AMERICAN TRANSMISSION SYSTEMS, INCORPORATED
A FIRSTENERGY COMPANY

LETTER OF NOTIFICATION

NEVADA SUBSTATION EXPANSION AND 138 kV TRANSMISSION LINES PARTIAL REBUILD PROJECT
OPSB CASE NO.: 25-0703-EL-BLN

September 8, 2025

American Transmission Systems, Incorporated
341 White Pond Drive
Akron, OH 44320-1119

LETTER OF NOTIFICATION
NEVADA SUBSTATION EXPANSION AND 138 kV TRANSMISSION LINES
PARTIAL REBUILD PROJECT
OPSB CASE No. 25-0703-EL-BLN:

The following information is being provided in accordance with the procedures in the Ohio Administrative Code ("Adm.Code") Chapter 4906-6 for the application and review of Accelerated Certificate Applications. Based upon the requirements found in Appendix A to Adm.Code 4906-1-01, this Project qualifies for submittal to the Ohio Power Siting Board ("OPSB") as a Letter of Notification application.

4906-6-05: ACCELERATED APPLICATION REQUIREMENTS

4906-6-05 (B)(1): Name and Reference Number

Name of Project:	Nevada Substation Expansion and 138 kV Transmission Lines Partial Rebuild ("Project")
Reference Number:	177; 2002; 2002-1

4906-6-05 (B)(1): Brief Description of the Project

In this Project, American Transmission Systems, Incorporated ("ATSI") proposes to expand the existing Nevada Substation for the installation of a four-breaker ring bus. To facilitate this, the Substation will expand from its existing square footage of approximately 25,478 square feet to approximately 44,926 square feet. This will result in an approximate 76.3 percent increase in square footage.

As part of the Project, the existing Boardman-Sammis 138 kV Transmission Line connection to Nevada Substation will be relocated to the east side of the substation as part of the reconfigured Nevada Substation. This transmission line relocation will require the modification of one (1) existing structure, the installation of three (3) new steel monopole structures on concrete foundations and the removal of eight (8) wood poles and of the line conductor from Structure 14079 to the substation.

Existing Structure 6589, a common structure for the Boardman-Sammis and Boardman-Toronto 138 kV Transmission Lines, will be modified to help facilitate the new transmission line connection to Nevada Substation. Of the three (3) new steel monopole structures on concrete foundations, one will be installed on the Boardman-Sammis 138 kV Transmission Line (Structure 14085), one will replace existing Structure 14077, and one will be installed as a common structure for the Boardman-Sammis and Boardman-Toronto 138 kV Transmission Lines (Structure 6588A).

The general location of the Project is shown in Exhibit 1, a partial copy of the United States Geologic Survey, Mahoning County, OH, Quad Map. Exhibit 2 is a copy of ESRI aerial imagery of the Project area. The general layout of the Project is shown in Exhibits 3 and 3A. The Project is in Boardman Township, Mahoning County, Ohio.

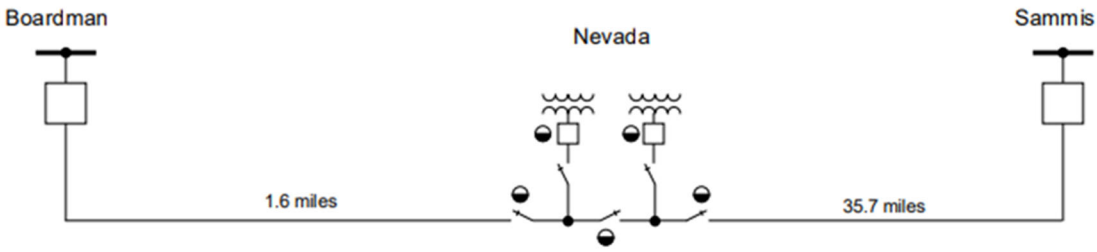
4906-6-05 (B)(1): Letter of Notification Requirement

The Letter of Notification requirement is driven by the substation expansion of greater than twenty percent of the fenced area as defined in the Application Requirement Matrix for Electric Power Transmission Lines, Appendix A of Adm.Code 4906-1-01(4)(b). The transmission line work is ancillary to the substation expansion.

4906-6-05 (B)(2): Need for the Project

Nevada Substation is a 138-12.47 kV Substation that serves as a distribution substation to the surrounding area. The proposed Nevada Substation expansion and 138 kV transmission line reconfiguration project includes the replacement of the 138 kV portion of the substation; currently configured as a tapped substation with SCADA controlled switches as shown in **Figure 1**, where multiple elements are connected to a common bus. The Project will reconfigure and upgrade the 138 kV bus to a more resilient ring bus configuration. The Project is needed to: (i) reduce the number of area-wide power disruptions to residential and commercial customers due to transmission bus outages, (ii) improve the reliability of the transmission and the local distribution network by upgrading the substation with a redundant bus and protection scheme, (iii) eliminate the simultaneous outages of multiple transmission facilities in the area.

Figure 1



As a distribution hub, the 12.47 kV power from Nevada Substation directly serves approximately 36 Megawatts ("MW") of load. The 12.47 kV portion of the substation directly serves a total of approximately 5,760 customers. There are several critical customers served from the Nevada Substation, consisting of 911 cellular towers, radio stations, emergency shelters, a fire station, hospitals, a polling location, schools, and water/sewer facilities.

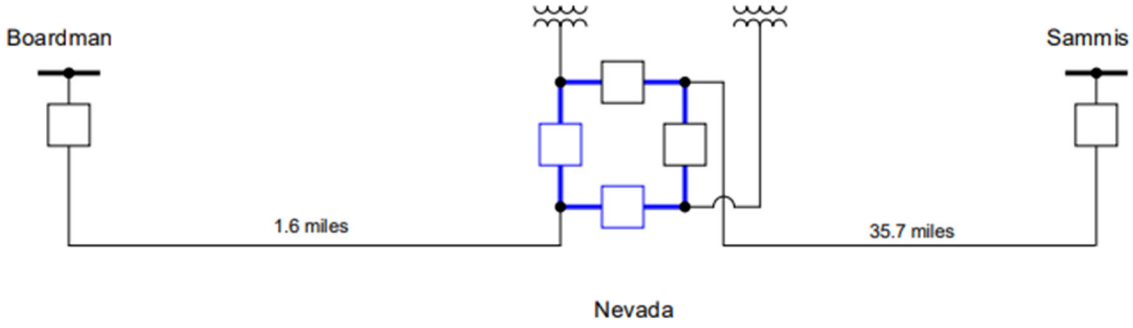
Nevada Substation is connected to the Boardman–Sammis 138 kV Transmission Line and provides a transmission connection for two 138-12.47 kV distribution transformers serving the distribution customers in the area.

In the existing line tap configuration, a 138 kV bus fault at Nevada Substation or a fault on the Boardman–Sammis 138 kV Transmission Line results in the outage of the entire Nevada Substation and the Boardman–Sammis 138 kV Transmission Line. Switches provide the ability to sectionalize the station and restore portions of the transmissions and distribution system after a fault occurs. A breaker failure operation of one of the Nevada Substation distribution transformer high side breakers or a faulted breaker on one of the Boardman–Sammis 138 kV Transmission Line breakers results in a similar outage.

ATSI's transmission planning is based on deterministic criteria, and not probabilistic criteria. In other words, ATSI transmission planning assessments result in recommendations to reinforce the transmission system based on an adverse planning event occurring and not based on the probability of the event occurring. FirstEnergy cannot know or predict when a failure or fault will occur.

The proposed Project to build a ring-bus substation configuration, as shown in **Figure 2**, will significantly reduce the likelihood of a simultaneous outage of multiple facilities at Nevada Substation for a bus fault, line fault, transformer fault with a breaker failure condition, or a faulted line breaker which would result in the loss of electric service for customers served from Nevada Substation. The Project will increase the reliability and operational flexibility of the transmission system. The proposed ring-bus arrangement ensures that no more than two elements would trip due to a breaker failure condition.

Figure 2



In the last five years, there have been four unscheduled outages on the Boardman–Sammis 138 kV Transmission Line that serves Nevada Substation that have caused customer outages. See **Table 1** below for additional details. The shortest times were momentary outages while the longest outage lasted eight minutes. The average outage time was 2.5 minutes. One of the outages was related to equipment failure, two were due to weather events, and one was due to foreign interference caused by a communications cable making contact with the transmission line.

Table 1. Reliability outage history for Boardman – Sammis 138 kV Transmission Line

Outage Start	Outage Restored	Duration	Outage Type	Cause Category	Cause	Customers Impacted
01/04/2023 8:18:00 PM	01/04/2023 8:26:00 PM	8m	Unscheduled	Foreign Interference	Customer/Other Utility	5816
09/20/2021 6:23:00 PM	09/20/2021 6:23:00 PM	0	Unscheduled	Lightning	Correlation - unknown magnitude/design criteria	5723

Outage Start	Outage Restored	Duration	Outage Type	Cause Category	Cause	Customers Impacted
09/07/2020 6:50:00 PM	09/07/2020 6:50:00 PM	0	Unscheduled	Lightning	Correlation - unknown magnitude/design criteria	5779
06/10/2020 9:19:00 PM	06/10/2020 9:21:00 PM	2m	Unscheduled	Weather, excluding lightning	Weather induced fall-in (outside ROW)	5779

The ring-bus configuration at Nevada Substation would create the Boardman–Nevada 138 kV Transmission Line and Nevada–Sammis 138 kV Transmission Line, eliminating these outages for the loss of a single transmission line.

As the majority of the work will be completed in connection with the proposed expansion of the existing Nevada Substation, certain advanced technologies were not a viable option for this Project. However, the new ring-bus configuration will increase the reliability and flexibility of the transmission system, consistent with the definition of "advanced transmission technologies" in R.C. 4906.01(M).

The Project was submitted as a Supplemental Project to the PJM Regional Transmission Expansion Plan (RTEP) at the Subregional RTEP-Western Committee on April 2, 2020. The need was presented at the Subregional RTEP-Western Committee on April 20, 2020. The proposed solution was presented at the Subregional RTEP-Western Committee on September 11, 2020. PJM assigned supplemental number s2388 for the Project.

The PJM SRRTEP-Western presentation slides are included as Exhibit 4 and provide additional details of the Project drivers.

4906-6-05 (B)(3): Location of the Project Relative to Existing or Proposed Lines

The location of the Project relative to existing or proposed lines is shown in the ATSI Transmission Network Map, included as part of the confidential portion of the FirstEnergy Corp. 2025 Long-Term Forecast Report. This map was submitted to the PUCO in Case No. 25-0504-EL-FOR under Adm.Code 4901:5-5-04(C)(2)(b). The map is incorporated by

reference only. The Project is included in ATSI's LTFR filed in 2025 on pages 75 and 102. The general location and layout of the Project area is shown in Exhibits 1 and 2.

4906-6-05 (B)(4): Alternatives Considered

There is no viable alternative to the proposed Project. An alternative to the proposed Project was to maintain the existing conditions at Nevada Substation and the elevated risk of exposure to outages. The installation of auto-sectionalizing switches at Nevada Substation was considered but not selected due to the number of customers and load at risk.

4906-6-05 (B)(5): Public Information Program

ATSI's manager of External Affairs will advise local officials of features and the status of the proposed Project as necessary. ATSI will maintain a copy of this Letter of Notification, along with other Project information, on FirstEnergy's website: https://www.firstenergycorp.com/about/transmission_projects/ohio.html .

ATSI will publish notice of the Project in the Boardman News within 7 days of filing this Letter of Notification application. The notice will comply with Adm.Code 4906-6-08(A)(1)-(6).

During all phases of this Project, the public may contact ATSI through the transmission projects hotline at 1-888-311-4737 or via email at: transmissionprojects@firstenergycorp.com.

4906-6-05 (B)(6): Construction Schedule

Construction on this Project is expected to begin as early as January 1, 2026, and be completed by December 1, 2026.

4906-6-05 (B)(7): Area Map

Exhibit 1 depicts the general location of the Project. This Exhibit provides a partial copy of the United States Geologic Survey, Mahoning County OH, Quad Map. Exhibit 2 is a copy of ESRI aerial imagery of the Project area.

4906-6-05 (B)(8): Properties List

The Project will be located on existing right-of-way on parcel 29-040-0-003.00-P, which is owned by Ohio Edison, and on newly acquired right-of-way on parcel 29-040-0-002.03-0, which is owned by Boardman Township Park, Inc.

4906-6-05 (B)(9): TECHNICAL FEATURES OF THE PROJECT

4906-6-05 (B)(9)(a): Operating Characteristics

The transmission line construction will have the following characteristics:

Voltage:	138 kV
Conductors:	795 kcmil 26/7 ACSR (New and Existing) 300 kcmil 19-Strand Copper (New and Existing)
Static Wire:	7#6 Copperweld (Existing static wire) 3#6 Alumoweld (Existing and New Tap static wire)
Insulators:	Porcelain/Glass
ROW Width:	200 feet
Structure Types:	Exhibit 5 – 138 kV SC Steel Pole Tap Structure (Qty. 2) Exhibit 6 – 138 kV DC Steel Pole DE Structure (Qty. 1)
Breakers:	145kV, 2000A 40 kA breaker (Qty. 4):
CCVT's:	Set of (3) 138kV CCVTs, with dual secondaries, 700/1200:1 ratios, new on the Broadman and Sammis line exits – (Qty. 2).
Switches:	3-phase 138kV Breaker disconnect switch with arcing horns, (Qty. 8). 3-phase 138kV motor operated line disconnect switch with arcing horns, (Qty. 2).
PCE	New PCE with 1 lot relaying and controls for the new expansion – (Qty. 1).

4906-6-05 (B)(9)(b): Electric and Magnetic Fields

There are no occupied residences within 100 feet of the Project and therefore no Electric and Magnetic Field ("EMF") calculations are required by this code provision.

4906-6-05 (B)(9)(c): Estimated Cost

The estimated cost for the proposed Project is $13,300,000. Although not statutorily required for approval, at the request of OPSB Staff, ATSI confirms that ATSI's costs will

be captured and allocated via FERC formula rates for the ATSI Transmission Zone, Attachment H-21 in the PJM OATT.

4906-6-05 (B)(10): SOCIAL AND ECOLOGICAL IMPACTS

4906-6-05 (B)(10)(a): Land Uses

The Project is in Boardman Township, Mahoning County, Ohio. The main land use around the Project area is zoned as industrial, general business and public. Because the proposed Project involves expanding substation and replacing three (3) structures within the existing transmission corridor, no significant changes or impacts to the current land use are anticipated.

4906-6-05 (B)(10)(b): Agricultural Land

Agricultural land does not exist within the Project's Area of Potential Effect ("APE").

4906-6-05 (B)(10)(c): Archaeological or Cultural Resources

As part of the investigation for this Letter of Notification, TRC Companies, Inc. ('TRC') submitted a request to the Ohio Historic Preservation Office ("SHPO") on behalf of ATSI to review the Project Study Area (Area of Potential Effects or "APE") within a one (1)-mile search radius. On June 2, 2025, SHPO replied to the request and the response is attached as Exhibit 7. SHPO concurred that the Project, as proposed, will have no effect on historic properties and no cultural resource studies are warranted. No further coordination is required for this Project unless the scope of work changes or archaeological remains are discovered during the course of the Project completion.

The OHPO database includes a catalog of all historic properties listed in or eligible for listing in the National Register of Historic Places (NRHP), including districts, sites, building, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The results of the search identified two (2) above-ground historic resources that are listed in the NRHP. These resources include the St. James

Episcopal Church (Ref. No.: 79001892), located 0.79 mi to the north, and the Southern Park Stable (Ref. No.: 86001564), located 0.7 mi to the south of the Project Study Area.

The OHPO database also includes listings on the Ohio Historic Inventory (OHI), the Ohio Archaeological Inventory (OAI), previous cultural resource surveys, and the Ohio Genealogical Society (OGS) cemetery inventory. There is one (1) above-ground historic resource that has not been evaluated for NRHP eligibility that is recorded 0.98 mi southwest of the proposed Project. Additionally, one (1) OGS cemetery is recorded 0.97 mi north of the Project Study Area.

Two (2) archaeological surveys are recorded within one (1) mi of the proposed Project, of which, one (1) overlaps with the entire southern half of the Project Study Area. The majority of the substation expansion will be within areas previously assessed for archaeological resources. No archaeological sites have been recorded within one (1) mi.

The Project Study Area consists of an existing, maintained utility right-of-way (ROW) and substation facility, surrounded by developed and industrial landscapes. Currently, as proposed, no new tree clearing is anticipated within or outside the Project Study Area. The proposed Project is not expected to have any adverse effects on known historic properties. To date, TRC has not conducted any on-site cultural resources surveys.

4906-6-05 (B)(10)(d): Local, State, and Federal Requirements

No construction filings are applicable based on the proposed Project. If more than one (1) acre of earth disturbance is proposed in future changes to the Project scope, then submittal of a Notice of Intent (NOI) application to the Ohio EPA would be required for coverage under the general construction stormwater permit (OHC000006), and the Storm Water Pollution Prevention Plan (SWPPP) to the Mahoning County Soil and Water Conservation District. All permitting and/or coordination necessary to comply with local, state, and federal agencies with jurisdiction regarding this Project will be completed prior to the commencement of construction.

4906-6-05 (B)(10)(e): Endangered, Threatened, and Rare Species Investigation

As part of the investigation, ATSI retained TRC to conduct necessary surveys. TRC submitted a request to the Ohio Department of Natural Resources ("ODNR") Office of Real Estate to conduct an Environmental Review. As part of the Environmental Review, the ODNR Office of Real Estate conducted a search of the ODNR Division of Wildlife's Natural Heritage Database to research the presence of any endangered, threatened, or rare species within one (1) mile of the Project Study Area. The ODNR's Office of Real Estate's response dated September 17, 2024, indicated that there are no records for state or federally listed plants or animals within one mile of the Project Area. There is a record for other unique ecological features within one mile of the Project Area: a Beech-sugar maple forest community. The Project is also within the range of five (5) state and/or federally listed animal species. A list of all endangered, threatened, and rare species, as identified by ODNR, within the range of the Project is provided in Table 2. A copy of ODNR's Office of Real Estate's response is included as Exhibit 8.

Table 2. List of Endangered and Threatened Species within range of Project Study Area

Common Name	Scientific Name	Federal Listed Status	State Listed Status	Affected Habitat
Mammals				
Indiana Bat	*Myotis sodalis*	Endangered	Endangered	Trees, forests, caves, and caverns.
Little Brown Bat	*Myotis lucifugus*	N/A	Endangered	Trees, forests, caves, and caverns.
Northern Long-eared Bat	*Myotis septentrionalis*	Endangered	Endangered	Trees, forests, caves, and caverns.
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered	Endangered	Trees, forests, caves, and caverns.
Fish				
Western Banded Killifish	*Fundulus diaphanus menona*	N/A	Endangered	Perennial streams.

Based on the information received from correspondence with ODNR, the Project 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. These bat species predominantly roost in trees behind loose, exfoliating bark, in crevices, and cavities,

or in the leaves. These species are dependent on the forest structure surrounding the roost tress. The DOW recommended a desktop bat hibernaculum assessment be completed for the Project, which TRC completed for ATSI and submitted to ODNR for concurrence on February 20, 2025. ODNR' responded on March 12, 2025, attached as Exhibit 8A, concurring that no caves, cliffs, or mine openings occur in the Project Study Area. Additionally, ODNR stated that because the Project does not involve blasting or impacting the bedrock, the Project is not likely to impact hibernating bats that may be present in nearby underground mines. In assessing compliance with NWP General Condition 18, TRC determined that tree clearing is not anticipated within the Project Study Area. If minor tree clearing is needed as a result of this Project, it will take place within the US Fish and Wildlife Service (USFWS) recommended tree clearing dates (October 1 – March 31); therefore, no impacts to bat species are anticipated as a result of the construction of this Project.

The Project is also within the range of the western banded killifish (*Fundulus diaphanus menona*), a state endangered fish. 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. Since no in-water work is proposed in a perennial stream, the Project will not impact this or other aquatic species.

As part of the investigation, TRC submitted a request to USFWS on August 20, 2024, to research the presence of any endangered, threatened, rare, or designated species within the Project Study Area. A copy of the USFWS' response, dated September 10, 2024, is included as Exhibit 9. The response indicated that due to the Project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to the Indiana bat, northern long-eared bat, and tricolored bat, no adverse effects to any federally endangered, threatened, or proposed species, or proposed or designated critical habitat are anticipated

4906-6-05 (B)(10)(f): Areas of Ecological Concern

On March 16, 2023, April 17, 2023, June 12, 2023, and November 9, 2023, TRC performed field investigations to identify and delineate wetlands and waterbodies located within the

4.31-acre Project Study Area. A Surface Water Delineation Report of the Project Study Area is included in Exhibit 10. Two (2) palustrine emergent wetlands (W-EVN-1 and W-EVN-2) were identified and delineated within the Project Study Area. No other ecological features, including streams, were identified or delineated within the Project Study Area.

The Project Study Area consists of an existing, maintained utility ROW and substation facility within industrial and commercial land use. TRC did not observe the presence of any of the ODNR or federally listed species during the field investigation due to the highly maintained nature of the utility ROW, existing substation, and surrounding land use. Therefore, no impacts are anticipated to any of the listed species detailed in the ODNR correspondence.

The Limits of Disturbance will be completely within the Project Study Area and will include the expansion of the existing Nevada Substation, utilizing an existing paved driveway for access. Construction also involves the installation of three (3) new utility poles and the removal of eight (8) existing poles that are located within the Nevada Substation footprint. Nationwide Permit (NWP) 57 - Electric Utility Line and Telecommunications Activities (effective March 15, 2021, valid through March 14, 2026), authorizes the construction of access roads for the construction and maintenance of electric utility lines or telecommunication lines, including overhead lines and substations, in nontidal waters of the United States, provided the activity does not cause the loss of greater than 0.5 acre of waters of the United States.

To expand the existing substation foundation with gravel and install additional new fencing around the substation, a total of 0.07-acre of palustrine emergent wetland, Wetland W-EVN-1, will be permanently impacted. An existing paved construction entrance drive located to the south of the Project will be utilized for access, avoiding wetlands and other waters of the U.S. Additional wetland impacts will be avoided during the removal of two (2) existing utility poles and the installation of their new respective structures. Disturbances to potentially jurisdictional features are anticipated to be less than 0.5 acre. As long as the Project impacts remain under the 0.5-acre NWP impact threshold for potentially jurisdictional features, it is TRC's understanding that this Project would fall under NWP 57.

Nationwide Permit Regional General Conditions were reviewed regarding this Project. This Project is located in Boardman Township, Mahoning County, Ohio which is within the USACE Pittsburgh Regulatory District. Boardman Township in Mahoning County is listed in Appendix 1 to Regional General Condition 5(a) (Endangered Species and Threatened Species) (USACE, 2021), which triggers the need for a Section 404 Pre-Construction Notification (PCN) application to be submitted to the USACE when the proposed Project includes regulated activities within jurisdictional resources. A Section 404 PCN application was submitted to the USACE on June 5, 2025, and will be received prior to construction starting.

A review of the National Conservation Easement Database (www.conservationeasement.us) revealed no conservation easements in the Project Study Area.

4906-6-05(B)(10)(g): Other Information

Construction and operation of the proposed Project will be in accordance with the requirements specified in the latest revision of the National Electrical Safety Code as adopted by the PUCO and will meet all applicable safety standards established by the Occupational Safety and Health Administration.

No other or unusual conditions are expected that will result in significant environmental, social, health or safety impacts.

4906-6-07: Documentation of Letter of Notification Transmittal and Availability for Public Review

This Letter of Notification application is being provided concurrently with its docketing with the OPSB to the following officials in Boardman Township and Mahoning County, Ohio.

Mahoning County

Commissioner Geno DiFabio, President
Mahoning County Commissioners
Commissioners' Office
21 W Boardman Street 2nd Floor
Youngstown, OH 44503
Geno.DiFabio@mahoningcountyoh.gov

Commissioner Carol Rimedio-Righetti,
Vice President
Mahoning County Commissioners
Commissioners' Office
21 W Boardman Street 2nd Floor
Youngstown, OH 44503
crighetti@mahoningcountyoh.gov

Commissioner Anthony Traficanti
Mahoning County Commissioners
Commissioners' Office
21 W Boardman Street 2nd Floor
Youngstown, OH 44503
atraficanti@mahoningcountyoh.gov

Patrick T. Ginnetti, P.E., P.S
Mahoning County Engineer
940 Bears Den Road
Youngstown, OH 4451
pginnetti@mahoningcountyoh.gov

Mr. Michael O'Shaughnessy,
Department Head
Mahoning County Planning Commission
50 Westchester Drive Suite 203
Youngstown, OH 44515
moshaughnessy@mahoningcountyoh.gov

Ms. Kathleen Vrable-Bryan,
District Administrator
Mahoning County Soil and Water District
850 Industrial Road
Youngstown, OH 44509
kvrable-bryan@mahoningcountyoh.gov

Boardman Township

Mr. Tom Costello
Boardman Township, Trustee
8299 Market Street
Boardman, OH 44512
tcostello@boardmantwp.com

Mr. Larry Moliterno
Boardman Township, Trustee
8299 Market Street
Boardman, OH 44512
lmoliterno@twp.boardman.oh.us

Mr. Jason Loree
Boardman Township, Trustee
8299 Market Street
Boardman, OH 44512
jloree@boardmantwp.com

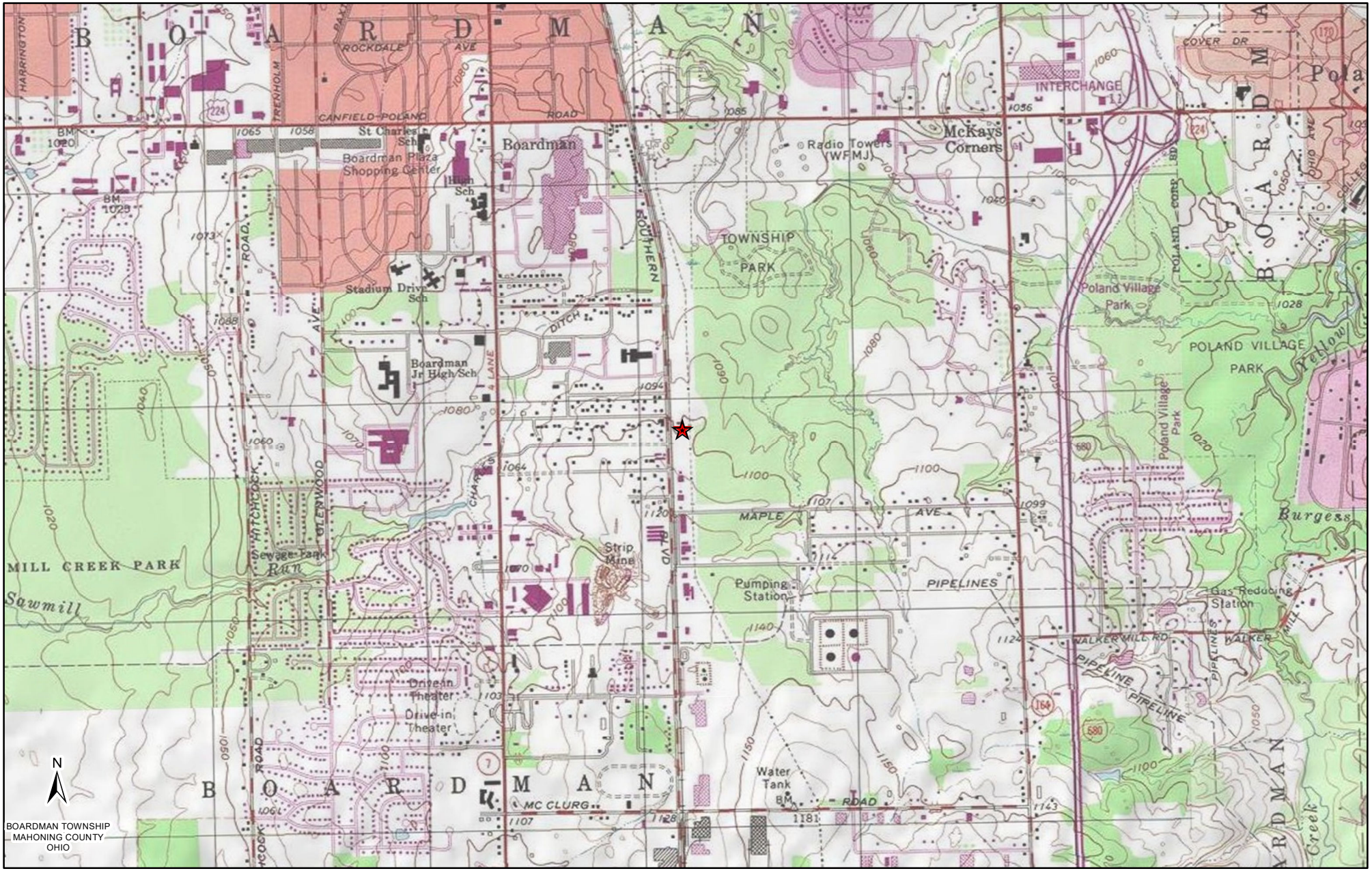
Mr. Brad Calhoun, Fiscal Officer
Boardman Township
8299 Market Street
Boardman, OH 44512
bcalhoun@boardmantwp.com

Library

Ms. Aimee Fifarek, Director and Chief Executive Officer
Boardman Library
The Public Library of Youngstown and Mahoning County
7680 Glenwood Ave,
Youngstown, OH 44512-5821
reference@libraryvisit.org

Per Adm.Code 4906-6-07(B), exemplar copies of the notice letters sent to local government officials and to the library have been included with this application as proof of compliance with requirements of Adm.Code 4906-6-07(A)(1) and 4906-6-07(A)(2).

Information is posted at www.firstenergycorp.com/about/transmission_project/ohio.html on how to request an electronic or paper copy of this Letter of Notification application. The link to this website is being provided in accordance with Adm.Code 4906-6-07(B), which requires ATSI to provide the OPSB with proof of compliance with Adm.Code 4906-6-07(A)(3).



LEGEND:

★ Project Location

0 1,000 2,000 4,000

Feet

Reference:

USGS Topographical Overlay; ODOT

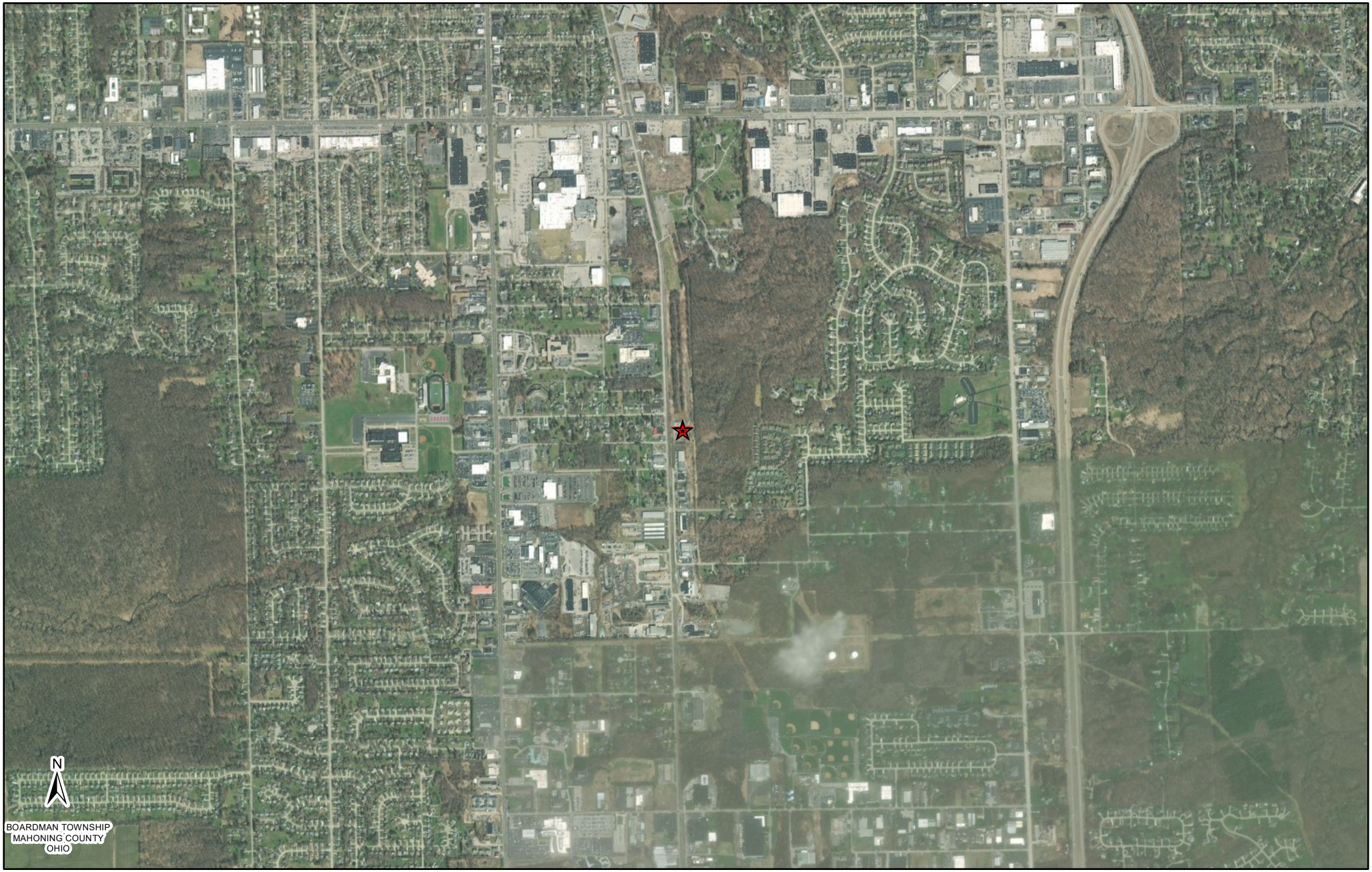
Coordinate System:

NAD 1983 StatePlane Ohio North FIPS 3401 Feet
Projection: Lambert Conformal Conic; Units: Foot US

EXHIBIT 1

ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

Nevada Substation Expansion and 138 kV Transmission Lines Partial Rebuild Project



LEGEND:

★ Project Location

0 1,000 2,000 4,000

Feet

Reference:

ESRI Imagery; ODOT

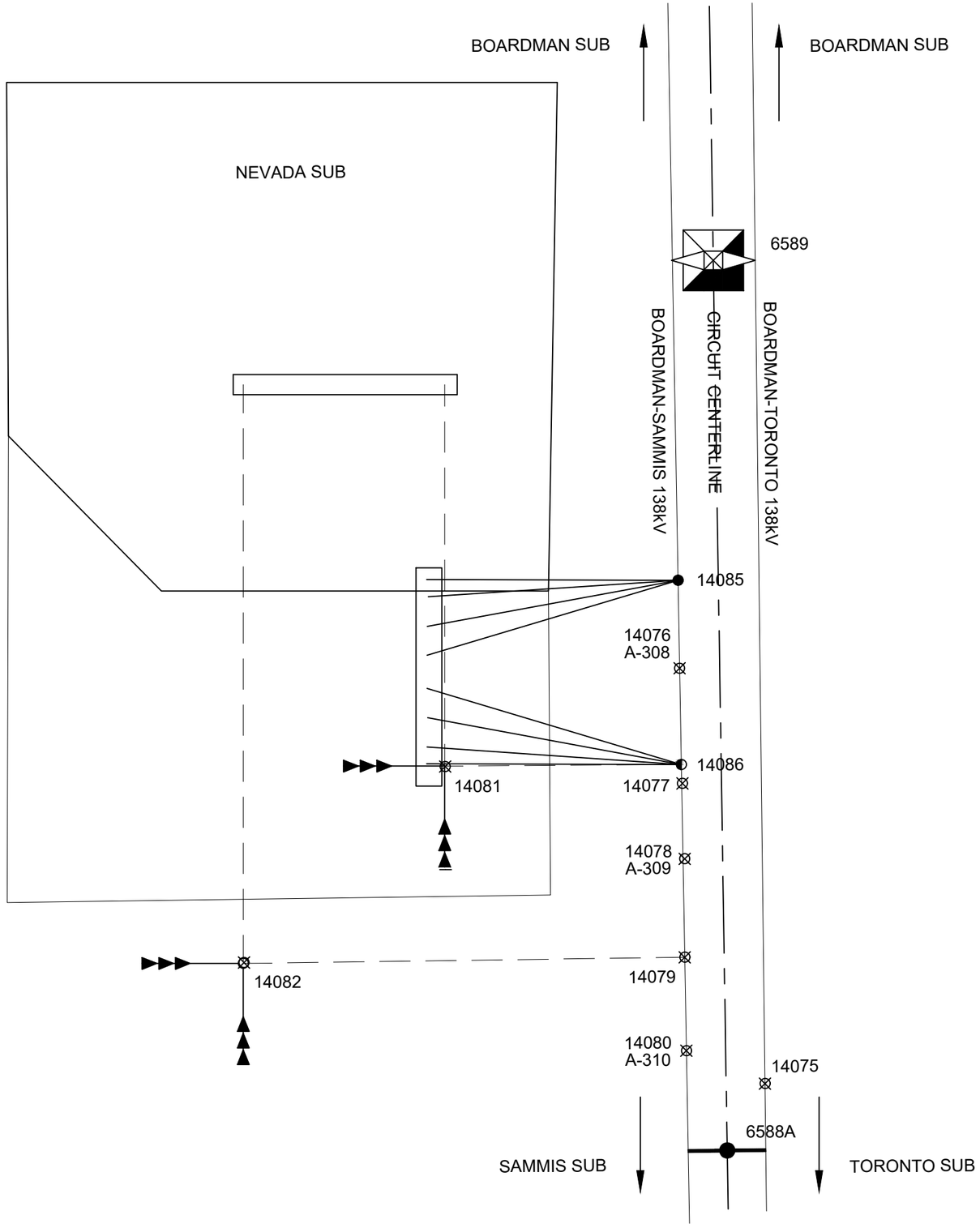
Coordinate System:

NAD 1983 StatePlane Ohio North FIPS 3401 Feet
Projection: Lambert Conformal Conic; Units: Foot US

EXHIBIT 2

ATSI®
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.

Nevada Substation Expansion and 138 kV Transmission Lines Partial Rebuild Project



SCALE: NTS

BOARDMAN TOWNSHIP
MAHONING COUNTY, OH

LEGEND

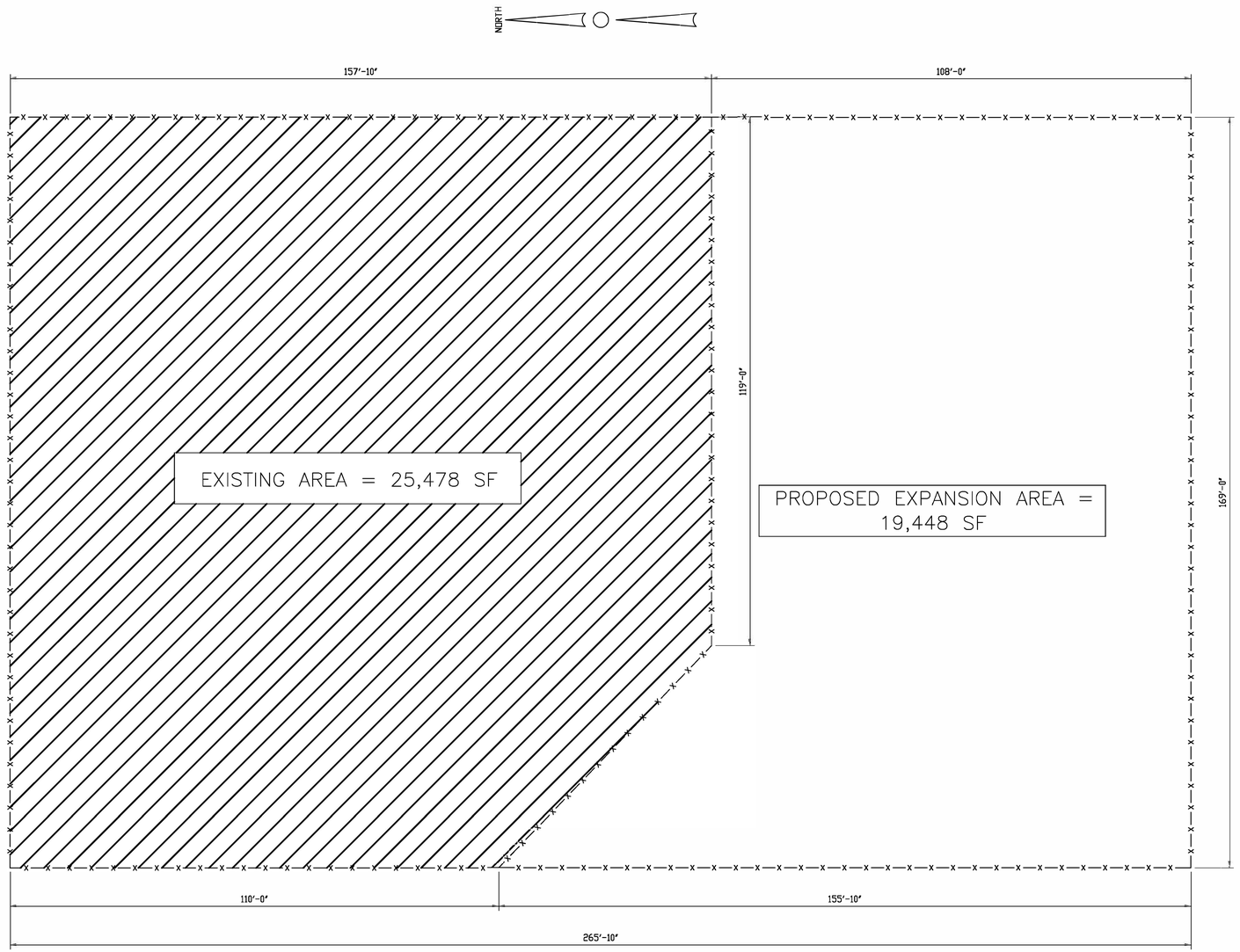
- --- EXISTING TRANSMISSION TOWER
- --- EXISTING STRUCTURE TO BE REMOVED
- --- EXISTING STRUCTURE TO BE REPLACED/RENUMBERED
- --- PROPOSED NEW STRUCTURE LOCATION
- --- NEW CONDUCTOR TO BE ADDED
- --- EXISTING CONDUCTOR TO BE REMOVED
- --- EXISTING GUY ANCHORS TO BE REMOVED

ATSI®
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.

NEVADA SUBSTATION EXPANSION AND
138kV TRANSMISSION LINES
PARTIAL REBUILD PROJECT

GENERAL LAYOUT

EXHIBIT 3



PERCENTAGE AREA INCREASE = (19,448 / 25,478) X 100 = 76.3%

ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

NEVADA SUBSTATION EXPANSION AND
138 kV TRANSMISSION LINES PARTIAL REBUILD PROJECT

SUBSTATION EXPANSION GENERAL LAYOUT

EXHIBIT 3A

ISSUED: 6/19/25
SCALE: NTS

FirstEnergy

ATSI Transmission Zone M-3 Process
Boardman-Sammis 138 kV Line

Need Number: ATSI-2020-005

Process Stage: Submission of Supplemental Project for Inclusion in the Local Plan 09/07/2021

Previously Presented: Need Meeting – 04/20/2020
Solution Meeting – 09/11/2020

Supplemental Project Driver(s):

Operational Flexibility and Efficiency

Equipment Material Condition, Performance and Risk

Specific Assumption Reference(s)

Global Considerations

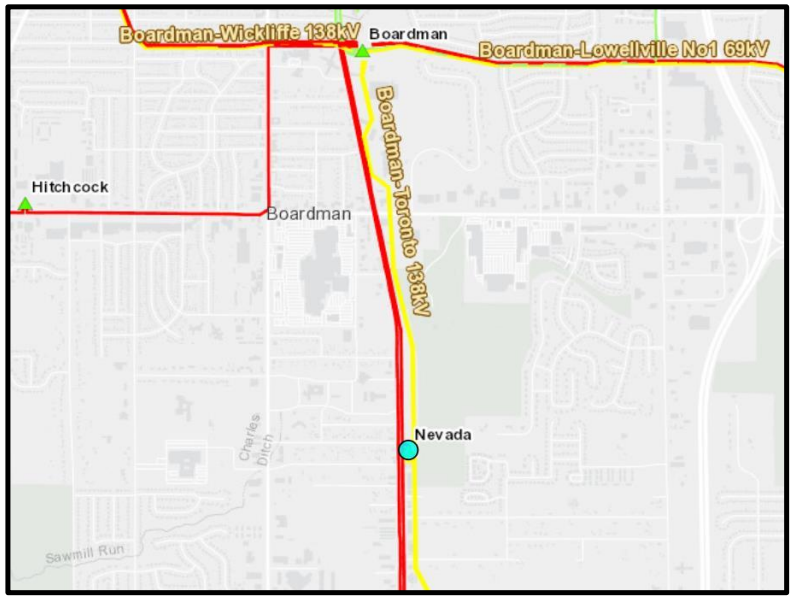
- System Reliability and Performance
- Substation/line equipment limits
- Reliability of Non-BES Facilities
- Load at risk in planning and operational scenarios.
- Load and/or customers at risk on single transmission lines

Add/Expand Bus Configuration

- Loss of substation bus adversely impacts transmission system performance

Automatic Sectionalizing Scheme

- Projects are developed under this methodology by evaluating load at risk and/or customers impacted



Legend	
345 kV	
138 kV	
69 kV	

ATSI Transmission Zone M-3 Process
Boardman-Sammis 138 kV Line

Need Number: ATSI-2020-005

Process Stage: Submission of Supplemental Project for Inclusion in the Local Plan 09/0/2021

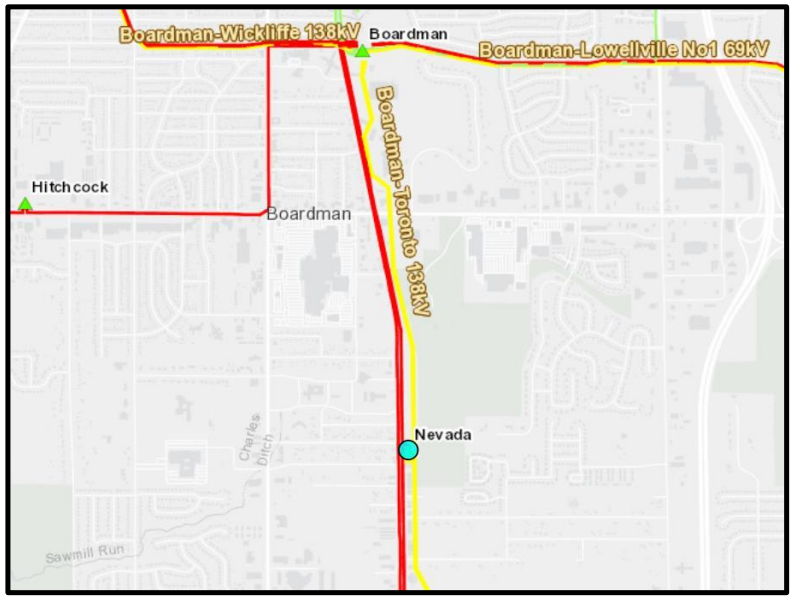
Previously Presented: Need Meeting – 04/20/2020
Solution Meeting – 09/11/2020

Problem Statement

Boardman-Sammis 138 kV Line

- The Nevada substation serves 42 MW and 5,729 customers via the Boardman-Sammis 138 kV Line.
- The P1-2 contingency (ATSI-P1-2-OEE-138-024) for the loss of the Boardman-Sammis 138 kV Line will outage roughly 42 MW and 5,729 customers.
- Boardman-Sammis 138 kV Line has experienced seven outages in the past five years (two sustained)
- Circuit limiting substation conductor located at Nevada substation for both the Boardman-Nevada and Nevada-Sammis 138 kV circuit

Model: 2019 Series 2024 Summer RTEP 50/50



Legend	
345 kV	
138 kV	
69 kV	

ATSI Transmission Zone M-3 Process
Boardman-Sammis 138 kV Line

Need Number: ATSI-2020-005

Process Stage: Submission of Supplemental Project for Inclusion in the Local Plan 09/07/2021

Selected Solution:

Nevada 138 kV Ring Bus

- Convert the Nevada 138 kV substation into a 4-breaker ring bus, using two existing 138 kV breakers
- Upgrade substation conductor at the Nevada substation from 795 ACSR to 954 ACSR
- Establish two redundant fiber paths between Boardman and Nevada for line relaying
- Upgrade relays at Sammis and Boardman

Transmission Line Ratings:

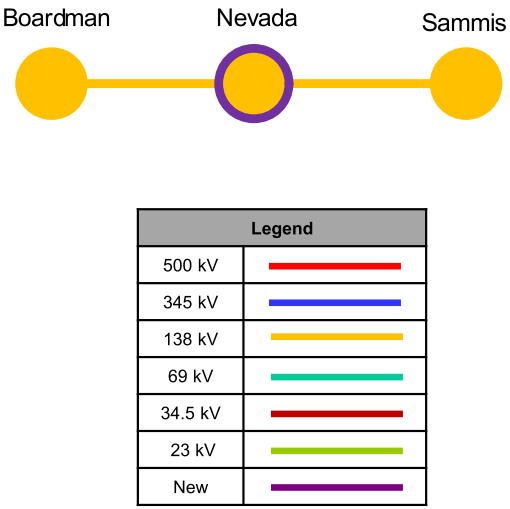
- **Boardman-Nevada 138 kV Line**
  - Before Proposed Solution: 265 MVA SN / 316 MVA SE
  - After Proposed Solution: 278 MVA SN / 339 MVA SE
- **Nevada-Sammis 138 kV Line**
  - Before Proposed Solution: 265 MVA SN / 316 MVA SE
  - After Proposed Solution: 278 MVA SN / 339 MVA SE

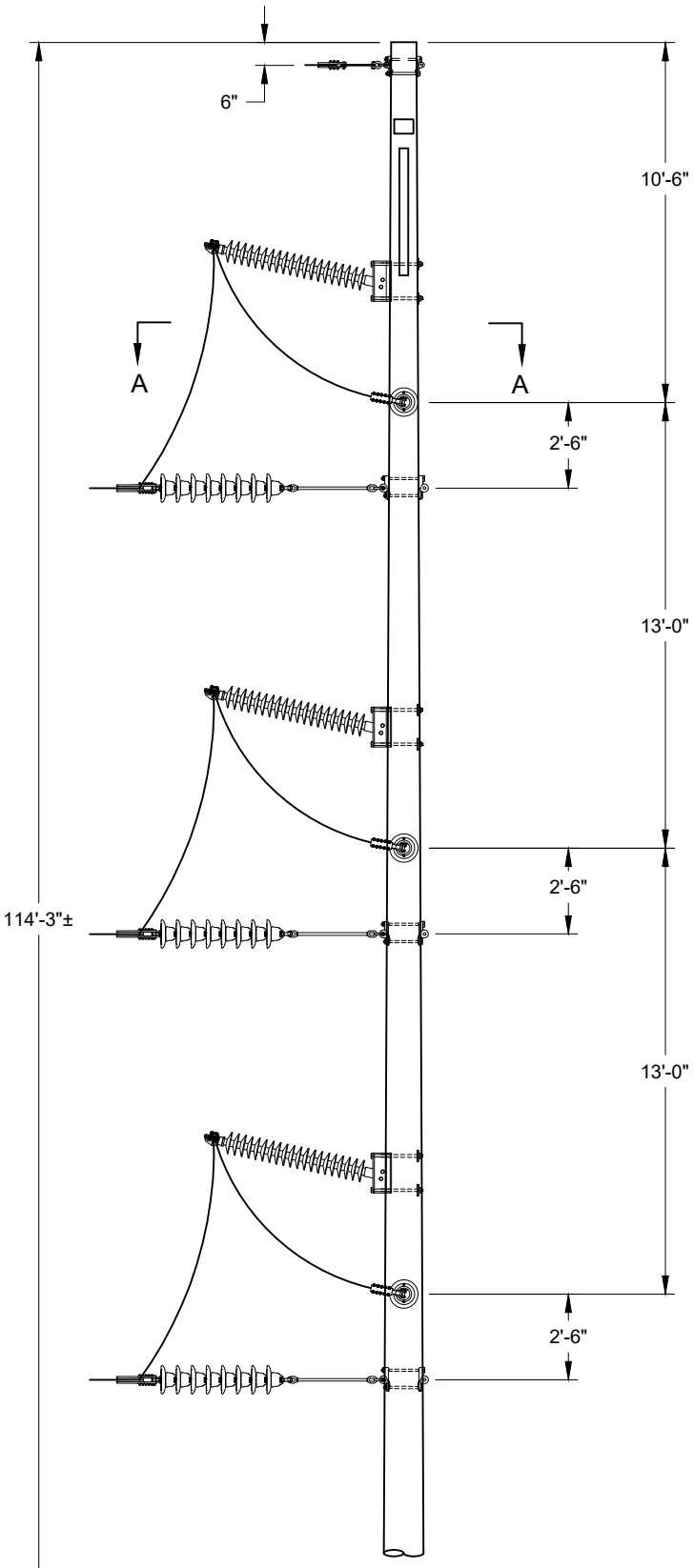
Estimated Project Cost: $7.8 M

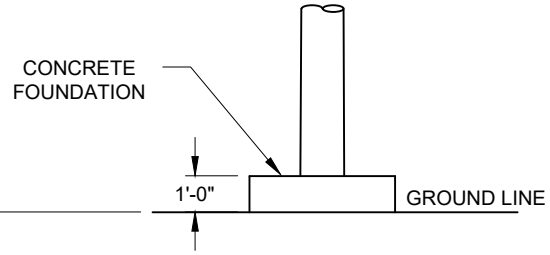
Projected In-Service: 06/01/2023

Supplemental Project ID: s2388

Model: 2019 Series 2024 Summer RTEP 50/50







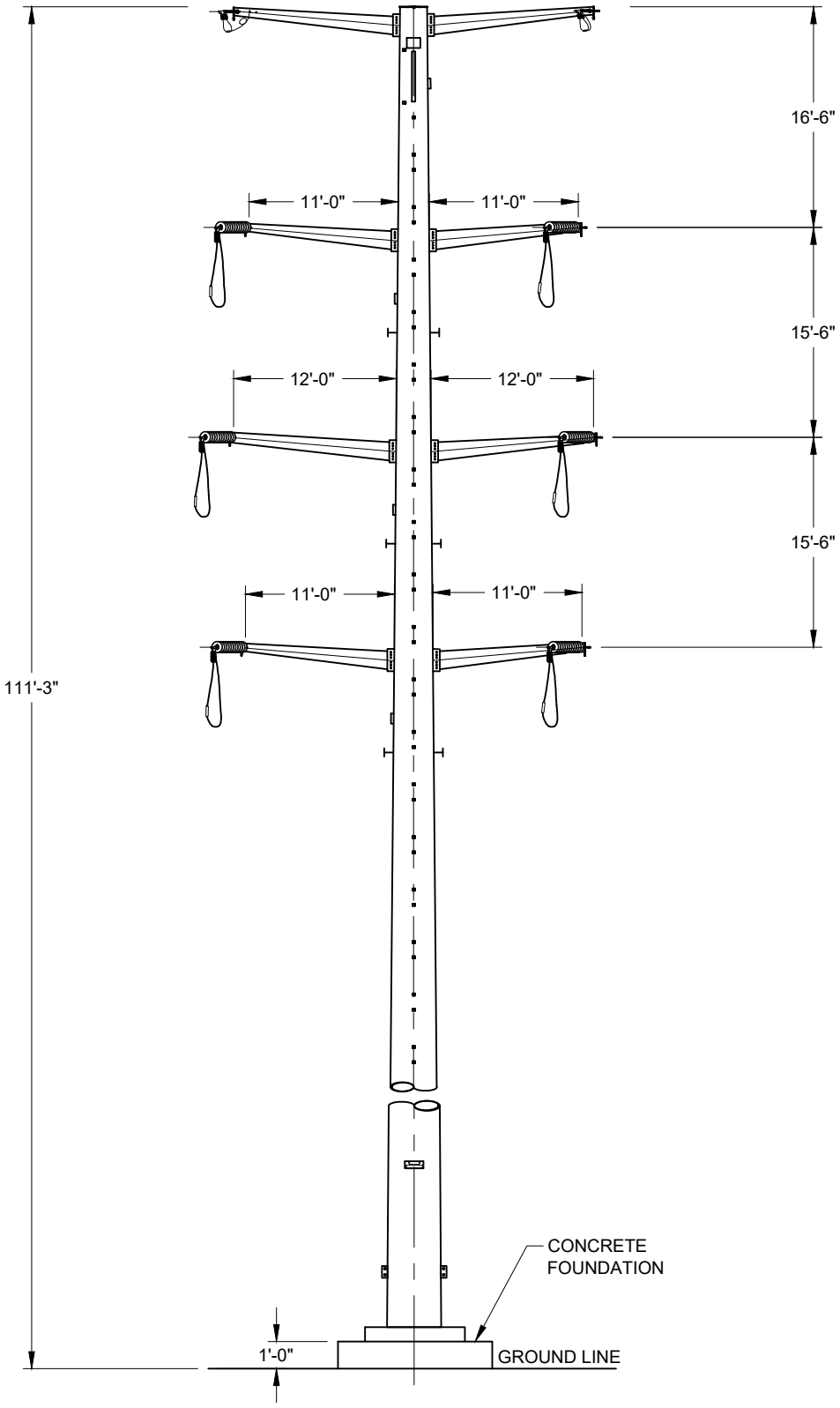
SCALE: NTS

ATSI®
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.

NEVADA SUBSTATION EXPANSION AND
138kV TRANSMISSION LINES
PARTIAL REBUILD PROJECT

STEEL SINGLE CIRCUIT TAP
STRUCTURES 14085 AND 14086

EXHIBIT 5



SCALE: NTS

ATSI
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.

NEVADA SUBSTATION EXPANSION AND
138 kV TRANSMISSION LINES
PARTIAL REBUILD PROJECT

STEEL DOUBLE CIRCUIT DEADEND STRUCTURE 6588A

EXHIBIT 6

EXHIBIT 7

In reply refer to:
2025-MAH-64877

June 2, 2025

Justin McKissick, MA, RPA
Project Archaeologist/Field Director
TRC Environmental Corporation
317 E Carson Street, Suite 113
Pittsburgh, PA 15219
Email: JMcKissick@trccompanies.com

RE: Section 106 Review: Nevada Ring Bus Substation Expansion Project, Boardman Township, Mahoning County, Ohio

Dear Mr. McKissick:

This letter is in response to the correspondence received on April 25, 2025, regarding the above-referenced project in Mahoning 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 (O.R.C.) and the Ohio Power Siting Board rules for siting this project. 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 proposed project will involve the expansion of the existing Nevada Substation. The expansion area totals approximately 4.31-acres and is adjacent to the southern edge of the existing facility. Based on the information submitted by you, which included a Project Summary Form, no historic properties, districts, or archaeological sites are located within the direct Area of Potential Effect (APE), as defined by you. However, our records indicate the entire APE has been previously surveyed in 2014. Therefore, based on this information, it is the SHPO's opinion that no additional cultural resource studies are warranted for the project. Furthermore, as proposed, the project will have no effect on historic properties. No further coordination is required for this project unless the scope of work changes or archaeological remains are discovered during the course of the project. In such a situation, this office should be contacted as required by 36 CFR § 800.13. If you have any questions concerning this review, please contact me via email at sbiehl@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Stephen M. Biehl

Stephen M. Biehl, Project Reviews Manager-Archaeology
Resource Protection and Review
State Historic Preservation Office

RPR Serial No. 1108669

"Please be advised that this is a Section 106 decision. This review decision may not extend to other SHPO programs."

Department of Natural Resources
ohiodnr.gov

EXHIBIT 8

Mike DeWine, *Governor*
Jon Husted, *Lt. Governor*
Mary Mertz, *Director*

Office of Real Estate & Land Management
Tara Paciorek - Chief
2045 Morse Road – E-2
Columbus, Ohio 43229-6693

September 17, 2024

Jenna Slabe
TRC Companies, Inc.
1382 West 9th Street, Suite 400
Cleveland, Ohio 44113

Re: 24-1302 - Nevada Ring Bus Substation Expansion

Project: The proposed project involves the expansion of the existing Nevada substation.

Location: The proposed project is located in Boardman Township, Mahoning County, Ohio.

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

Natural Heritage Database: A review of the Ohio Natural Heritage Database indicates there are no records of state or federally listed plants or animals within one mile of the project area. Records for other unique ecological features within a mile of the project are as follows:

Beech-sugar maple forest plant community

The review was performed on the specified project area as well as an additional one-mile radius. Records searched date from 1980. Features searched include locations of rare and endangered plants and animals determined to be of value to the conservation of their species, high quality plant communities, animal breeding assemblages, and outstanding geological features. Records for high quality plant communities indicate the presence of sites that are in our inventory of the best remaining examples of Ohio's pre-settlement ecosystems.

The feature listed above is not recorded within the boundaries of the specified project area. However, 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 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 species of bats predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. If trees are present within the project area, and trees must be cut, the DOW recommends cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH ≥ 20 if possible. If trees are present within the project area, 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 (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

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 western banded killifish (*Fundulus diaphanus menona*), a state endangered fish. 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 this or other aquatic 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.

Thank you for affording us the opportunity to comment.

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 (Environmental Services Administrator) at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Expiration: *ODNR Environmental Reviews are typically valid for 2 years from the issuance date. If the scope of work, project area, construction limits, and/or anticipated impacts to natural resources have changed significantly from the original project submittal, then a new Environmental Review request should be submitted.*

EXHIBIT 8A

Hello Jenna,

Thank you for the bump. Per review of the desktop survey provided for the FirstEnergy's Nevada Ring Bus Substation Expansion Project, the Ohio Division of Wildlife concurs with your assessment that no caves, cliffs, or mine openings occur in the project area. Additionally, because the project does not involve blasting or impacting the bedrock, the project is not likely to impact hibernating bats that may be present in the nearby underground mines.

Should any reported conditions change before or during construction, please contact me for additional guidance.

Thank you,

Eileen Wyza, Ph.D.
(she/her/hers)
Wildlife Biologist
Ohio Division of Wildlife
Phone: 614-265-6764
Email: Eileen.Wyza@dnr.ohio.gov

Support Ohio's wildlife. Buy a license or stamp at wildohio.gov.

From: Slabe, Jenna <JSlabe@trccompanies.com>
Sent: Tuesday, March 11, 2025 6:07 PM
To: Wyza, Eileen <Eileen.Wyza@dnr.ohio.gov>
Cc: Molnar, Maggie <MMolnar@trccompanies.com>; Falkinburg, Brad <BFalkinburg@trccompanies.com>
Subject: RE: [EXTERNAL] RE: Desktop Hibernacula Assessment: FirstEnergy's Nevada Ring Bus Substation Expansion Project

Hello Eileen,

Just following up on my previous email for the Nevada Substation. Let us know if you have any other questions regarding the Project. Thank you!

Jenna Slabe
Ecologist
Planning, Permitting, and Licensing

TRC
1382 W 9th St, Suite 400, Cleveland, OH 44113
C 330.998.0481
LinkedIn | TRCcompanies.com

From: Slabe, Jenna
Sent: Monday, February 24, 2025 1:19 PM
To: Eileen.Wyza@dnr.ohio.gov
Cc: Molnar, Maggie <MMolnar@trccompanies.com>; Falkinburg, Brad <BFalkinburg@trccompanies.com>
Subject: RE: [EXTERNAL] RE: Desktop Hibernacula Assessment: FirstEnergy's Nevada Ring Bus Substation Expansion Project

Hi Eileen,

There is no blasting or bedrock disturbance associated with the Project. Please let me know if you have any other questions.

Thank you!

Jenna Slabe
Ecologist
Planning, Permitting, and Licensing

TRC

1382 W 9th St, Suite 400, Cleveland, OH 44113
C 330.998.0481
LinkedIn | TRCcompanies.com

Cc: Molnar, Maggie <MMolnar@trccompanies.com>; Falkinburg, Brad <BFalkinburg@trccompanies.com>
Subject: [EXTERNAL] RE: Desktop Hibernacula Assessment: FirstEnergy's Nevada Ring Bus Substation Expansion Project

Hello Jenna,

Is any blasting or other kind of bedrock disturbance planned for this project?

Eileen Wyza, Ph.D.
(she/her/hers)
Wildlife Biologist
Ohio Division of Wildlife
Phone: 614-265-6764
Email: Eileen.Wyza@dnr.ohio.gov

From: Slabe, Jenna <JSlabe@trccompanies.com>
Sent: Thursday, February 20, 2025 4:32 PM
To: Wyza, Eileen Eileen.Wyza@dnr.ohio.gov>
Cc: Molnar, Maggie <MMolnar@trccompanies.com>; Falkinburg, Brad <BFalkinburg@trccompanies.com>
Subject: Desktop Hibernacula Assessment: FirstEnergy's Nevada Ring Bus Substation Expansion Project

Eileen,

In response to ODNR's DOW recommendations (attached), TRC completed a desktop hibernacula assessment to determine if potential hibernaculum is present within FirstEnergy's proposed Nevada Ring Bus Substation Expansion Project located in Boardman Township, Mahoning County, Ohio.

Please let us know if you have any questions on the provided desktop assessment or require any additional information, thank you!

Jenna Slabe
Ecologist
Planning, Permitting, and Licensing

TRC

1382 W 9th St, Suite 400, Cleveland, OH 44113
C 330.998.0481
LinkedIn | TRCcompanies.com

EXHIBIT 9

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

September 10, 2024

Project Code: 2024-0131548

Dear Jenna Slabe:

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

Federally Threatened and Endangered Species: Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to the endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*), and the proposed endangered tricolored bat (*Perimyotis subflavus*) 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.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. Disturbed areas should be mulched and revegetated with native plant

species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

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

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

Sincerely,

Erin Knoll
Field Office Supervisor

EXHIBIT 10

Surface Water Delineation Report

Nevada Ring Bus Substation Expansion Project

August 2024

Boardman Township, Mahoning County, Ohio

Prepared For:

FirstEnergy Corporation
341 White Pond Drive, Building B3
Akron, Ohio 44320

Prepared By:
TRC Environmental Corporation
1382 West Ninth Street, Suite 400
Cleveland, Ohio 44113

TRC Project Number: 429847.0077.0000

TABLE OF CONTENTS

TABLES

APPENDICES

ACRONYMS AND DEFINITIONS

1987 Manual	United States Army Corps of Engineers 1987 Wetland Delineation Manual
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FEMA	Federal Emergency Management Agency
FirstEnergy	FirstEnergy Corporation
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
NHD	National Hydrography Dataset
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OBL	Obligate Wetland
OEPA	Ohio Environmental Protection Agency
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine Emergent
Project	Nevada Ring Bus Substation Expansion Project
Project Study Area	4.127 acres, located in Boardman Township, Mahoning County, Ohio
QHEI	Qualitative Habitat Evaluation Index
Redox	Redoximorphic
Regional Supplement	Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)
Report	Surface Water Delineation Report
TRC	TRC Environmental Corporation
UPL	Obligate Upland
USACE	United States Army Corps of Engineers
USDA-NRCS	United States Department of Agriculture – Natural Resources Conservation Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

On behalf of FirstEnergy Corporation (FirstEnergy), TRC Environmental Corporation (TRC) performed a surface water delineation for the Nevada Ring Bus Substation Expansion Project (Project). The proposed Project Study Area is 4.127 acres, located in Boardman Township, Mahoning County, Ohio. The proposed Project involves construction associated with the expansion of the existing Nevada Substation. On behalf of FirstEnergy, TRC has prepared this Surface Water Delineation Report (Report) for the Project. A site location map of the Project Study Area can be found in **Appendix A, Figure 1.**

TRC personnel performed field investigations on 3/16/2023, 4/17/2023, 6/12/2023, and 11/9/2023. TRC personnel performed field investigations to evaluate and delineate surface water resources (i.e., wetlands and streams) located within the Project Study Area. The delineations were conducted by qualified wetland scientists in accordance with the United States Army Corps of Engineers (USACE) parameters. The objective was to evaluate and delineate potential surface water resources within the Project Study Area, such that the resources could be considered during each phase of the Project. This Report describes the surface water delineation methodology implemented and the existing surface water resources identified within the Project Study Area during field investigations.

The Project Study Area is located at the following approximate centroid coordinates: 41.011564, -80.652295; located in Boardman Township, Mahoning County, Ohio and is comprised of an existing, maintained utility right-of-way and substation facility within industrial and commercial land use. **Appendix A, Figure 1** and **Figure 2,** provides further information on the location of the proposed Project Study Area.

2.0 Methodology

To complete the surface water delineation and evaluation of the Project Study Area, TRC followed the guidelines and methods outlined by the USACE and Ohio Environmental Protection Agency (OEPA), as described within this section.

2.1 Wetland Parameters

The *USACE 1987 Wetland Delineation Manual (1987 Manual)* (USACE, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (Regional Supplement)* (USACE, 2012), and the March 6, 1992 guidance memorandum (Williams, 1992) emphasize a three parameter approach to wetland boundary determination in the field. This approach involves the following:

i. Evidence of wetland hydrology;
ii. Presence of hydric soils; and
iii. Predominance of hydrophytic vegetation as defined by *The National Wetland Plant List: 2022 Wetland Ratings* (USACE, 2023).

Positive indicators of all three parameters are normally present in wetlands and serve to distinguish between both dry land and transitional plant communities.

2.1.1 Hydrology

The *1987 Manual* and *Regional Supplement* provides guidelines for determining the presence of wetland hydrology. Criteria for wetland hydrology are met if the area is inundated or saturated at the soil surface during the growing season for a time sufficient to develop hydric soils and to support hydrophytic vegetation.

2.1.2 Hydric Soils

Hydric soils are defined as soils "that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil" (Federal Register, 1994). Hydric soil indicators described in the *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils Version 8.2* (USDA-NRCS, 2018) were used to identify and document hydric soils as described in the *Regional Supplement*.

2.1.3 Hydrophytic Vegetation

To determine the presence of hydrophytic vegetation, the dominant and non-dominant species in each major vegetative stratum (e.g., tree, shrub/sapling, herbaceous, and woody vine) were identified and recorded.

Plants are placed into indicator status categories depending on their probability of occurring in a wetland in accordance with the USACE's *The National Wetland Plant List: 2022 wetland ratings* (USACE, 2023). There are five indicator status categories for plants:

1. Obligate wetland plants (OBL): plants that occur almost always (>99%) in wetlands in natural conditions, but which may also occur rarely (<1%) in non-wetlands;
2. Facultative wetland plants (FACW): plants that occur usually (>67-99%) in wetlands but also occur (1-33%) in non-wetlands;
3. Facultative plants (FAC): plants with a similar likelihood (33-67%) of occurring in both wetlands and non-wetlands;
4. Facultative upland plants (FACU): plants that occur sometimes (1-<33%) in wetlands, but occur more often (>67-99%) in non-wetlands; and
5. Obligate upland plants (UPL): plants that occur rarely (<1%) in wetlands but occur almost always (>99%) in non-wetlands under natural conditions.

A prevalence of dominant species that are FAC, FACW, and/or OBL indicates the presence of hydrophytic vegetation.

2.2 USACE Wetland Delineation

Qualified wetland scientists from TRC conducted surface water field investigations on 3/16/2023, 4/17/2023, 6/12/2023, and 11/9/2023 (several site visits due to changes in study area over time). The surface water field investigations were conducted within the predetermined Project Study Area (**Appendix A, Figure 1**) that was developed in accordance with the Project location information provided by FirstEnergy. Surface water delineations were conducted using the Federal Routine Determination Method presented in the *1987 Manual* and *Regional Supplement*, including clarifications and interpretations provided in the March 6, 1992, guidance memorandum, and the USACE and Environmental Protection Agency (EPA) guidance on jurisdictional forms (EPA and USACE, 2007 and USACE, 2008).

Hydrology was determined based on a number of indicators that are divided into two categories, primary and secondary. The *1987 Manual* defines hydrology as present when at least one primary indicator (i.e., surface water, saturation, etc.) or two secondary indicators (i.e., geomorphic position, stunted or stressed plants, etc.) are identified. One primary indicator is sufficient to determine if hydrology is present; however, if these are absent then two or more of the secondary indicators are required to determine hydrology. If other probable hydrologic evidence was found, then this was subsequently documented on the data form.

Soils were examined in the field by using a tile spade, generally to a depth of at least 22 inches below the soil surface, until refusal, or positive hydric soil indicators were met below 22 inches, whichever was shallower. Soil coloration was identified using a *Munsell Soil Color Chart* (Munsell Color Company, 2009). Other characteristics, such as the presence of redoximorphic (redox) concentrations and depletions and soil texture were also recorded. Redox concentrations and depletions are created when the soil is saturated and has anaerobic conditions (without oxygen gas) which leads to changes in the chemical processes in the soil that produce visible color changes in the soil. Hydric characteristics such as organic soil layers, depleted matrix, gleying, and hydrogen sulfide odor, were noted when observed. Soils at both wetland (if present) and dry land data plot locations were characterized and recorded on the data form.

The presence of hydrophytic vegetation was determined using the procedures described in the *Regional Supplement* and recorded on the data form. Vegetation in both dry land and wetland communities was characterized using a real dominance method, with a radius of 30-feet around the soil sample location for trees and woody vines, 15-foot radius for saplings and shrubs, and a 5-foot radius for herbaceous plants. Plant communities meeting the “50/20” Rule or meeting one of the other indicators set forth in the *1987 Manual, Regional Supplement,* and guidance memorandums are considered hydrophytic for the purposes of the wetland classification criteria. In areas where the vegetation was disturbed or not identifiable due to seasonal conditions, soil and hydrology characteristics, and professional judgment/experience were utilized in assessing the primary determining factors for classification as wetlands.

If the soils, hydrology, and vegetation characteristics at a survey point indicated that it was within a wetland, the boundary of the wetland was determined, and the approximate boundary was flagged using wetland flagging and recorded using a handheld Juniper Systems Geode with sub-

meter accuracy. Areas observed to have problematic or difficult situations were delineated utilizing the procedures identified in the *Regional Supplement*, Section 5 – "Difficult Wetland Situations in the Northcentral and Northeast Region." Data from the Global Positioning System (GPS) survey was downloaded and integrated into a Geographic Information System database for the proposed work areas and used to make the accompanying figures. Identified wetlands were classified according to Cowardin et al. (Cowardin, Carter, Golet, & LaRoe, 1979). Photographs are included in **Appendix B**.

2.3 Ohio Environmental Protection Agency's Ohio Rapid Assessment Method

According to the Ohio Wetland Water Quality Standards, a wetland quality category (Category 1, Category 2, or Category 3) must be assigned for each wetland if a project will require discharge of dredged or fill material into jurisdictional wetlands. In general, Category 1 wetlands are considered to be of "low quality", Category 2 wetlands are considered to be of "moderate quality" and Category 3 wetlands are considered to be of "high quality."

The OEPA has developed the Ohio Rapid Assessment Method (ORAM), which can be utilized to evaluate wetland habitat quality based on the apparent functions and values of the wetland resource. The two primary components of the ORAM are the Narrative Rating and the Quantitative Rating. Each delineated wetland resource received a provisional category designation based on the results of the ORAM Narrative and Quantitative Ratings and review of narrative criteria in the Ohio Administrative Code 3745-1-54(C) (Mack, 2000).

2.4 USACE Waterbody Identification

During field investigations, other waterbody features including streams, ponds, lakes, etc. were investigated. Streams within the Project Study Area were identified by the presence of an ordinary high-water mark and scoured channel or defined bed and banks. All streams identified in the Project Study Area that were wider than five feet were demarcated via GPS from bank-to-bank. Streams that were less than five feet wide had the centerline demarcated.

Identified streams were evaluated utilizing OEPA approved methods for stream habitat assessment which include the Qualitative Habitat Evaluation Index (QHEI) (OEPA, 2006) and/or the Headwater Habitat Evaluation Index (HHEI) (OEPA, 2020) assessment method. These approved assessment methods provide an empirical, quantified evaluation of streams as required by the State of Ohio for permitting and mitigation purposes. These methods assess stream habitat to provide a qualitative index (or score) to determine the level of compensatory mitigation that may be needed for impacts to waters of the U.S. (i.e., streams).

Use of the QHEI or HHEI assessment method is determined based on the size of the stream's drainage area and/or the stream's pool depths. Where coverage was available, the drainage area was calculated using automated basin characteristics from StreamStats v 4.23.0: Ohio (USGS, 2021).

Following OEPA guidance, streams with a drainage area of greater than 1.0 square mile (2.6 square kilometers) or which have pools with maximum depths over 15.8 inches (40.0

centimeters), as determined by measuring pool depth within the stream, were evaluated using the QHEI. Data on these streams were collected on the QHEI form provided by the OEPA. The QHEI is composed of six principal metrics: substrate, instream cover, channel morphology, riparian zone and bank erosion, pool/glide and riffle-run quality, and map gradient. Each metric is scored separately and summed to obtain the total QHEI score. Using the scoring methods associated with these forms, the stream is placed into the following general narrative ranges, dependent on stream size; for smaller streams (≤20 sq. mi): Excellent >70, Good 55-69, Fair 43-54, Poor 30-42, and Very Poor <30; for larger streams (>20 sq. mi): Excellent >75, Good 60-74, Fair 45-59, Poor 30-44, and Very Poor <30.

The HHEI was utilized to score streams with a drainage area of <1.0 square mile (2.6 square kilometers). Data on these streams were collected on the HHEI forms, provided by the OEPA. Observational data regarding the physical nature of the stream corridor including stream flow, riparian zone land use and buffer width, and channel modification were recorded. Measurements included bankfull width, maximum pool depth and substrate composition.

Streams identified during the course of the investigation were classified as perennial, intermittent, or ephemeral waterways in accordance with the rationale defined by the USACE Pittsburgh District.

The Project Study Area was also investigated for areas that were considered “open water” by the USACE. According to the USACE an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high-water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” may include rivers, lakes, and ponds. Artificial “open water” features may include stormwater retention basins, fish hatchery ponds, drainage tile pump stations, etc.

3.0 Results

3.1 Site Description

The Project Study Area is 4.127 acres located in Boardman Township, Mahoning County, Ohio within the Burgess Run-Yellow Creek (12-Digit Hydrologic Unit Code [HUC]: 050301030806) and Headwaters Mill Creek (12-Digit HUC: 050301030801) watersheds (USGS, 2022).

The Project Study Area is shown on the Youngstown, Ohio (2019) United States Geological Survey (USGS) 7.5-minute series topographic quadrangle (USGS, 2019) (**Appendix A, Figure 1**).

The United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) Web Soil Survey (USDA-NRCS, 2016) was used to identify the soil types contained within the Project Study Area (**Appendix A, Figure 3**). **Table 1** provides a summary of the soils identified within proposed Project Study Area.

Table 1. Soils Type Summary

Map Unit Symbol	Map Unit Name	Hydric Status	Acres Within Study Area	Percent Cover in Project Study Area
JtB	Jimtown load, 2-6% slopes	Non-Hydric with Hydric Inclusions	4.127	100%
		TOTAL	**4.127**	**100%**

Notes:
Accessed online August 2024 at: http://websoilsurvey.sc.egov.usda.gov.

There is one (1) United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) feature mapped within the Project Study Area, a freshwater emergent wetland feature (**Appendix A, Figure 4)** (USFWS, 2022).

The USGS National Hydrography Dataset (NHD) (USGS, 2018) Downloadable Data Collection from The National Map is a comprehensive set of digital spatial data that encodes information about naturally occurring and constructed bodies of surface water (e.g., lakes, ponds, and reservoirs), paths through which water flows (e.g., canals, ditches, streams, and rivers) and related entities such as point features (e.g., springs, wells, stream gages, and dams). There are no NHD streams mapped within the Project Study Area (**Appendix A, Figure 4**).

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map panel 39099C0219D: eff. 11/18/2009, the proposed Project is not located within a FEMA-regulated 100-year floodplain (**Appendix A, Figure 4**) (FEMA, 2021).

3.2 Surface Water Resource Field Delineations

TRC performed field investigations on 3/16/2023, 4/17/2023, 6/12/2023, and 11/9/2023. Weather conditions were normal for the season. Native and non-native herbaceous vegetation was observed within the Project Study Area. The USACE maintains the final authority that determines jurisdiction; therefore, statements about jurisdiction within this Report are preliminary and subject to final determination by the USACE and OEPA.

3.2.1 Wetlands

During the field investigation, two (2) wetlands were identified and delineated within the Project Study Area. The delineated wetland boundaries and sample points are shown on **Figure 5** in **Appendix A**. Representative photographs of sample points and other areas of interest are provided in **Appendix B**. Data was collected and recorded on USACE Wetland Determination Data Forms: Northcentral and Northeast Region (**Appendix C**) and wetland functional assessments were completed for each delineated wetland using the ORAM (**Appendix C**). Delineated wetlands within the Project Study Area are summarized in **Table 2**.

Table 2: Delineated Wetland Features Summary Table

Resource ID[1]	Cowardin Classification[2]	Connection[3]	Provisional Jurisdictional Status[4]	ORAM Score	ORAM Category[5]	Delineated Area within Project Study Area[6] (acres)
W-EVN-1	PEM	Adjacent	USACE Jurisdictional, Wetland	45	Cat. 2	0.987
W-EVN-2	PEM	Adjacent	USACE Jurisdictional, Wetland	17	Cat. 1	0.032
					Total	**1.019**

[1] TRC resource identification.
[2]Cowardin Wetland Classification within Project Study Area (approximation based upon field identification and delineation) (Cowardin, Carter, Golet, & LaRoe, 1979): PEM – Palustrine Emergent
[3]Connection to a jurisdictional waterway: Isolated, Abutting, or Adjacent as determined by TRC; subject to USACE verification. Wetland connection is pending an update from OEPA and USACE based on the EPA vs. Sackett case.
[4]Jurisdiction status is based upon field observations and mapping review of apparent connectivity or adjacency of the resource to Waters of the United States and the assumption that a preliminary jurisdictional determination process will be utilized for the project.
[5]ORAM Category based on scoring breakpoints from Table 2 of the ORAM v. 5.0 Quantitative Score Calibration; scores falling within a "gray zone" or "modified" category were rounded up.
[6]Area is rounded to nearest 0.001-acre, based upon GPS data.

3.2.2 Waterbodies

During the field investigations, no streams or waterbody resources were delineated within the Project Study Area. Representative photographs of the Project Study Area and site conditions can be found in **Appendix B**.

4.0 Permitting Considerations

It is anticipated that due to the nature of the Project, jurisdictional resources may be impacted by the proposed Project activities. As currently proposed, it is TRC's understanding that this Project would fall under Nationwide Permit (NWP) 57 - Electric Utility Line and Telecommunications Activities (USACE, 2021). This Project is located in Boardman Township, Mahoning County, Ohio which is within the USACE Pittsburgh Regulatory District. Boardman Township in Mahoning County is listed in Appendix 1 to Regional General Condition 5(a) (Endangered Species and Threatened Species) (USACE, 2021), which triggers the need for a Section 404 Pre-Construction Notification application to be submitted to the USACE when the proposed Project includes regulated activities within jurisdictional resources.

The Project is located within an "Eligible" area according to OEPA's Stream Eligibility for Nationwide Permit Program **(Appendix A, Figure 6)** (OEPA, 2024); however, OEPA's 401 Water Quality Certification for NWP 57 is waived. No streams were identified or delineated within the Project Study Area and no additional screening procedures are required for the Project.

4.1 USACE Verification

The USACE has the authority to determine and/or verify the geographical boundaries of Waters of the United States in accordance with 33 Code of Federal Regulations (CFR) 328 and 33 CFR 329; therefore, the results of this Report are termed “preliminary” until verified and accepted by the USACE. This verification is part of the Jurisdictional Determination process, which is required for approval under Section 404 Clean Water Act, Section 401 Water Quality Certification, and/or isolated wetland permitting process through OEPA. It is the responsibility of any party that intends to discharge dredge or fill material into Waters of the United States to comply with all applicable regulations.

5.0 Limitations

This Report is limited in scope to the specific terms of the Agreement previously entered into between TRC and FirstEnergy. This Report represents the conditions within the Project Study Area identified herein, as of the inspection dates.

Should the Project change from the scope described herein, TRC should be immediately notified such that additional investigations may be conducted to amend the content of the Report herein. Human-induced and/or natural changes within the Project Study Area may occur after the date of this investigation and may result in changes to the presence, extent, and classification of the surface water resources identified within this Report.

6.0 References

Cowardin, L., Carter, V., Golet, F., & LaRoe, E. (1979). Classification of Wetland and Deepwater Habitats of the United States. 103 pp. U.S. Fish and Wildlife Service.

EPA, USACE. (2007, June 5). Clean Water Act Jurisdiction Following Supreme Court's Decision in Rapanos V. United States & Carabell v. United States.

Federal Register. (1994, July 13). Changes in hydric soils of the United States.

FEMA. (2021, November). *FEMA Flood Map Service Center*. Retrieved April 2024, from U.S. Department of Homeland Security: Federal Emergency Management Agency: https://msc.fema.gov/portal

Mack, J. (2000). ORAM v. 5.0 Quantitative Score Calibration. Columbus, Ohio: Ohio Environmental Protection Agency, Division of Surface Water, 401/Wetland Ecology Unit.

Munsell Color Company. (2009). X-Rite Munsell Soil Color Book 2009 Revised Edition.

OEPA. (2006). *Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI).* Columbus, OH: Division of Surface Water, Ohio Environmental Protection Agency.

OEPA. (2020). *Field Methods for Evaluating Primary Headwater Streams in Ohio(Version 4.1) (HHEI).* Columbus, OH: Division of Surface Water, Ohio Environmental Protection Agency.

OEPA. (2024). 401 Water Quality Certification for Nationwide Permit Eligibility Online Map. Retrieved August 2024, from https://www.arcgis.com/apps/webappviewer/index.html?id=e6b46d29a38f46229c1eb47deefe49b6

USACE. (1987). *Corps of Engineers Wetlands Delineation Manual.* Vicksburg, MS: Environmental Laboratory U.S. Army Corps of Engineers.

USACE. (2008, June 26). Regulatory Guidance Letter, Subject: Jurisdictional Determinations.

USACE. (2012). *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0).* Vicksburg: U.S. Army Engineer Research and Development Center Environmental Laboratory: U.S. Army Corps of Engineers.

USACE. (2021, March 15). *Nationwide Permits for the State of Ohio*. Retrieved from https://www.dot.state.oh.us/environmental-services/manuals_guidance1/Waterway%20Permits/2022%20Nationwide%20Permits%20for%20Ohio.pdf?ID=822

USACE. (2023). *2022 The National Wetland Plant List, version 3.6.* Vicksburg, MS: U.S. Army Engineer Research and Development Center. Retrieved August 2024, from http://wetland-plants.usace.army.mil/

USDA-NRCS. (2016). Web Soil Survey. Retrieved August 2024, from http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

USDA-NRCS. (2018). Field Indicators of Hyrdric Soils in the United States, Version 8.2. (L. Vasilas, G. Hurt, & C. Noble, Eds.) USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils.

USFWS. (2022). National Wetlands Inventory. Retrieved April 2024, from http://www.fws.gov/wetlands/Data/Mapper.html

USGS. (2018). National Hydrography Dataset. Retrieved August 2024, from https://nhd.usgs.gov/data.html

USGS. (2019). Topographical Quadrangle Maps (7.5-minute series). *Youngstown, OH 7.5-minute Quadrangle*. U.S. Geological Survey.

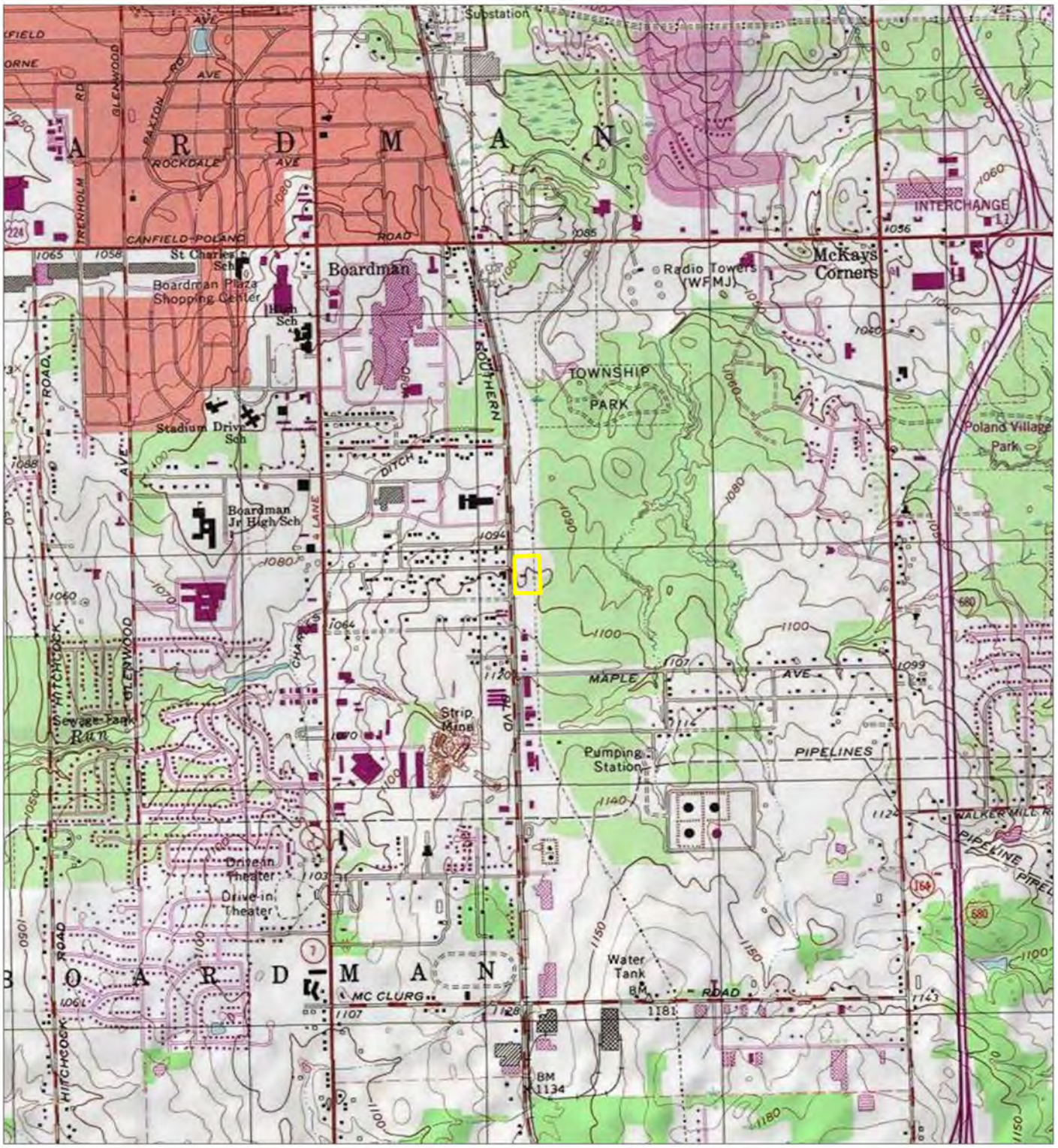
USGS. (2021). *StreamStats, v 4.23.0*. (U.S. Geological Survey) Retrieved August 2024, from StreamStats Ohio: https://streamstats.usgs.gov/ss/

USGS. (2022, February). *The National Map*. Retrieved August 2024, from https://apps.nationalmap.gov/viewer/

Williams, A. (1992). Memorandum: Clarification and Interpretation of the 1987 Manual. U.S. Army Corps of Engineers.

Appendix A

Figures



PROJECT STUDY AREA

BASE MAP: USA TOPO MAPS MAP SERVICE , YOUNGSTOWN QUAD

0 1,000 2,000
FEET
1:24,000 1" = 2,000'

PROJECT: FIRSTENERGY - NEVADA RING BUS SUBSTATION EXPANSION PROJECT
MAHONING COUNTY, OH

TITLE: SITE LOCATION MAP

DRAWN BY:	M. OPEL	PROJ. NO.:	429847.0077
CHECKED BY:	M. MOLNAR		
APPROVED BY:	B. FALKINBURG		FIGURE 1
DATE:	AUGUST 2024		

TRC
1382 WEST NINTH STREET
SUITE 400
CLEVELAND, OH 44113
PHONE: 216-344-3072

FILE: WDRV2

PROJECT STUDY AREA

BASE MAP: GOOGLE MAPS.

N

1:1,200

1" = 100'

0 100 200 FEET

PROJECT: FIRSTENERGY - NEVADA RING BUS SUBSTATION EXPANSION PROJECT MAHONING COUNTY, OH

TITLE: AERIAL MAP

DRAWN BY:	M. OPEL	PROJ. NO.:	429847.0077
CHECKED BY:	M. MOLNAR	FIGURE 2	
APPROVED BY:	B. FALKINBURG		
DATE:	AUGUST 2024		

TRC

1382 WEST NINTH STREET
SUITE 400
CLEVELAND, OH 44113
PHONE: 216-344-3072

FILE: WDRv2.aprx

Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet; Map Rotation: 0

Layout Name: Fig02_Aerial

PROJECT STUDY AREA
HYDRIC SOIL
NON-HYDRIC W/ HYDRIC INCLUSIONS SOIL
NON-HYDRIC SOIL

BASE MAP: GOOGLE MAPS.
DATA SOURCES: SOILS DATA ACQUIRED FROM USDA/NRCS SSURGO DATABASE.

1:1,200
1" = 100'

0 100 200 FEET

PROJECT: FIRSTENERGY - NEVADA RING BUS SUBSTATION EXPANSION PROJECT
MAHONING COUNTY, OH

TITLE: SOILS MAP

DRAWN BY:	M. OPEL	PROJ. NO.:	429847.0077
CHECKED BY:	M. MOLNAR		FIGURE 3
APPROVED BY:	B. FALKINBURG		
DATE:	AUGUST 2024		

TRC
1382 WEST NINTH STREET
SUITE 400
CLEVELAND, OH 44113
PHONE: 216-344-3072

FILE: WDRv2.aprx

Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet; Map Rotation: 0
Saved By: MOPEL on 8/13/2024 - 8:21:42 PM; File Path: T:\PROJECTS\Final_Energy\429847.0077_NevadaSubstation2-ARP\MXD\R2.aprx; Layout Name: Fig03_Soils

PROJECT STUDY AREA
NATIONAL HYDROGRAPHY DATASET (NHD) STREAM
NATIONAL WETLANDS INVENTORY (NWI) FEATURE
100-YEAR FLOOD ZONE

BASE MAP: GOOGLE MAPS.
DATA SOURCES: WETLAND DATA ACQUIRED FROM U.S. FISH & WILDLIFE SERVICE, NATIONAL WETLANDS INVENTORY (NWI). STREAM DATA ACQUIRED FROM USGS, NATIONAL HYDROGRAPHY DATASET (NHD). FLOOD DATA ACQUIRED FROM FEMA, NATIONAL FLOOD HAZARD LAYER (NFHL).

1:1,200
1" = 100'
0 100 200 FEET

PROJECT: FIRSTENERGY - NEVADA RING BUS SUBSTATION EXPANSION PROJECT
MAHONING COUNTY, OH

TITLE: NHD, NWI AND FEMA FLOODPLAIN MAP

DRAWN BY:	M. OPEL	PROJ. NO.:	429847.0077
CHECKED BY:	M. MOLNAR		FIGURE 4
APPROVED BY:	B. FALKINBURG		
DATE:	AUGUST 2024		

TRC
1382 WEST NINTH STREET
SUITE 400
CLEVELAND, OH 44113
PHONE: 216-344-3072

FILE: WDRv2.aprx

Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet; Map Rotation: 0
Saved By MOPEL on 8/19/2024 - 10:21:42 PM; File Path: T:\PROJECTS\Field_Energy\429847.0077_NevadaSubstation\2-APRX\MXD\fig2.aprx; Layout Name: Fig04_Hydro

PROJECT STUDY AREA
PEM WETLAND
WETLAND CONTINUES
WETLAND DATA POINT
UPLAND DATA POINT

BASE MAP: GOOGLE MAPS.
DATA SOURCES: TRC WETLAND DELINEATION COMPLETED NOVEMBER 9, 2023.

1:900
1" = 75'
0 75 150 FEET

PROJECT: FIRSTENERGY - NEVADA RING BUS SUBSTATION EXPANSION PROJECT MAHONING COUNTY, OH

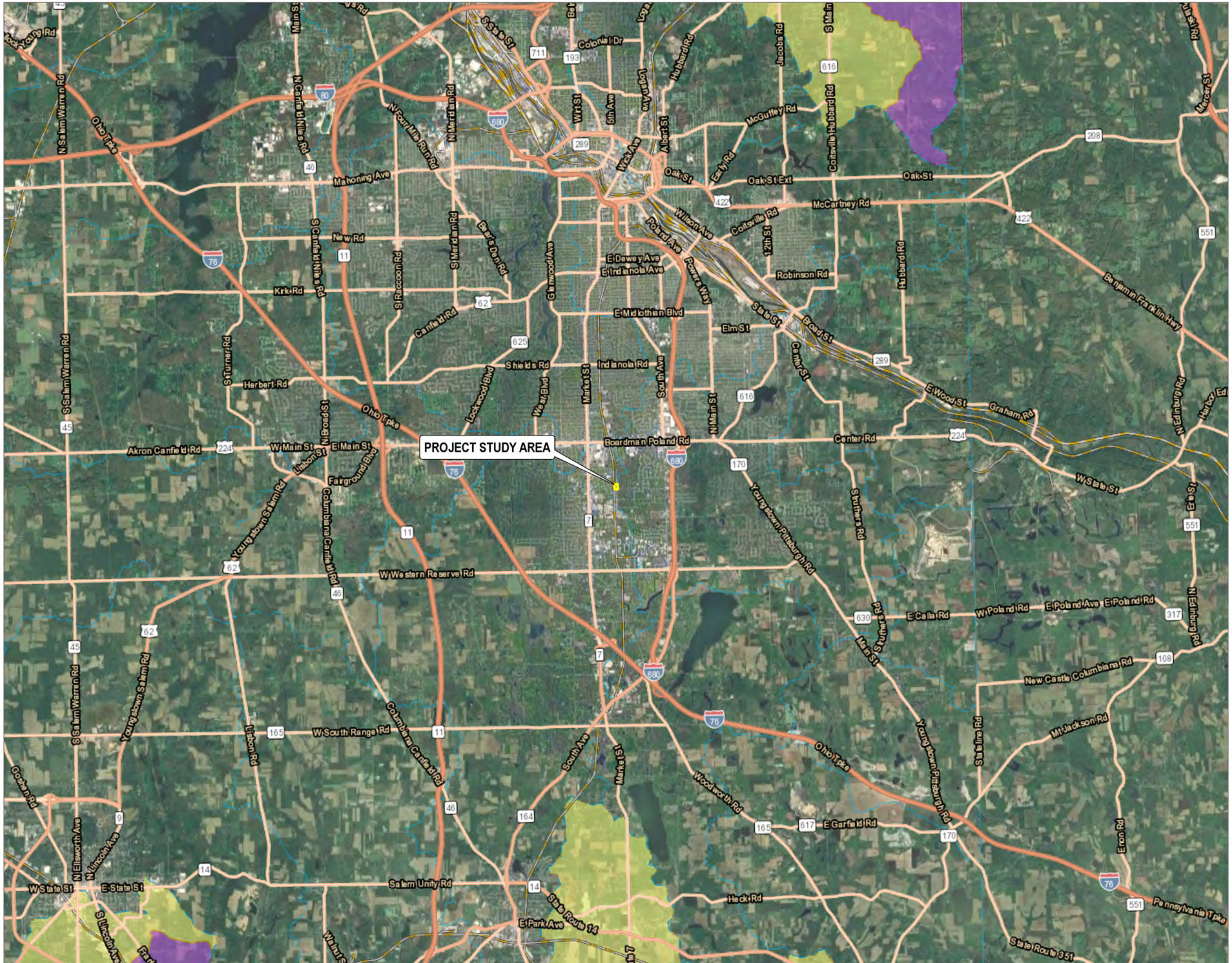
TITLE: DELINEATED RESOURCES MAP

DRAWN BY:	M. OPEL	PROJ. NO.:	429847.0077
CHECKED BY:	M. MOLNAR		
APPROVED BY:	B. FALKINBURG		FIGURE 5
DATE:	AUGUST 2024		

TRC
1382 WEST NINTH STREET
SUITE 400
CLEVELAND, OH 44113
PHONE: 216-344-3072

FILE: WDRv2.aprx

Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet - Map Rotation: 0
Saved By: MOPEL on 8/13/2024 10:21:52 PM - File Path: T:\PROJECTS\First_Energy\429847.0077_Nevada\Substation\2-ARR\WDR\2.aprx - Layout Name: Fig05_Delineation



PROJECT STUDY AREA

OHIO EPA 401 WATER QUALITY CERTIFICATION FOR NATIONWIDE PERMIT ELIGIBILITY

- INELIGIBLE
- POSSIBLY ELIGIBLE
- ELIGIBLE

BASE MAP: GOOGLE MAPS.
DATA SOURCES: NATIONWIDE PERMITS STREAM DATA ACQUIRED FROM THE OHIO EPA.

1:120,000
1" = 10,000'
0 10,000 20,000 FEET

PROJECT: FIRSTENERGY - NEVADA RING BUS SUBSTATION EXPANSION PROJECT MAHONING COUNTY, OH	
TITLE: NATIONWIDE PERMITS STREAM ELIGIBILITY MAP	
DRAWN BY: M. OPEL	PROJ. NO.: 429847.0077
CHECKED BY: M. MOLNAR	FIGURE 6
APPROVED BY: B. FALKINBURG	
DATE: AUGUST 2024	
TRC	1382 WEST NINTH STREET SUITE 400 CLEVELAND, OH 44113 PHONE: 216-344-3072
FILE:	WDRv2.aprx

Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet; Map Rotation: 0
-- Saved By: MOPEL on 8/13/2024, 16:21:42 PM; File Path: T:\1-PROJECTS\First_Energy\429847_0077_NevadaSubstation\2-APRX\WDRv2.aprx; Layout Name: Fig06_NWP

Appendix B

Photographic Record

PHOTOGRAPHIC RECORD

Nevada Ring Bus Substation Expansion Project

Client Name:	Site Location:	Project No.
FirstEnergy	Boardman Township, Mahoning County, Ohio	429847.0077.0000

Photo No. 1.	
Photo Date: 4/17/2023	
Description: Wetland W-EVN-1, facing north.	

Photo No. 2.	
Photo Date: 4/17/2023	
Description: Wetland W-EVN-1, facing east.	

Client Name:	Site Location:	Project No.
FirstEnergy	Boardman Township, Mahoning County, Ohio	429847.0077.0000

Photo No. 3. **Photo Date:** 4/17/2023 **Description:** Wetland W-EVN-1, facing south.	

Photo No. 4. **Photo Date:** 4/17/2023 **Description:** Wetland W-EVN-1, facing west.	

Client Name:	Site Location:	Project No.
FirstEnergy	Boardman Township, Mahoning County, Ohio	429847.0077.0000

Photo No. 5. **Photo Date:** 6/12/2023 **Description:** Wetland W-EVN-2, facing north.	

Photo No. 6. **Photo Date:** 6/12/2023 **Description:** Wetland W-EVN-2, facing east.	

Client Name:	Site Location:	Project No.
FirstEnergy	Boardman Township, Mahoning County, Ohio	429847.0077.0000

Photo No. 7.	
Photo Date: 6/12/2023	
Description: Wetland W-EVN-2, facing south.	

Photo No. 8.	
Photo Date: 6/12/2023	
Description: Wetland W-EVN-2, facing west.	

Client Name:	Site Location:	Project No.
FirstEnergy	Boardman Township, Mahoning County, Ohio	429847.0077.0000

Photo No. 9.
Photo Date: 11/9/2023
Description: Representative photo of the Project Study Area, facing north.

Photo No. 10.
Photo Date: 11/9/2023
Description: Representative photo of the Project Study Area, facing east.

Client Name:	Site Location:	Project No.
FirstEnergy	Boardman Township, Mahoning County, Ohio	429847.0077.0000

Photo No. 11.	
Photo Date: 11/9/2023	
Description: Representative photo of the Project Study Area, facing south.	

Photo No. 12.	
Photo Date: 11/9/2023	
Description: Representative photo of the Project Study Area, facing west.	

Appendix C

Data Forms

USACE Wetland Determination Data Forms – Northcentral and Northeast Region

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Nevada Ring Bus Substation Expansion Project City/County: Youngstown, Mahoning County Sampling Date: 2023-11-9
Applicant/Owner: FirstEnergy State: OH Sampling Point: W-EVN-1
Investigator(s): Erin Van Nort, Jenna Slabe Section, Township, Range: NA
Landform (hillslope, terrace, etc): Depression Local relief (concave, convex, none): Concave Slope (%): 0 to 1
Subregion (LRR or MLRA): MLRA 139 of LRR R Lat: 41.0118927248 Long: -80.6524233506 Datum: WGS84
Soil Map Unit Name: Jimtown loam, 2 to 6 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✘ No ____ (If no, explain in Remarks.)
Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✘ No ____
Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✘ No ____
Hydric Soil Present? Yes ✘ No ____
Wetland Hydrology Present? Yes ✘ No ____

Is the Sampled Area within a Wetland? Yes ✘ No ____

If yes, optional Wetland Site ID: W-EVN-1

Remarks: (Explain alternative procedures here or in a separate report.)
Covertype is PEM. Based on the presence of all three parameters, this area is a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)
- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✘ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✘ FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes ____ No ✘ Depth (inches): ____
Water Table Present? Yes ____ No ✘ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ✘ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ✘ No ____

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

Remarks:
The criterion for wetland hydrology is met.

VEGETATION ─ Use scientific names of plants. Sampling Point: W-EVN-1

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5 ft radius)				
1.	*Juncus tenuis*	35	Yes	FAC
2.	*Juncus effusus*	25	Yes	OBL
3.	*Scirpus atrovirens*	20	Yes	OBL
4.	*Vernonia gigantea*	10	No	FAC
5.	*Euthamia graminifolia*	10	No	FAC
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		100	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	0	x 2 =	0
FAC species	55	x 3 =	165
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		210 (B)

Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✘ 2 - Dominance Test is >50%

✘ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

Sapling/shrub ─ Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) 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: (Include photo numbers here or on a separate sheet.)

The criterion for hydrophytic vegetation is met.

SOIL Sampling Point: W-EVN-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 to 2	10YR 4/1	95	10YR 5/8	5	C	PL	Silty Clay Loam	
2 to 20	2.5Y 6/2	60	10YR 6/8	25	C	PL	Silty Clay Loam	
2 to 20	2.5Y 4/1	15			D	M	Silty Clay Loam	

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

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7) **(LRR R, MLRA 149B)**
- __ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- __ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- __ Loamy Mucky Mineral (F1) **(LRR K, L)**
- __ Loamy Gleyed Matrix (F2)
- ✘ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- __ Coast Prairie Redox (A16) **(LRR K, L, R)**
- __ 5 cm Muck Peat or Peat (S3) **(LRR K, L, R)**
- __ Dark Surface (S7) **(LRR K, L)**
- __ Polyvalue Below Surface (S8) **(LRR K, L)**
- __ Thin Dark Surface (S9) **(LRR K, L)**
- __ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- __ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- __ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- __ Red Parent Material (F21)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ✘ **No** __

Remarks:
The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Nevada Ring Bus Substation Expansion Project City/County: Youngstown, Mahoning County Sampling Date: 2023-11-9
Applicant/Owner: FirstEnergy State: OH Sampling Point: U-EVN-1
Investigator(s): Erin Van Nort, Jenna Slabe Section, Township, Range: NA
Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Convex Slope (%): 1 to 3
Subregion (LRR or MLRA): MLRA 139 of LRR R Lat: 41.01232509 Long: -80.65260577 Datum: WGS84
Soil Map Unit Name: Jimtown loam, 2 to 6 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✘ No _____ (If no, explain in Remarks.)
Are Vegetation _____ , Soil _____ , or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✘ No _____
Are Vegetation _____ , Soil _____ , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No ✘
Hydric Soil Present? Yes _____ No ✘
Wetland Hydrology Present? Yes _____ No ✘

Is the Sampled Area within a Wetland? Yes _____ No ✘

If yes, optional Wetland Site ID: U-EVN-1

Remarks: (Explain alternative procedures here or in a separate report.)
Covertype is UPL. Based on the absence of all three parameters, this area is an upland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)
- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9)
- __ Aquatic Fauna (B13)
- __ Marl Deposits (B15)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- __ Surface Soil Cracks (B6)
- __ Drainage Patterns (B10)
- __ Moss Trim Lines (B16)
- __ Dry-Season Water Table (C2)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Stunted or Stressed Plants (D1)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ Microtopographic Relief (D4)
- __ FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes _____ No ✘ Depth (inches): _____
Water Table Present? Yes _____ No ✘ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No ✘ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✘

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

Remarks:
The criterion for wetland hydrology is not met.

VEGETATION – Use scientific names of plants. Sampling Point: U-EVN-1

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1. *Frangula alnus*	10	Yes	FAC
2. *Rubus allegheniensis*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	15	= Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Andropogon virginicus*	40	Yes	FACU
2. *Festuca rubra*	35	Yes	FACU
3. *Symphyotrichum ericoides*	25	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	105	x 4 =	420
UPL species	0	x 5 =	0
Column Totals:	115 (A)		450 (B)

Prevalence Index = B/A = 3.9

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) 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: (Include photo numbers here or on a separate sheet.)

The criterion for hydrophytic vegetation is not met.

SOIL Sampling Point: U-EVN-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 to 5	2.5Y 4/1	100					Silty Clay Loam	
5 to 22	2.5Y 6/3	80	10YR 6/8	20	C	M	Clay Loam	

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

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7) **(LRR R, MLRA 149B)**
- __ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- __ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- __ Loamy Mucky Mineral (F1) **(LRR K, L)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- __ Coast Prairie Redox (A16) **(LRR K, L, R)**
- __ 5 cm Muck Peat or Peat (S3) **(LRR K, L, R)**
- __ Dark Surface (S7) **(LRR K, L)**
- __ Polyvalue Below Surface (S8) **(LRR K, L)**
- __ Thin Dark Surface (S9) **(LRR K, L)**
- __ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- __ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- __ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- __ Red Parent Material (F21)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✘

Remarks:
The criterion for hydric soil is not met.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Nevada Ring Bus Substation Expansion Project City/County: Youngstown, Mahoning County Sampling Date: 2023-11-9
Applicant/Owner: FirstEnergy State: OH Sampling Point: W-EVN-2
Investigator(s): Erin Van Nort, Jenna Slabe Section, Township, Range: NA
Landform (hillslope, terrace, etc): Depression Local relief (concave, convex, none): None Slope (%): 0 to 1
Subregion (LRR or MLRA): MLRA 139 of LRR R Lat: 41.0111078 Long: -80.6520283 Datum: WGS84
Soil Map Unit Name: Jimtown loam, 2 to 6 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✘ No ____ (If no, explain in Remarks.)
Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✘ No ____
Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✘ No ____
Hydric Soil Present? Yes ____ No ✘
Wetland Hydrology Present? Yes ✘ No ____

Is the Sampled Area within a Wetland? Yes ✘ No ____
If yes, optional Wetland Site ID: W-EVN-2

Remarks: (Explain alternative procedures here or in a separate report.)
Covertype is PEM. Based on the presence of the wetland hydrology and hydrophytic vegetation parameters, this area is a wetland. The criterion for hydric soil would be expected to be met if a restrictive layer had not been encountered.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (minimum of one is required; check all that apply)
- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ✘ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✘ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✘ FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes ____ No ✘ Depth (inches): ____
Water Table Present? Yes ____ No ✘ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No ✘ Depth (inches): ____

Wetland Hydrology Present? Yes ✘ No ____

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

Remarks:
The criterion for wetland hydrology is met.

VEGETATION ─ Use scientific names of plants. Sampling Point: W-EVN-2

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5 ft radius)				
1.	*Scirpus atrovirens*	30	Yes	OBL
2.	*Phragmites australis*	25	Yes	FACW
3.	*Carex vulpinoidea*	20	Yes	OBL
4.	*Leersia oryzoides*	10	No	OBL
5.	*Carex stipata*	5	No	OBL
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		90	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	90 (A)		115 (B)

Prevalence Index = B/A = 1.3

Hydrophytic Vegetation Indicators:

✘ 1 - Rapid Test for Hydrophytic Vegetation

✘ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

Sapling/shrub ─ Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) 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: (Include photo numbers here or on a separate sheet.)

The criterion for hydrophytic vegetation is met.

SOIL Sampling Point: W-EVN-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 to 2	10YR 2/1	95	10YR 6/8	5	C	PL	Silty Clay Loam	

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

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7) **(LRR R, MLRA 149B)**
- __ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- __ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- __ Loamy Mucky Mineral (F1) **(LRR K, L)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- __ Coast Prairie Redox (A16) **(LRR K, L, R)**
- __ 5 cm Muck Peat or Peat (S3) **(LRR K, L, R)**
- __ Dark Surface (S7) **(LRR K, L)**
- __ Polyvalue Below Surface (S8) **(LRR K, L)**
- __ Thin Dark Surface (S9) **(LRR K, L)**
- __ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- __ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- __ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- __ Red Parent Material (F21)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: Fill

Depth (inches): 2

Hydric Soil Present? Yes ____ **No** ✘

Remarks:

The criterion for hydric soil would be expected to be met if a restrictive layer had not been encountered.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Nevada Ring Bus Substation Expansion Project City/County: Youngstown, Mahoning County Sampling Date: 2023-11-9
Applicant/Owner: FirstEnergy State: OH Sampling Point: U-EVN-2
Investigator(s): Erin Van Nort, Jenna Slabe Section, Township, Range: NA
Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 0 to 1
Subregion (LRR or MLRA): MLRA 139 of LRR R Lat: 41.0109194047 Long: -80.6518328464 Datum: WGS84
Soil Map Unit Name: Jimtown loam, 2 to 6 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✘ No _____ (If no, explain in Remarks.)
Are Vegetation _____ , Soil _____ , or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✘ No _____
Are Vegetation _____ , Soil _____ , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No ✘
Hydric Soil Present? Yes _____ No ✘
Wetland Hydrology Present? Yes _____ No ✘

Is the Sampled Area within a Wetland? Yes _____ No ✘

If yes, optional Wetland Site ID: U-EVN-2

Remarks: (Explain alternative procedures here or in a separate report.)
Covertype is UPL. Based on the absence of all three parameters, this area is an upland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)
- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9)
- __ Aquatic Fauna (B13)
- __ Marl Deposits (B15)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- __ Surface Soil Cracks (B6)
- __ Drainage Patterns (B10)
- __ Moss Trim Lines (B16)
- __ Dry-Season Water Table (C2)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Stunted or Stressed Plants (D1)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ Microtopographic Relief (D4)
- __ FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes _____ No ✘ Depth (inches): _____
Water Table Present? Yes _____ No ✘ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No ✘ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✘

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

Remarks:
The criterion for wetland hydrology is not met.

VEGETATION ─ Use scientific names of plants. Sampling Point: U-EVN-2

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5 ft radius)			
1. *Poa annua*	35	Yes	FACU
2. *Agrostis mertensii*	25	Yes	FACU
3. *Artemisia vulgaris*	20	Yes	UPL
4. *Erigeron annuus*	15	No	FACU
5. *Symphyotrichum ericoides*	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	80	x 4 =	320
UPL species	20	x 5 =	100
Column Totals:	100 (A)		420 (B)

Prevalence Index = B/A = 4.2

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

Sapling/shrub ─ Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) 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: (Include photo numbers here or on a separate sheet.)

The criterion for hydrophytic vegetation is not met.

SOIL Sampling Point: U-EVN-2

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

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

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

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7) **(LRR R, MLRA 149B)**
- __ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- __ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- __ Loamy Mucky Mineral (F1) **(LRR K, L)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- __ Coast Prairie Redox (A16) **(LRR K, L, R)**
- __ 5 cm Muck Peat or Peat (S3) **(LRR K, L, R)**
- __ Dark Surface (S7) **(LRR K, L)**
- __ Polyvalue Below Surface (S8) **(LRR K, L)**
- __ Thin Dark Surface (S9) **(LRR K, L)**
- __ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- __ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- __ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- __ Red Parent Material (F21)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: Fill

Depth (inches): 2

Hydric Soil Present? Yes ____ **No** ✘

Remarks:

The criterion for hydric soil is not met in this shallow pit.

OEPA ORAM Field Forms

Background Information

Name: Erin Van Nort
Date: 3/16/2023
Affiliation: TRC Companies, Inc.
Address: 1382 W Ninth Street Suite 400 Cleveland, OH 44113
Phone Number: 216-347-3342
e-mail address: EVanNort@trccompanies.com
Name of Wetland: W-EVN-1
Vegetation Communit(ies): PEM, PFO
HGM Class(es): Depression
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc. Please see Figure 5: Delineated Resources Map and Surface Water Delineation Report for further details.

Lat/Long or UTM Coordinate	41.011893, -80.652423
USGS Quad Name	Youngstown, OH
County	Mahoning
Township	Boardman
Section and Subsection	N/A
Hydrologic Unit Code	050301030801 and 050301030806
Site Visit	3/16/2023
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	N/A
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: W-EVN-1	
Wetland Size (acres, hectares):	~15 acres (6.07 hectares)

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

Please see Figure 5: Delineated Resources Map and Surface Water Delineation Report for further details.

Comments, Narrative Discussion, Justification of Category Changes:

Final score : 45	**Category:** 2

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

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

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

Site: FirstEnergy, Nevada Ring Bus Substation Expansion Project **Rater(s):** Erin Van Nort, Jenna Slabe **Date:** 2023-03-16

4	4
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

7	11
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

15	26
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3b. Connectivity. Score all that apply.

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

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

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

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

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

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

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

Check all disturbances observed

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

11	37
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [x] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

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

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

Check all disturbances observed

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

37
subtotal this page

TRC Environmental Corp.
1200 Wall Street West
Lyndhurst, NJ 07071

Site: FirstEnergy, Nevada Ring Bus Substation Expansion Project	Rater(s): Erin Van Nort, Jenna Slabe	Date: 2023-03-16

37
subtotal first page

0 max 10 pts. | 37 subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

8 max 20 pts. | 45 subtotal

Metric 6. Plant communities, interspersion, microtopography.

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

- [ ] Aquatic Bed
- [2] Emergent
- [ ] Shrub
- [2] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other _____

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

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

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

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

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

45

CATEGORY 2

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	4	
	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	15	
	Metric 4. Habitat	11	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	8	
	TOTAL SCORE	45	Category based on score breakpoints 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

Choose one	Category 1	(Category 2)	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name: Erin Van Nort
Date: 11/9/2023
Affiliation: TRC Companies, Inc.
Address: 1382 W Ninth Street Suite 400 Cleveland, OH 44113
Phone Number: 216-347-3342
e-mail address: EVanNort@trccompanies.com
Name of Wetland: W-EVN-2
Vegetation Communit(ies): PEM
HGM Class(es): Depression
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc. Please see Figure 5: Delineated Resources Map and Surface Water Delineation Report for further details.

Lat/Long or UTM Coordinate	41.011108, -80.652028
USGS Quad Name	Youngstown, OH
County	Mahoning
Township	Boardman
Section and Subsection	N/A
Hydrologic Unit Code	050301030806
Site Visit	11/9/2023
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	N/A
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: W-EVN-2	
Wetland Size (acres, hectares):	0.032-acre (0.013 hectares)

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

Please see Figure 5: Delineated Resources Map and Surface Water Delineation Report for further details.

Comments, Narrative Discussion, Justification of Category Changes:

Final score : 17	**Category:**	1

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

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

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

Site: FirstEnergy, Nevada Ring Bus Substation Expansion Project **Rater(s):** Erin Van Nort, Erin Van Nort **Date:** 2023-11-09

0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

2	2
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

8	10
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3b. Connectivity. Score all that apply.

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

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

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

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

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

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

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

Check all disturbances observed

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

7	17
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

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

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

Check all disturbances observed

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

17
subtotal this page

TRC Environmental Corp.
1200 Wall Street West
Lyndhurst, NJ 07071

Site: FirstEnergy, Nevada Ring Bus Substation Expansion Project	Rater(s): Erin Van Nort, Erin Van Nort	Date: 2023-11-09

17
subtotal first page

0 max 10 pts. | 17 subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

0 max 20 pts. | 17 subtotal

Metric 6. Plant communities, interspersion, microtopography.

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

- [ ] Aquatic Bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other _____

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

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

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

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

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

17

CATEGORY 1

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
	Metric 2. Buffers and surrounding land use	2	
	Metric 3. Hydrology	8	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	0	
	TOTAL SCORE	17	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

Choose one	(Category 1)	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.