_____ Very Shallow Dark Surface (F12)
_____ Thick Dark Surface (A12)	<u>X</u> Depleted Matrix (F3)		_____ Other

Restrictive Layer (if observed): Type: _____ Depth (Inches): _____ **Hydric Soil Present?** Yes X No _____

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (check all that apply)		Secondary Indicators	
_____ Surface Water (A1)	_____ Water Stained Leaves (B9)	_____ Surface Soil Cracks (B6)	
_____ High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Drainage Patterns (B10)	
_____ Saturation (A3)	_____ True Aquatic Plants (B14)	_____ Dry-Season Water Table (C2)	
_____ Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)	
_____ Sediment Deposits (B2)	<u>X</u> Oxidized Rhizospheres on Living Roots	_____ Saturation Visible on Aerial Imagery (C9)	
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)	
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soil (C6)	<u>X</u> Geomorphic Position (D2)	
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	<u>X</u> FAC-Neutral Test (D5)	
_____ Inundation Visible on Aerial Imagery (B7)	_____ Gauge or Well Data (D9)		
_____ Sparsely Vegetated Concave Surface	_____ Other		

Field Observations: Surface Water Present? Yes _____ No X Depth (inches) _____
 Water Table Present? Yes _____ No X Depth (inches) _____
 Saturation Present? Yes _____ No X Depth (inches) _____

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

Remarks: _____

WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: UPL-32A
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform: Terraces Local Relief: Convex
 Slope (%): 1-3 Lat. _____ Long. _____ Datum: NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 0 to 2 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed
 Vegetation _____, Soil _____ or Hydrology _____ naturally problematic
 Are Normal Circumstances Present? Yes X No _____

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the DP within a Wetland?
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Does not meet all wetland criteria	Yes No X

VEGETATION

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of dominant species that are OBL, FACW, or FAC: <u>1</u> Total number of dominant species across all strata: <u>3</u> Percent of dominant species that are OBL, FACW, or FAC: <u>33.33</u>
1. _____	<u>30'</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		<u>0</u>	<u>Total Cover</u>		
Shrub Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet Total % cover of: OBL species <u>5</u> x <u>1</u> = <u>5</u> FACW species <u>25</u> x <u>2</u> = <u>50</u> FAC species <u>3</u> x <u>3</u> = <u>9</u> FACU species <u>35</u> x <u>4</u> = <u>140</u> UPL species <u>35</u> x <u>5</u> = <u>175</u> Total <u>103</u> = <u>379</u> Prevalence Index: <u>3.68</u>
1. <u>Sambucus nigra</u>	<u>15'</u>	<u>3</u>	<u>N</u>	<u>FAC 3</u>	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		<u>3</u>	<u>Total Cover</u>		
Herb Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Veg. <u>_____</u> Dominance Test is >50% <u>_____</u> Prevalence Index is <3.0* <u>_____</u> Morphological Adaptations* <u>_____</u> Problematic Hydrophytic Vegetation* <u>_____</u> *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes <u>_____</u> No <u>_____</u> X <u>_____</u>
1. <u>Brickellia eupatorioides</u>	<u>5'</u>	<u>35</u>	<u>Y</u>	<u>UPL 5</u>	
2. <u>Erigeron canadensis</u>		<u>30</u>	<u>Y</u>	<u>FACU 4</u>	
3. <u>Bidens frondosa</u>		<u>25</u>	<u>Y</u>	<u>FACW 2</u>	
4. <u>Apocynum cannabinum</u>		<u>5</u>	<u>N</u>	<u>FACU 4</u>	
5. <u>Lycopus americanus</u>		<u>5</u>	<u>N</u>	<u>OBL 1</u>	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		<u>100</u>	<u>Total Cover</u>		
Woody Vine Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	
1. _____	<u>15'</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		<u>0</u>	<u>Total Cover</u>		
Remarks:					

SOIL

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

Depth (inches)	Matrix		Redox Features					
	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-18	10YR 4/2	100					SiCL	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

_____ Histosol (A1)	_____ Sandy Mucky Mineral (S1)	_____ Redox Dark Surface (F6)	
_____ Histic Epipedon (A2)	_____ 5cm Mucky Peat or Peat	_____ Depleted Dark Surface (F7)	
_____ Black Histic (A3)	_____ Sandy Gleyed Matrix (S4)	_____ Redox Depressions (F8)	
_____ Hydrogen Sulfide (A4)	_____ Sandy Redox (S5)	Indicators for Problematic Hydric Soils	
_____ Stratified Layers (A5)	_____ Stripped Matrix (S6)		_____ Coast Prairie Redox (A16)
_____ 2 cm Muck (A10)	_____ Loamy Mucky Mineral (F1)		_____ Iron-Manganese Masses (F12)
_____ Depleted Below Dark Surface (A11)	_____ Loamy Gleyed Matrix (F2)		_____ Very Shallow Dark Surface (F12)
_____ Thick Dark Surface (A12)	_____ Depleted Matrix (F3)		_____ Other

Restrictive Layer (if observed): Type: _____ Depth (Inches): _____

Hydric Soil Present? Yes _____ No _____ X _____

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (check all that apply)				Secondary Indicators		
_____ Surface Water (A1)	_____ Water Stained Leaves (B9)	_____ Surface Soil Cracks (B6)				
_____ High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Drainage Patterns (B10)				
_____ Saturation (A3)	_____ True Aquatic Plants (B14)	_____ Dry-Season Water Table (C2)				
_____ Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)				
_____ Sediment Deposits (B2)	_____ Oxidized Rhizospheres on Living Roots	_____ Saturation Visible on Aerial Imagery (C9)				
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)				
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soil (C6)	_____ Geomorphic Position (D2)				
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	_____ FAC-Neutral Test (D5)				
_____ Inundation Visible on Aerial Imagery (B7)	_____ Gauge or Well Data (D9)					
_____ Sparsely Vegetated Concave Surface	_____ Other					
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches) _____	Water Table Present? Yes _____ No <u>X</u> Depth (inches) _____	Saturation Present? Yes _____ No <u>X</u> Depth (inches) _____	Hydrology Indicators Present? Yes <u>_____</u> No <u>_____</u> X <u>_____</u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:						
Remarks: _____						

WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: DP 32B
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform Terraces Local Relief Convex
 Slope (%): 1-3 Lat. 39.077774 Long. -82.961085 Datum NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 0 to 2 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed
 Vegetation _____, Soil _____ or Hydrology _____ naturally problematic
 Are Normal Circumstances Present? Yes X No _____

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the DP within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	

Remarks: **Does not meet all wetland criteria**

VEGETATION

Tree Stratum	Plot size: 30'	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of dominant species that are OBL, FACW, or FAC: <u>1</u> Total number of dominant species across all strata: <u>3</u> Percent of dominant species that are OBL, FACW, or FAC: <u>33.33</u> Prevalence Index Worksheet Total % cover of: OBL species <u>0</u> x <u>1</u> = <u>0</u> FACW species <u>0</u> x <u>2</u> = <u>0</u> FAC species <u>30</u> x <u>3</u> = <u>90</u> FACU species <u>30</u> x <u>4</u> = <u>120</u> UPL species <u>40</u> x <u>5</u> = <u>200</u> Total <u>100</u> = <u>410</u> Prevalence Index: <u>4.10</u>
1. _____					
2. _____					
3. _____					
4. _____					
5. _____		<u>0</u>	Total Cover		
Shrub Stratum	Plot size: 15'				Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Veg. <u>_____</u> Dominance Test is >50% <u>_____</u> Prevalence Index is <3.0* <u>_____</u> Morphological Adaptations* <u>_____</u> Problematic Hydrophytic Vegetation* <u>_____</u> *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes _____ No <u>x</u>
1. _____					
2. _____					
3. _____					
4. _____					
5. _____		<u>0</u>	Total Cover		
Herb Stratum	Plot size: 5'				*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes _____ No <u>x</u>
1. <u>Trifolium pratense</u>		<u>30</u>	<u>Y</u>	<u>FACU</u> <u>4</u>	
2. <u>Setaria pumila</u>		<u>30</u>	<u>Y</u>	<u>FAC</u> <u>3</u>	
3. <u>Plantago lanceolata</u>		<u>25</u>	<u>Y</u>	<u>UPL</u> <u>5</u>	
4. <u>Datura stramonium</u>		<u>5</u>	<u>N</u>	<u>UPL</u> <u>5</u>	
5. <u>Daucus carota</u>		<u>5</u>	<u>N</u>	<u>UPL</u> <u>5</u>	
6. <u>Lamium purpureum</u>		<u>5</u>	<u>N</u>	<u>UPL</u> <u>5</u>	
7. _____					
8. _____					
		<u>100</u>	Total Cover		
Woody Vine Stratum	Plot size: 15'				*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes _____ No <u>x</u>
1. _____					
2. _____					
		<u>0</u>	Total Cover		

Remarks: _____

SOIL

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

Depth (inches)	Matrix		Redox Features					
	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-18	10YR 5/2	100					SIL	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

_____ Histosol (A1)	_____ Sandy Mucky Mineral (S1)	_____ Redox Dark Surface (F6)	
_____ Histic Epipedon (A2)	_____ 5cm Mucky Peat or Peat	_____ Depleted Dark Surface (F7)	
_____ Black Histic (A3)	_____ Sandy Gleyed Matrix (S4)	_____ Redox Depressions (F8)	
_____ Hydrogen Sulfide (A4)	_____ Sandy Redox (S5)	Indicators for Problematic Hydric Soils	
_____ Stratified Layers (A5)	_____ Stripped Matrix (S6)		_____ Coast Prairie Redox (A16)
_____ 2 cm Muck (A10)	_____ Loamy Mucky Mineral (F1)		_____ Iron-Manganese Masses (F12)
_____ Depleted Below Dark Surface (A11)	_____ Loamy Gleyed Matrix (F2)		_____ Very Shallow Dark Surface (F12)
_____ Thick Dark Surface (A12)	_____ Depleted Matrix (F3)		_____ Other

Restrictive Layer (if observed): Type: _____	Hydric Soil Present? Yes _____ No <u>X</u>
Depth (Inches): _____	

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (check all that apply)				Secondary Indicators		
_____ Surface Water (A1)	_____ Water Stained Leaves (B9)	_____ Surface Soil Cracks (B6)				
_____ High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Drainage Patterns (B10)				
_____ Saturation (A3)	_____ True Aquatic Plants (B14)	_____ Dry-Season Water Table (C2)				
_____ Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)				
_____ Sediment Deposits (B2)	_____ Oxidized Rhizospheres on Living Roots	_____ Saturation Visible on Aerial Imagery (C9)				
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)				
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soil (C6)	_____ Geomorphic Position (D2)				
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	_____ FAC-Neutral Test (D5)				
_____ Inundation Visible on Aerial Imagery (B7)	_____ Gauge or Well Data (D9)					
_____ Sparsely Vegetated Concave Surface	_____ Other					

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches) _____	Hydrology Indicators Present? Yes _____ No <u>X</u>
Water Table Present? Yes _____ No <u>X</u> Depth (inches) _____	
Saturation Present? Yes _____ No <u>X</u> Depth (inches) _____	

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

Remarks: _____

WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: DP 32C
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform Terraces Local Relief Convex
 Slope (%): 1-3 Lat. 39.075902 Long. -82.960614 Datum NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 0 to 2 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed
 Vegetation _____, Soil _____ or Hydrology _____ naturally problematic
 Are Normal Circumstances Present? Yes X No _____

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the DP within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	

Remarks: **Does not meet all wetland criteria**

VEGETATION

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of dominant species that are OBL, FACW, or FAC: <u>0</u> Total number of dominant species across all strata: <u>3</u> Percent of dominant species that are OBL, FACW, or FAC: <u>0.00</u> Prevalence Index Worksheet Total % cover of: OBL species <u>0</u> x <u>1</u> = <u>0</u> FACW species <u>0</u> x <u>2</u> = <u>0</u> FAC species <u>10</u> x <u>3</u> = <u>30</u> FACU species <u>45</u> x <u>4</u> = <u>180</u> UPL species <u>45</u> x <u>5</u> = <u>225</u> Total <u>100</u> = <u>435</u> Prevalence Index: <u>4.35</u> Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Veg. _____ Dominance Test is >50% _____ Prevalence Index is <3.0* _____ Morphological Adaptations* _____ Problematic Hydrophytic Vegetation* _____ *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes _____ No <u>x</u>
1. _____	30'				
2. _____					
3. _____					
4. _____					
5. _____		0	Total Cover		
Shrub Stratum Plot size: 15'					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____		0	Total Cover		
Herb Stratum Plot size: 5'					
1. <u>Poa pratensis</u>		30	Y	FACU 4	
2. <u>Lamium purpureum</u>		20	Y	UPL 5	
3. <u>Plantago lanceolata</u>		20	Y	UPL 5	
4. <u>Dipsacus fullonum</u>		10	N	FACU 4	
5. <u>Setaria pumila</u>		10	N	FAC 3	
6. <u>Daucus carota</u>		5	N	UPL 5	
7. <u>Trifolium pratense</u>		5	N	FACU 4	
8. _____					
		100	Total Cover		
Woody Vine Stratum Plot size: 15'					
1. _____					
2. _____					
		0	Total Cover		

Remarks: _____

SOIL

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

Depth (inches)	Matrix		Redox Features					
	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-18	10YR 5/2	100					SIL	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

_____ Histosol (A1)	_____ Sandy Mucky Mineral (S1)	_____ Redox Dark Surface (F6)	
_____ Histic Epipedon (A2)	_____ 5cm Mucky Peat or Peat	_____ Depleted Dark Surface (F7)	
_____ Black Histic (A3)	_____ Sandy Gleyed Matrix (S4)	_____ Redox Depressions (F8)	
_____ Hydrogen Sulfide (A4)	_____ Sandy Redox (S5)	Indicators for Problematic Hydric Soils	
_____ Stratified Layers (A5)	_____ Stripped Matrix (S6)		_____ Coast Prairie Redox (A16)
_____ 2 cm Muck (A10)	_____ Loamy Mucky Mineral (F1)		_____ Iron-Manganese Masses (F12)
_____ Depleted Below Dark Surface (A11)	_____ Loamy Gleyed Matrix (F2)		_____ Very Shallow Dark Surface (F12)
_____ Thick Dark Surface (A12)	_____ Depleted Matrix (F3)		_____ Other

Restrictive Layer (if observed): Type: _____	Hydric Soil Present? Yes _____ No _____ X _____
Depth (Inches): _____	

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (check all that apply)				Secondary Indicators		
_____ Surface Water (A1)	_____ Water Stained Leaves (B9)	_____ Surface Soil Cracks (B6)				
_____ High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Drainage Patterns (B10)				
_____ Saturation (A3)	_____ True Aquatic Plants (B14)	_____ Dry-Season Water Table (C2)				
_____ Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)				
_____ Sediment Deposits (B2)	_____ Oxidized Rhizospheres on Living Roots	_____ Saturation Visible on Aerial Imagery (C9)				
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)				
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soil (C6)	_____ Geomorphic Position (D2)				
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	_____ FAC-Neutral Test (D5)				
_____ Inundation Visible on Aerial Imagery (B7)	_____ Gauge or Well Data (D9)					
_____ Sparsely Vegetated Concave Surface	_____ Other					

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches) _____	Hydrology Indicators Present? Yes _____ No _____ X _____
Water Table Present? Yes _____ No <u>X</u> Depth (inches) _____	
Saturation Present? Yes _____ No <u>X</u> Depth (inches) _____	

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

Remarks: _____

WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: DP 32D
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform Terraces Local Relief Convex
 Slope (%): 1-3 Lat. 39.075292 Long. -82.959353 Datum NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 0 to 2 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed
 Vegetation _____, Soil _____ or Hydrology _____ naturally problematic
 Are Normal Circumstances Present? Yes X No _____

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the DP within a Wetland?
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Yes No X	

Remarks: **Does not meet all wetland criteria**

VEGETATION

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of dominant species that are OBL, FACW, or FAC: <u>0</u> Total number of dominant species across all strata: <u>4</u> Percent of dominant species that are OBL, FACW, or FAC: <u>0.00</u>
1. <u>Acer rubrum</u>	<u>30'</u>	<u>5</u>	<u>N</u>	<u>FAC 3</u>	
2. _____					
3. _____					
4. _____					
<u>5</u> Total Cover					
Shrub Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet Total % cover of: OBL species <u>5</u> x <u>1</u> = <u>5</u> FACW species <u>5</u> x <u>2</u> = <u>10</u> FAC species <u>10</u> x <u>3</u> = <u>30</u> FACU species <u>105</u> x <u>4</u> = <u>420</u> UPL species <u>15</u> x <u>5</u> = <u>75</u> Total <u>140</u> = <u>540</u> Prevalence Index: <u>3.86</u>
1. <u>Rosa multiflora</u>	<u>15'</u>	<u>30</u>	<u>Y</u>	<u>FACU 4</u>	
2. <u>Rubus occidentalis</u>		<u>15</u>	<u>Y</u>	<u>UPL 5</u>	
3. <u>Ribes cynosbati</u>		<u>5</u>	<u>N</u>	<u>FACU 4</u>	
4. _____					
<u>50</u> Total Cover					
Herb Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Veg. <u>_____</u> Dominance Test is >50% <u>_____</u> Prevalence Index is <3.0* <u>_____</u> Morphological Adaptations* <u>_____</u> Problematic Hydrophytic Vegetation* <u>_____</u> *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes <u>_____</u> No <u>_____</u> X <u>_____</u>
1. <u>Schedonorus arundinaceus</u>	<u>5'</u>	<u>30</u>	<u>Y</u>	<u>FACU 4</u>	
2. <u>Solidago canadensis</u>		<u>20</u>	<u>Y</u>	<u>FACU 4</u>	
3. <u>Symphyotrichum ericoides</u>		<u>15</u>	<u>N</u>	<u>FACU 4</u>	
4. <u>Calystegia sepium</u>		<u>5</u>	<u>N</u>	<u>FAC 3</u>	
5. <u>Oxalis corniculata</u>		<u>5</u>	<u>N</u>	<u>FACU 4</u>	
6. <u>Lycopus americanus</u>		<u>5</u>	<u>N</u>	<u>OBL 1</u>	
7. <u>Oxoclea sensibilis</u>		<u>5</u>	<u>N</u>	<u>FACW 2</u>	
8. _____					
<u>85</u> Total Cover					
Woody Vine Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	
1. _____	<u>15'</u>				
2. _____					
<u>0</u> Total Cover					

Remarks: _____

SOIL

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

Depth (inches)	Matrix		Redox Features					
	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-18	10YR 5/2	100					SIL	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

_____ Histosol (A1)	_____ Sandy Mucky Mineral (S1)	_____ Redox Dark Surface (F6)	
_____ Histic Epipedon (A2)	_____ 5cm Mucky Peat or Peat	_____ Depleted Dark Surface (F7)	
_____ Black Histic (A3)	_____ Sandy Gleyed Matrix (S4)	_____ Redox Depressions (F8)	
_____ Hydrogen Sulfide (A4)	_____ Sandy Redox (S5)	Indicators for Problematic Hydric Soils	
_____ Stratified Layers (A5)	_____ Stripped Matrix (S6)		_____ Coast Prairie Redox (A16)
_____ 2 cm Muck (A10)	_____ Loamy Mucky Mineral (F1)		_____ Iron-Manganese Masses (F12)
_____ Depleted Below Dark Surface (A11)	_____ Loamy Gleyed Matrix (F2)		_____ Very Shallow Dark Surface (F12)
_____ Thick Dark Surface (A12)	_____ Depleted Matrix (F3)		_____ Other

Restrictive Layer (if observed): Type: _____	Hydric Soil Present?	Yes No X
Depth (Inches): _____		

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (check all that apply)		Secondary Indicators
_____ Surface Water (A1)	_____ Water Stained Leaves (B9)	_____ Surface Soil Cracks (B6)
_____ High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Drainage Patterns (B10)
_____ Saturation (A3)	_____ True Aquatic Plants (B14)	_____ Dry-Season Water Table (C2)
_____ Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)
_____ Sediment Deposits (B2)	_____ Oxidized Rhizospheres on Living Roots	_____ Saturation Visible on Aerial Imagery (C9)
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soil (C6)	_____ Geomorphic Position (D2)
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	_____ FAC-Neutral Test (D5)
_____ Inundation Visible on Aerial Imagery (B7)	_____ Gauge or Well Data (D9)	
_____ Sparsely Vegetated Concave Surface	_____ Other	

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches) _____	Hydrology Indicators Present?
Water Table Present? Yes _____ No <u>X</u> Depth (inches) _____	
Saturation Present? Yes _____ No <u>X</u> Depth (inches) _____	
Yes No X	

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

Remarks: _____

WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: DP 32E
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform: Terraces Local Relief: Convex
 Slope (%): 1-3 Lat. 39.075265 Long. -82.957308 Datum: NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 0 to 2 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation , Soil or Hydrology significantly disturbed
 Vegetation , Soil or Hydrology naturally problematic
 Are Normal Circumstances Present? Yes X No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? <u>Yes</u> <u>No</u> <u>X</u>	Is the DP within a Wetland?
Hydric Soil Present? <u>Yes</u> <u>No</u> <u>X</u>	
Wetland Hydrology Present? <u>Yes</u> <u>No</u> <u>X</u>	
Remarks: Does not meet all wetland criteria	Yes No X

VEGETATION

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of dominant species that are OBL, FACW, or FAC: <u>1</u> Total number of dominant species across all strata: <u>5</u> Percent of dominant species that are OBL, FACW, or FAC: <u>20.00</u>
1. <u>Acer negundo</u>	<u>30'</u>	<u>15</u>	<u>Y</u>	<u>FAC 3</u>	
2. <u>Carya ovata</u>		<u>10</u>	<u>Y</u>	<u>FACU 4</u>	
3. <u> </u>					
4. <u> </u>					
		<u>25</u>	<u>Total Cover</u>		
Shrub Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet Total % cover of: OBL species <u>0</u> x <u>1</u> = <u>0</u> FACW species <u>10</u> x <u>2</u> = <u>20</u> FAC species <u>40</u> x <u>3</u> = <u>120</u> FACU species <u>75</u> x <u>4</u> = <u>300</u> UPL species <u>30</u> x <u>5</u> = <u>150</u> Total <u>155</u> = <u>590</u> Prevalence Index: <u>3.81</u>
1. <u>Elaeagnus umbellata</u>	<u>15'</u>	<u>30</u>	<u>Y</u>	<u>UPL 5</u>	
2. <u>Ligustrum vulgare</u>		<u>20</u>	<u>Y</u>	<u>FACU 4</u>	
3. <u> </u>					
4. <u> </u>					
		<u>50</u>	<u>Total Cover</u>		
Herb Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Veg. <u> </u> Dominance Test is >50% <u> </u> Prevalence Index is <3.0* <u> </u> Morphological Adaptations* <u> </u> Problematic Hydrophytic Vegetation* <u> </u> *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes No x
1. <u>Sorghum halepense</u>	<u>5'</u>	<u>40</u>	<u>Y</u>	<u>FACU 4</u>	
2. <u>Toxicodendron radicans</u>		<u>15</u>	<u>N</u>	<u>FAC 3</u>	
3. <u>Agrimonia parviflora</u>		<u>10</u>	<u>N</u>	<u>FACW 2</u>	
4. <u>Vernonia gigantea</u>		<u>10</u>	<u>N</u>	<u>FAC 3</u>	
5. <u>Solidago canadensis</u>		<u>5</u>	<u>N</u>	<u>FACU 4</u>	
6. <u> </u>					
7. <u> </u>					
		<u>80</u>	<u>Total Cover</u>		
Woody Vine Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	
1. <u> </u>	<u>15'</u>				
2. <u> </u>					
		<u>0</u>	<u>Total Cover</u>		
Remarks: <u> </u>					

SOIL

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

Depth (inches)	Matrix		Redox Features					
	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-18	10YR 4/2	100					SIL	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

<u> </u> Histosol (A1)	<u> </u> Sandy Mucky Mineral (S1)	<u> </u> Redox Dark Surface (F6)
<u> </u> Histic Epipedon (A2)	<u> </u> 5cm Mucky Peat or Peat	<u> </u> Depleted Dark Surface (F7)
<u> </u> Black Histic (A3)	<u> </u> Sandy Gleyed Matrix (S4)	<u> </u> Redox Depressions (F8)
<u> </u> Hydrogen Sulfide (A4)	<u> </u> Sandy Redox (S5)	Indicators for Problematic Hydric Soils
<u> </u> Stratified Layers (A5)	<u> </u> Stripped Matrix (S6)	<u> </u> Coast Prairie Redox (A16)
<u> </u> 2 cm Muck (A10)	<u> </u> Loamy Mucky Mineral (F1)	<u> </u> Iron-Manganese Masses (F12)
<u> </u> Depleted Below Dark Surface (A11)	<u> </u> Loamy Gleyed Matrix (F2)	<u> </u> Very Shallow Dark Surface (F12)
<u> </u> Thick Dark Surface (A12)	<u> </u> Depleted Matrix (F3)	<u> </u> Other

Restrictive Layer (if observed): Type: Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (check all that apply)				Secondary Indicators		
<u> </u> Surface Water (A1)	<u> </u> Water Stained Leaves (B9)	<u> </u> Surface Soil Cracks (B6)				
<u> </u> High Water Table (A2)	<u> </u> Aquatic Fauna (B13)	<u> </u> Drainage Patterns (B10)				
<u> </u> Saturation (A3)	<u> </u> True Aquatic Plants (B14)	<u> </u> Dry-Season Water Table (C2)				
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Crayfish Burrows (C8)				
<u> </u> Sediment Deposits (B2)	<u> </u> Oxidized Rhizospheres on Living Roots	<u> </u> Saturation Visible on Aerial Imagery (C9)				
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Stunted or Stressed Plants (D1)				
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soil (C6)	<u> </u> Geomorphic Position (D2)				
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)	<u> </u> FAC-Neutral Test (D5)				
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Gauge or Well Data (D9)					
<u> </u> Sparsely Vegetated Concave Surface	<u> </u> Other					
Field Observations: Surface Water Present? <u>Yes</u> <u>No</u> <u>X</u>	Depth (inches) <u> </u>	Hydrology Indicators Present? Yes No X				
Water Table Present? <u>Yes</u> <u>No</u> <u>X</u>	Depth (inches) <u> </u>					
Saturation Present? <u>Yes</u> <u>No</u> <u>X</u>	Depth (inches) <u> </u>					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: <u> </u>						

WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: DP 32F
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform: Terraces Local Relief: Convex
 Slope (%): 1-3 Lat: 39.075976 Long: -82.956496 Datum: NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 2 to 6 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation , Soil or Hydrology significantly disturbed
 Vegetation , Soil or Hydrology naturally problematic
 Are Normal Circumstances Present? Yes X No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes <u> </u> No <u> </u> X <u> </u>	Is the DP within a Wetland?
Hydric Soil Present? Yes <u> </u> No <u> </u> X <u> </u>	
Wetland Hydrology Present? Yes <u> </u> No <u> </u> X <u> </u>	
Remarks: Does not meet all wetland criteria	Yes <u> </u> No <u> </u> X <u> </u>

VEGETATION

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of dominant species that are OBL, FACW, or FAC: <u> </u> 0 Total number of dominant species across all strata: <u> </u> 5 Percent of dominant species that are OBL, FACW, or FAC: <u> </u> 0.00 Prevalence Index Worksheet Total % cover of: OBL species <u> </u> 0 x 1 <u> </u> 0 FACW species <u> </u> 0 x 2 <u> </u> 0 FAC species <u> </u> 0 x 3 <u> </u> 0 FACU species <u> </u> 70 x 4 <u> </u> 280 UPL species <u> </u> 25 x 5 <u> </u> 125 Total <u> </u> 95 <u> </u> 405 Prevalence Index: <u> </u> 4.26 Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Veg. <u> </u> Dominance Test is >50% <u> </u> Prevalence Index is <3.0* <u> </u> Morphological Adaptations* <u> </u> Problematic Hydrophytic Vegetation* <u> </u> *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes <u> </u> No <u> </u> X <u> </u>
1. <u> </u>	30'	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
<u> </u> 0 <u> </u> Total Cover					
Shrub Stratum	Plot size: 15'				
1. <i>Elaeagnus umbellata</i>		10	Y	UPL 5	
2. <i>Rubus occidentalis</i>		5	Y	UPL 5	
3. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
<u> </u> 15 <u> </u> Total Cover					
Herb Stratum	Plot size: 5'				
1. <i>Cirsium arvense</i>		30	Y	FACU 4	
2. <i>Phytolacca americana</i>		20	Y	FACU 4	
3. <i>Solidago canadensis</i>		20	Y	FACU 4	
4. <i>Setaria faberi</i>		10	N	UPL 5	
5. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
<u> </u> 80 <u> </u> Total Cover					
Woody Vine Stratum	Plot size: 15'				
1. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
<u> </u> 0 <u> </u> Total Cover					
Remarks:					

SOIL

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

Depth (inches)	Matrix		Redox Features					
	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-18	10YR 5/2	100					SIL	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

<u> </u> Histosol (A1)	<u> </u> Sandy Mucky Mineral (S1)	<u> </u> Redox Dark Surface (F6)
<u> </u> Histic Epipedon (A2)	<u> </u> 5cm Mucky Peat or Peat	<u> </u> Depleted Dark Surface (F7)
<u> </u> Black Histic (A3)	<u> </u> Sandy Gleyed Matrix (S4)	<u> </u> Redox Depressions (F8)
<u> </u> Hydrogen Sulfide (A4)	<u> </u> Sandy Redox (S5)	Indicators for Problematic Hydric Soils
<u> </u> Stratified Layers (A5)	<u> </u> Stripped Matrix (S6)	<u> </u> Coast Prairie Redox (A16)
<u> </u> 2 cm Muck (A10)	<u> </u> Loamy Mucky Mineral (F1)	<u> </u> Iron-Manganese Masses (F12)
<u> </u> Depleted Below Dark Surface (A11)	<u> </u> Loamy Gleyed Matrix (F2)	<u> </u> Very Shallow Dark Surface (F12)
<u> </u> Thick Dark Surface (A12)	<u> </u> Depleted Matrix (F3)	<u> </u> Other

Restrictive Layer (if observed): Type: Depth (Inches): Hydric Soil Present? Yes No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (check all that apply)				Secondary Indicators		
<u> </u> Surface Water (A1)	<u> </u> Water Stained Leaves (B9)	<u> </u> Surface Soil Cracks (B6)				
<u> </u> High Water Table (A2)	<u> </u> Aquatic Fauna (B13)	<u> </u> Drainage Patterns (B10)				
<u> </u> Saturation (A3)	<u> </u> True Aquatic Plants (B14)	<u> </u> Dry-Season Water Table (C2)				
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Crayfish Burrows (C8)				
<u> </u> Sediment Deposits (B2)	<u> </u> Oxidized Rhizospheres on Living Roots	<u> </u> Saturation Visible on Aerial Imagery (C9)				
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Stunted or Stressed Plants (D1)				
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soil (C6)	<u> </u> Geomorphic Position (D2)				
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)	<u> </u> FAC-Neutral Test (D5)				
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Gauge or Well Data (D9)					
<u> </u> Sparsely Vegetated Concave Surface	<u> </u> Other					
Field Observations: Surface Water Present? Yes <u> </u> No <u> </u> X <u> </u> Depth (inches) <u> </u>	Water Table Present? Yes <u> </u> No <u> </u> X <u> </u> Depth (inches) <u> </u>	Saturation Present? Yes <u> </u> No <u> </u> X <u> </u> Depth (inches) <u> </u>	Hydrology Indicators Present? Yes <u> </u> No <u> </u> X <u> </u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: <u> </u>						

WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: DP AR1
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform: Terraces Local Relief: Convex
 Slope (%): 1-3 Lat: 39.076254 Long: -82.954791 Datum: NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 0 to 2 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation , Soil or Hydrology significantly disturbed
 Vegetation , Soil or Hydrology naturally problematic
 Are Normal Circumstances Present? Yes X No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u> </u>	No <u>X</u>	Is the DP within a Wetland?
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>	
Remarks:	Does not meet all wetland criteria		Yes <u> </u> No <u> </u> X

VEGETATION

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	
1. <i>Platanus occidentalis</i>	30'	15	Y	FACW	2
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
					Dominance Test Worksheet
					Number of dominant species that are OBL, FACW, or FAC: <u> </u> 2
					Total number of dominant species across all strata: <u> </u> 6
					Percent of dominant species that are OBL, FACW, or FAC: <u> </u> 33.33
Shrub Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	
1. <i>Elaeagnus umbellata</i>	15'	30	Y	UPL	5
2. <i>Catalpa speciosa</i>		10	Y	FAC	3
3. <i>Rosa multiflora</i>		5	N	FACU	4
4. <i>Acer rubrum</i>		5	N	FAC	3
5. <u> </u>					
					Prevalence Index Worksheet
					Total % cover of:
					OBL species <u> </u> 0 x 1 <u> </u> 0
					FACW species <u> </u> 20 x 2 <u> </u> 40
					FAC species <u> </u> 15 x 3 <u> </u> 45
					FACU species <u> </u> 50 x 4 <u> </u> 200
					UPL species <u> </u> 75 x 5 <u> </u> 375
					Total <u> </u> 660
					Prevalence Index: <u> </u> 4.13
Herb Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	
1. <i>Schedonorus arundinaceus</i>	5'	25	Y	FACU	4
2. <i>Medicago sativa</i>		25	Y	UPL	5
3. <i>Trifolium pratense</i>		20	Y	FACU	4
4. <i>Plantago lanceolata</i>		15	N	UPL	5
5. <i>Daucus carota</i>		5	N	UPL	5
6. <i>Symphytotrichum lateriflorum</i>		5	N	FACW	2
7. <u> </u>					
8. <u> </u>					
					Hydrophytic Vegetation Indicators:
					Rapid Test for Hydrophytic Veg. <u> </u>
					Dominance Test is >50% <u> </u>
					Prevalence Index is <3.0* <u> </u>
					Morphological Adaptations* <u> </u>
					Problematic Hydrophytic Vegetation* <u> </u>
					*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
Woody Vine Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	
1. <u> </u>	15'				
2. <u> </u>					
					Hydrophytic Vegetation Present?
					Yes <u> </u> No <u> </u> X
Remarks:					

SOIL

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

Depth (inches)	Matrix		Redox Features					
	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-18	10YR 5/2	100					SIL	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

<u> </u> Histosol (A1)	<u> </u> Sandy Mucky Mineral (S1)	<u> </u> Redox Dark Surface (F6)
<u> </u> Histic Epipedon (A2)	<u> </u> 5cm Mucky Peat or Peat	<u> </u> Depleted Dark Surface (F7)
<u> </u> Black Histic (A3)	<u> </u> Sandy Gleyed Matrix (S4)	<u> </u> Redox Depressions (F8)
<u> </u> Hydrogen Sulfide (A4)	<u> </u> Sandy Redox (S5)	Indicators for Problematic Hydric Soils
<u> </u> Stratified Layers (A5)	<u> </u> Stripped Matrix (S6)	<u> </u> Coast Prairie Redox (A16)
<u> </u> 2 cm Muck (A10)	<u> </u> Loamy Mucky Mineral (F1)	<u> </u> Iron-Manganese Masses (F12)
<u> </u> Depleted Below Dark Surface (A11)	<u> </u> Loamy Gleyed Matrix (F2)	<u> </u> Very Shallow Dark Surface (F12)
<u> </u> Thick Dark Surface (A12)	<u> </u> Depleted Matrix (F3)	<u> </u> Other

Restrictive Layer (if observed): Type: Depth (Inches): **Hydric Soil Present?** **Yes** **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (check all that apply)				Secondary Indicators		
<u> </u> Surface Water (A1)	<u> </u> Water Stained Leaves (B9)	<u> </u> Surface Soil Cracks (B6)				
<u> </u> High Water Table (A2)	<u> </u> Aquatic Fauna (B13)	<u> </u> Drainage Patterns (B10)				
<u> </u> Saturation (A3)	<u> </u> True Aquatic Plants (B14)	<u> </u> Dry-Season Water Table (C2)				
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Crayfish Burrows (C8)				
<u> </u> Sediment Deposits (B2)	<u> </u> Oxidized Rhizospheres on Living Roots	<u> </u> Saturation Visible on Aerial Imagery (C9)				
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Stunted or Stressed Plants (D1)				
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soil (C6)	<u> </u> Geomorphic Position (D2)				
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)	<u> </u> FAC-Neutral Test (D5)				
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Gauge or Well Data (D9)					
<u> </u> Sparsely Vegetated Concave Surface	<u> </u> Other					
Field Observations: Surface Water Present?	Yes <u> </u> No <u>X</u>	Depth (inches)				
Water Table Present?	Yes <u> </u> No <u>X</u>	Depth (inches)				
Saturation Present?	Yes <u> </u> No <u>X</u>	Depth (inches)				
Hydrology Indicators Present?			Yes <u> </u>	No <u> </u>	X	

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

WETLAND DETERMINATION FORM-EASTERN MOUNTAINS AND PIEDMONT

Site: Waverly Lick 138kV Rebuild City/County: Pike County Date: 29 August 2023 Data Point: DP AR2
 Client: American Electric Power State: OH Section, Township, Range: Sec 19, T 5N, R 21W
 Investigator(s): N. Houk, E. Holt Landform: Terraces Local Relief: Convex
 Slope (%): 1-3 Lat: 39.076891 Long: -82.954731 Datum: NAD 83 NWI Class: N/A
 Soil Map Unit Name: Omulga silt loam, 0 to 2 percent slopes
 Climatic/hydrologic conditions typical for time of year? Y/N Y
 Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed
 Vegetation _____, Soil _____ or Hydrology _____ naturally problematic
 Are Normal Circumstances Present? Yes X No _____

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the DP within a Wetland?
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Does not meet all wetland criteria	Yes No X

VEGETATION

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of dominant species that are OBL, FACW, or FAC: <u>1</u> Total number of dominant species across all strata: <u>3</u> Percent of dominant species that are OBL, FACW, or FAC: <u>33.33</u> Prevalence Index Worksheet Total % cover of: OBL species <u>0</u> x <u>1</u> = <u>0</u> FACW species <u>0</u> x <u>2</u> = <u>0</u> FAC species <u>30</u> x <u>3</u> = <u>90</u> FACU species <u>50</u> x <u>4</u> = <u>200</u> UPL species <u>10</u> x <u>5</u> = <u>50</u> Total <u>90</u> = <u>340</u> Prevalence Index: <u>3.78</u>
1. _____	<u>30'</u>	_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		<u>0</u>	Total Cover	_____	
Shrub Stratum Plot size: <u>15'</u>					
1. _____		_____	_____	_____	
2. _____		_____	_____	_____	
3. _____		_____	_____	_____	
4. _____		_____	_____	_____	
5. _____		<u>0</u>	Total Cover	_____	
Herb Stratum Plot size: <u>5'</u>					
1. <u>Trifolium pratense</u>		<u>30</u>	<u>Y</u>	<u>FACU</u> <u>4</u>	
2. <u>Setaria pumila</u>		<u>30</u>	<u>Y</u>	<u>FAC</u> <u>3</u>	
3. <u>Schedonorus arundinaceus</u>		<u>20</u>	<u>Y</u>	<u>FACU</u> <u>4</u>	
4. <u>Plantago lanceolata</u>		<u>10</u>	<u>N</u>	<u>UPL</u> <u>5</u>	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
		<u>90</u>	Total Cover	_____	
Woody Vine Stratum Plot size: <u>15'</u>					
1. _____		_____	_____	_____	
2. _____		_____	_____	_____	
		<u>0</u>	Total Cover	_____	
Remarks:					

SOIL

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

Depth (inches)	Matrix		Redox Features					
	Color	%	Color	%	Type*	Loc**	Texture	Remarks
0-18	10YR 5/2	100					SIL	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Coated Sand grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

_____ Histosol (A1)	_____ Sandy Mucky Mineral (S1)	_____ Redox Dark Surface (F6)	
_____ Histic Epipedon (A2)	_____ 5cm Mucky Peat or Peat	_____ Depleted Dark Surface (F7)	
_____ Black Histic (A3)	_____ Sandy Gleyed Matrix (S4)	_____ Redox Depressions (F8)	
_____ Hydrogen Sulfide (A4)	_____ Sandy Redox (S5)	Indicators for Problematic Hydric Soils	
_____ Stratified Layers (A5)	_____ Stripped Matrix (S6)		_____ Coast Prairie Redox (A16)
_____ 2 cm Muck (A10)	_____ Loamy Mucky Mineral (F1)		_____ Iron-Manganese Masses (F12)
_____ Depleted Below Dark Surface (A11)	_____ Loamy Gleyed Matrix (F2)		_____ Very Shallow Dark Surface (F12)
_____ Thick Dark Surface (A12)	_____ Depleted Matrix (F3)		_____ Other

Restrictive Layer (if observed): Type: _____ Depth (Inches): _____

Hydric Soil Present? Yes No X

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (check all that apply)				Secondary Indicators		
_____ Surface Water (A1)	_____ Water Stained Leaves (B9)	_____ Surface Soil Cracks (B6)				
_____ High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Drainage Patterns (B10)				
_____ Saturation (A3)	_____ True Aquatic Plants (B14)	_____ Dry-Season Water Table (C2)				
_____ Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)				
_____ Sediment Deposits (B2)	_____ Oxidized Rhizospheres on Living Roots	_____ Saturation Visible on Aerial Imagery (C9)				
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)				
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soil (C6)	_____ Geomorphic Position (D2)				
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	_____ FAC-Neutral Test (D5)				
_____ Inundation Visible on Aerial Imagery (B7)	_____ Gauge or Well Data (D9)					
_____ Sparsely Vegetated Concave Surface	_____ Other					
Field Observations: Surface Water Present? Yes _____ No <u>X</u>	Depth (inches)					
Water Table Present? Yes _____ No <u>X</u>	Depth (inches)					
Saturation Present? Yes _____ No <u>X</u>	Depth (inches)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				Hydrology Indicators Present? Yes No X		
Remarks: _____						

APPENDIX D

ORAM FORMS



ORAM Summary Worksheet

		Circle answer or insert score	Result
Narrative Rating	Question 1: Critical Habitat	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 2: Threatened or Engagered Species	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 3: High Quality Natural Wetland	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 4: Significant bird habitat	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 5: Category 1 Wetlands	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 1
	Questions 6: Bogs	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 7: Fens	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Questions 8a: Old Growth Forest	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 8b: Mature Forested Wetland	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Questions 9b: Lake Erie Wetlands – Restricted	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Questions 9d: Lake Erie Wetlands - Unrestricted	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Questions 9e: Lake Erie Wetlands – Unrestricted with invasive plants	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10: Oak Openings	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Quest 11: Relict Wet Prairies	<input type="checkbox"/> YES <input checked="" type="checkbox"/> 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	4	
	Metric 3: Hydrology	10	
	Metric 4: Habitat	9	
	Metric 5: Special Wetland Communities	0	
	Metric 6: Plant communities, interspersion, microtopography	4	
	TOTAL SCORE Consult most recent score calibration report at http://www.epa.state.oh.us/dsw/401/401.html to determine the wetland's category based on its quantitative score	29	Category based on score breakpoints

Complete Wetland Categorization Worksheet

Wetland Categorization Worksheet

Choices	Circle one		Evaluation
<p>Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10.</p>	<input checked="" type="checkbox"/> YES Wetland is categorized as a Category 3 wetland	<input type="checkbox"/> 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
<p>Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11</p>	<input type="checkbox"/> YES Wetland should be evaluated for possible Category 3 status	<input checked="" type="checkbox"/> 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.
<p>Did you answer "Yes" to Narrative Rating No. 5</p>	<input type="checkbox"/> YES Wetland is categorized as a Category 1 wetland	<input checked="" type="checkbox"/> 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
<p>Does the quantitative score fall within the scoring range of a Category 1, 2 or 3 wetlands?</p>	<input checked="" type="checkbox"/> YES Wetland is assigned to the appropriate category based on the scoring range	<input type="checkbox"/> NO	If the score of the wetland is located within the scoring range for a particular 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 an quantitative score.
<p>Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?</p>	<input type="checkbox"/> YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	<input checked="" type="checkbox"/> 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).
<p>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?</p>	<input type="checkbox"/> YES Wetland was under categorized by this method. A written justification for re-categorization should be provided on Background Information Form	<input checked="" type="checkbox"/> NO	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 Rula 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A ritten justification with supporting reasons or information for this determination should be provided.

Final Category

Choose One	<input checked="" type="checkbox"/> Category 1	<input type="checkbox"/> Category 2	<input type="checkbox"/> Category 3
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End of Ohio Rapid Assessment Method for Wetlands

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2	2
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Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

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

4	6
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Metric 2. Upland buffers and surrounding land use.

max 14 pts. subtotal

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

10	16
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Metric 3. Hydrology.

Max 30 pts. subtotal

- 3a. Sources of Water. Score all that apply
- High pH groundwater (5pts)
 - Other groundwater (3pts)
 - Precipitation (1pts)
 - Seasonal/Intermittent surface water (3pts)
 - Perennial surface water (lake or stream) (5pts)
- 3b. Connectivity. Score all that apply
- 100 year floodplain (1pts)
 - Between stream/lake and other human use (1pts)
 - Part of wetland/upland (e.g. forest), complex (1pts)
 - Part of riparian or upland corridor (1pts)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3pts)
 - 0.4 to 0.7m (15.7 to 27.6in) 2pts)
 - <0.4m (<15.7in) (1pts)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4pts)
 - Regularly inundate/saturated (3pts)
 - Seasonally inundated (2pts)
 - Seasonally saturated in upper 30cm (12in) (1pts)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- | | | | | | | | | | | | |
|---|--|--------------------------------|---|-------------------------------|---|-------------------------------|--|-------------------------------|-----------------------------------|--|--------------------------------|
| <ul style="list-style-type: none"> <input type="checkbox"/> None or none apparent (12pts) <input type="checkbox"/> Recovered (7pts) <input checked="" type="checkbox"/> Recovering (3pts) <input type="checkbox"/> Recent or no recovery (1pts) | <p>Check all disturbances observed</p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Ditch</td> <td><input type="checkbox"/> Point source (non-storm water)</td> </tr> <tr> <td><input type="checkbox"/> Tile</td> <td><input type="checkbox"/> Filing/grading</td> </tr> <tr> <td><input type="checkbox"/> Dike</td> <td><input type="checkbox"/> Road bed/RR track</td> </tr> <tr> <td><input type="checkbox"/> Weir</td> <td><input type="checkbox"/> Dredging</td> </tr> <tr> <td><input type="checkbox"/> Storm water input</td> <td><input type="checkbox"/> Other</td> </tr> </table> | <input type="checkbox"/> Ditch | <input type="checkbox"/> Point source (non-storm water) | <input type="checkbox"/> Tile | <input type="checkbox"/> Filing/grading | <input type="checkbox"/> Dike | <input type="checkbox"/> Road bed/RR track | <input type="checkbox"/> Weir | <input type="checkbox"/> Dredging | <input type="checkbox"/> Storm water input | <input type="checkbox"/> Other |
| <input type="checkbox"/> Ditch | <input type="checkbox"/> Point source (non-storm water) | | | | | | | | | | |
| <input type="checkbox"/> Tile | <input type="checkbox"/> Filing/grading | | | | | | | | | | |
| <input type="checkbox"/> Dike | <input type="checkbox"/> Road bed/RR track | | | | | | | | | | |
| <input type="checkbox"/> Weir | <input type="checkbox"/> Dredging | | | | | | | | | | |
| <input type="checkbox"/> Storm water input | <input type="checkbox"/> Other | | | | | | | | | | |

9	25
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Metric 4. Habitat Alteration and Development.

Max 20pts. Subtotal

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

Check all disturbances observed	
<input type="checkbox"/> Mowing	<input type="checkbox"/> Shrub/sapling removal
<input type="checkbox"/> Grazing	<input type="checkbox"/> Herbaceous/aquatic bed removal
<input type="checkbox"/> Clear-cutting	<input type="checkbox"/> Sedimentation
<input type="checkbox"/> Selective cutting	<input type="checkbox"/> Dredging
<input type="checkbox"/> Woody debris removal	<input type="checkbox"/> Farming
<input type="checkbox"/> Toxic pollutants	<input type="checkbox"/> Nutrient enrichment

25

Subtotal this page

25

Subtotal first page

0	25
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Max 10pts Subtotal

Metric 5. Special wetlands.

Check all that apply and score as indicated

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

4	29
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Max 20 pts. Subtotal

Metric 6. Plant communities, interspersions, micro topography..

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

- Aquatic Bed
- 2 Emergent
- Shrub
- Forest
- Mudflats
- Open Water
- Other _____

6b. Horizontal (plan view) Interspersion

- Select only one.
- High (5pts)
 - Moderately high (4pts)
 - Moderate (3pts)
 - Moderately low (2pts)
 - Low (1pts)
 - None (0pts)

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

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

6d. Micro topography
Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- 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)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Micro topography 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

29

GRAND TOTAL (max 100 pts)

Quantitative Rating

Metric 1. Wetland area (max 6pts). Estimate the area of wetland. Select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

		score
6pts	≥ 50 acres (≥ 20.2ha)	
5pts	25 - <50 acres (10.1 - <20.2ha)	
4pts	10 - <25 acres (4.0 - <10.1ha)	
3pts	3 - <10 acres (1.2 - <4.0ha)	
2pts	0.3 - <3 acres (0.12 - <1.2ha)	2
1pt	0.1 - <0.3 acres (0.04 - <0.12ha)	
0pts	<0.1 acres (0.04ha)	

Table 2. Metric to English conversion table with visual estimation sizes

acres	ft ²	yd ²	ft on side	yd on side	ha	m ²	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

Metric 2. Upland buffers and intensity of surrounding land uses. Maximum 14 points. Wetlands are systems transitional between upland and aquatic environments. Wetlands without "buffers," or that are located where human land use is more intensive, are often, but not always, more degraded.

		score
2a. Average Buffer Width (abw). Calculate the average buffer width and select only one score. To calculate abw, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: abw of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows: $abw = (50m + 25m + 10m + 0m)/4 = 21.25m$. Intensive land uses are not buffers, e.g. active row cropping, recently abandoned fields, paved areas, housing developments, unfenced pasture, etc.		1
7pts	WIDE. >50m (164ft) or more around perimeter	<input type="checkbox"/>
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter	<input type="checkbox"/>
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter	<input checked="" type="checkbox"/>
0pts	VERY NARROW. <10m (<32ft) around perimeter.	<input type="checkbox"/>
2b. Intensity of predominant surround land use(s). Select one, or double check up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone (if any).		3
7pts	VERY LOW. 2 nd growth or older forest, prairie, savannah, wildlife area, etc.	<input type="checkbox"/>
5pts	LOW. Old field (>10 yrs), shrubland, young 2 nd growth forest, etc.	<input type="checkbox"/>
3pts	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field, etc.	<input checked="" type="checkbox"/>
1pt	HIGH. Urban, industrial, open pasture, row cropping, mining, construction, etc.	<input type="checkbox"/>

6

Subtotal

Subtotal from previous page

Metric 3. Hydrology Maximum 30 points. **This metric evaluates the wetland's water budget, hydro period, the hydrologic connectivity of the wetland to other surface water, and the degree to which the wetland's hydrology has been altered by human activity.** A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.

		score
3a. Sources of Water. Select all that apply and sum score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		4
5pts	High pH groundwater (7.5-9.0)	<input type="checkbox"/>
3pts	Other groundwater	<input type="checkbox"/>
1pt	Precipitation	<input checked="" type="checkbox"/>
3pts	Seasonal surface water	<input checked="" type="checkbox"/>
5pts	Perennial surface water (lake or stream)	<input type="checkbox"/>
3b. Connectivity. Select all that apply and sum score		0
1pt	100-year floodplain. "Floodplain is defined in OAC Rule 3745-1-50(P) as "...the relatively level land next to a stream or river channel that is periodically submerged by floodwaters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	<input type="checkbox"/>
1pt	Between stream/lake and other human land use. This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	<input type="checkbox"/>
1pt	Part of wetland or upland (e.g. forest, prairie) complex. Both this and the next question ask whether the wetland is in physical proximity to, or a part of other nearby wetland or upland natural areas. The difference is whether the area the wetland is "long and narrow" like a river, or more "suarish" like a large forest or woodlot. If the latter is the case, this question applies: if the former, the next question applies. In a few instances, both may apply.	<input type="checkbox"/>
1pt	Part of riparian or upland corridor. See description above.	<input type="checkbox"/>
3c. Maximum water depth. Select only one and assign score. The Rater <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		1
3pts	>0.7m (27.6in)	<input type="checkbox"/>
2pts	0.4 to 0.7m (15.7 to 27.6in)	<input type="checkbox"/>
1pt	<0.4m (<15.7in)	<input checked="" type="checkbox"/>
3d. Duration of inundation/saturation. Select one or double-check and average the scores if duration is uncertain. The use of secondary indicator s is necessary and expected in order to properly answer this Question. Categories correspond to Zones II, III, and IV of 1987 Manual (Table 5). Zone IV subdivided into seasonally		2
4pts	Semi permanently to permanently inundated or saturated.	<input type="checkbox"/>
3pts	Regularly inundated or saturated.	<input type="checkbox"/>
2pts	Seasonally inundated.	<input checked="" type="checkbox"/>
1pt	Seasonally saturated in the upper 30cm (12in) of soil.	<input type="checkbox"/>

Subtotal

Subtotal from previous page

- 3e. **Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the Rater to evaluate the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

It is very important to stress that this question does not discriminate between wetlands with different types of hydrologic regime, e.g. between a forested seep wetland located on a floodplain with seasonal inundation and a leather leaf (*Chamaedaphne calyculata*) bog with precipitation and minor amounts of surface run-off from a small watershed. Rather, it asks the rater to evaluate the "intactness" of the hydrologic regime attributable to *that type of wetland*. In the example above, both the forested seep wetland and the leather leaf bog can score the maximum points (12) if they're no, or no apparent, modifications to the natural hydrologic regime.

Once the Rater has listed all possible past and ongoing disturbances, the Rater should check the most appropriate category to describe the present state of the wetland. In instances where the Rater believes that a wetland falls between two categories, or where the Rater is uncertain as to which category is appropriate, it is appropriate to "double check" and average the score.

The labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a hydrologic disturbance continuum, from very high to very low or no disturbance.

The Rater may check one or several of these possible disturbance, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

Check all that are observed present in or near the wetland

<input type="checkbox"/>	ditch(es), in or near the wetland	<input type="checkbox"/>	point source discharges to the (non-storm water)
<input type="checkbox"/>	tile(s), in or near the wetland	<input type="checkbox"/>	filling/grading activities in or near the wetland
<input type="checkbox"/>	dike(s), in or near the wetland	<input type="checkbox"/>	road beds/RR beds in or near the wetland
<input type="checkbox"/>	weir(s), in or near the wetland	<input type="checkbox"/>	dredging activities in or near the wetland
<input type="checkbox"/>	storm water inputs (addition of water)	<input type="checkbox"/>	other (specify)

<p>Circle one answer. Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime, or have they occurred so far in the past that current hydrology should be considered to be "natural"?</p>	<p>YES</p> <p>Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p>NO</p> <p>Assign a score of 12 since there are no or no apparent modifications.</p>	<p>NOT SURE</p> <p>Double check "none or none apparent" and "recovered" and assign a score of 9.5</p>
	3		
<p>Select one or double check adjoining number and average the score.</p>			<p>score 3</p>
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the Rater.	<input type="checkbox"/>	
7pts	RECOVERED. The wetland appears to have recovered from past modifications.	<input type="checkbox"/>	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications	<input checked="" type="checkbox"/>	
1pt	RECENT OR NO RECOVERY. The modifications have occurred, recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	<input type="checkbox"/>	

Subtotal

Subtotal from previous page

Metric 4. Habitat Alteration and Development. Maximum 20 points. While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. This metric attempts to evaluate these things under the rubric "habitat alteration." In many instances, items checked as possible hydrologic disturbances in Question 3e will be instead alterations to a wetland's habitat or disruptions in its development (succession state). In other instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. In any case, the Rater should carefully consider what is the actual proximate (direct) cause of the disturbance to the wetland.

4a. **Substrate/Soil Disturbance.** Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.

Examples of substrate/soil disturbance include filling and grading, plowing, grazing (hooves), vehicle use (motorbikes, off-road vehicles, construction vehicles), sedimentation, dredging, and other mechanical disturbances to the surface substrates or soils.

2

<p>Circle one answer. Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils or substrates, or have they occurred so far in the past that current conditions should be considered to be "natural"?</p>	<p>YES <input checked="" type="checkbox"/></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p> <p style="text-align: right;">2</p>	<p>NO <input type="checkbox"/></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p>NOT SURE <input type="checkbox"/></p> <p>Double check "none or none apparent" and "recovered" and assign a score of 3.5</p>
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Select one or double check adjoining number and average the score.		score
		2
4pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the Rater.	<input type="checkbox"/>
3pts	RECOVERED. The wetland appears to have recovered from past modifications.	<input type="checkbox"/>
2pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications	<input checked="" type="checkbox"/>
1pt	RECENT OR NO RECOVERY. The modifications have occurred, recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	<input type="checkbox"/>

4b. Habitat development. Select only one and assign score. This question asks the Rater to assign an overall qualitative rating of how well developed the wetland is in comparison to other ecologically or hydrogeomorphically similar wetlands. This question presumes a good sense of the types of wetlands and the range in quality typical of the region, watershed, or state.		4
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	<input type="checkbox"/>
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics, which would make it excellent.	<input type="checkbox"/>
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	<input type="checkbox"/>
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	<input checked="" type="checkbox"/>
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	<input type="checkbox"/>
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	<input type="checkbox"/>
1pt	POOR. Wetland appears to <u>not</u> be a good example of its type or class because of past or present disturbances, successional state, etc.	<input type="checkbox"/>

Subtotal

Subtotal from previous page

4c. **Habitat alteration.** This question evaluates the “intactness” the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify a possible alteration. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to “double check” and average scores. In some instances, the scores can be viewed as a habitat alteration continuum, from very high to very low or no disturbance. **The Rater may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

Check all that are observed present in or near the wetland

<input type="checkbox"/> Mowing	<input type="checkbox"/> Herbaceous layer/aquatic bed removal
<input type="checkbox"/> Grazing (cattle, sheep, pigs, etc.)	<input type="checkbox"/> Sedimentation
<input type="checkbox"/> Clear cutting	<input type="checkbox"/> Dredging
<input type="checkbox"/> Selective cutting	<input type="checkbox"/> Farming
<input type="checkbox"/> Woody debris removal	<input type="checkbox"/> Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/> Toxic pollutants	<input type="checkbox"/> Other (specify)
<input type="checkbox"/> Shrub/sapling removal	<input type="checkbox"/> Other (specify)

<p>Circle one answer. Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime, or have they occurred so far in the past that current hydrology should be considered to be “natural”?</p>	<p>YES</p> <p>Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p>NO</p> <p>Assign a score of 9 since there are no or no apparent modifications.</p>	<p>NOT SURE</p> <p>Double check “none or none apparent” and “recovered” and assign a score of 7.5</p>
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3

Select one or double check adjoining number and average the score.		score
		3
9pts	NONE OR NONE APPARENT. There are no alterations or no alterations that are apparent to the Rater.	<input type="checkbox"/>
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	<input type="checkbox"/>
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations/	<input checked="" type="checkbox"/>
1pt	RECENT OR NO RECOVERY. The alterations/ have occurred, recently occurred, and/or the wetland has not recovered from past alterations/, and/or the alterations/ are ongoing.	<input type="checkbox"/>

Metric 5. Special wetland communities. Maximum 10 points. Assign or deduct points if wetland has the feature described. Refer to Narrative Rating for guidance. No wetland can receive more than 10 points even if multiple categories are applicable.

<input type="checkbox"/> Bog (10pts)	<input type="checkbox"/> Lake plains sand prairies (Oak Openings) (10 pts)
<input type="checkbox"/> Fen (10 pts)	<input type="checkbox"/> Relict wet prairies (10 pts)
<input type="checkbox"/> Old Growth Forest (10 pts)	<input type="checkbox"/> Known occurrence of threatened/endangered species (10pts)
<input type="checkbox"/> Mature Forested Wetland (5 pts)	<input type="checkbox"/> Significant migratory songbird/waterfowl habitat (10 pts)
<input type="checkbox"/> Coastal wetlands, unrestricted hydrology (10 pts)	<input type="checkbox"/> Category 1 wetlands (See Narrative Rating #5) (-10 pts)
<input type="checkbox"/> Coastal wetlands, restricted hydrology (5 pts)	

Subtotal

Subtotal from previous page

Metric 6. Vegetation, Interspersion, and Microtopography. Maximum 20 points.

<p>6a. Wetland Vegetation Communities. Check each community present <u>both vertically and horizontally</u> within the wetland with an area of at least 0.1 hectares or 100m² (0.2471 acres). Assign a score of 0 to 3 using Tables 3, Table 4 or Table 5. Sum the scores for the classes present.</p>		
<input type="checkbox"/>	<p>Aquatic Bed. Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed (<i>Lemna</i> spp., <i>spirodelaspp.</i>) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.</p>	
<input checked="" type="checkbox"/>	<p>Emergent. Includes areas of wetland dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, fens, prairie pothole, and bluejoint slough.</p>	2
<input type="checkbox"/>	<p>Shrub. Includes areas of wetlands dominated by woody vegetation less than 6m (20ft) tall. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.</p>	
<input type="checkbox"/>	<p>Forested. Includes wetlands or areas of wetlands characterized by wood vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are defined as "vernal pools" in OAC Rule 3745-1-50.</p>	
<input type="checkbox"/>	<p>Open water. The "open water" class is equivalent to the "unconsolidated bottom/mud" class/subclass (pub₃) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.</p>	
<input type="checkbox"/>	<p>Other (See User's Manual)</p>	

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 6 for narrative descriptions of what "low," "moderate," and "high" quality mean.

Cover scale	Description
0	the vegetation community is either, 1) absent from wetland, or 2) comprises less than 0.1ha (0.2471 acres) of contiguous area within the wetland
1	vegetation community is present and either, 1) comprises a small part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation, the community is of low quality
2	the vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality.
3	the vegetation community is of high quality and comprises a significant part, or more of the wetland's vegetation

Table 4. Use this table in conjunction with Table 5 to determine what is a "low," "moderate," or "high quality community"

narrative	description
low	Low species diversity and/or a predominance of non-native or disturbance tolerant native species
moderate	Native species are the dominant component of the vegetaion, although non-native or disturbance tolerant native species can also be present, and species diversity is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
high	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and sometimes, but not always, the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale

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

Subtotal

Subtotal from previous page

6b. Horizontal (plan view) interspersions. Select only one and assign score. Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		3
5pts	HIGH. Wetland has a high degree of interspersions	<input type="checkbox"/>
4pts	MODERATELY HIGH. Wetland has a moderately high degree of interspersions	<input type="checkbox"/>
3pts	MODERATE. Wetland has a moderate degree of interspersions	<input checked="" type="checkbox"/>
2pts	MODERATELY LOW. Wetland has a moderately low degree of interspersions	<input type="checkbox"/>
1pt	LOW. Wetland has a low degree of interspersions	<input type="checkbox"/>
0pts	NONE. Wetland has no plan view interspersions	<input type="checkbox"/>

6c. Coverage of Invasive Plant Species. Refer to Table 1 on Page 7 for list. Select only one and assign score.		-1
-5pts	Extensive. >75% areal cover of invasive species	<input type="checkbox"/>
-3pts	Moderate 25-75% areal cover of invasive species	<input type="checkbox"/>
-1pt	Sparse. 5-25% areal cover of invasive species	<input checked="" type="checkbox"/>
0pts	Nearly absent. <5% areal cover of invasive species	<input type="checkbox"/>
1pt	Absent	<input type="checkbox"/>

6d. Microtopography. Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		
	Vegetated hummocks and tussocks.	<input type="checkbox"/>
	Coarse woody debris >15cm (6in) diameter	<input type="checkbox"/>
	Standing dead trees >25cm (10in) diameter at breast height	<input type="checkbox"/>
	Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for from reproduction	<input type="checkbox"/>

Table 6. Cover scale for microtopographic habitat features.

Microtopographic habitat quality	narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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

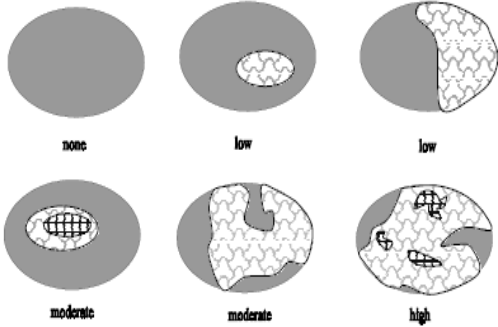


Figure 1. Hypothetical wetlands for estimating degree of interspersions.

GRAND TOTAL

End of Quantitative Rating. Complete Categorization Worksheets.

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.oh.us/dsw/401/401.html>

ORAM Summary Worksheet

		Circle answer or insert score	Result
Narrative Rating	Question 1: Critical Habitat	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 2: Threatened or Engagered Species	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 3: High Quality Natural Wetland	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 4: Significant bird habitat	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 5: Category 1 Wetlands	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	If yes, Category 1
	Questions 6: Bogs	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 7: Fens	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Questions 8a: Old Growth Forest	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Question 8b: Mature Forested Wetland	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Questions 9b: Lake Erie Wetlands – Restricted	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Questions 9d: Lake Erie Wetlands - Unrestricted	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
	Questions 9e: Lake Erie Wetlands – Unrestricted with invasive plants	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10: Oak Openings	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, Category 3.
Quest 11: Relict Wet Prairies	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1: Size	0	
	Metric 2: Buffers and surrounding land use	4	
	Metric 3: Hydrology	10	
	Metric 4: Habitat	7	
	Metric 5: Special Wetland Communities	0	
	Metric 6: Plant communities, interspersion, microtopography	1	
	TOTAL SCORE Consult most recent score calibration report at http://www.epa.state.oh.us/dsw/401/401.html to determine the wetland's category based on its quantitative score	22	Category based on score breakpoints

Complete Wetland Categorization Worksheet

Wetland Categorization Worksheet

Choices	Circle one	Evaluation
<p>Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10.</p>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Wetland is categorized as a Category 3 wetland	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
<p>Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11</p>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Wetland should be evaluated for possible Category 3 status	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.
<p>Did you answer "Yes" to Narrative Rating No. 5</p>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Wetland is categorized as a Category 1 wetland	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
<p>Does the quantitative score fall within the scoring range of a Category 1, 2 or 3 wetlands?</p>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Wetland is assigned to the appropriate category based on the scoring range	If the score of the wetland is located within the scoring range for a particular 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 an quantitative score.
<p>Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?</p>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	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).
<p>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?</p>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Wetland was under categorized by this method. A written justification for re-categorization should be provided on Background Information Form	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 Rula 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A ritten justification with supporting reasons or information for this determination should be provided.

Final Category

Choose One <input checked="" type="checkbox"/> Category 1 <input type="checkbox"/> Category 2 <input type="checkbox"/> Category 3

End of Ohio Rapid Assessment Method for Wetlands

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Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

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

4	4
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Metric 2. Upland buffers and surrounding land use.

max 14 pts. subtotal

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

10	14
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Metric 3. Hydrology.

Max 30 pts. subtotal

- 3a. Sources of Water. Score all that apply
- High pH groundwater (5pts)
 - Other groundwater (3pts)
 - Precipitation (1pts)
 - Seasonal/Intermittent surface water (3pts)
 - Perennial surface water (lake or stream) (5pts)
- 3b. Connectivity. Score all that apply
- 100 year floodplain (1pts)
 - Between stream/lake and other human use (1pts)
 - Part of wetland/upland (e.g. forest), complex (1pts)
 - Part of riparian or upland corridor (1pts)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3pts)
 - 0.4 to 0.7m (15.7 to 27.6in) 2pts)
 - <0.4m (<15.7in) (1pts)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4pts)
 - Regularly inundate/saturated (3pts)
 - Seasonally inundated (2pts)
 - Seasonally saturated in upper 30cm (12in) (1pts)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- | | | | | | | | | | | | |
|---|---|--------------------------------|---|-------------------------------|---|-------------------------------|--|-------------------------------|-----------------------------------|--|--------------------------------|
| <ul style="list-style-type: none"> <input type="checkbox"/> None or none apparent (12pts) <input type="checkbox"/> Recovered (7pts) <input checked="" type="checkbox"/> Recovering (3pts) <input type="checkbox"/> Recent or no recovery (1pts) | <p>Check all disturbances observed</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Ditch</td> <td><input type="checkbox"/> Point source (non-storm water)</td> </tr> <tr> <td><input type="checkbox"/> Tile</td> <td><input type="checkbox"/> Filing/grading</td> </tr> <tr> <td><input type="checkbox"/> Dike</td> <td><input type="checkbox"/> Road bed/RR track</td> </tr> <tr> <td><input type="checkbox"/> Weir</td> <td><input type="checkbox"/> Dredging</td> </tr> <tr> <td><input type="checkbox"/> Storm water input</td> <td><input type="checkbox"/> Other</td> </tr> </table> | <input type="checkbox"/> Ditch | <input type="checkbox"/> Point source (non-storm water) | <input type="checkbox"/> Tile | <input type="checkbox"/> Filing/grading | <input type="checkbox"/> Dike | <input type="checkbox"/> Road bed/RR track | <input type="checkbox"/> Weir | <input type="checkbox"/> Dredging | <input type="checkbox"/> Storm water input | <input type="checkbox"/> Other |
| <input type="checkbox"/> Ditch | <input type="checkbox"/> Point source (non-storm water) | | | | | | | | | | |
| <input type="checkbox"/> Tile | <input type="checkbox"/> Filing/grading | | | | | | | | | | |
| <input type="checkbox"/> Dike | <input type="checkbox"/> Road bed/RR track | | | | | | | | | | |
| <input type="checkbox"/> Weir | <input type="checkbox"/> Dredging | | | | | | | | | | |
| <input type="checkbox"/> Storm water input | <input type="checkbox"/> Other | | | | | | | | | | |

7	21
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Metric 4. Habitat Alteration and Development.

Max 20pts. Subtotal

- 4a. Substrate disturbance. Score one or double-check and average.
- None or none apparent (4pts)
 - Recovered (3pts)
 - Recovered (2pts)
 - Recent or no recovery (1pts)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7pts)
 - Very good (6pts)
 - Good (5pts)
 - Moderately good (4pts)
 - Fair (3pts)
 - Poor to fair (2pts)
 - Poor (pts)
- 4c. Habitat alteration. Score one or double-check and average.
- None or none apparent (9pts)
 - Recovered (6pts)
 - Recovering (3pts)
 - Recent or no recovery (1pts)
- | | |
|--|--|
| <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <input type="checkbox"/> Mowing <input type="checkbox"/> Grazing <input type="checkbox"/> Clear-cutting <input type="checkbox"/> Selective cutting <input type="checkbox"/> Woody debris removal <input type="checkbox"/> Toxic pollutants | <ul style="list-style-type: none"> <input type="checkbox"/> Shrub/sapling removal <input type="checkbox"/> Herbaceous/aquatic bed removal <input type="checkbox"/> Sedimentation <input type="checkbox"/> Dredging <input type="checkbox"/> Farming <input type="checkbox"/> Nutrient enrichment |
|--|--|

21

Subtotal this page

21

Subtotal first page

0	21
Max 10pts	Subtotal

Metric 5. Special wetlands.

Check all that apply and score as indicated

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

1	22
Max 20 pts.	Subtotal

Metric 6. Plant communities, interspersions, micro topography..

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

- Aquatic Bed
- 2 Emergent
- Shrub
- Forest
- Mudflats
- Open Water
- Other _____

6b. Horizontal (plan view) Interspersion

- Select only one.
- High (5pts)
 - Moderately high (4pts)
 - Moderate (3pts)
 - Moderately low (2pts)
 - Low (1pts)
 - None (0pts)

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

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

6d. Micro topography
Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- 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)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Micro topography 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

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GRAND TOTAL (max 100 pts)

Quantitative Rating

Metric 1. Wetland area (max 6pts). Estimate the area of wetland. Select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

		score
6pts	≥ 50 acres (≥ 20.2ha)	
5pts	25 - <50 acres (10.1 - <20.2ha)	
4pts	10 - <25 acres (4.0 - <10.1ha)	
3pts	3 - <10 acres (1.2 - <4.0ha)	
2pts	0.3 - <3 acres (0.12 - <1.2ha)	
1pt	0.1 - <0.3 acres (0.04 - <0.12ha)	
0pts	<0.1 acres (0.04ha)	0

Table 2. Metric to English conversion table with visual estimation sizes

acres	ft ²	yd ²	ft on side	yd on side	ha	m ²	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

Metric 2. Upland buffers and intensity of surrounding land uses. Maximum 14 points. Wetlands are systems transitional between upland and aquatic environments. Wetlands without "buffers," or that are located where human land use is more intensive, are often, but not always, more degraded.

		score
2a. Average Buffer Width (abw). Calculate the average buffer width and select only one score. To calculate abw, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: abw of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows: $abw = (50m + 25m + 10m + 0m)/4 = 21.25m$. Intensive land uses are not buffers, e.g. active row cropping, recently abandoned fields, paved areas, housing developments, unfenced pasture, etc.		1
7pts	WIDE. >50m (164ft) or more around perimeter	<input type="checkbox"/>
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter	<input type="checkbox"/>
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter	<input checked="" type="checkbox"/>
0pts	VERY NARROW. <10m (<32ft) around perimeter.	<input type="checkbox"/>
2b. Intensity of predominant surround land use(s). Select one, or double check up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone (if any).		3
7pts	VERY LOW. 2 nd growth or older forest, prairie, savannah, wildlife area, etc.	<input type="checkbox"/>
5pts	LOW. Old field (>10 yrs), shrubland, young 2 nd growth forest, etc.	<input type="checkbox"/>
3pts	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field, etc.	<input checked="" type="checkbox"/>
1pt	HIGH. Urban, industrial, open pasture, row cropping, mining, construction, etc.	<input type="checkbox"/>

4

Subtotal

Subtotal from previous page

Metric 3. Hydrology Maximum 30 points. **This metric evaluates the wetland's water budget, hydro period, the hydrologic connectivity of the wetland to other surface water, and the degree to which the wetland's hydrology has been altered by human activity.** A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.

		score
3a. Sources of Water. Select all that apply and sum score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		4
5pts	High pH groundwater (7.5-9.0)	<input type="checkbox"/>
3pts	Other groundwater	<input type="checkbox"/>
1pt	Precipitation	<input checked="" type="checkbox"/>
3pts	Seasonal surface water	<input checked="" type="checkbox"/>
5pts	Perennial surface water (lake or stream)	<input type="checkbox"/>
3b. Connectivity. Select all that apply and sum score		0
1pt	100-year floodplain. "Floodplain is defined in OAC Rule 3745-1-50(P) as "...the relatively level land next to a stream or river channel that is periodically submerged by floodwaters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	<input type="checkbox"/>
1pt	Between stream/lake and other human land use. This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	<input type="checkbox"/>
1pt	Part of wetland or upland (e.g. forest, prairie) complex. Both this and the next question ask whether the wetland is in physical proximity to, or a part of other nearby wetland or upland natural areas. The difference is whether the area the wetland is "long and narrow" like a river, or more "suarish" like a large forest or woodlot. If the latter is the case, this question applies: if the former, the next question applies. In a few instances, both may apply.	<input type="checkbox"/>
1pt	Part of riparian or upland corridor. See description above.	<input type="checkbox"/>
3c. Maximum water depth. Select only one and assign score. The Rater <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		1
3pts	>0.7m (27.6in)	<input type="checkbox"/>
2pts	0.4 to 0.7m (15.7 to 27.6in)	<input type="checkbox"/>
1pt	<0.4m (<15.7in)	<input checked="" type="checkbox"/>
3d. Duration of inundation/saturation. Select one or double-check and average the scores if duration is uncertain. The use of secondary indicators is necessary and expected in order to properly answer this Question. Categories correspond to Zones II, III, and IV of 1987 Manual (Table 5). Zone IV subdivided into seasonally		2
4pts	Semi permanently to permanently inundated or saturated.	<input type="checkbox"/>
3pts	Regularly inundated or saturated.	<input type="checkbox"/>
2pts	Seasonally inundated.	<input checked="" type="checkbox"/>
1pt	Seasonally saturated in the upper 30cm (12in) of soil.	<input type="checkbox"/>

Subtotal

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3e. **Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the Rater to evaluate the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

It is very important to stress that this question does not discriminate between wetlands with different types of hydrologic regime, e.g. between a forested seep wetland located on a floodplain with seasonal inundation and a leather leaf (*Chamaedaphne calyculata*) bog with precipitation and minor amounts of surface run-off from a small watershed. Rather, it asks the rater to evaluate the "intactness" of the hydrologic regime attributable to *that type of wetland*. In the example above, both the forested seep wetland and the leather leaf bog can score the maximum points (12) if they're no, or no apparent, modifications to the natural hydrologic regime.

Once the Rater has listed all possible past and ongoing disturbances, the Rater should check the most appropriate category to describe the present state of the wetland. In instances where the Rater believes that a wetland falls between two categories, or where the Rater is uncertain as to which category is appropriate, it is appropriate to "double check" and average the score.

The labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a hydrologic disturbance continuum, from very high to very low or no disturbance.

The Rater may check one or several of these possible disturbance, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

Check all that are observed present in or near the wetland

<input type="checkbox"/> ditch(es), in or near the wetland	<input type="checkbox"/> point source discharges to the (non-storm water)
<input type="checkbox"/> tile(s), in or near the wetland	<input type="checkbox"/> filling/grading activities in or near the wetland
<input type="checkbox"/> dike(s), in or near the wetland	<input type="checkbox"/> road beds/RR beds in or near the wetland
<input type="checkbox"/> weir(s), in or near the wetland	<input type="checkbox"/> dredging activities in or near the wetland
<input type="checkbox"/> storm water inputs (addition of water)	<input type="checkbox"/> other (specify)

<p>Circle one answer. Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime, or have they occurred so far in the past that current hydrology should be considered to be "natural"?</p>	<p>YES</p> <p>Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p>NO</p> <p>Assign a score of 12 since there are no or no apparent modifications.</p>	<p>NOT SURE</p> <p>Double check "none or none apparent" and "recovered" and assign a score of 9.5</p>
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Select one or double check adjoining number and average the score.		score
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the Rater.	<input type="checkbox"/>
7pts	RECOVERED. The wetland appears to have recovered from past modifications.	<input type="checkbox"/>
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications	<input checked="" type="checkbox"/>
1pt	RECENT OR NO RECOVERY. The modifications have occurred, recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	<input type="checkbox"/>

Subtotal

Subtotal from previous page

Metric 4. Habitat Alteration and Development. Maximum 20 points. While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. This metric attempts to evaluate these things under the rubric "habitat alteration." In many instances, items checked as possible hydrologic disturbances in Question 3e will be instead alterations to a wetland's habitat or disruptions in its development (succession state). In other instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. In any case, the Rater should carefully consider what is the actual proximate (direct) cause of the disturbance to the wetland.

4a. **Substrate/Soil Disturbance.** Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.

Examples of substrate/soil disturbance include filling and grading, plowing, grazing (hooves), vehicle use (motorbikes, off-road vehicles, construction vehicles), sedimentation, dredging, and other mechanical disturbances to the surface substrates or soils.

<p>Circle one answer. Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils or substrates, or have they occurred so far in the past that current conditions should be considered to be "natural"?</p>	<p>YES <input checked="" type="checkbox"/></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p> <p style="text-align: right;">2</p>	<p>NO <input type="checkbox"/></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p>NOT SURE <input type="checkbox"/></p> <p>Double check "none or none apparent" and "recovered" and assign a score of 3.5</p>
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Select one or double check adjoining number and average the score.		score
		2
4pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the Rater.	<input type="checkbox"/>
3pts	RECOVERED. The wetland appears to have recovered from past modifications.	<input type="checkbox"/>
2pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications	<input checked="" type="checkbox"/>
1pt	RECENT OR NO RECOVERY. The modifications have occurred, recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	<input type="checkbox"/>

4b. Habitat development. Select only one and assign score. This question asks the Rater to assign an overall qualitative rating of how well developed the wetland is in comparison to other ecologically or hydrogeomorphically similar wetlands. This question presumes a good sense of the types of wetlands and the range in quality typical of the region, watershed, or state.		2
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	<input type="checkbox"/>
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics, which would make it excellent.	<input type="checkbox"/>
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	<input type="checkbox"/>
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	<input type="checkbox"/>
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	<input type="checkbox"/>
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	<input checked="" type="checkbox"/>
1pt	POOR. Wetland appears to <u>not</u> be a good example of its type or class because of past or present disturbances, successional state, etc.	<input type="checkbox"/>

Subtotal

Subtotal from previous page

4c. **Habitat alteration.** This question evaluates the “intactness” the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify a possible alteration. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to “double check” and average scores. In some instances, the scores can be viewed as a habitat alteration continuum, from very high to very low or no disturbance. **The Rater may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

Check all that are observed present in or near the wetland

<input type="checkbox"/> Mowing	<input type="checkbox"/> Herbaceous layer/aquatic bed removal
<input type="checkbox"/> Grazing (cattle, sheep, pigs, etc.)	<input type="checkbox"/> Sedimentation
<input type="checkbox"/> Clear cutting	<input type="checkbox"/> Dredging
<input type="checkbox"/> Selective cutting	<input type="checkbox"/> Farming
<input type="checkbox"/> Woody debris removal	<input type="checkbox"/> Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/> Toxic pollutants	<input type="checkbox"/> Other (specify)
<input type="checkbox"/> Shrub/sapling removal	<input type="checkbox"/> Other (specify)

<p>Circle one answer. Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime, or have they occurred so far in the past that current hydrology should be considered to be “natural”?</p>	<p>YES</p> <p>Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p>NO</p> <p>Assign a score of 9 since there are no or no apparent modifications.</p>	<p>NOT SURE</p> <p>Double check “none or none apparent” and “recovered” and assign a score of 7.5</p>
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3

Select one or double check adjoining number and average the score.		score
		3
9pts	NONE OR NONE APPARENT. There are no alterations or no alterations that are apparent to the Rater.	<input type="checkbox"/>
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	<input type="checkbox"/>
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations/	<input checked="" type="checkbox"/>
1pt	RECENT OR NO RECOVERY. The alterations/ have occurred, recently occurred, and/or the wetland has not recovered from past alterations/, and/or the alterations/ are ongoing.	<input type="checkbox"/>

Metric 5. Special wetland communities. Maximum 10 points. Assign or deduct points if wetland has the feature described. Refer to Narrative Rating for guidance. No wetland can receive more than 10 points even if multiple categories are applicable.

<input type="checkbox"/> Bog (10pts)	<input type="checkbox"/> Lake plains sand prairies (Oak Openings) (10 pts)
<input type="checkbox"/> Fen (10 pts)	<input type="checkbox"/> Relict wet prairies (10 pts)
<input type="checkbox"/> Old Growth Forest (10 pts)	<input type="checkbox"/> Known occurrence of threatened/endangered species (10pts)
<input type="checkbox"/> Mature Forested Wetland (5 pts)	<input type="checkbox"/> Significant migratory songbird/waterfowl habitat (10 pts)
<input type="checkbox"/> Coastal wetlands, unrestricted hydrology (10 pts)	<input type="checkbox"/> Category 1 wetlands (See Narrative Rating #5) (-10 pts)
<input type="checkbox"/> Coastal wetlands, restricted hydrology (5 pts)	

Subtotal

Subtotal from previous page

Metric 6. Vegetation, Interspersion, and Microtopography. Maximum 20 points.

<p>6a. Wetland Vegetation Communities. Check each community present <u>both vertically and horizontally</u> within the wetland with an area of at least 0.1 hectares or 100m² (0.2471 acres). Assign a score of 0 to 3 using Tables 3, Table 4 or Table 5. Sum the scores for the classes present.</p>		
<input type="checkbox"/>	<p>Aquatic Bed. Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed (<i>Lemna</i> spp., <i>spirodelaspp.</i>) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.</p>	
<input checked="" type="checkbox"/>	<p>Emergent. Includes areas of wetland dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, fens, prairie pothole, and bluejoint slough.</p>	2
<input type="checkbox"/>	<p>Shrub. Includes areas of wetlands dominated by woody vegetation less than 6m (20ft) tall. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.</p>	
<input type="checkbox"/>	<p>Forested. Includes wetlands or areas of wetlands characterized by wood vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are defined as "vernal pools" in OAC Rule 3745-1-50.</p>	
<input type="checkbox"/>	<p>Open water. The "open water" class is equivalent to the "unconsolidated bottom/mud" class/subclass (pub₃) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.</p>	
<input type="checkbox"/>	<p>Other (See User's Manual)</p>	

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 6 for narrative descriptions of what "low," "moderate," and "high" quality mean.

Cover scale	Description
0	the vegetation community is either, 1) absent from wetland, or 2) comprises less than 0.1ha (0.2471 acres) of contiguous area within the wetland
1	vegetation community is present and either, 1) comprises a small part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation, the community is of low quality
2	the vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality.
3	the vegetation community is of high quality and comprises a significant part, or more of the wetland's vegetation

Table 4. Use this table in conjunction with Table 5 to determine what is a "low," "moderate," or "high quality community"

narrative	description
low	Low species diversity and/or a predominance of non-native or disturbance tolerant native species
moderate	Native species are the dominant component of the vegetaion, although non-native or disturbance tolerant native species can also be present, and species diversity is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
high	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and sometimes, but not always, the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale

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

Subtotal

Subtotal from previous page

6b. Horizontal (plan view) interspersion. Select only one and assign score. Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		2
5pts	HIGH. Wetland has a high degree of interspersion	<input type="checkbox"/>
4pts	MODERATELY HIGH. Wetland has a moderately high degree of interspersion	<input type="checkbox"/>
3pts	MODERATE. Wetland has a moderate degree of interspersion	<input type="checkbox"/>
2pts	MODERATELY LOW. Wetland has a moderately low degree of interspersion	<input checked="" type="checkbox"/>
1pt	LOW. Wetland has a low degree of interspersion	<input type="checkbox"/>
0pts	NONE. Wetland has no plan view interspersion	<input type="checkbox"/>

6c. Coverage of Invasive Plant Species. Refer to Table 1 on Page 7 for list. Select only one and assign score.		-3
-5pts	Extensive. >75% areal cover of invasive species	<input type="checkbox"/>
-3pts	Moderate 25-75% areal cover of invasive species	<input checked="" type="checkbox"/>
-1pt	Sparse. 5-25% areal cover of invasive species	<input type="checkbox"/>
0pts	Nearly absent. <5% areal cover of invasive species	<input type="checkbox"/>
1pt	Absent	<input type="checkbox"/>

6d. Microtopography. Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		0
	Vegetated hummocks and tussocks.	<input type="checkbox"/>
	Coarse woody debris >15cm (6in) diameter	<input type="checkbox"/>
	Standing dead trees >25cm (10in) diameter at breast height	<input type="checkbox"/>
	Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for from reproduction	<input type="checkbox"/>

Table 6. Cover scale for microtopographic habitat features.

Microtopographic habitat quality	narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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

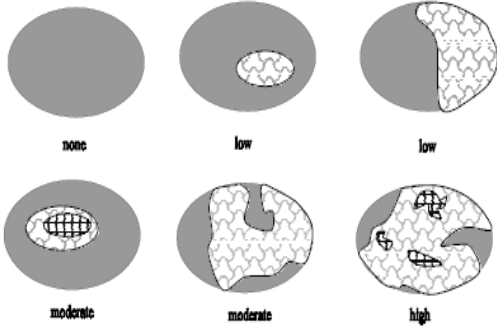


Figure 1. Hypothetical wetlands for estimating degree of interspersion.

GRAND TOTAL

End of Quantitative Rating. Complete Categorization Worksheets.

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.oh.us/dsw/401/401.html>

APPENDIX E

HHEI FORMS



SITE NAME/LOCATION **Waverly Lick**

SITE NUMBER **ST-32F-INT** RIVER BASIN _____ DRAINAGE AREA (mi²) **0.13**

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

DATE **08/29/23** SCORER **N. Houk** COMMENTS _____

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	10%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> MUCK [0 pts]	0%
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	30%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

HHEI Metric Points

Substrate Max = 40

20

A + B

Pool Depth Max = 30

25

Bankfull Width Max=30

20

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

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

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

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

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

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

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

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

DOWNSTREAM DESIGNATED USE(S)

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

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

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

County: Township / City:

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: Quantity:

Photograph Information:

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

Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:

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

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

Additional comments/description of pollution impacts:

BIOTIC EVALUATION

Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

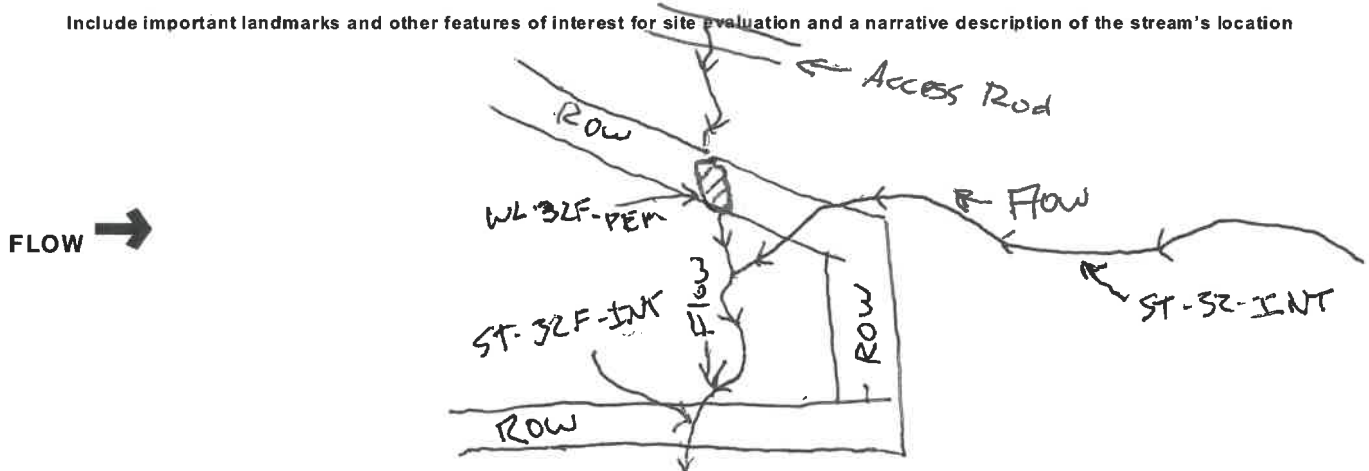
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)

Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)

Comments Regarding Biology:

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

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



SITE NAME/LOCATION **Waverly Lick**

SITE NUMBER **ST-32-INT** RIVER BASIN _____ DRAINAGE AREA (mi²) **0.06**

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

DATE **08/29/23** SCORER **N. Houk** COMMENTS _____

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLD R SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	20%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> MUCK [0 pts]	0%
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	30%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

HHEI Metric Points

Substrate Max = 40

19

A + B

Pool Depth Max = 30

15

Bankfull Width Max=30

15

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

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

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

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

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

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

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

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

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

USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
 County: Pike Township / City: Waverly

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: Quantity: 0.00
 Photograph Information:
 Elevated Turbidity? (Y/N): N Canopy (% open): 0%
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
 Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain:

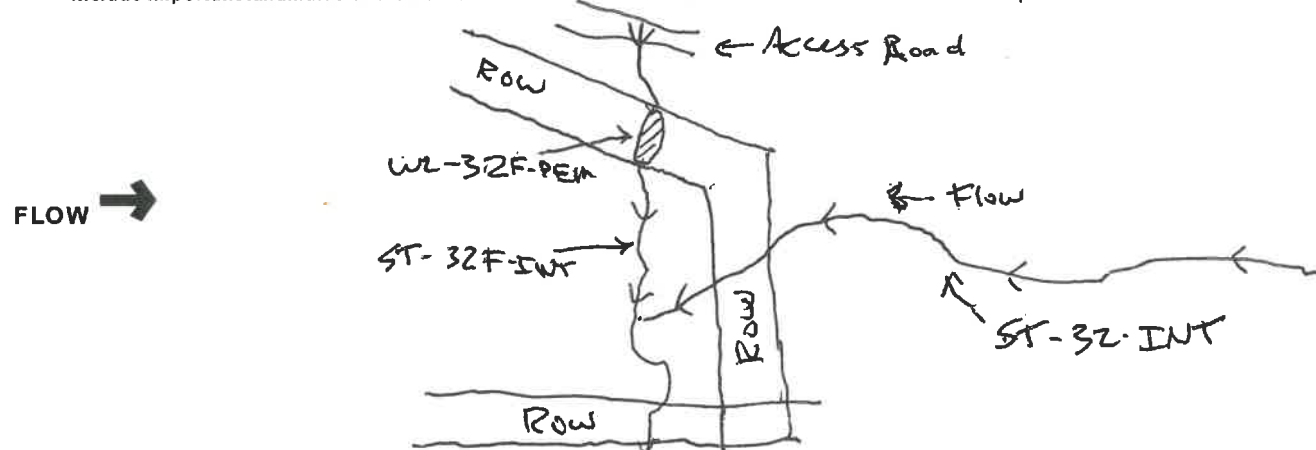
Additional comments/description of pollution impacts:

BIOTIC EVALUATION

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

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

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



**This foregoing document was electronically filed with the Public Utilities
Commission of Ohio Docketing Information System on
12/12/2023 4:00:47 PM**

in

Case No(s). 23-1044-EL-BLN

Summary: Letter of Notification Waverly - Lick Relocation. electronically filed by
Hector Garcia-Santana on behalf of Ohio Power Company.