

# Construction Notice for the West Mount Vernon-South Kenton 138 kV Transmission Line Temporary Relocation Project



PUCO Case No. 25-0447-EL-BNR

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

Submitted by:  
AEP Ohio Transmission Company, Inc.

May 29, 2025

**CONSTRUCTION NOTICE FOR THE WEST MOUNT VERNON-SOUTH KENTON 138 KV TRANSMISSION  
LINE TEMPORARY RELOCATION PROJECT**

**CONSTRUCTION NOTICE**

**AEP Ohio Transmission Company, Inc.**

**West Mount Vernon-South Kenton 138 kV  
Transmission Line Temporary Relocation Project**

**4906-6-05 Accelerated Application Requirements**

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

**4906-6-05(B) General Information**

**B(1) Project Description**

**Provide 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 or construction notice application.**

The Company proposes to construct the West Mount Vernon-South Kenton 138 kV Transmission Line Temporary Relocation Project (the "Project"), in Buck Township, Hardin County, Ohio. The Project involves installing less than 0.2 mile of temporary 138 kV line on the South Kenton Station site, which will support the rebuild of the South Kenton Station. As part of the Project, a temporary switch will also be installed along the line. The existing South Kenton Station is inoperable and is required to be rebuilt. The Project will allow the West Mount Vernon - South Kenton 138 kV Transmission Line to remain energized while the substation is rebuilt and a permanent solution (which would be the subject of a future separate application) is identified. The location of the Project is shown on **Figures 1 and 2** in **Appendix A**.

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

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

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

The Project has been assigned Case No. 25-0447-EL-BNR.

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## **B(2) Statement of Need**

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

The Project is required to ensure continued operation of the existing transmission line while the South Kenton Station is rebuilt.

Failure to construct the Project may significantly increase the risk of outages to area customers. The Project's proposal to construct temporary poles will mitigate this risk.

As the Project results in no operation, modeling, or topology changes, the Project will not be brought through the PJM M-3 process. In addition, the Project is not included in the Company's 2025 Long Term Forecast Report, as the Project solution was unknown at the time of filing.

## **B(3) Project Location**

**Provide the location of the project in relation to existing or proposed lines and substations shown on an area system map of sufficient scale and size to show existing and proposed transmission facilities in the project area.**

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

## **B(4) Alternatives Considered**

**Describe the alternatives considered and reasons why the proposed location or route is best suited for the proposed facility, including but not be limited to, impacts associated with socioeconomic, ecological, construction, or engineering aspects of the project.**

The Project proposes to temporarily relocate structures along an existing 138 kV transmission line. The location of the Project is the most suitable solution for the Project, as the poles remain primarily on property owned by an affiliate of the Company, avoids other transmission lines around the substation, and will only require a temporary easement of less than 0.1 acre on an adjacent property. In addition, no impacts to wetlands, streams, or known cultural resource areas are anticipated. Therefore, this Project represents the most suitable location and is the most appropriate solution for meeting the Company's needs in the area.

## **B(5) Public Information Program**

**Describe its public information program to inform affected property owners and residents of the nature of the project and the proposed timeframe for project construction and restoration activities.**

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

AEP Ohio Transmission Company, Inc.

West Mount Vernon-South Kenton 138 kV  
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**B(6) Construction Schedule**

**Provide an anticipated construction schedule and proposed in-service date of the project.**

Construction of the Project is planned to begin in June 2025 with an anticipated in-service date of July 2025.

**B(7) Area Map**

**Provide a map of at least 1:24,000 scale clearly depicting the facility and proposed limits of disturbance with clearly marked streets, roads, and highways, and an aerial image.**

**Figure 1, in Appendix A**, identifies the location of the Project area on a United States Geological Survey 1:24,000 quadrangle maps of Mount Victory and Kenton, Ohio. **Appendix A, Figure 2** displays the Project components on a 2023 aerial photograph.

**B(8) Property Agreements**

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

A list of properties required for the Project are provided in **Table 1** below.

**Table 1 – Property Agreements**

<b>Property Parcel Number</b>	<b>Agreement Type</b>	<b>Easement or Option Obtained (Yes/No)</b>
041200300000	Company Affiliate Owned	N/A
041200200000	Temporary Easement	No

**B(9) Technical Features**

**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 is estimated to include the following:

- Voltage: 138kV
- Conductors: WIRE, ACSR, BARE, 477 MCM COND, 1/C, 26/7 STR, OVH PRI, HAWK
- Static Wire: Not included on temporary structures
- Insulators: Polymer on temporary poles; Porcelain and Polymer on temporary switch structure

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ROW Width: 100 feet  
Structure Type: Two (2) single circuit, wood alternating horizontal post  
Four (4) single circuit, wood guyed dead ends  
Two (2) single circuit, wood guyed E-structure with horizontal post

**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.

**B(9)(c) Project Cost**

**The estimated capital cost of the project.**

The cost estimate for the proposed Project, which is comprised of applicable tangible and capital costs, is approximately \$770,000 using a Class 5 estimate. Pursuant to the PJM OATT, the costs for this Project will be recovered in the AEP Ohio Transmission Company Inc.'s FERC formula rate (Attachment H-20 to the PJM OATT) and allocated to the AEP Zone.

**B(10) Social and Ecological Impacts**

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

**B(10)(a) Land Use**

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

The Project is located primarily on property owned by an affiliate of the Company and a large portion is occupied by South Kenton Station. The remaining portion of the Project, which is less than 0.1 acre, will extend onto the adjacent agricultural property although no ground disturbance is proposed in the agricultural field. An aerial photograph of the Project vicinity is provided as **Figure 2**. The Project is mapped within Buck Township in Hardin County. The Project vicinity is currently rural in nature and is comprised primarily of agricultural land used for row crops, and lesser amounts of old fields, forested land, landscaped areas, and scattered residences. The Project is not anticipated to require tree clearing.

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**B(10)(b) Agricultural Land**

**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.**

Approximately 0.1 acre of the Project temporary ROW will extend onto the agricultural property adjacent to the South Kenton Station parcel. However, no ground disturbance is proposed in the agricultural field. Adjacent agricultural land will not be impacted.

Based on data received from the Hardin County Auditor’s office on April 14, 2025, the Project parcels are not registered as agricultural district land. In addition, no Ohio Department of Agriculture easements are crossed by the Project.

**B(10)(c) Archaeological and Cultural Resources**

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

A cultural resource survey and report were conducted by the Company’s consultant, which includes the Project area, in November 2024. Correspondence from the State Historic Preservation Office (“SHPO”) was received in December 2024, see **Appendix B**. The SHPO stated that that the Project will have no adverse effect on historic properties and that no further archaeological work is necessary.

**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 summary of anticipated permits and authorizations for the Project is provided in the **Table 2**, below. There are no other known local, state, or federal requirements that must be met prior to commencement of the Project.

**Table 2 – Anticipated Permits**

<b>Permit/Authorization/Coordination</b>	<b>Agency</b>	<b>Date</b>
Storm Water Pollution Prevention Plan	Ohio Environmental Protection Agency	Not Applicable
	Hardin County	
Notice Criteria	Federal Aviation Administration	Submitted through Criteria Tool on 4/30/2025, no further action required

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<b>Permit/Authorization/Coordination</b>	<b>Agency</b>	<b>Date</b>
Road Use Maintenance Agreement	Hardin County	Not Applicable
Clean Water Act Section 404/401	United States Army Corps of Engineers	Not Applicable
	Ohio Environmental Protection Agency	
Archaeology/Architectural	Ohio Historic Preservation Office	Coordination complete 12/6/2024, no additional work required
Threatened and Endangered Species	United States Fish and Wildlife Service	Consultation complete 6/12/2023
Threatened and Endangered Species	Ohio Department of Natural Resources	Consultation complete 5/19/2023
Floodplain	Hardin County	Not Applicable

**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.**

On April 19, 2023, coordination letters were submitted to the United State Fish and Wildlife Service (USFWS) and the Ohio Department of Natural Resources (ODNR) Ohio Natural Heritage Program (ONHP) and Division of Wildlife (DOW), seeking an environmental review of the Project for potential impacts to state and/or federally protected species. ODNR and USFWS provided responses on March 19, 2023 and June 12, 2023, respectively. Copies of the agencies’ responses are presented in **Appendix B**.

**Table 4**, in **Appendix C** lists the federal and state threatened or endangered species in the Project area.

Based on the nature of the proposed Project activities and habitat characteristics of the surrounding vicinity, construction impacts to protected species are not anticipated.

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**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 Company's consultant conducted a wetland and stream delineation survey, which includes the Project corridor, on April 19, 2023 and prepared an Ecological Survey Report, which is provided in **Appendix C**. The survey of the Project area identified one intermittent stream was delineated along the northeastern portion of the South Kenton Station property but is not crossed by the Project. No wetlands or other water bodies were identified. The Project construction activities are not expected to result in discharge of fill in any delineated feature.

Based on a review of the Protected Areas Database of the United States as well as the Conservation Easement Database, there are no state or national parks, forests, wildlife areas or mapped conservation easements in the vicinity of the Project.

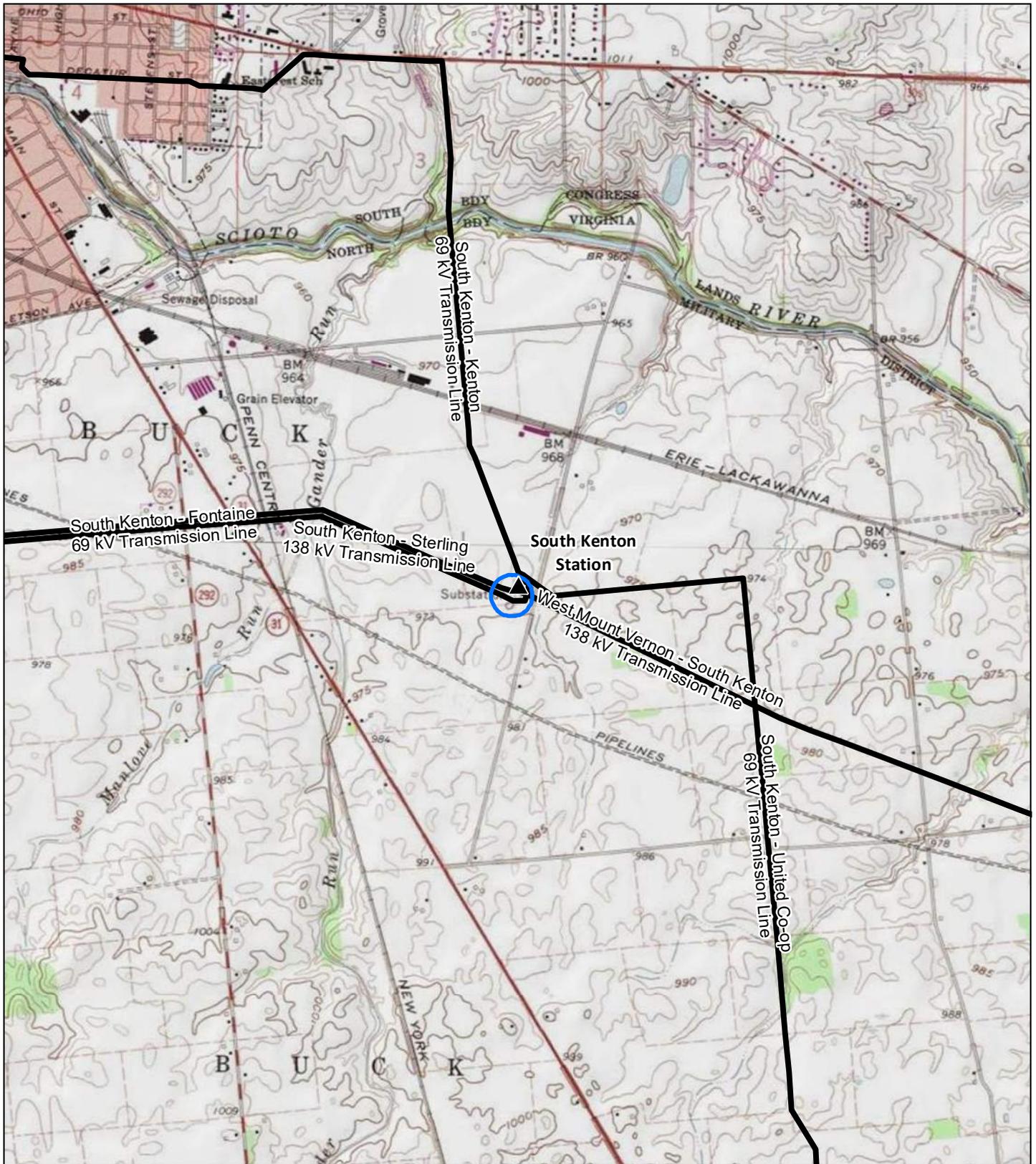
The FEMA Flood Insurance Rate Map ("FIRM") was reviewed to identify any floodplains/flood hazard areas that have been mapped within the Project Area (specifically, map number 39159C0025D). Based on this mapping, no FEMA-designated 100-year floodplains are crossed by the proposed alignment.

**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 Station
-  Existing Transmission Line

Data Sources: AEP, USGS 7.5' Topographic Quadrangle (Mount Victory, Ohio)

Ohio State Plane North NAD 1983



April 15, 2025

**PROJECT LOCATION**

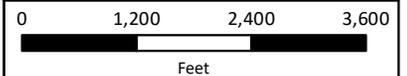


HARDIN COUNTY, OHIO

**FIGURE 1  
TOPOGRAPHIC OVERVIEW**



West Mount Vernon-South Kenton 138 kV Transmission Line Temporary Relocation





**Legend:**

- Proposed Temporary Transmission Line
- Project Corridor
- ▲ Existing Station
- Existing Transmission Line
- Parcel Boundary

Data Sources: AEP,  
ESRI World Imagery, 2024

Ohio State Plane North  
NAD 1983



May 09, 2025

**PROJECT LOCATION**



HARDIN COUNTY, OHIO

**FIGURE 1  
TOPOGRAPHIC OVERVIEW**



West Mount Vernon-South  
Kenton 138 kV Transmission  
Line Temporary Relocation

0 250 500 750



Feet

## **Appendix B Agency Correspondence**



In reply, refer to  
2024-HAR-62952

December 6, 2024

Ryan J. Weller  
Weller & Associates, Inc.  
1395 West Fifth Avenue  
Columbus, Ohio 43212  
rweller@wellercrm.com

**RE: South Kenton Station Upgrades Project, Buck Township, Hardin County, Ohio**

Dear Mr. Weller:

This letter is in response to the correspondence received on November 8, 2024, regarding the proposed South Kenton Station Upgrades Project in Buck Township, Hardin 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 (OPSB) 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 *Phase I Cultural Resource Management Investigations for the 2.7 ha (6.6 ac) South Kenton Station Upgrades Project in Buck Township, Hardin County, Ohio* by Ryan J. Weller and Scott McIntosh (Weller & Associates, Inc. 2024). This submission addresses proposed upgrades to the existing South Kenton Station facility in Hardin County, Ohio. A literature review, visual inspection, surface collection and subsurface investigations (shovel probe and shovel test unit excavation) were conducted as part of these investigations. Disturbance related to the construction of the existing station facility was noted in portions of the project area. There were no previously documented archaeological sites located within the project area and no new archaeological sites were identified through these investigations. Our office agrees that no additional archaeological survey is needed.

A literature review and field survey for architectural resources were conducted as part of the investigations. One (1) resource fifty years of age or older was identified in the Area of Potential Effects (APE). It is Weller's recommendation that this resource is not eligible for listing in the National Register of Historic Places (NRHP). Our office agrees with Weller's recommendation of eligibility. Therefore, we agree that there will be no effect on historic resources as a result of the project.

Based on the information provided, we agree that 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 cultural resources are discovered during the implementation of this project. In such a situation, this office should be contacted. If you have any questions, please contact me by e-mail at [cgullett@ohiohistory.org](mailto:cgullett@ohiohistory.org), or Ms. Joy Williams at [jwilliams@ohiohistory.org](mailto:jwilliams@ohiohistory.org). Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "Catherine Gullett".

Catherine Gullett, Project Reviews Coordinator - Archaeology  
Resource Protection and Review  
State Historic Preservation Office

RPR Serial No. 1105693



# Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

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

May 19, 2023

Daniel Godec  
Stantec Consulting Services, Inc.  
10200 Alliance Road, Suite 300  
Cincinnati OH 45242

**Re:** 23-0437; South Kenton-North Waldo 138 kV Line Rebuild

**Project:** The proposed project involves rebuilding a 138 kV Line from Kenton to North Waldo.

**Location:** The proposed project is located in Buck & Dudley Townships of Hardin County, and Bowling Green, Green Camp, Pleasant, & Richland Townships of Marion County, Ohio.

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

**Natural Heritage Database:** The Natural Heritage Database has the following data within one mile of the project area:

Least Darter (*Etheostoma microperca*), SC  
Elktoe (*Alasmidonta marginata*), SC  
Creek Heelsplitter (*Lasmigona compressa*), SC  
Rainbow (*Villosa iris*), SC

The review was performed on the specified project area as well as an additional one-mile radius. Records searched date from 1980. Conservation status abbreviations are as follows: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; U = state status under review; X = presumed extirpated in Ohio; FE = federally endangered, and FT = federally threatened.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for an 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 portion of the project west of Township Road 199 in Hardin County is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. Because presence of state endangered bat species has been established in this 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](mailto: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. 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  $DBH \geq 20$  if possible. However, if trees are present within this area, (outside of the area delineated above) and trees must be cut during the summer months, the DOW recommends a mist net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting. Mist net and acoustic surveys should be conducted in accordance with the most recent version of the "[OHIO DIVISION OF WILDLIFE GUIDANCE FOR BAT SURVEYS AND TREE CLEARING](#)". If state listed bats are documented, DOW recommends cutting only occur from October 1 through March 31. However, limited summer tree cutting may be acceptable after consultation with the DOW.

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 clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the purple lilliput (*Toxolasma lividus*), a state endangered mussel, and the pondhorn (*Unio merus tetralasmus*), a state threatened mussel. This project must not have an impact on native mussels. This applies to both listed and non-listed species, as all species of mussel are protected in Ohio. Per the Ohio Mussel Survey Protocol (2022), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels

(Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the [Ohio Mussel Survey Protocol](#). If there is no in-water work proposed, impacts to mussels are not likely.

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 aquatic species.

The project is within the range of the eastern massasauga (*Sistrurus catenatus*), a state endangered and federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. The DOW recommends that an approved herpetologist conducts a habitat suitability survey to determine if suitable habitat is present within the project area. If suitable habitat is determined to be present; the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by the approved herpetologist. A list of [approved herpetologists](#) has been provided for your convenience.

The project is within the range of the northern harrier (*Circus hudsonius*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the project is not likely to impact this species.

The project is within the range of the trumpeter swan (*Cygnus buccinator*), a state threatened bird. Trumpeter swans prefer large marshes and lakes ranging in size from 40 to 150 acres. They like shallow wetlands one to three feet deep with a diverse mix of plenty of emergent and submergent vegetation and open water. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through June 15. If this habitat will not be impacted, this project is not likely to have an impact on this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this type of habitat will not be impacted, the project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the 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](mailto:mike.pettegrew@dnr.ohio.gov) if you have questions about these comments or need additional information.

Mike Pettegrew  
Environmental Services Administrator



# 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



June 12, 2023

Project Code: 2023-0068762

Dear Mr. Godec:

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, endangered, and proposed 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  $\geq 3$  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.

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.

*Seasonal Tree Clearing for Federally Listed Bat Species:* Should the proposed project site contain trees  $\geq 3$  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  $\geq 3$  inches dbh cannot be avoided, we recommend removal of any trees  $\geq 3$  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.

If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats and northern long-eared bats. If Indiana bats and northern long-eared bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

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](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](mailto: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](mailto:ohio@fws.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrice Ashfield", is centered below the word "Sincerely,". The signature is fluid and cursive.

Patrice Ashfield  
Field Office Supervisor

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

## **Appendix C Ecological Survey Report**



**South Kenton Station Expansion  
Project**

**Ecological Survey Report**

Prepared for:

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

Prepared by:

Stantec Consulting Services, Inc.  
10200 Alliance Road, Suite 300  
Blue Ash, OH 45242

November 14, 2024

## Sign-off Sheet

This document entitled Ecological Survey Report, South Kenton Station Expansion Project was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of AEP Ohio Transmission Company, Inc. Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by Kate Bomar

(signature)

**Kate Bomar**

Reviewed by Aaron J. Kwolek

(signature)

**Aaron Kwolek**

Reviewed by Daniel J. Godec

(signature)

**Dan Godec**

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Introduction  
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## **1.0 INTRODUCTION**

AEP Ohio Transmission Company, Inc. (AEP) is proposing construction activities associated with the South Kenton Station Expansion Project (the Project). AEP plans to conduct construction activities to rebuild/expand the existing South Kenton 138 kV substation (South Kenton Station) (Figure 1, Appendix A). The Project area was surveyed for wetlands, waterbodies, open water features, and potential threatened, endangered, and rare species habitat by Stantec Consulting Services Inc. (Stantec) biologists on April 19, 2023. The approximate locations of features located up to 50 feet outside of the Project area were also recorded during the field surveys, where landowner access was permitted. However, no data forms were collected on features that did not extend into the Project area. The approximate locations of these features are shown on the Figure 2 maps in Appendix A as “approximate” wetlands, streams (waterways), open waters, and upland drainage features.

Methods  
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## 2.0 METHODS

### 2.1 WETLAND DELINEATION

Prior to completing the field surveys, a desktop review of the Project area was conducted using U.S. Geological Survey (USGS) topographic mapping, National Wetlands Inventory (NWI) maps, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey data, and aerial imagery mapping. Stantec completed a wetland delineation study in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE 2010). Wetland categories were classified using the Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001).

### 2.2 STREAM DELINEATION

Streams that demonstrated a continuously defined channel (bed and bank), ordinary high-water mark (OHWM), and the disturbance of terrestrial vegetation were delineated within the Project area, per the protocols outlined in the USACE's *Guidance on Ordinary High Water Mark Identification* (Regulatory Guidance Letter, No. 05-05) (USACE 2005). Delineated streams were classified as ephemeral, intermittent, or perennial per definitions in the Federal Register/Vol. 67, No. 10 (USACE 2002). Functional assessment of streams identified within the Project area was based on completion of the Ohio Environmental Protection Agency's (OEPA) *Headwater Habitat Evaluation Index* (HHEI; OEPA 2020) and/or *Qualitative Habitat Evaluation Index* (QHEI; OEPA 2006) data forms. The centerline of each waterway and/or the OHWM of each waterway was identified and surveyed using a handheld sub-meter accuracy global positioning system (GPS) unit and mapped with geographic information system (GIS) software. Additionally, the locations of ponds/open water features and upland drainage features (which lacked a continuously defined bed and bank/OHWM) identified within the Project area were also recorded with a sub-meter accuracy GPS unit during the field surveys.

### 2.3 RARE SPECIES

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

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### 3.0 RESULTS

#### 3.1 TERRESTRIAL HABITAT

Stantec completed field surveys for threatened and endangered species or their habitats on April 19, 2023. Figure 3 (Appendix A) shows the vegetation communities/habitats and land cover types identified within the Project area and the locations of any identified rare, threatened, or endangered species habitat observed within the Project area during the time of the habitat assessment surveys. Representative photographs of the vegetation communities/habitats and land cover types identified within the Project area are included in Appendix C of this report (photo locations are shown on Figure 3, Appendix A). Information regarding the vegetation communities/habitats/land cover types identified within the Project area is provided in Table 1.

**Table 1. Vegetation Communities and Land Cover Types Found within the South Kenton Station Expansion Project Area, Hardin County, Ohio**

Vegetation Communities and Land Cover Types within the Project Area	Degree of Human-Related Ecological Disturbance	Unique, Rare, or High Quality?	Approximate Acreage Within Project Area
Agricultural Land	Extreme Disturbance/Ruderal Community dominated by planted row crop species such as corn ( <i>Zea mays</i> ), and soybean ( <i>Glycine max</i> ).	No	1.61
Maintained Lawn	Extreme Disturbance/Ruderal Community (dominated by planted non-native species, opportunistic invaders, and/or native highly tolerant taxa). Common plant species included common dandelion ( <i>Taraxacum officinale</i> ), white clover ( <i>Trifolium repens</i> ), narrowleaf plantain ( <i>Plantago lanceolata</i> ), tall fescue ( <i>Schedonorus arundinaceus</i> ), and perennial ryegrass ( <i>Lolium perenne</i> ).	No	3.23
Existing Road	Extreme Disturbance/existing paved road or other paved area (little to no vegetation is present in these habitats).	No	0.22
Industrial Land	Extreme Disturbance/Ruderal Community (little to no vegetation is present in these habitats).	No	1.55
<b>TOTAL</b>			<b>6.60</b>

Results  
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## **3.2 WETLANDS**

Stantec completed field surveys for wetlands within the Project area and evaluated three wetland determination sample points on April 19, 2023. As a result of the field surveys, Stantec did not identify any wetlands within the Project area. Figure 2 (Appendix A) shows the locations of the wetland determination sample points evaluated by Stantec within the Project area. Representative photographs of the wetland determination sample point locations are included in Appendix C of this report (photo locations are shown on Figure 2, Appendix A). Completed wetland determination data forms are included in Appendix D. A summary of the disposition of NWI-mapped wetlands within the Project area is provided in Table 2.

**ECOLOGICAL SURVEY REPORT, SOUTH KENTON STATION EXPANSION PROJECT**

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**Table 2. Summary of NWI Disposition within the South Kenton Station Expansion Project Area, Hardin County, Ohio**

<b>NWI Code</b>	<b>NWI Description</b>	<b>Figure 2 Page Number</b>	<b>Related Field Inventoried Resource(s)</b>	<b>Comments</b>
R4SBC	Riverine, intermittent, streambed, seasonally flooded	1	Stream 1	Stream 1 was delineated within the mapped NWI feature. The completed HHEI and QHEI data forms for this stream are provided in Appendix D. Representative photographs are available in Appendix C.

# ECOLOGICAL SURVEY REPORT, SOUTH KENTON STATION EXPANSION PROJECT

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## 3.3 STREAMS

Stantec completed field surveys for streams (waterways) within the Project area on April 19, 2023. One unnamed intermittent (Stream 1) was identified within the Project area. Figure 2 (Appendix A) shows the location of the stream identified by Stantec within the Project area and representative photographs of the stream are included in Appendix C of this report (photo locations are shown on Figure 2, Appendix A). Completed HHEI and QHEI data forms for Stream 1 are included in Appendix D. Information regarding the identified stream is provided in Table 3.

**Table 3. Summary of Stream Resources Found within the South Kenton Station Expansion Project Area, Hardin County, Ohio**

Stream ID	Location		Stream Type	Stream Name <sup>1</sup>	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score <sup>2,3</sup>	Category/ Rating/ OAC Use Designation <sup>2,3,4</sup>			Fill Type	Area (acre)
Stream 1	40.623549	-83.579418	Intermittent	UNT to Scioto River	250	5	2	HHEI/QHEI	71/44.5	Class III PHW/Fair	Eligible	TBD <sup>5</sup>	TBD <sup>5</sup>	TBD <sup>5</sup>
<b>TOTAL</b>					<b>250</b>							<b>TOTAL</b>	TBD <sup>5</sup>	

<sup>1</sup>UNT = Unnamed Tributary  
<sup>2</sup>Based on the designated use evaluation presented in the Field Methods for Evaluating Primary Headwater Habitat Streams in Ohio, Version 4.0 (OEPA 2020).  
<sup>3</sup>Based on the designated use evaluation presented in the Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (OEPA 2006).  
<sup>4</sup>Based on Ohio Administrative Code (OAC) 3745-1-16.  
<sup>5</sup>TBD – To be determined. Impact information and stream crossing information is unknown at this time.

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### **3.4 OPEN WATERS**

No open water features (ponds) were identified within the Project area during the field surveys that took place on April 19, 2023.

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### 3.5 RARE, THREATENED, OR ENDANGERED SPECIES HABITAT

Table 4. Summary of Potential Federally Listed and Ohio State-Listed Species within the South Kenton Station Expansion Project Area, Hardin County, Ohio

Common Name/ Scientific Name	State Listed Status <sup>1,2</sup>	Federally Listed Status <sup>1,3</sup>	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
<b>Reptiles</b>						
Eastern Massasauga/ <i>Sistrurus catenatus</i>	E	T	Habitats range from sphagnum bogs, fens, swamps, marshes, shrub-dominated peatlands, wet meadows, and floodplains to dry woodlands; this snake prefers seasonal wetlands with a mixture of open grass-sedge areas and short closed canopy (edge situations) (NatureServe 2023).	No potentially suitable habitat (large areas of wet meadows, bogs, fens, and marshes) was observed within the Project area.	<b>ODNR</b> – The Project is within the range of the eastern massasauga. The ODNR recommends that an approved herpetologist conducts a habitat suitability survey to determine if suitable habitat is present within the Project area. If suitable habitat is determined to be present, the ODNR recommends that a presence/absence survey be conducted or an avoidance/minimization plan be developed and implemented by the approved herpetologist.  <b>USFWS</b> - Due to the project type, size, and location, we do not anticipate adverse effects to this species.	No potentially suitable habitat (large areas of wet meadows, bogs, fens, and marshes) was observed within the Project area. However, the ODNR recommends that an approved herpetologist conducts a habitat suitability survey to determine if suitable habitat is present within the Project area. If suitable habitat is determined to be present, the ODNR recommends that a presence/absence survey be conducted or an avoidance/minimization plan be developed and implemented by the approved herpetologist.
<b>Fish</b>						
Least Darter/ <i>Etheostoma microperca</i>	SOC	N/A	Habitat includes quiet, vegetated lakes, headwaters, creeks, and small rivers, where the species usually occurs over mud and sand. The least darter inhabits weedy portions of lakes and of clear streams with sluggish flow (NatureServe 2023).	No potentially suitable habitat (perennial streams) was observed within the Project area.	<b>ODNR</b> – ODNR has records of the least darter within one mile of Project area. The ODNR 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 aquatic species.  <b>USFWS</b> – No comments received.	No potentially suitable habitat (perennial streams) was observed within the Project area. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
<b>Mussels</b>						
Elktoe/ <i>Alasmidonta marginata</i>	SOC	N/A	Although it occurs in large to medium sized streams, it is more typical of smaller streams. Habitat often includes small streams with good current and sand or gravel bottoms at depths of several inches to two feet (NatureServe 2023).	No potentially suitable habitat (perennial streams) was observed within the Project area.	<b>ODNR</b> – ODNR has records of the elktoe within one mile of Project area. The ODNR 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 aquatic species.  <b>USFWS</b> – No comments received.	No potentially suitable habitat (perennial streams) was observed within the Project area. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.

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Common Name/ Scientific Name	State Listed Status <sup>1,2</sup>	Federally Listed Status <sup>1,3</sup>	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
Rainbow/ <i>Villosa iris</i>	SOC	N/A	This mussel inhabits small streams, living within and below riffles on a sand, gravel or mud bottom in water less than a meter deep (WDNR 2022).	No potentially suitable habitat (perennial streams) was observed within the Project area.	<b>ODNR</b> – ODNR has records of the rainbow within one mile of Project area. The ODNR 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 aquatic species.  <b>USFWS</b> – No comments received.	No potentially suitable habitat (perennial streams) was observed within the Project area. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Pondhorn/ <i>Unio merus tetralasmus</i>	T	N/A	This species occurs in fine gravel in moderate current. It may be encountered in shallow, quiet, or slow-moving water at depths seldom exceeding two feet. This species typically inhabits the quiet or slow-moving, shallow waters of sloughs, borrow pits, ponds, ditches, and meandering streams. It is typically found buried in a substrate of fine sand and mud in shallow sloughs and ditches, and it is a species tolerant of adverse habitat conditions, surviving for periods of weeks or even months buried in the bottoms or banks of dried-up ponds (Parmalee and Bogan 1998; NatureServe 2023).	No potentially suitable habitat (perennial streams and ditches; ponds) was observed within the Project area.	<b>ODNR</b> – The Project area is within the range of the pondhorn mussel. The ODNR 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 aquatic species.  <b>USFWS</b> – No comments received.	No potentially suitable habitat (perennial streams and ditches; ponds) was observed within the Project area. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Purple Lilliput/ <i>Toxolasma lividus</i>	E	N/A	This species can inhabit fine-particle substrates and sand, gravel, or cobbles and boulders in riffles or flats immediately above riffles. This species is reported from the headwaters of small to medium sized rivers (NatureServe 2023).	No potentially suitable habitat (perennial streams) was observed within the Project area.	<b>ODNR</b> - The Project area is within the range of the purple lilliput mussel. The ODNR 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 aquatic species.  <b>USFWS</b> – No comments received.	No potentially suitable habitat (perennial streams) was observed within the Project area. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Rayed Bean/ <i>Villosa fabalis</i>	E	E	Habitat includes gravel or sandy substrates, especially in areas of thick roots of aquatic plants and increased substrate stability (NatureServe 2023; Parmalee and Bogan 1998). Rayed bean can be associated with shoal or riffle areas, and in shallow, wave-washed areas of glacial lakes. It is generally found in smaller, headwater creeks, but sometimes in larger rivers and open-water bodies. It can occur in shallow riffles or in lakes with water depths up to four feet. It has been found in riffles, generally in vegetation, and deeply buried in sand and gravel bound together by roots (Parmalee and Bogan 1998).	No potentially suitable habitat (perennial streams) was observed within the Project area.	<b>ODNR</b> – The Project area is within the range of the rayed bean mussel. The ODNR 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 aquatic species.  <b>USFWS</b> – Due to the project type, size, and location, we do not anticipate adverse effects to this species.	No potentially suitable habitat (perennial streams) was observed within the Project area. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.

**ECOLOGICAL SURVEY REPORT, SOUTH KENTON STATION EXPANSION PROJECT**

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Common Name/ Scientific Name	State Listed Status <sup>1,2</sup>	Federally Listed Status <sup>1,3</sup>	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
Clubshell/ <i>Pleurobema clava</i>	E	E	The clubshell occurs in medium to small rivers and streams, containing clean, coarse sand and cobble substrates (USFWS 1994). The clubshell is usually found within the current, where it may live several inches underneath the surface. It is most common in the downstream ends of riffles and islands (Watters et al. 2009). The clubshell is mostly considered an Ohio River system species, including the Tennessee, Cumberland, Kanawha, and Wabash River drainages. However, it is also found within the Maumee River system of Lake Erie. Although historically the clubshell was originally described as occurring within Lake Erie, only one record of its occurrence there has been found (Watters et al. 2009).	No potentially suitable habitat (perennial streams) was observed within the Project area.	<b>ODNR</b> – The Project area is within the range of the clubshell mussel. The ODNR 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 aquatic species. <b>USFWS</b> - Due to the project type, size, and location, we do not anticipate adverse effects to this species.	No potentially suitable habitat (perennial streams) was observed within the Project area. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
Creek Heelsplitter/ <i>Lasmigona compressa</i>	SOC	N/A	This species occurs principally in rivers and streams of various sizes, even in very small creeks and is rare in lakes. It is found on substrates of gravel, sand, or mud (NatureServe 2023).	No potentially suitable habitat (perennial streams) was observed within the Project area.	<b>ODNR</b> – ODNR has records of the creek heelsplitter within one mile of Project area. The ODNR 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 aquatic species. <b>USFWS</b> – No comments received.	No potentially suitable habitat (perennial streams) was observed within the Project area. Therefore, impacts to this species are not anticipated and avoidance dates are not applicable.
<b>Mammals</b>						
Indiana Bat/ <i>Myotis sodalis</i>	E	E	The Indiana bat is likely distributed over the entire State of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Brack et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important factors for roost trees include relative location to other trees, a permanent water source and foraging areas; Dead trees are preferred as maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007; USFWS 2023b). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Primarily use caves for hibernacula, although are also known to hibernate in abandoned underground mines (Brack et al. 2010).	No potentially suitable roosting habitat was observed within the Project area. No potential bat hibernacula were observed within the Project area.	<b>ODNR</b> – The entire state of Ohio is within the range of the Indiana bat. The ODNR recommends tree cutting only occurs from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with diameter at breast height (dbh) ≥ 20 if possible. In addition, ODNR recommends a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if there are potential hibernacula present within the Project area. If a habitat assessment finds that potential hibernacula are present within 0.25 miles of the Project area, please send this information to the ODNR for project recommendations.  Additionally, the portion of the South Kenton-North Waldo 138 kV Line Rebuild Project west of Township Road 199 in Hardin County is within the vicinity of	No potentially suitable summer roosting habitat was observed within the Project area. Additionally, AEP intends to clear trees between October 1 and March 31. If any summer tree clearing is required, AEP will proceed accordingly with agency recommendations to avoid impacts to this species. Additionally, a desktop bat hibernacula habitat assessment was completed by Stantec. No abandoned underground mines were identified within 0.25 miles of the Project area as a result of the assessment, but an area of karst geology was identified that overlaps the entirety of the Project area (Appendix A, Figure 4). No mine openings, caves, or any other potentially suitable hibernacula were observed within the Project area during the field surveys completed by Stantec.  <b>Avoidance Dates: April 1 – September 30</b>

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Common Name/ Scientific Name	State Listed Status <sup>1,2</sup>	Federally Listed Status <sup>1,3</sup>	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
					<p>records for the Indiana bat. Because presence of state endangered bat species has been established in this 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 the ODNR.</p> <p><b>USFWS</b> – The Indiana bat occurs throughout the State of Ohio. Should the proposed project site contain trees ≥3 inches dbh, USFWS recommends avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with the USFWS 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, the USFWS recommends removal of any trees ≥3 inches dbh only occur between October 1 and March 31.</p>	
Northern Long-eared Bat/ <i>Myotis septentrionalis</i>	E	E	<p>The northern long-eared bat is found throughout Ohio. This species generally forages in forested habitat and openings in forested habitat and utilizes cracks, cavities, and loose bark within live and dead trees, as well as buildings as roosting habitat (Brack et al. 2010; USFWS 2020). The species utilizes caves and abandoned mines as winter hibernacula. Various sized caves are used providing they have a constant temperature, high humidity, and little to no air current (Brack et al. 2010).</p>	<p>No potentially suitable roosting habitat was observed within the Project area. No potential bat hibernacula were observed within the Project area.</p>	<p><b>ODNR</b> – The entire state of Ohio is within the range of the northern long-eared bat. The ODNR recommends tree cutting only occurs 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. In addition, The ODNR recommends a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if there are potential hibernacula present within the Project area. If a habitat assessment finds that potential hibernacula are present within 0.25 miles of the Project area, please send this information to the ODNR for project recommendations.</p> <p><b>USFWS</b> - The northern long-eared bat occurs throughout the state of Ohio. Should the proposed project site contain trees ≥3 inches dbh, USFWS recommends avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with USFWS is requested to determine if fall or spring portal surveys are warranted. If no caves</p>	<p>No potentially suitable summer roosting habitat was observed within the Project area. Additionally, AEP intends to clear trees between October 1 and March 31. If any summer tree clearing is required, AEP will proceed accordingly with agency recommendations to avoid impacts to this species. Additionally, a desktop bat hibernacula habitat assessment was completed by Stantec. No abandoned underground mines were identified within 0.25 miles of the Project area as a result of the assessment, but an area of karst geology was identified that overlaps the entirety of the Project area (Appendix A, Figure 4). No mine openings, caves, or any other potentially suitable hibernacula were observed within the Project area during the field surveys completed by Stantec.</p> <p><b>Avoidance Dates: April 1 – September 30</b></p>

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Common Name/ Scientific Name	State Listed Status <sup>1,2</sup>	Federally Listed Status <sup>1,3</sup>	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
					or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, USFWS recommends removal of any trees ≥3 inches dbh only occur between October 1 and March 31.	
Little Brown Bat/ <i>Myotis lucifugus</i>	E	N/A	The little brown bat is found throughout Ohio. This species seems to prefer to forage over water but also forages among trees in rather open areas (Harvey et al. 1999). During summer, it typically inhabits buildings, attics, church belfries, barns and outbuildings, and occasionally more natural habitats such as sloughing bark of a dead tree. During summer, two types of roosts are utilized: day roosts and night roosts. Day roosts are the maternity colony roost, while little brown bats often roost in other areas where they rest and congregate to digest their food in between foraging bouts. In Ohio, this species typically utilizes caves and mines as hibernacula, although at least one hibernaculum was found to be located in an attic of an old building (Brack et al. 2010).	No potentially suitable roosting habitat was observed within the Project area. No potential bat hibernacula were observed within the Project area.	<b>ODNR</b> – The entire state of Ohio is within the range of the little brown bat. The ODNR recommends tree cutting only occurs 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. In addition, ODNR recommends a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if there are potential hibernacula present within the Project area. If a habitat assessment finds that potential hibernacula are present within 0.25 miles of the Project area, please send this information to Eileen Wyza for project recommendations.  <b>USFWS</b> – No comments received.	No potentially suitable summer roosting habitat was observed within the Project area. Additionally, AEP intends to clear trees between October 1 and March 31. If any summer tree clearing is required, AEP will proceed accordingly with agency recommendations to avoid impacts to this species. Additionally, a desktop bat hibernacula habitat assessment was completed by Stantec. No abandoned underground mines were identified within 0.25 miles of the Project area as a result of the assessment, but an area of karst geology was identified that overlaps the entirety of the Project area (Appendix A, Figure 4). No mine openings, caves, or any other potentially suitable hibernacula were observed within the Project area during the field surveys completed by Stantec.  <b>Avoidance Dates: April 1 – September 30</b>
Tri-colored Bat/ <i>Perimyotis subflavus</i>	E	PE	The tricolored bat is found throughout Ohio. This species has been found to forage above and within a variety of habitats, including woodlands, agricultural fields, grassy areas, and over streamside vegetation (Sparks et al. 2011). Maternity colonies have often been found within clusters of dead leaves, hanging in trees. Maternity colonies have also been found in or on buildings. Little is known of male tri-colored bats in summer, but it is thought that they are probably solitary and spend their days in similar situations, as well as crevices, caves and mines (Brack et al. 2010). In Ohio, this species typically utilizes caves and mines as hibernacula, utilizing a variety of situations, including very cold areas near cave entrances to deeper passages that seem to be too warm for other species of bats (Brack et al. 2010).	No potentially suitable roosting habitat was observed within the Project area. No potential bat hibernacula were observed within the Project area.	<b>ODNR</b> – The entire state of Ohio is within the range of the tri-colored bat. The ODNR recommends tree cutting only occurs 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. In addition, ODNR recommends a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if there are potential hibernacula present within the Project area. If a habitat assessment finds that potential hibernacula are present within 0.25 miles of the Project area, please send this information to the ODNR for project recommendations.  <b>USFWS</b> - This 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	No potentially suitable summer roosting habitat was observed within the Project area. Additionally, AEP intends to clear trees between October 1 and March 31. If any summer tree clearing is required, AEP will proceed accordingly with agency recommendations to avoid impacts to this species. Additionally, a desktop bat hibernacula habitat assessment was completed by Stantec. No abandoned underground mines were identified within 0.25 miles of the Project area as a result of the assessment, but an area of karst geology was identified that overlaps the entirety of the Project area (Appendix A, Figure 4). No mine openings, caves, or any other potentially suitable hibernacula were observed within the Project area during the field surveys completed by Stantec.  <b>Avoidance Dates: April 1 – September 30</b>

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Common Name/ Scientific Name	State Listed Status <sup>1,2</sup>	Federally Listed Status <sup>1,3</sup>	Typical Habitat	Habitat Observed	Agency Comments (Appendix B)	Potential Impacts and Avoidance Dates
					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 tri-colored bat.	
<b>Birds</b>						
Northern Harrier/ <i>Circus hudsonius</i>	E	N/A	Harriers hunt low over grasslands, with wings held in a distinctive dihedral (V-shape). This is a common migrant and winter species; nesters are much rarer, although they occasionally breed in large marshes and grasslands (ODNR 2018). Northern harriers appear to be associated with large tracts of undisturbed habitat. They are uncommon in blocks of contiguous grassland less than 100 hectares (Slater and Rock 2005).	No suitable nesting habitat (large marshes and grasslands) was observed within the Project area.	<b>ODNR</b> – The Project is within the range of the northern harrier. This is a common migrant and winter species in Ohio. Nesters are much rarer, although they occasionally nest in loose colonies in large marshes and grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the project is not likely to impact this species.  <b>USFWS</b> – No comments received.	Northern harriers require large tracts of wetlands and/or grasslands that are 100 hectares (247 acres) or more for suitable breeding/nesting habitat (Slater and Rock 2005). No suitable nesting habitat (large tracts of wetlands and/or grasslands) were observed within the Project area. Therefore, no impacts are anticipated, and avoidance dates are not applicable.
Upland Sandpiper/ <i>Bartramia longicauda</i>	E	N/A	Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP) (ODNR 2018). Upland sandpipers are primarily restricted to extensive, open tracts of short grassland habitats. These habitats also include edges of highway rights-of-way and airfields. (NatureServe 2023).	No potentially suitable nesting habitat (large areas of pastures, hayfields, or other grassland habitats) was observed within the Project area.	<b>ODNR</b> - The Project is within the range of the upland sandpiper. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this type of habitat will not be impacted, the project is not likely to impact this species.  <b>USFWS</b> - No comments received.	No potentially suitable nesting habitat was observed within the Project area. The tracts of grassland/hayfield/pasture habitats within the Project area are likely too small to attract nesting upland sandpipers. Therefore, no impacts are anticipated and avoidance dates are not applicable.
Trumpeter Swan/ <i>Cygnus buccinator</i>	T	N/A	The trumpeter swan is found in ponds, lakes, and marshes, breeding in areas of reeds, sedges or similar emergent vegetation, primarily on freshwater, occasionally in brackish situations, wintering on open ponds, lakes and sheltered bays and estuaries (NatureServe 2023).	No suitable habitat (large marshes and lakes) was observed within the Project area.	<b>ODNR</b> – The Project is within the range of the trumpeter swan. Trumpeter swans prefer large marshes and lakes ranging in size from 40 to 150 acres. They like shallow wetlands one to three feet deep with a diverse mix of plenty of emergent and submergent vegetation and open water. If this type of habitat will be impacted,	No suitable habitat was observed within the Project area. Therefore, no impacts are anticipated and avoidance dates are not applicable.

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					construction should be avoided in this habitat during the species' nesting period of April 15 through June 15. If this habitat will not be impacted, this Project is not likely to have an impact on this species.  <b>USFWS</b> - No comments received.	

<sup>1</sup>E=Endangered; T=Threatened; PE=Proposed Endangered; SOC=Species of Concern; N/A=Not Applicable

<sup>2</sup>According to ODNR, State Listed Wildlife and Plant Species by County (ODNR 2023a).

<sup>3</sup>According to the USFWS Information for Planning and Consultation website (USFWS 2023a).

## **4.0 CONCLUSIONS AND RECOMMENDATIONS**

Stantec conducted a wetland and waterbodies delineation and a preliminary habitat assessment for threatened and endangered species within the Project area on April 19, 2023. No wetlands or open waters were identified within the Project area. One intermittent stream was identified within the Project area, an unnamed tributary to the Scioto River. See Table 3 for more information regarding the stream identified within the Project area.

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

An ODNR Ohio Natural Heritage Program data request and environmental review request letter was sent to the ODNR Office of Real Estate on April 19, 2023. The ODNR Office of Real Estate response letter dated May 19, 2023 (Appendix B) states that the natural heritage database has records of the following species within one mile of the Project area: least darter, elktoe, rainbow, and creek heelsplitter. However, there is no in-water work proposed in a perennial stream and therefore, this project is not likely to impact these species. Each of these species are addressed in more detail in Table 4.

In addition, the ODNR stated that the entire state of Ohio is within the range of the Indiana bat, northern long-eared bat, little brown bat, and the tricolored bat. During the spring and summer (April 1 through September 30), these bat species predominantly roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. The ODNR recommends tree cutting only occurs from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with dbh  $\geq$  20 if possible.

The ODNR also recommended that a desktop habitat assessment be conducted, followed by a field assessment if needed, to determine if there are potential bat hibernacula present within 0.25 miles of the Project area. Stantec completed a desktop habitat desktop assessment in accordance with the 2023 Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines (USFWS 2023b) utilizing available ODNR websites, including data on known abandoned or active mines (ODNR 2023b) and locations of known or suspected karst geology (ODNR 2023c). No abandoned or active underground mines were identified within the Project area or within 0.25 miles of it as part of the desktop assessment. The desktop assessment identified an area of karst geology that encompasses the entirety of the Project area (Figure 4, Appendix A). However, no underground openings, caves, or any other potentially suitable bat hibernacula were observed within the Project area during the field surveys completed by Stantec. Therefore, no impacts to potential bat hibernacula are anticipated.

Additionally, according to the ODNR, the portion of the South Kenton-North Waldo 138 kV Line Rebuild Project located south of County Road 130 in Hardin County is within the vicinity of known

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records of the Indiana bat. Because presence of state endangered bat species has been established in this 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 the ODNR.

No potentially suitable summer roosting habitat or hibernacula for the Indiana bat, northern long-eared bat, tri-colored bat, and little brown bat was identified within the Project area. Additionally, AEP intends to clear trees between October 1 and March 31, as applicable. If any summer tree clearing is required, AEP will proceed with agency recommendations to avoid impacts to these bat species.

The Project is within the range of the northern harrier, a state endangered bird. Northern harriers require large tracts of wetlands and/or grasslands that are 100 hectares (247 acres) or more for suitable breeding/nesting habitat (Slater and Rock 2005). No suitable nesting habitat (large tracts of wetlands and/or grasslands) were observed within the Project area. Therefore, no impacts are anticipated, and avoidance dates are not applicable.

The Project is within the range of the state endangered and federally threatened eastern massasauga. ODNR recommends that an approved herpetologist conducts a habitat suitability survey to determine if suitable habitat is present within the Project area. If suitable habitat is determined to be present, the ODNR recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by the approved herpetologist. No suitable habitat for the eastern massasauga (large areas of wet meadows, bogs, fens, and marshes) was observed by Stantec within the Project area.

The Project is within the range of the trumpeter swan. No potentially suitable habitat (large marshes and lakes) was observed within the Project area. Therefore, this project is not likely to impact this species.

The Project is within the range of the state endangered and federally endangered clubshell and rayed bean mussels, state endangered purple lilliput mussel, and the state threatened pondhorn mussel. However, as stated, no in-water work is proposed in a perennial stream. Therefore, this Project is not likely to impact these species.

A technical assistance request letter was submitted to the USFWS on April 19, 2023. The USFWS response letter dated June 12, 2023, recommends that impacts to wetland and other water resources be avoided or minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation (Appendix B).

According to the USFWS response letter, all projects in the state of Ohio lie within the range of the federally endangered Indiana bat, the federally endangered northern long-eared bat, and the federally proposed endangered tri-colored bat. In Ohio, presence of these species is assumed wherever suitable habitat occurs unless a presence/probable absence survey has been performed to document probable absence. The USFWS response letter states that, should the Project site contain trees  $\geq 3$  inches dbh, the USFWS recommends trees be saved whenever

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possible. If any caves or abandoned mines may be disturbed, further coordination is requested. If no caves or abandoned mines are present and trees  $\geq 3$  inches dbh cannot be avoided, the USFWS recommends that removal of trees  $\geq 3$  inches dbh only occur between October 1 and March 31 in order to avoid adverse effects to these species. If implementation of seasonal tree clearing is not possible, the USFWS recommended that summer presence/probable absence surveys be conducted between June 1 and August 15. AEP intends to clear trees between October 1 and March 31, as applicable. If any summer tree clearing is required, AEP will proceed with agency recommendations to avoid impacts to these bat species.

The USFWS stated that due to the Project type, size, and location they do not anticipate adverse effects to any other federally endangered, threatened, or proposed species or proposed or designated critical habitat.

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## **Appendix A FIGURES**

### **A.1 FIGURE 1 – PROJECT LOCATION MAP**

U:\23900\239001\092\03\_data\gis\_cad\gis\ArcPro\23900\_1092\_SouthKentonStation\_AEP\_Eco.aprx Revised: 2024-11-12 By: mkrzewska

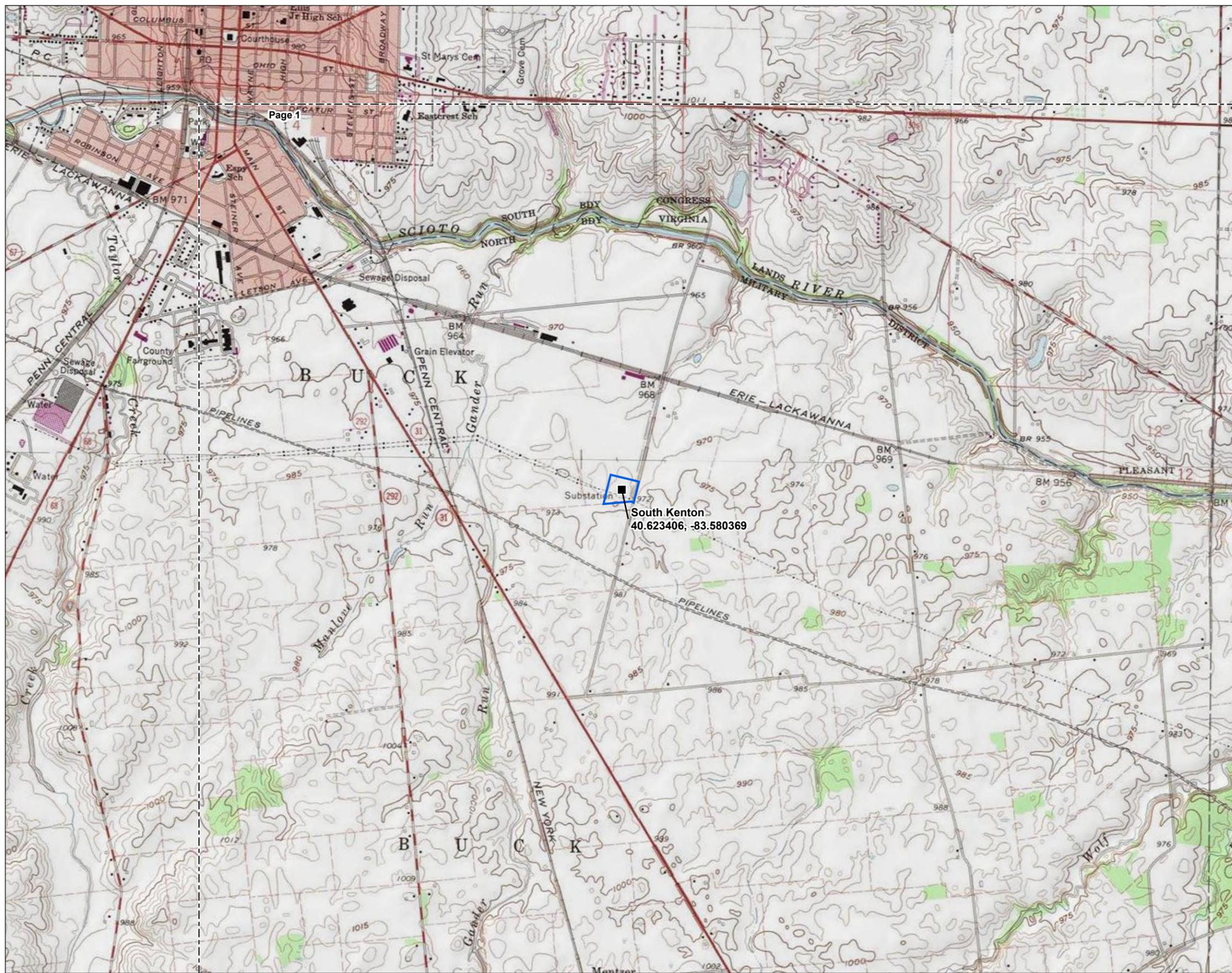


Figure No.

1

Title

### Project Location Map

Client/Project  
AEP Ohio Transmission Company, Inc.  
South Kenton Station Expansion Project

239001092

Project Location  
T. of Buck,  
Hardin Co., OH

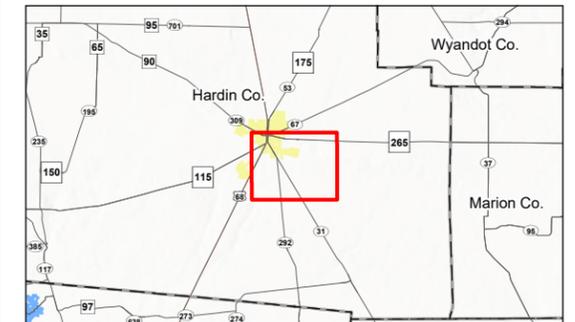
Prepared by MEK on 2024-11-08  
TR by JD on 2024-11-08  
IR by DJG on 2024-11-12



0 1,000 2,000 Feet  
(At original document size of 11x17)  
1:24,000

#### Legend

- Existing Substation
- Project Area



- Notes
1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
  2. Data Sources: Stantec, AEP, Esri, USGS, USCB
  3. Background: USGS 7.5' Topographic Quadrangles: Kenton (1961), Mt Victory (1961)



## A.2 FIGURE 2 – WETLAND AND WATERBODY DELINEATION MAP

U:\23900\239001\092\03\_data\gis\_cad\gis\ArcPre\239001092\_SouthKentonStation\_AEP\_Eco.aprx Revised: 2024-11-12 By: mkarzewecki



Figure No.

**2**

Title

**Wetland and Waterbody Delineation Map**

Client/Project  
AEP Ohio Transmission Company, Inc.  
South Kenton Station Expansion Project

239001092

Project Location  
T. of Buck,  
Hardin Co., OH

Prepared by MEK on 2024-11-08  
TR by JD on 2024-11-08  
IR by DJG on 2024-11-12

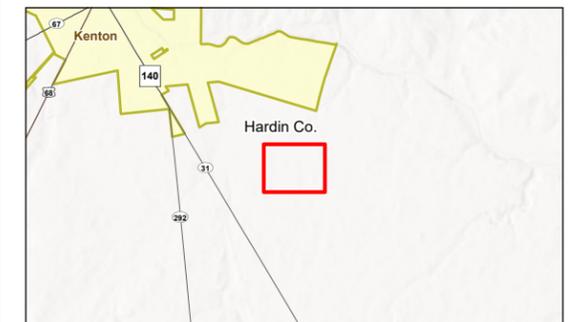


0 100 200  
Feet  
(At original document size of 11x17)  
1:2,400

**Legend**

- Existing Substation
- Project Area
- Photo Location
- ▲ Existing Culvert
- Wetland
- Determination Sample Point
- ~ Field Delineated Waterway
- - - Approximate Waterway
- - - Approximate Upland Drainage Feature
- National Wetlands Inventory Feature
- FEMA Flood Hazard Area\*
- ▨ 100-year Floodplain
- ▨ Floodway

\*No features within data frame



**Notes**

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources: Stantec, AEP, Esri, USGS, FEMA, USFWS, OGRIP, USCB
3. Background: NAIP 2023



### **A.3 FIGURE 3 – HABITAT ASSESSMENT MAP**

U:\23900\239001\092\03\_data\gis\_cad\gis\ArcPre\239001092\_SouthKentonStation\_AEP\_Eco.aprx Revised: 2024-11-12 By: mkarzewecki



Figure No.

**3**

Title

**Habitat Assessment Map**

Client/Project 239001092  
AEP Ohio Transmission Company, Inc.  
South Kenton Station Expansion Project

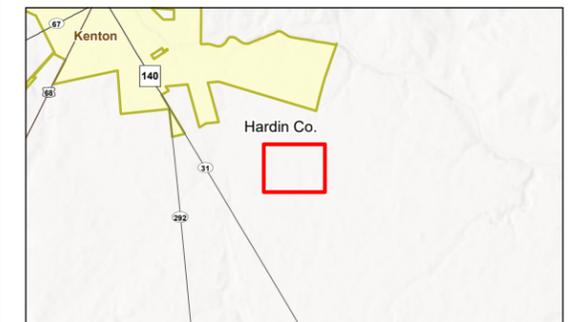
Project Location T. of Buck, Hardin Co., OH Prepared by MEK on 2024-11-08 TR by JD on 2024-11-08 IR by DJG on 2024-11-12



0 100 200 Feet  
(At original document size of 11x17)  
1:2,400

Legend

- Existing Substation
  - Project Area
  - Photo Location
  - ▲ Existing Culvert
  - ~ Field Delineated Waterway
  - - - Approximate Waterway
  - - - Approximate Upland Drainage Feature
- Habitat Area
- Agricultural Land
  - Maintained Lawn
  - Existing Road
  - Industrial Land



Notes  
1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet  
2. Data Sources: Stantec, AEP, Esri, USGS, OGRIP, USCB  
3. Background: NAIP 2023



**A.4 FIGURE 4 – BAT HIBERNACULA DESKTOP STUDY MAP**

U:\23900\239001\092\03\_data\gis\_cad\gis\ArcPro\239001092\_SouthKentonStation\_AEP\_Eco.aprx Revised: 2024-11-12 By: mkarzewecki

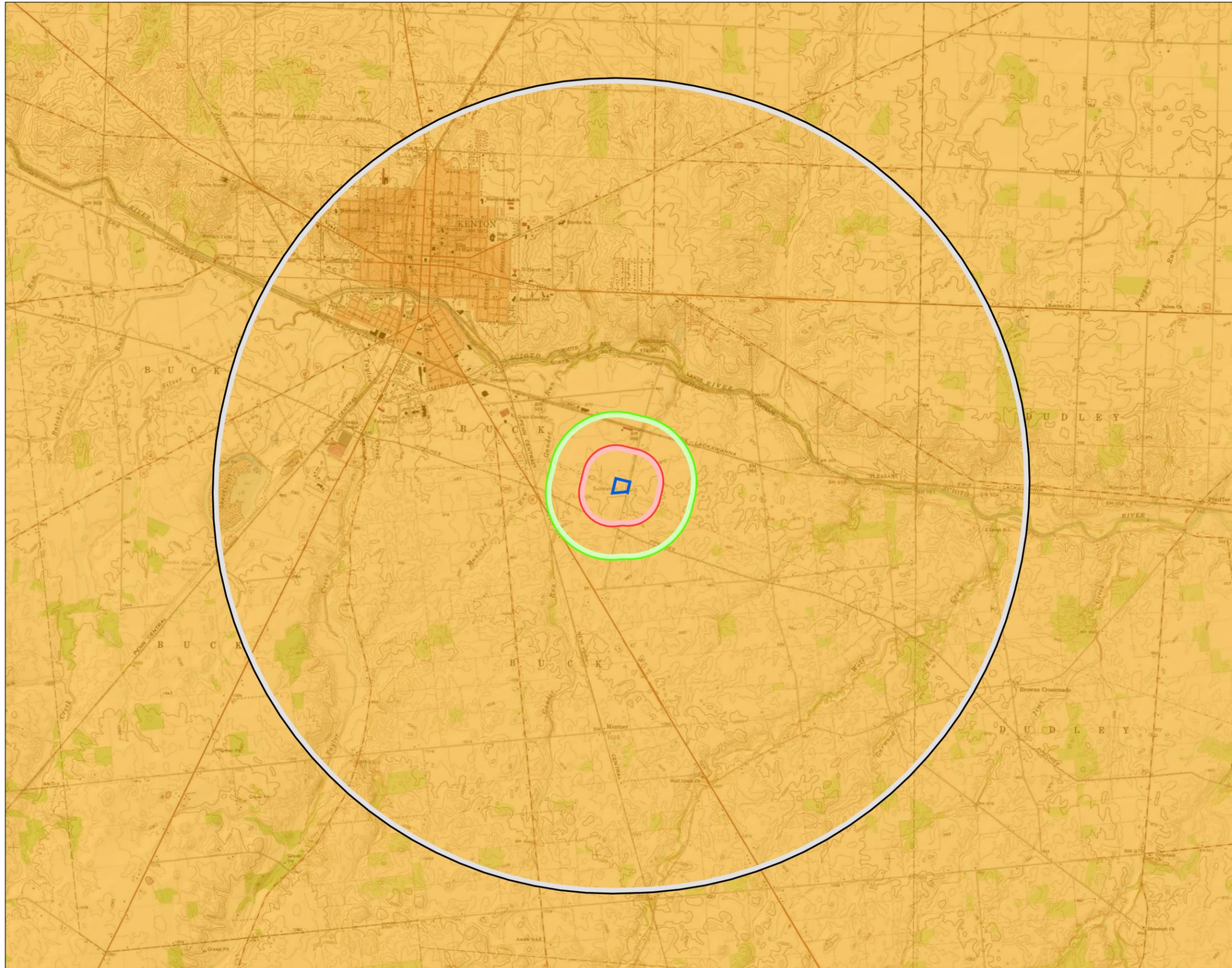


Figure No.

4

Title

### Bat Hibernacula Desktop Study Map

Client/Project  
AEP Ohio Transmission Company, Inc.  
South Kenton Station Expansion Project

239001092

Project Location  
T. of Buck,  
Hardin Co., OH

Prepared by MEK on 2024-11-08  
TR by JD on 2024-11-08  
IR by DJG on 2024-11-12

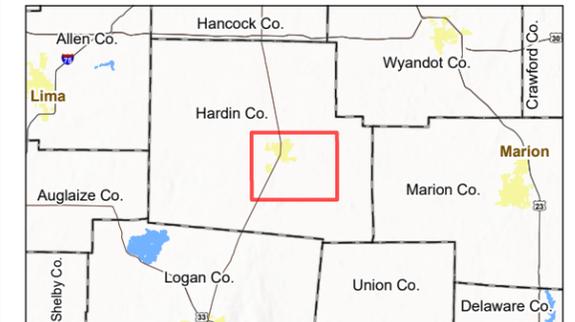


0 2,000 4,000 Feet  
(At original document size of 11x17)  
1:48,000

#### Legend

-  Project Area
-  0.25-Mile Project Area Buffer
-  0.5-Mile Project Area Buffer
-  3-Mile Project Area Buffer
-  Karst Feature\*
-  Area of Karst Geology
-  Mine Opening\*
-  Underground Mine\*

\*No features within data frame



- Notes
1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
  2. Data Sources: Stantec, AEP, Esri, USGS, ODNR, USCB
  3. Background: USGS 30' x 60' Topographic Quadrangles - Marion, OH (1986)



## **Appendix B AGENCY CORRESPONDENCE**



# Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

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

May 19, 2023

Daniel Godec  
Stantec Consulting Services, Inc.  
10200 Alliance Road, Suite 300  
Cincinnati OH 45242

**Re:** 23-0437; South Kenton-North Waldo 138 kV Line Rebuild

**Project:** The proposed project involves rebuilding a 138 kV Line from Kenton to North Waldo.

**Location:** The proposed project is located in Buck & Dudley Townships of Hardin County, and Bowling Green, Green Camp, Pleasant, & Richland Townships of Marion County, Ohio.

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

**Natural Heritage Database:** The Natural Heritage Database has the following data within one mile of the project area:

Least Darter (*Etheostoma microperca*), SC  
Elktoe (*Alasmidonta marginata*), SC  
Creek Heelsplitter (*Lasmigona compressa*), SC  
Rainbow (*Villosa iris*), SC

The review was performed on the specified project area as well as an additional one-mile radius. Records searched date from 1980. Conservation status abbreviations are as follows: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; U = state status under review; X = presumed extirpated in Ohio; FE = federally endangered, and FT = federally threatened.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for an 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 portion of the project west of Township Road 199 in Hardin County is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. Because presence of state endangered bat species has been established in this 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](mailto: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. 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  $DBH \geq 20$  if possible. However, if trees are present within this area, (outside of the area delineated above) and trees must be cut during the summer months, the DOW recommends a mist net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting. Mist net and acoustic surveys should be conducted in accordance with the most recent version of the "[OHIO DIVISION OF WILDLIFE GUIDANCE FOR BAT SURVEYS AND TREE CLEARING](#)". If state listed bats are documented, DOW recommends cutting only occur from October 1 through March 31. However, limited summer tree cutting may be acceptable after consultation with the DOW.

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 clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the purple lilliput (*Toxolasma lividus*), a state endangered mussel, and the pondhorn (*Unio merus tetralasmus*), a state threatened mussel. This project must not have an impact on native mussels. This applies to both listed and non-listed species, as all species of mussel are protected in Ohio. Per the Ohio Mussel Survey Protocol (2022), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels

(Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the [Ohio Mussel Survey Protocol](#). If there is no in-water work proposed, impacts to mussels are not likely.

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 aquatic species.

The project is within the range of the eastern massasauga (*Sistrurus catenatus*), a state endangered and federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. The DOW recommends that an approved herpetologist conducts a habitat suitability survey to determine if suitable habitat is present within the project area. If suitable habitat is determined to be present; the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by the approved herpetologist. A list of [approved herpetologists](#) has been provided for your convenience.

The project is within the range of the northern harrier (*Circus hudsonius*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the project is not likely to impact this species.

The project is within the range of the trumpeter swan (*Cygnus buccinator*), a state threatened bird. Trumpeter swans prefer large marshes and lakes ranging in size from 40 to 150 acres. They like shallow wetlands one to three feet deep with a diverse mix of plenty of emergent and submergent vegetation and open water. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through June 15. If this habitat will not be impacted, this project is not likely to have an impact on this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this type of habitat will not be impacted, the project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the 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](mailto:mike.pettegrew@dnr.ohio.gov) if you have questions about these comments or need additional information.

Mike Pettegrew  
Environmental Services Administrator



# 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



June 12, 2023

Project Code: 2023-0068762

Dear Mr. Godec:

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, endangered, and proposed 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  $\geq 3$  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.

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.

*Seasonal Tree Clearing for Federally Listed Bat Species:* Should the proposed project site contain trees  $\geq 3$  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  $\geq 3$  inches dbh cannot be avoided, we recommend removal of any trees  $\geq 3$  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.

If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats and northern long-eared bats. If Indiana bats and northern long-eared bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

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](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](mailto: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](mailto:ohio@fws.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrice Ashfield". The signature is fluid and cursive, with the first name "Patrice" written in a larger, more prominent script than the last name "Ashfield".

Patrice Ashfield  
Field Office Supervisor

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

## **Appendix C REPRESENTATIVE PHOTOGRAPHS**

### **C.1 WETLAND AND WATERBODY PHOTOGRAPHS**

AEP Ohio Transmission Company, Inc.  
South Kenton Station Expansion Project  
Hardin County, Ohio



Photo Location 1. View of upland (agricultural land and maintained lawn habitat) at wetland determination point SP01. Photograph taken facing north.



Photo Location 1. View of upland (agricultural land and maintained lawn habitat) at wetland determination point SP01. Photograph taken facing south.

AEP Ohio Transmission Company, Inc.  
South Kenton Station Expansion Project  
Hardin County, Ohio



**2023-04-19 10:41**

Photo Location 2. View of upland (maintained lawn habitat and industrial land) at wetland determination point SP02. Photograph taken facing east.



**2023-04-19 10:42**

Photo Location 2. View of upland (maintained lawn habitat) at wetland determination point SP02. Photograph taken facing west.

AEP Ohio Transmission Company, Inc.  
South Kenton Station Expansion Project  
Hardin County, Ohio



Photo Location 3. View of upland (maintained lawn and agricultural land habitat) at wetland determination point SP03. Photograph taken facing north.



Photo Location 3. View of upland (maintained lawn habitat) at wetland determination point SP03. Photograph taken facing south.

AEP Ohio Transmission Company, Inc.  
South Kenton Station Expansion Project  
Hardin County, Ohio



Photo Location 4. View of Stream 1. Photo taken facing upstream/north.



Photo Location 4. View of Stream 1. Photo taken facing downstream/south.

AEP Ohio Transmission Company, Inc.  
South Kenton Station Expansion Project  
Hardin County, Ohio



Photo Location 4. View of substrates of Stream 1.

## C.2 HABITAT PHOTOGRAPHS

AEP Ohio Transmission Company, Inc.  
South Kenton Station Expansion Project  
Hardin County, Ohio



Photo Location 1. Representative view of industrial land (South Kenton Station) and maintained lawn within the Project area. Photograph taken facing northeast.



Photo Location 2. Representative view of agricultural land within the Project area. Photograph taken facing south.

## **Appendix D DATA FORMS**

### **D.1 WETLAND DETERMINATION DATA FORMS**

Project/Site: <b>South Kenton Station Expansion Project</b>		Stantec Project #: <b>239001092</b>	Date: <b>04/19/23</b>
Applicant: <b>AEP Ohio Transmission Company Inc.</b>			County: <b>Hardin</b>
Investigator #1: <b>Aaron Kwolek</b>	Investigator #2: <b>Savannah Pheanis</b>		State: <b>Ohio</b>
Soil Unit: <b>PkA - Pewamo silty clay loam, 0 to 1 percent slopes</b>	NW1/WW1 Classification: <b>N/A</b>		Wetland ID: <b>N/A</b>
Landform: <b>Plain</b>	Local Relief: <b>None</b>		Sample Point: <b>SP01</b>
Slope (%): <b>0</b>	Latitude: <b>40.623296</b>	Longitude: <b>-83.581140</b>	Datum: <b>--</b>
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks)			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present?	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Section: <b>--</b>			Township: <b>--</b>
Range: <b>--</b>			Dir: <b>--</b>

**SUMMARY OF FINDINGS**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hydic Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is This Sampling Point Within A Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Remarks:

**HYDROLOGY**

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

<p><u>Primary:</u></p> <input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface	<input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> D9 - Gauge or Well Data <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary:</u></p> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> C2 - Dry-Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D5 - FAC-Neutral Test
---	---	---

**Field Observations:**

Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	<b>Wetland Hydrology Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	

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

Remarks:

**SOILS**

Map Unit Name: **PkA - Pewamo silty clay loam, 0 to 1 percent slopes**

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

Top Depth	Bottom Depth	Horizon	Matrix		Redox Features				Texture (e.g. clay, sand, loam)	
			Color (Moist)	%	Color (Moist)	%	Type	Location		
0	16	1	10YR	4/4	100	--	--	--	--	<b>silty clay loam</b>
--	--	--	--	--	--	--	--	--	--	--
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--	--	--	--	--	--	--	--	--	--	--

**NRCS Hydic Soil Field Indicators** (check here if indicators are not present )

<input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral <input type="checkbox"/> S3 - 5 cm Mucky Peat or Peat	<input type="checkbox"/> S4 - Sandy Gleyed Matrix <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> F1 - Loamy Muck Mineral <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions	<p><b>Indicators for Problematic Soils<sup>1</sup></b></p> <input type="checkbox"/> A16 - Coast Prairie Redox <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> F12 - Iron-Manganese Masses <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks)
--	---	---

<sup>1</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (If Observed)**

Type:	Depth:	<b>Hydic Soil Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Project/Site: **South Kenton Station Expansion Project**

Wetland ID: **N/A**

Sample Point: **SP01**

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

Tree Stratum (Plot size: 30 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		<b>0</b>		
Sapling/Shrub Stratum (Plot size: 15 ft radius)				
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		<b>0</b>		
Herb Stratum (Plot size: 5 ft radius)				
1.	<i>Festuca arundinacea</i>	50	Y	UPL
2.	<i>Taraxacum officinale</i>	10	N	FACU
3.	<i>Plantago lanceolata</i>	10	N	FACU
4.	<i>Achillea millefolium</i>	10	N	FACU
5.	<i>Fragaria vesca</i>	10	N	UPL
6.	<i>Trifolium repens</i>	10	N	FACU
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		<b>100</b>		
Woody Vine Stratum (Plot size: 30 ft radius)				
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		<b>0</b>		

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:		Multiply by:	
OBL spp.	<u>0</u>	x 1 =	<u>0</u>
FACW spp.	<u>0</u>	x 2 =	<u>0</u>
FAC spp.	<u>0</u>	x 3 =	<u>0</u>
FACU spp.	<u>40</u>	x 4 =	<u>160</u>
UPL spp.	<u>60</u>	x 5 =	<u>300</u>
Total		<u>100</u> (A)	<u>460</u> (B)
Prevalence Index = B/A =		<u>4.600</u>	

**Hydrophytic Vegetation Indicators:**

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

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

**Definitions of Vegetation Strata:**

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

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

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

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

**Hydrophytic Vegetation Present**  Yes  No

Remarks:

**Additional Remarks:**

Project/Site: <b>South Kenton Station Expansion Project</b>		Stantec Project #: <b>239001092</b>	Date: <b>04/19/23</b>
Applicant: <b>AEP Ohio Transmission Company Inc.</b>		Investigator #1: <b>Tyler Gillette</b>	Investigator #2: <b>Perry Gardiner</b>
Soil Unit: <b>Pk: Pewano silty clay loam, 0-1% slopes</b>		NW1/WW1 Classification:	
Landform: <b>Terrace</b>		Local Relief: <b>Convex</b>	
Slope (%): <b>0</b>	Latitude: <b>40.61963</b>	Longitude: <b>-83.581305</b>	Datum: <b>WGS84</b>
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks)			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present?	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Section: <b>--</b>			Wetland ID: <b>N/A</b>
Township: <b>--</b>			Sample Point: <b>SP02</b>
Range: <b>--</b>			Community ID: <b>UPL</b>
Dir: <b>--</b>			

**SUMMARY OF FINDINGS**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hydic Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is This Sampling Point Within A Wetland?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Remarks: **Upland within station property**

**HYDROLOGY**

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

<p><u>Primary:</u></p> <input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface	<input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> D9 - Gauge or Well Data <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary:</u></p> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> C2 - Dry-Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D5 - FAC-Neutral Test
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**Field Observations:**

Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	<b>Wetland Hydrology Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	

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

Remarks:

**SOILS**

Map Unit Name: **Pk: Pewano silty clay loam, 0-1% slopes**

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

Top Depth	Bottom Depth	Horizon	Matrix		Redox Features				Texture (e.g. clay, sand, loam)	
			Color (Moist)	%	Color (Moist)	%	Type	Location		
0	21	1	10YR	4/3	100	--	--	--	--	<b>silty clay loam</b>
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

**NRCS Hydic Soil Field Indicators** (check here if indicators are not present )

<input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral <input type="checkbox"/> S3 - 5 cm Mucky Peat or Peat	<input type="checkbox"/> S4 - Sandy Gleyed Matrix <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> F1 - Loamy Muck Mineral <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions	<p><b>Indicators for Problematic Soils</b><sup>1</sup></p> <input type="checkbox"/> A16 - Coast Prairie Redox <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> F12 - Iron-Manganese Masses <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks)
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<sup>1</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed)	Type:	Depth:	<b>Hydic Soil Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Project/Site: **South Kenton Station Expansion Project**

Wetland ID: **N/A**

Sample Point: **SP02**

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

Tree Stratum (Plot size: 30 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		<b>0</b>		

Sapling/Shrub Stratum (Plot size: 15 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		<b>0</b>		

Herb Stratum (Plot size: 5 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	<i>Taraxacum officinale</i>	30	Y	FACU
2.	<i>Trifolium pratense</i>	20	Y	FACU
3.	<i>Trifolium repens</i>	10	N	FACU
4.	<i>Poa pratensis</i>	40	Y	FAC
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		<b>100</b>		

Woody Vine Stratum (Plot size: 30 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		<b>0</b>		

Remarks:

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:		Multiply by:	
OBL spp.	<u>0</u>	x 1 =	<u>0</u>
FACW spp.	<u>0</u>	x 2 =	<u>0</u>
FAC spp.	<u>40</u>	x 3 =	<u>120</u>
FACU spp.	<u>60</u>	x 4 =	<u>240</u>
UPL spp.	<u>0</u>	x 5 =	<u>0</u>
Total		<u>100</u> (A)	<u>360</u> (B)
Prevalence Index = B/A =		<u>3.600</u>	

**Hydrophytic Vegetation Indicators:**

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

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

**Definitions of Vegetation Strata:**

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

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

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

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

**Hydrophytic Vegetation Present**  Yes  No

**Additional Remarks:**

Project/Site: <b>South Kenton Station Expansion Project</b>		Stantec Project #: <b>239001092</b>	Date: <b>04/19/23</b>
Applicant: <b>AEP Ohio Transmission Company Inc.</b>		Investigator #1: <b>Tyler Gillette</b>	Investigator #2: <b>Perry Gardiner</b>
Soil Unit: <b>Pk: Pewano silty clay loam,</b>	NW1/WW1 Classification:		County: <b>Hardin</b>
Landform: <b>Terrace</b>	Local Relief: <b>Convex</b>	State: <b>Ohio</b>	Wetland ID: <b>N/A</b>
Slope (%): <b>0</b>	Latitude: <b>40.62347</b>	Longitude: <b>-83.579623</b>	Sample Point: <b>SP03</b>
Datum: <b>WGS84</b>			Community ID: <b>UPL</b>
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks)			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present?	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Section: <b>--</b>			Township: <b>--</b>
Range: <b>--</b>			Dir: <b>--</b>

**SUMMARY OF FINDINGS**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hydic Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Remarks: **Upland Maintained lawn within station property**

**HYDROLOGY**

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

<p><u>Primary:</u></p> <input type="checkbox"/> A1 - Surface Water <input type="checkbox"/> A2 - High Water Table <input type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface	<input type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B14 - True Aquatic Plants <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> D9 - Gauge or Well Data <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary:</u></p> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> C2 - Dry-Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D5 - FAC-Neutral Test
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**Field Observations:**

Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	<b>Wetland Hydrology Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth: (in.)	

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

Remarks:

**SOILS**

Map Unit Name: **Pk: Pewano silty clay loam,**

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

Top Depth	Bottom Depth	Horizon	Matrix		Redox Features				Texture (e.g. clay, sand, loam)	
			Color (Moist)	%	Color (Moist)	%	Type	Location		
0	21	1	10YR	4/3	100	--	--	--	--	<b>silty clay loam</b>
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

**NRCS Hydic Soil Field Indicators** (check here if indicators are not present )

<input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A10 - 2 cm Muck <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral <input type="checkbox"/> S3 - 5 cm Mucky Peat or Peat	<input type="checkbox"/> S4 - Sandy Gleyed Matrix <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> F1 - Loamy Muck Mineral <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions	<p><b>Indicators for Problematic Soils<sup>1</sup></b></p> <input type="checkbox"/> A16 - Coast Prairie Redox <input type="checkbox"/> S7 - Dark Surface <input type="checkbox"/> F12 - Iron-Manganese Masses <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks)
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<sup>1</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed)	Type:	Depth:	<b>Hydic Soil Present?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks:			

Project/Site: **South Kenton Station Expansion Project**

Wetland ID: **N/A**

Sample Point: **SP03**

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

Tree Stratum (Plot size: 30 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		<b>0</b>		

Sapling/Shrub Stratum (Plot size: 15 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		<b>0</b>		

Herb Stratum (Plot size: 5 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	<i>Taraxacum officinale</i>	40	Y	FACU
2.	<i>Trifolium pratense</i>	20	Y	FACU
3.	<i>Trifolium repens</i>	10	N	FACU
4.	<i>Poa pratensis</i>	30	Y	FAC
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		<b>100</b>		

Woody Vine Stratum (Plot size: 30 ft radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		<b>0</b>		

Remarks:

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:		Multiply by:	
OBL spp.	<u>0</u>	x 1 =	<u>0</u>
FACW spp.	<u>0</u>	x 2 =	<u>0</u>
FAC spp.	<u>30</u>	x 3 =	<u>90</u>
FACU spp.	<u>70</u>	x 4 =	<u>280</u>
UPL spp.	<u>0</u>	x 5 =	<u>0</u>
Total		<u>100</u> (A)	<u>370</u> (B)
Prevalence Index = B/A =		<u>3.700</u>	

**Hydrophytic Vegetation Indicators:**

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

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

**Definitions of Vegetation Strata:**

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

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

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

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

**Hydrophytic Vegetation Present**  Yes  No

**Additional Remarks:**

## D.2 HHEI/QHEI DATA FORMS



# Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

**71**

SITE NAME/LOCATION South Kenton station Expansion Project  
 SITE NUMBER Stream 1 RIVER BASIN Scioto RIVER CODE \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) 0.85  
 LENGTH OF STREAM REACH (ft) 200 LAT 40.623254 LONG -83.579502 RIVER MILE \_\_\_\_\_  
 DATE 4/19/23 SCORER Gillette COMMENTS \_\_\_\_\_

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

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

<b>1. SUBSTRATE (Estimate percent of every type present).</b> 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		<b>HHEI Metric Points</b> Substrate Max = 40  <b>26</b> A + B																											
<table border="0"> <tr><th>TYPE</th><th>PERCENT</th><th>TYPE</th><th>PERCENT</th></tr> <tr><td><input type="checkbox"/> BLDR SLABS [16 pts]</td><td>_____</td><td><input type="checkbox"/> SILT [3 pts]</td><td><u>10</u></td></tr> <tr><td><input type="checkbox"/> BOULDER (&gt;256 mm) [16 pts]</td><td>_____</td><td><input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td><td><u>10</u></td></tr> <tr><td><input type="checkbox"/> BEDROCK [16 pts]</td><td>_____</td><td><input type="checkbox"/> FINE DETRITUS [3 pts]</td><td>_____</td></tr> <tr><td><input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td><td><u>40</u></td><td><input type="checkbox"/> CLAY or HARDPAN [0 pt]</td><td>_____</td></tr> <tr><td><input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td><td><u>30</u></td><td><input type="checkbox"/> MUCK [0 pts]</td><td>_____</td></tr> <tr><td><input type="checkbox"/> SAND (&lt;2 mm) [6 pts]</td><td>_____</td><td><input type="checkbox"/> ARTIFICIAL [3 pts]</td><td><u>10</u></td></tr> </table>	TYPE		PERCENT	TYPE	PERCENT	<input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> SILT [3 pts]	<u>10</u>	<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<u>10</u>	<input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> FINE DETRITUS [3 pts]	_____	<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<u>40</u>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____	<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<u>30</u>	<input type="checkbox"/> MUCK [0 pts]	_____	<input type="checkbox"/> SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/> ARTIFICIAL [3 pts]	<u>10</u>
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<input type="checkbox"/> SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/> ARTIFICIAL [3 pts]	<u>10</u>																										
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>40</u> (A) <b>21</b> (B) <b>5</b> <b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:</b> <b>21</b> <b>TOTAL NUMBER OF SUBSTRATE TYPES:</b> <b>5</b>																													
<b>2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):</b>		<b>Pool Depth Max = 30</b>  <b>25</b>																											
<table border="0"> <tr><td><input type="checkbox"/> &gt; 30 centimeters [20 pts]</td><td><input type="checkbox"/> 5 cm - 10 cm [15 pts]</td></tr> <tr><td><input type="checkbox"/> &gt; 22.5 - 30 cm [30 pts]</td><td><input type="checkbox"/> &lt; 5 cm [5pts]</td></tr> <tr><td><input checked="" type="checkbox"/> &gt; 10 - 22.5 cm [25 pts]</td><td><input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]</td></tr> </table>			<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 [5pts]	<input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]																					
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COMMENTS _____ <b>MAXIMUM POOL DEPTH (centimeters):</b> <b>15</b>																													
<b>3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):</b>		<b>Bankfull Width Max=30</b>  <b>20</b>																											
<table border="0"> <tr><td><input type="checkbox"/> &gt; 4.0 meters (&gt; 13') [30 pts]</td><td><input type="checkbox"/> &gt; 1.0 m - 1.5 m (&gt; 3' 3" - 4' 8") [15 pts]</td></tr> <tr><td><input type="checkbox"/> &gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</td><td><input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]</td></tr> <tr><td><input checked="" type="checkbox"/> &gt; 1.5 m - 3.0 m (&gt; 4' 8" - 9' 7") [20 pts]</td><td></td></tr> </table>			<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 (> 4' 8" - 9' 7") [20 pts]																						
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COMMENTS _____ <b>AVERAGE BANKFULL WIDTH (meters):</b> <b>1.6</b>																													

This information must also be completed

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

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS Maintained lawn

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

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

COMMENTS \_\_\_\_\_

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED?  Yes  No QHEI Score 44.5 (If Yes, Attach Completed QHEI form)

**DOWNSTREAM DESIGNATED USE(S):**

WWH Name: Scioto River Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: Mt. Victory NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order: \_\_\_\_\_  
County: Hardin Township/City: Kenton

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 4/17/23 Quantity: 0.05"

Photo-documentation Notes: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 0

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): \_\_\_\_\_

Field Measures: Temp (°C) 13.8 Dissolved Oxygen (mg/l) ✓ pH (S.U.) 8.1 Conductivity (umhos/cm) .78

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

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOLOGICAL OBSERVATIONS**

(Record all observations below)

Fish Observed? (Y/N) ✓ Species observed (if known): \_\_\_\_\_

Frogs or Tadpoles Observed? (Y/N) ✓ Species observed (if known): \_\_\_\_\_

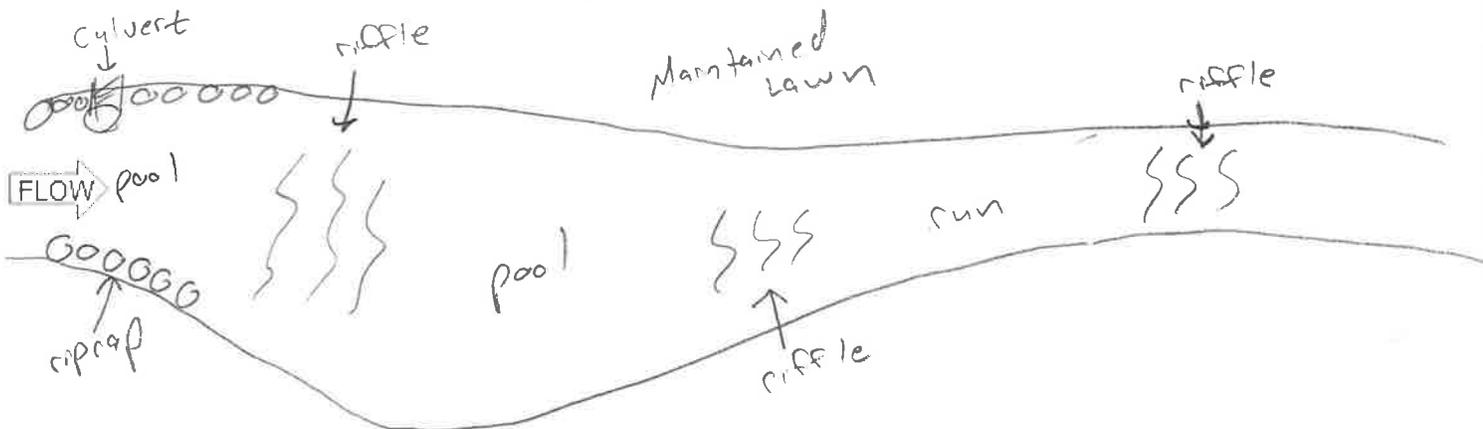
Salamanders Observed? (Y/N) ✓ Species observed (if known): \_\_\_\_\_

Aquatic Macroinvertebrates Observed? (Y/N) ✓ Species observed (if known): \_\_\_\_\_

Comments Regarding Biology: not conducted

**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



Stream & Location: South Kenton Station Expansion Project RM: \_\_\_\_\_ Date: 4/19/23Stream: 1 Scorers Full Name & Affiliation: Tyler Gillett, Sidanter  
River Code: \_\_\_\_\_ STORET #: \_\_\_\_\_ Lat./Long.: 40.623254 183.579502 Office verified location 1) **SUBSTRATE** Check ONLY two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 &amp; average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY	
<input type="checkbox"/>	BLDR /SLABS [10]	_____	_____	<input type="checkbox"/>	HARDPAN [4]	_____	_____	<input type="checkbox"/>	LIMESTONE [1]	<input type="checkbox"/>	HEAVY [-2]
<input type="checkbox"/>	BOULDER [9]			<input type="checkbox"/>	DETRITUS [3]	<u>60</u>	<u>60</u>	<input checked="" type="checkbox"/>	TILLS [1]	<input type="checkbox"/>	MODERATE [-1]
<input checked="" type="checkbox"/>	COBBLE [8]	<u>40</u>	<u>40</u>	<input type="checkbox"/>	MUCK [2]			<input type="checkbox"/>	WETLANDS [0]	<input checked="" type="checkbox"/>	NORMAL [0]
<input checked="" type="checkbox"/>	GRAVEL [7]	<u>30</u>	<u>30</u>	<input type="checkbox"/>	SILT [2]	<u>10</u>	<u>60</u>	<input type="checkbox"/>	HARDPAN [0]	<input type="checkbox"/>	FREE [1]
<input type="checkbox"/>	SAND [6]			<input type="checkbox"/>	ARTIFICIAL [0]	<u>10</u>	<u>60</u>	<input type="checkbox"/>	SANDSTONE [0]	<input type="checkbox"/>	EXTENSIVE [-2]
<input type="checkbox"/>	BEDROCK [5]							<input type="checkbox"/>	RIP/RAP [0]	<input type="checkbox"/>	MODERATE [-1]

NUMBER OF BEST TYPES:  4 or more [2]  3 or less [0]

Comments: \_\_\_\_\_

2) **INSTREAM COVER** Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 &amp; average)

<u>0</u>	UNDERCUT BANKS [1]	<u>0</u>	POOLS > 70cm [2]	<u>0</u>	OXBOWS, BACKWATERS [1]	<input type="checkbox"/>	EXTENSIVE >75% [1]
<u>0</u>	OVERHANGING VEGETATION [1]	<u>0</u>	ROOTWADS [1]	<u>1</u>	AQUATIC MACROPHYTES [1]	<input type="checkbox"/>	MODERATE 25-75% [7]
<u>0</u>	SHALLOWS (IN SLOW WATER) [1]	<u>1</u>	BOULDERS [1]	<u>1</u>	LOGS OR WOODY DEBRIS [1]	<input checked="" type="checkbox"/>	SPARSE 5-<25% [3]
<u>0</u>	ROOTMATS [1]					<input type="checkbox"/>	NEARLY ABSENT <5% [1]

Comments: \_\_\_\_\_

3) **CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]
<input checked="" type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> NONE [1]	<input checked="" type="checkbox"/> POOR [1]	<input checked="" type="checkbox"/> RECENT OR NO RECOVERY [1]	

Comments: \_\_\_\_\_

4) **BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE [1]	
<input type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]				
<input checked="" type="checkbox"/> MODERATE [2]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]				
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> NARROW 5-10m [2]	<input checked="" type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> MINING / CONSTRUCTION [0]				
	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]					
	<input checked="" type="checkbox"/> NONE [0]	<input checked="" type="checkbox"/> OPEN PASTURE, ROWCROP [0]					

Comments: \_\_\_\_\_

5) **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply				
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	<input checked="" type="checkbox"/> SLOW [1]			
<input type="checkbox"/> 0.7-<1m [4]	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]			
<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [0]	<input checked="" type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]			
<input type="checkbox"/> 0.2-<0.4m [1]		<input checked="" type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]			
<input checked="" type="checkbox"/> < 0.2m [0]						

Comments: \_\_\_\_\_

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 &amp; average).

 NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]
<input checked="" type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]
			<input type="checkbox"/> EXTENSIVE [-1]

Comments: \_\_\_\_\_

6) <b>GRADIENT</b> (14.7 ft/mi)	<input type="checkbox"/> VERY LOW - LOW [2-4]	%POOL: <span style="border: 1px solid black; border-radius: 15px; padding: 2px 10px;">60</span>	%GLIDE: <span style="border: 1px solid black; border-radius: 15px; padding: 2px 10px;">0</span>	Gradient Maximum <span style="border: 1px solid black; border-radius: 15px; padding: 2px 10px;">10</span>
<b>DRAINAGE AREA</b> (1.49 mi <sup>2</sup> )	<input type="checkbox"/> MODERATE [6-10]	%RUN: <span style="border: 1px solid black; border-radius: 15px; padding: 2px 10px;">30</span>	%RIFFLE: <span style="border: 1px solid black; border-radius: 15px; padding: 2px 10px;">10</span>	

Check ALL that apply

PH 9.1  
 Conductivity .78 78  
 Temp 13.8°C

- METHOD**
- BOAT
  - WADE
  - L. LINE
  - OTHER
- STAGE**
- 1st-sample pass- 2nd
- HIGH
  - UP
  - NORMAL
  - LOW
  - DRY

- DISTANCE**
- 0.5 Km
  - 0.2 Km
  - 0.15 Km
  - 0.12 Km
  - OTHER
- 61 meters
- CLARITY**
- 1st --sample pass-- 2nd
- < 20 cm
  - 20-<40 cm
  - 40-70 cm
  - > 70 cm/ CTB
  - SECCHI DEPTH

- CANOPY**
- 1st pass \_\_\_\_\_ cm
- 2nd pass \_\_\_\_\_ cm
- > 85%- OPEN
  - 55%-<85%
  - 30%-<55%
  - 10%-<30%
  - <10%- CLOSED

- B) AESTHETICS**
- NUISANCE ALGAE
  - INVASIVE MACROPHYTES
  - EXCESS TURBIDITY
  - DISCOLORATION
  - FOAM / SCUM
  - OIL SHEEN
  - TRASH / LITTER
  - NUISANCE ODOR
  - SLUDGE DEPOSITS
  - CSOs/SSOs/OUTFALLS
- C) RECREATION**
- AREA DEPTH
- POOL:  >100ft<sup>2</sup>  >3ft

- D) MAINTENANCE**
- Circle some & COMMENT
- PUBLIC / PRIVATE / BOTH /  NA
  - ACTIVE / HISTORIC / BOTH /  NA
  - YOUNG-SUCCESSION-OLD
  - SPRAY / SNAG / REMOVED
  - MODIFIED / DIPPED OUT / NA
  - LEVEED / ONE SIDED
  - RELOCATED / CUTOFFS
  - MOVING-BEDLOAD-STABLE
  - ARMOURED / SLUMPS
  - ISLANDS / SCoured
  - IMPOUNDED / DESICCATED
  - FLOOD CONTROL / DRAINAGE

- E) ISSUES**
- WWTP / CSO / NPDES / INDUSTRY
  - HARDENED / URBAN / DIRT&GRIME
  - CONTAMINATED / LANDFILL
  - BMPs-CONSTRUCTION-SEDIMENT
  - LOGGING / IRRIGATION / COOLING
  - BANK / EROSION / SURFACE
  - FALSE BANK / MANURE / LAGOON
  - WASH H<sub>2</sub>O /  TILE / H<sub>2</sub>O TABLE
  - ACID / MINE / QUARRY / FLOW
  - NATURAL / WETLAND / STAGNANT
  - PARK / GOLF /  LAWN / HOME
  - ATMOSPHERE / DATA PAUCITY

- F) MEASUREMENTS**
- $\bar{x}$  width 2'
  - $\bar{x}$  depth 6"
  - max. depth 6"
  - $\bar{x}$  bankfull width 5'
  - bankfull  $\bar{x}$  depth 2'
  - W/D ratio
  - bankfull max. depth
  - floodprone x<sup>2</sup> width
  - entrench. ratio
  - Legacy Tree:

Stream Drawing:

N →

