AMERICAN TRANSMISSION SYSTEMS, INCORPORATED
A FIRSTENERGY COMPANY

LETTER OF NOTIFICATION

NAPOLEON-RICHLAND-STRYKER 138 kV TRANSMISSION LINE OPEN ARM PROJECT

OPSB CASE NO.: 19-1765-EL-BLN

October 2, 2019

American Transmission Systems, Incorporated
76 South Main Street
Akron, Ohio 44308

LETTER OF NOTIFICATION
NAPOLEON-RICHLAND-STRYKER 138 kV
TRANSMISSION LINE OPEN ARM PROJECT

The following information is being provided in accordance with the requirements in the Ohio Administrative Code (OAC) Chapter 4906-6 for the review of Accelerated Certificate Applications. Based upon the requirements found in Appendix A to OAC Rule 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: Name and Reference Number

Name of Project: Napoleon-Richland-Stryker 138 kV Transmission Line Open Arm Project

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

American Transmission Systems, Incorporated ("ATSI"), a FirstEnergy company, is proposing to construct approximately 5.7-miles of new 336 kcmil 36/7 ACSR transmission line and 7#8 Alumoweld shield wire utilizing the open tower arm position located on the northern side of the existing Napoleon-Richland-Stryker 138 kV Transmission Line extending from Stryker Substation to structure #265 to eliminate the existing three-terminal line configuration.

This Project will change the existing line from Napoleon-Richland-Stryker 138 kV Transmission Line into two separate lines, the Richland-Stryker 138 kV Transmission Line and the new Napoleon-Stryker 138 kV Transmission Line, eliminating the three-terminal configuration. The new Richland-Stryker line will tie into the existing Napoleon-Richland-Stryker line at the existing three-terminal location at structure #265, creating a loop to Stryker Substation.

In addition, the construction of one (1) new structure in existing transmission line right-of-way south of structure #265 is needed to support new line configuration. This new

structure will be a two-pole laminated wood structure and will allow the circuits to switch sides on the existing towers, to match the configuration of the existing lines going south.

Finally, a new 138 kV breaker is to be installed at Stryker Substation to facilitate the new line exit.

The general location of the proposed Project is shown in Exhibit 1 and Exhibit 2. Exhibit 1 is a partial copy of USGS Topographic Maps. Exhibit 2 provides a partial copy of ESRI aerial imagery. The Project is located in Ridgeville Township, Henry County, and the Village of Stryker, Springfield Township in Williams County, Ohio. The general layout is shown in Exhibit 3.

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

The Project falls within Item (2)(a) and Item (2)(b) of the Application Requirement Matrix for Electric Power Transmission Lines, in Appendix A of OAC Rule 4906-1-01. These sections state that an applicant may use the Letter of Notification application process if the Project is for:

> *(2) Adding new circuits on existing structures designed for multiple circuit use, replacing conductors on existing structures with larger or bundled conductors, adding structures to an existing transmission line, or replacing structures with a different type of structure, for a distance of:*
>
> *(a) Two miles or less.*
>
> *(2) Adding new circuits on existing structures designed for multiple circuit use, replacing conductors on existing structures with larger or bundled conductors, adding structures to an existing transmission line, or replacing structures with a different type of structure, for a distance of:*
>
> *(b) More than two miles.*

The Project meets requirement (2)(a) because it involves the addition of one new structure to an existing transmission line. The Project also meets requirements (2)(b) as it involves adding greater than two miles of new circuits on existing structures designed for multiple circuit use.

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

This Project will eliminate a three-terminal line (Napoleon-Richland-Stryker 138 kV Transmission Line) which is prone to protection mis-operations and non-optimized relaying. Three-terminal lines are not consistent with current transmission system best practices or ATSI design criteria. Further, this Project will improve system protection and coordination, reducing the duration and load lost during outages. Because of the three terminal configuration, there have been three sustained outages on this line since 2015 with an average duration of 8.6 hours.

The current configuration also exposes the Stryker 69kV system to potential voltage collapse and low voltage under (P6) contingency conditions. Losing the Allen Junction-East Fayette and the Napoleon-Richland-Stryker 138 kV Transmission Lines results in low voltage and potential local voltage collapse on the Stryker 69 kV system. The Project will reduce the amount of local load loss, reducing the potential for these issues on the Stryker 69kV system.

This Project would also improve operational flexibility during maintenance and restoration efforts. With a maintenance outage on the line section between the Stryker 138 kV Substation and the existing three terminal point at structure #265, the N-1 contingency of losing the Allen Junction-East Fayette 138 kV line results in a similar low voltage condition and potential voltage collapse as the (P6) contingency discussed above. The proposed Project creates a third source to the Stryker 138kV Substation which alleviates this operational constraint during maintenance activities.

The need for the Project and the proposed solution was presented by ATSI at the August 31, 2018 Subregional Regional Transmission Expansion Plan (SRRTEP) Committee Western meeting and has been assigned PJM supplemental RTEP number s1697. The PJM SSRTEP-Western presentation slide is included as Exhibit 4 and includes additional details of the Project drivers.

This Project is included in the FirstEnergy Corp 2019 Long Term Forecast Report ("LTFR"), OPSB Case No. 19-0806-EL-FOR.

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 2019 LTFR. This map was submitted to the PUCO in Case No. 19-0806-EL-FOR under OAC Rule 4901:5-5:04 (C). The map is incorporated by reference only. This map shows ATSI's 345 kV and 138 kV transmission lines and transmission substations including the Napoleon-Richland-Stryker 138 kV Transmission Line. The project area is located approximately 2⅝ inches (11" x 17" printed version) from the left edge of the map and 1⅞ inches (11" x 17" printed version) from the top of the map. The general location and layout of the project area is shown in Exhibit 1 and 2. The Project layout is shown in Exhibit 3.

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

The only alternate solution considered was the installation of fiber on the entire 30-mile Napoleon-Richland-Stryker 138 kV Transmission Line. This option would address the mis-operations and non-optimized relaying, but it would not reduce exposer of the Stryker 69kV system to potential voltage collapse and low voltage under (P6) contingency conditions. A single equipment failure of any of the electronic devices that connect the substation to the fiber would also result in degraded protection compared to the proposed solution. A transmission line failure on the three-terminal line would still outage the line to each breaker position on the Napoleon-Richland-Stryker 138 kV Transmission Line.

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

ATSI will issue a public notice in a newspaper of general circulation in the Project area within 7 days of filing this Letter of Notification application. The notice will comply with OAC Rules 4906-6-08(A) (1) through (6).

In addition to the public notice, ATSI will mail letters to affected landowners and tenants within and contiguous to the Project Area.

ATSI has also established a project website: https://www.firstenergycorp.com/about/transmission_projects/ohio.html .

Finally, during all phases of this Project, ATSI will maintain the transmission projects hotline at 1-800-589-2837 or via email at: transmissionprojects@firstenergycorp.com where the public may ask questions or leave comments on the Project for ATSI.

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

Construction for the Project is anticipated to begin on January 1, 2020. The proposed in-service date for the Project is May 15, 2020.

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

Exhibits 1 and 2 depict the general location of the Project. Exhibit 1 provides a partial copy of the United States Geologic Survey, Henry and Williams County, Ohio Quad Map. Exhibit 2 provides a partial copy of ESRI aerial imagery.

4906-6-05 (B)(8): Property Owner List

The Project is located on existing right-of-way and no new right-of-way is required for the Project. Table 1 contains a list of property owners affected by the project.

Table 1: Property Owner List

Parcel ID	Owner Name	Easement Status
064-050-04-008.000	Toledo Edison Co	Previously Obtained
064-050-04-007.000	A Schulman Inc	Previously Obtained
011800160000	Gericke, Marilyn J.	Previously Obtained
011800120000	Lohse, Eldor W	Previously Obtained
064-130-00-017.001	Breier John L	Previously Obtained
064-130-00-017.000	Breier John L And Brenda L	Previously Obtained
064-130-00-013.000	Baus Chad D And Beth A	Previously Obtained
064-130-00-012.000	Backhaus Gerald H And Nancy S	Previously Obtained
064-130-00-011.000	Short Ned L Trustee	Previously Obtained
064-130-00-007.000	Ridgefield Farms Llc	Previously Obtained
064-140-00-011.000	Skyline 250 Llc	Previously Obtained
064-140-00-010.000	Strawn James C And Kristy M	Previously Obtained
064-140-00-006.000	Goebel Darrell J Etal	Previously Obtained
064-140-00-007.000	Stuckey Larry D (Le) Etal	Previously Obtained
064-150-00-008.002	Stuckey Larry D (Le) Etal	Previously Obtained
064-150-00-016.000	Ruffer Ed J And Julie	Previously Obtained
064-150-00-015.000	Ruffer Eddie J And Julie M	Previously Obtained
064-150-00-013.000	Ruffer James E Trustee	Previously Obtained
064-150-00-011.000	Ruffer James E Trustee	Previously Obtained
064-150-00-001.000	Planson Family Partners Lp	Previously Obtained
064-160-00-001.000	Planson Family Partners Lp	Previously Obtained
064-090-09-002.000	Barnum Mary L (Le) Etal	Previously Obtained
064-090-09-004.000	Planson Family Partners	Previously Obtained
064-090-09-003.000	Planson Terry A Trustee	Previously Obtained
064-090-08-026.001	Planson Steven J And Connie R	Previously Obtained
064-090-08-026.000	Harvest Rest Farms Llc	Previously Obtained
064-090-08-027.000	Luty Carolyn W Trustee And Cline Karen Trustee	Previously Obtained
064-080-01-020.000	Engler Lonnie L Trustee	Previously Obtained
064-080-01-019.000	Engler Lonnie L Trustee	Previously Obtained
064-080-05-017.000	Newcomer David C Trustee(Engler)	Previously Obtained
064-080-05-005.000	Miller Justin B And Chastity D	Previously Obtained
064-080-05-006.000	Greathouse Irma	Previously Obtained
064-080-04-016.000	Leininger Michael L And Underwood Karen M	Previously Obtained
064-080-04-013.000	Chrismer Robert C And Judith A	Previously Obtained
064-080-04-012.000	Ames Alva R And Carol A	Previously Obtained
064-080-04-017.000	Leupp Carmen	Previously Obtained
064-080-04-023.000	Derringer Karen L	Previously Obtained
064-080-04-011.000	Ames Alva	Previously Obtained
064-080-06-017.000	Oakwood Cemtery	Previously Obtained
064-080-04-007.000	Shindledecker Sharon K	Previously Obtained
064-080-06-019.000	Roggeman Albert L	Previously Obtained
064-080-06-001.000	Roggeman Albert L	Previously Obtained
064-080-06-002.000	Harrington Mark A & Verna	Previously Obtained
064-080-06-018.000	Harrington Mark A & Verna	Previously Obtained
064-080-06-003.000	Harrington Mark A & Verna	Previously Obtained
064-050-08-002.000	Hurd Ronald L	Previously Obtained
064-050-08-003.000	Todd Replogle Properties	Previously Obtained
064-050-05-970.001	Pennsylvania Lines LLC	Previously Obtained

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:	336 kcmil 26/7 ACSR; 336 kcmil 30/7 ACSR
Static Wire:	SFSJ-J-6641 OPGW; 134.6 kcmil 12/7 ACSR Leghorn
Insulators:	J3/21 (Porcelain); J3/124 (Polymer)
ROW Width:	100 feet and no new additional rights
Structure Types:	Exhibit 5: [Laminated Wood 2 Pole Structure].
	One (1) additional structure is needed.

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

The closest occupied residence or institution is approximately 35 feet from the proposed transmission line centerline; therefore, Electric and Magnetic Field ("EMF") calculations are required by this code provision.

4906-6-05 (B)(9)(b)(i): Calculated Electric and Magnetic Fields Strength Levels

Table 2 lists the line loading for the transmission lines located in the existing corridor. The normal line loading represents ATSI's peak system load for the transmission lines. The emergency line loading represents the maximum line loading under contingency operation. The winter rating is based on the continuous maximum conductor rating ("MCR") of the circuits for the single conductors per phase and an ambient temperature of zero degrees centigrade (32 °F), wind speed of 1.3 miles per hour, and a circuit design operating temperature of 100 °C (212 °F).

Table 2: Transmission Line Loading

Loading Data for the Napoleon-Richland-Stryker 138 kV Corridor			
Line Name	**Normal Loading Amps**	**Emergency Loading Amps**	**Winter Rating Amps**
Richland-Stryker 138 kV	24	185	758
Napoleon-Stryker 138 kV	153	263	764

Table 3 provides an approximation of the magnetic and electric fields strengths of the existing transmission line corridor that are all calculated in a 100-foot right-of-way. The calculations provide an approximation of the electric and magnetic fields levels based on specific assumptions utilizing the EPRI EMF Workstation 2015 program software. This program software assumes the input transmission line configuration is located on flat terrain. Also, a balanced, three-phase circuit loading is assumed for the transmission circuit. The model utilizes the normal, emergency, and winter rating of the transmission lines.

Table 3: EMF Calculations for the Existing Transmission Corridor

EMF Data for the Napoleon-Richland-Stryker 138 kV Transmission Corridor		**Electric Field kV/m**	**Magnetic Field mG**
Normal Loading	Under Lowest Conductors	2.246	19.53
	At Right-of-Way Edges	0.161	8.75 / 5.55
Emergency Loading	Under Lowest Conductors	2.246	28.54
	At Right-of-Way Edges	0.161	9.5 / 4.33
Winter Rating	Under Lowest Conductors	2.246	135.99
	At Right-of-Way Edges	0.161	60.28

4906-6-05 (B)(9)(b)(ii): Alternative Design Consideration for Electric and Magnetic Fields

The strength of EMFs can be affected by design criteria, including the potential to reduce EMFs by installing the transmission line conductors in a compact configuration and, for multiple circuit transmission lines, by selecting conductor phasing that reduces the field strengths. For ATSI facilities such considerations are typically taken into account during the original installation of a particular facility and are generally not practical when placing additional conductors along existing structures. ATSI has, and continues to, design its facilities according to the requirements of the National Electric Safety Code ("NESC"). The structures and conductor configurations were chosen based on NESC specifications, engineering parameters, and cost. ATSI's typical practice has been to install 138 kV transmission lines primarily on wooden or steel structures supported on horizontal post insulators – this is a compact design that reduces EMF field strengths in comparison to other installations. The original construction of the structures in this Project was done in a manner that reduced the strength of EMFs consistent with best practices at the time.

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

The estimated capital cost for the proposed project is approximately $7,715,066.

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

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

The Project is located in Village of Stryker, Springfield Township, Williams County, and Ridgeville Township, Henry County, Ohio. The Project area is comprised of a maintained transmission line right-of-way corridor surrounded by agricultural fields with residential properties in the surrounding areas.

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

Agricultural land does exist within the Project's disturbance area. Within the existing transmission corridor there are multiple actively farmed fields. Temporary disturbance

areas associated with the Project will be located within some of these cultivated fields. A list of all agricultural land and acreage including agricultural district land is given in Table 4.

Table 4: Agricultural Lands within the Project's Disturbance Area

Parcel Number	Property Owner	Acreage	Agricultural District	Agricultural District Expiration
064-080-05-017.000	Newcomer David C Trustee (Engler)	18.05	Yes	1/1/2020
064-080-01-020.000	Engler Lonnie L Trustee	43.62	Yes	1/1/2020
064-090-08-027.000	Cline Karen and Cameron Sheryl	41.06	Yes	1/1/2023
064-090-08-026.000	Harvest Rest Farms LLC	80.47	Yes	1/1/2023
064-090-09-003.000	Planson Terry A Trustee	40.00	Yes	1/1/2023
064-090-09-004.000	Planson Family Partners LP	38.00	Yes	1/1/2023
064-090-09-002.000	Barnum Mary L (LE) Etal	79.83	No	-
064-160-00-001.000	Planson Family Partners LP	80.91	Yes	1/1/2023
064-150-00-001.000	Planson Family Partners LP	100.56	Yes	1/1/2020
064-150-00-011.000	Ruffer James E Trustee	40.00	Yes	1/1/2023
064-150-00-013.000	Ruffer James E Trustee	56.76	Yes	1/1/2023
064-150-00-015.000	Ruffer Eddie J and Julie M	22.00	Yes	1/1/2020
064-150-00-016.000	Ruffer Ed J and Julie	22.00	Yes	1/1/2020
064-150-00-008.002	Stuckey Larry D (Le) Etal	32.92	Yes	1/1/2020
064-140-00-007.000	Stuckey Larry D (Le) Etal	44.71	Yes	1/1/2023
064-140-00-006.000	Goebel Darrell J Etal @(4)	63.84	No	-
064-140-00-010.000	Strawn James C and Kristy M	19.99	Yes	1/1/2022
064-140-00-011.000	Skyline 250 LLC	100.00	Yes	1/1/2023
064-130-00-007.000	Ridgefield Farms LLC	140.85	Yes	1/1/2020
064-130-00-011.000	Short Ned L Trustee	33.33	Yes	1/1/2023
064-130-00-012.000	Backhaus Gerald H and Nancy S	24.55	Yes	1/1/2023
011800120000	Lohse, Eldor W	50.09	No	-
011800160000	Gericke, Marilyn J	104	No	-
011800180000	Yancey, Bruce A	22.41	No	-
011800200000	Yancey, Bruce A	81.61	No	-

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

As part of the investigation supporting this application, a search of Ohio Historic Preservation Office ("OHPO") online database was conducted to identify the existence of any significant archeological or cultural resource sites within 0.5-miles of the Project Area. The results of the search are shown in Exhibit 6.

The OHPO database includes all Ohio listings on 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 indicate that two (2) NRHP eligible sites were identified within 0.5 miles of the Project potential disturbance area. The NRHP eligible sites are shown in Table 5.

The OHPO database also includes listing of the Ohio Archaeological Inventory ("OAI"), the Ohio Historic Inventory ("OHI"), previous cultural resource surveys, and the Ohio Genealogical Society ("OGS") cemetery inventory. No OAI listed archeological resource has been previously inventoried within 0.5 miles of the Project area. Thirteen (13) listed structural resources are located within 0.5 miles of the Project area and are shown in Table 6. No previous cultural resource survey was conducted within 0.5 miles of the Project area. One (1) OSG cemetery is located within 0.5 miles of the Project area and is listed in Table 7.

Table 5. List of Eligible National Historic Registered Places

Resource Name	Address	County	Eligibility
Unknown	309 Curtis Street, Stryker, OH 43557	Williams	YC
Unknown	N Depot & W Wts, Stryker, OH 43557	Williams	YA

Table 6. List of OHI Listed Structural Resources

OHI Number	Present Name	Historic Use	County	Municipality
WIL0010212	Public Schoolhouse	School	Williams	Stryker
WIL0010812	St John Church	Church/ Religious Structure	Williams	Stryker
WIL0042412	Unknown	Single Dwelling	Williams	Stryker

WIL0042512	Unknown	Commercial	Williams	Stryker
WIL0042612	Unknown	Single Dwelling	Williams	Stryker
WIL0042712	Unknown	Single Dwelling	Williams	Stryker
WIL0042812	Unknown	Single Dwelling	Williams	Stryker
WIL0042912	Unknown	Single Dwelling	Williams	Stryker
WIL0043012	Unknown	Single Dwelling	Williams	Stryker
WIL0046112	Unknown	Single Dwelling	Williams	Springfield Township
WIL0046412	Unknown	Single Dwelling	Williams	Stryker
WIL0046512	Stryker's Farmer's Exchange / Flouy's Grain Elevator	Food Procurement/ Processing/ Agriculture	Williams	Stryker
WIL0047712	St John's Catholic Church	Church/Religious Structure	Williams	Stryker

Table 7. List of OGS cemeteries

OGS ID	Name	County	Location
12830	Oakwood (Oak Ridge)	Williams	600 feet south of CR 297 on West side of CR 203

Ground disturbing activities will be limited to the parcels owned by Toledo Edison as well as one privately owned parcel (011800160000) referenced in Table 1. The Eligible NHRP and OAI resources listed above reside well outside the Project Area's disturbance footprint. The OGS resource 12830 is located directly adjacent to the Project area. No

new structures will be built near this resource; therefore, the Project will have no effect or impact on these resources.

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

Table 8 shows the list of government agency requirements and the filing status at the time of filing.

Table 8. List of Government Agency Requirements

Agency	Permit Requirement	Status
OEPA	NPDES General Permit for Stormwater Discharges Associated with Construction Activity	Expect to submit NOI for permit coverage in November 2019
ODOT	Temporary Driveway Permits	Expect to submit applications in November 2019
ODOT	Aerial Crossing Permits for state routes	Expect to submit applications in November 2019
Williams County Engineer's Office	Temporary Driveway, Aerial Crossing Permits, and Special Hauling Permits (handle townships as well)	Expect to submit applications in November 2019
Henry County Engineer's Office	Temporary Driveway, Aerial Crossing Permits, and Special Hauling Permits (handle townships as well)	Expect to submit applications in November 2019

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

WSP, a consulting firm , on behalf of ATSI submitted a consultation request to the Ohio Department of Natural Resources (ODNR) on November 12, 2018 for the entire Project. 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 area. The ODNR's Office of Real Estate's response on January 7, 2019 indicated that the Project area is within the range of four (4) species listed as state and federally endangered, one (1) species listed as state-endangered and as a federal species of concern, one (1) species listed as state-endangered and as a federal candidate species, one

(1) species listed as state-endangered and federally threatened, one (1) species listed as state and federally threatened, seven (7) species listed as state-endangered, and seven (7) species listed as state-threatened. A copy of ODNR's Office of Real Estate's response is included as Exhibit 7.

WSP, on behalf of ATSI submitted a consultation request to the U.S. Fish and Wildlife Service (USFWS) on November 12, 2018 for the entire Project. The USFWS's response on November 20, 2018 indicated that the State of Ohio lies within the range of the federally endangered Indiana bat (*Myotis sodalis*) and federally threatened northern long-eared bat (*Myotis septentrionalis*). A copy of USFWS's Ecological Review response is included as Exhibit 8. The USFWS' November 20, 2018 response stated that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project Area. A list of all endangered, threatened, and rare species, as identified by ODNR and USFWS, is provided in Table 9.

Table 9. List of Endangered, Threatened, and Rare Species

Common Name	Scientific Name	Federal Listed Status	State Listed Status	Affected Habitat
Indiana bat	*Myotis sodalis*	Endangered	Endangered	Trees & Forest
Northern long-eared bat	*Myotis septentrionalis*	Threatened	Threatened	Trees & Forest
Northern Harrier	*Circus cyaneus*	NA	Endangered	Grasslands
Blue-spotted Salamander	*Ambystoma laterale*	NA	Endangered	Wet Prairies & Vernal Pools
Spotted Turtle	*Clemmys guttata*	NA	Threatened	Fen, Bogs, & Marshes
Blanding's Turtle	*Emydoidea blandingii*	NA	Threatened	Various Aquatic
Copperbelly Water Snake	*Nerodia erythrogaster neglecta*	Threatened	Endangered	Wetlands or Floodplain Wetlands
Gilt Darter	*Percina evides*	NA	Endangered	Rivers
Iowa Darter	*Etheostoma exile*	NA	Endangered	Lakes and Rivers

Pugnose Minnow	*Opsopoeodus emiliae*	NA	Endangered	Lakes and Rivers
Lake Chubsucker	*Erimyzon sucetta*	NA	Threatened	Lakes, Rivers, and Marshes
Greater Redhorse	*Moxostoma valenciennesi*	NA	Threatened	Rivers
Rayed Bean	*Villosa fabalis*	NA	Threatened	Small Creeks
Black Sandshell	*Ligumia recta*	NA	Threatened	Rivers & Lakes
Northern Riffleshell	*Epioblasma torulosa rangiana*	Endangered	Endangered	Rivers
White Cat's Paw	*Epioblasma obliquata perobliqua*	Endangered	Endangered	Rivers
Rabbitsfoot	*Quadrula cylindrica cylindrica*	Candidate	Endangered	Rivers
Sharp-ridged Pocketbook	*Lampsilis ovata*	NA	Endangered	Rivers & Lakes
Long-solid	*Fusconaia maculata maculata*	NA	Endangered	Rivers
Threehorn Wartyback	*Obliquaria reflexa*	NA	Threatened	Rivers
Clubshell	*Pleurobema clava*	Endangered	Endangered	Small Rivers & Streams
Purple lilliput	*Toxolasma lividus*	Species of Concern	Endangered	Streams

Any tree cutting resulting from the Project will occur between October 1 and March 31 to avoid impacts to both listed bat species as per the guidance provided by the ODNR and USFWS. Although the lands throughout the majority of the Project are in active agriculture, any activities in undeveloped fields will occur before May 15 to avoid any potential impacts to potential habitat for the Northern Harrier during the nesting season. Due to the location, the type of work proposed, and the type of habitat at the Project site and within the vicinity of the Project area, this Project is not likely to impact any of the other species listed in Table 9, as confirmed by ODNR on January 7, 2019.

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

ATSI contracted WSP to conduct a wetland and stream assessment of the Project area. WSP's assessment focused on an the 100 feet wide ROW of the Project area on November 12, 2018, November 13, 2018 and July 31, 2019, by walking the corridor and identifying wetlands and other potential Waters of the U.S, as well as other surface waters., A total of six wetlands and five streams were delineated within the ESC.

Detailed information for wetland and waterbody features within the ESC is provided in Exhibit 9. WSP has made preliminary determinations concerning the likely jurisdiction of these wetlands and waterbodies; however, the U.S. Army Corps of Engineers (USACE) make the final determination of hydrologic connectivity.

Six wetlands totaling 3.39 acres, ranging in size from 0.30 to 1.04 acres, were delineated within the ESC. All six wetlands were identified as palustrine emergent (PEM) wetlands and appear to be hydrologically connected to surface waters that are tributaries to the Maumee River, a traditionally navigable waterway, and therefore would likely be considered jurisdictional by the USACE. Three of the delineated wetlands were scored as Category 1 wetlands and three of the delineated wetlands were scored as Category 2 wetlands based on Ohio Rapid Assessment Method (ORAM) scores (ranging from 18.5 to 35). No Category 3 wetlands were identified within the ESC.

A total of five streams, totaling 818 linear feet, were identified within the ESC as shown in Figures 3A-3L of Exhibit 9. Of these five streams, two were identified as intermittent streams and three were perennial streams. These streams appear to have significant nexus with a TNW and are therefore likely to be considered jurisdictional by the USACE. It is noted that the USACE will make the final determination of significant nexus with a TNW.

All proposed access roads for the Project are planned to utilize construction matting over delineated wetlands and streams where crossed. One structure (Structure 256-A, a two pole, wood laminate structure) will be located within the delineated boundary of a Category 2, PEM wetland. As wooden pole placement is considered a piling that will not

result in the replacement of an aquatic area with dry land nor will its placement change the bottom elevation of the wetland, a loss in aquatic function of the wetland will not occur. Best management practices will be utilized when working within proximity to this or any other surface water to prevent, or minimize to the extent possible, any impacts. A map of the proposed access roads is provided in Exhibit 10.

The Project work limits will traverse two regulated floodplains based on a review of online FEMA Flood Insurance Rate Mapping. No fill material will be placed in either floodplain area thus resulting in no net change in floodplain elevation. Exhibit 11 depicts the location of the regulated floodplains in relation to the Project 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 is being provided concurrently with its docketing with the Board to the following officials in The Village of Stryker, Springfield Township, Williams County, and Ridgeville Township, Henry County, Ohio.

Williams County

Mr. Terry Rummel
Board of Commissioners
One Courthouse Square
4th floor
Bryan, OH 43506

Mr. Lewis Hilkert
Board of Commissioners
One Courthouse Square
4th floor
Bryan, OH 43506

Mr. Brian Davis
Board of Commissioners
One Courthouse Square
4th floor
Bryan, OH 43506

Mr. Dennis Miller
Williams County Regional Planning Commission
12953 County Road G
Bryan, OH 43506

Mr. Todd Roth P.E., P.S
Williams County Engineer's Office
12953 County Road G
Bryan, OH 43506

Mr. Chris Dancer, District Admin.
Williams County Soil & Water District
1120 West High Street
Bryan, OH 43506

Springfield Township

Mr. Ed Ruffer
Springfield Township Trustee
03075 County Road 23.50
Stryker, OH 43557

Mr. Steve Planson
Springfield Township Trustee
22199 County Road F
Stryker, OH 43557

Mr. Rusty Goebel
Springfield Township Trustee
05870 County Road 23.50
Stryker, OH 43557

Ms. Patti Rosebrock
Springfield Township Fiscal Officer
304 East Curtis Street
Stryker, OH 43557

Village of Stryker

Mayor Joe Beck
Village of Stryker Mayors Office
200 North Defiance Street
P.O. Box 404
Stryker, OH 43557

Ms. Beth Rediger
Village of Stryker Fiscal Officer
200 North Defiance Street
P.O. Box 404
Stryker, OH 43557

Mr. Alan Riegsecker
Village of Stryker Administrator
200 North Defiance Street
P.O. Box 404
Stryker, OH 43557

Mr. Wesley White
Village of Stryker Public Works
200 North Defiance Street
P.O. Box 404
Stryker, OH 43557

Henry County

Mr. Tom VonDeylen
Board of Commissioners
1853 Oakwood Avenue
Napoleon, OH 43545

Mr. Glenn Miller
Board of Commissioners
1853 Oakwood Avenue
Napoleon, OH 43545

Mr. Robert Hastedt
Board of Commissioners
1853 Oakwood Avenue
Napoleon, OH 43545

Mr. Tim Schumm P.E., P.S
Henry County Engineer's Office
660 North Perry Street
Napoleon, OH 43545

Mr. Nicholas Rettig, Director
Henry County Regional Planning Commission
1853 Oakwood Avenue
Napoleon, OH 43545

Mr. Bob George, District Admin.
Henry County Soil & Water District
2260 North Scott Street
Napoleon, OH 43545

Ridgeville Township

Mr. Carlos Grieser, Trustee
Ridgeville Township Officials
191 County Road 22
Archbold, OH 43502

Ms. Peggy Yoder
Ridgeville Township Trustee
778 County Road 20B
Archbold, OH 43502

Mr. Charles Haines
Ridgeville Township Trustee
20692 County Road X
Napoleon, OH 43545

Ms. Cheryl Bostelman
Ridgeville Township Fiscal Officer
20348 County Road X
P.O. Box 65
Napoleon, OH 43545

Libraries

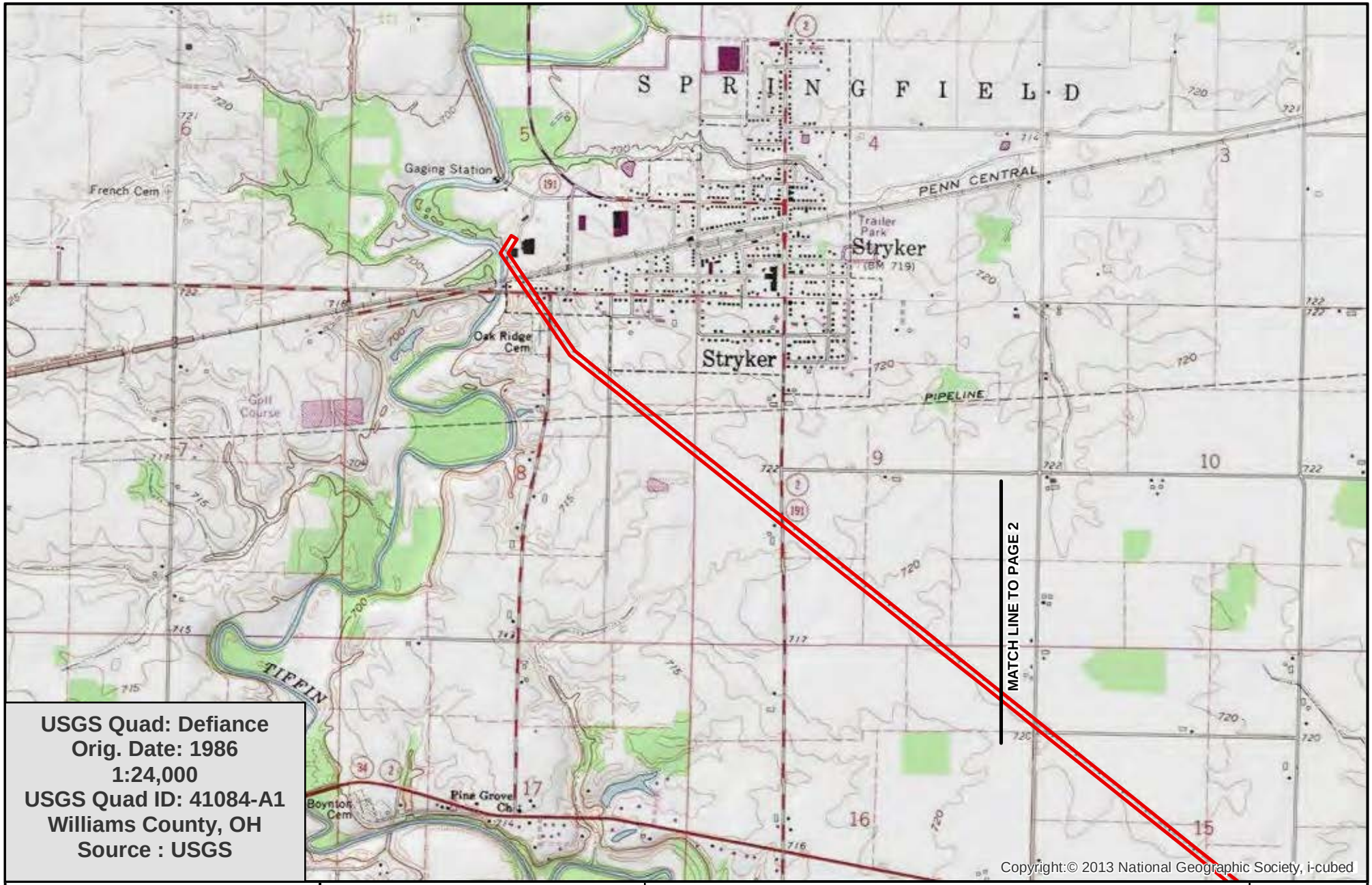
Ms. Betsy Eggers, Director
Napoleon Public Library
310 West Clinton Street
Napoleon, OH 43545

Ms. Connie Aeschilman, Director
Stryker Public Library
304 South Defiance Street
Stryker, OH 43557

Copies of the transmittal letters to these officials have been included with this application as proof of compliance under OAC Rule 4906-6-07 (B) to provide the Board with proof of notice to local officials as required by OAC Rule 4906-6-07 (A)(1) and to libraries per OAC Rule 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 to meet the requirements of OAC Rule 4906-6-

07 (B) and to provide the Board with proof of compliance with the notice requirements in OAC Rule 4906-6-07 (A)(3).



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USGS Quad ID: 41084-A1
Williams County, OH
Source : USGS

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Page 1 of 2

ProjectArea

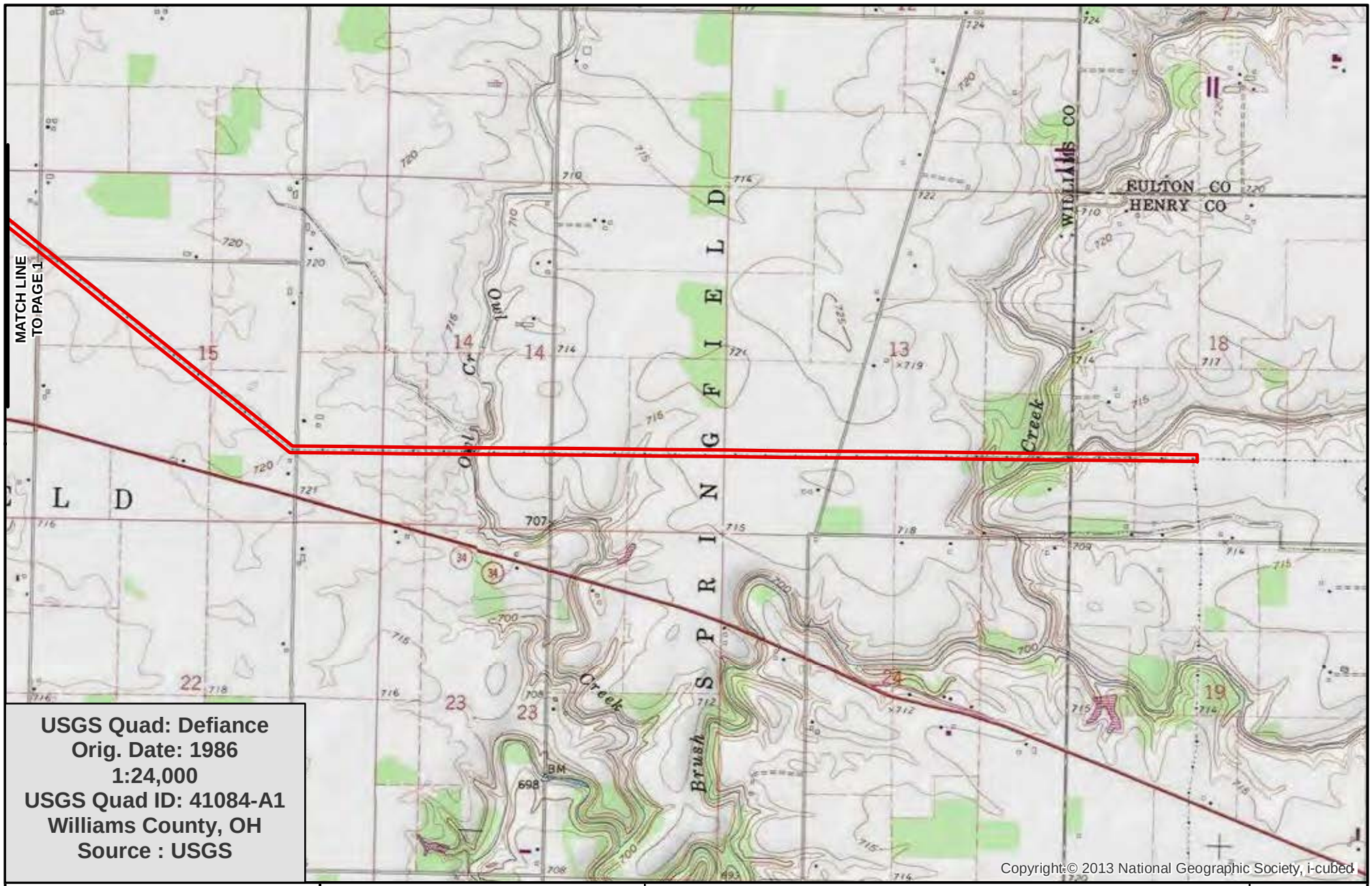
Napoleon-Richland-Stryker 138 kV Transmission Line
Second Circuit Addition Project

Exhibit 1

N

FirstEnergy

Created on 2/18/2019



USGS Quad: Defiance
Orig. Date: 1986
1:24,000
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Williams County, OH
Source : USGS

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1:24,000

Page 2 of 2

ProjectArea

Napoleon-Richland-Stryker 138 kV Transmission Line
Second Circuit Addition Project

Exhibit 1

N

FirstEnergy

Created on 2/18/2019

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1:24,000

Page 1 of 2

ProjectArea

Napoleon-Richland-Stryker 138 kV Transmission Line Second Circuit Addition Project

Exhibit 2

N

FirstEnergy

Created on 2/18/2019

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Feet

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Page 2 of 2

ProjectArea

Napoleon-Richland-Stryker 138 kV Transmission Line
Second Circuit Addition Project

Exhibit 2

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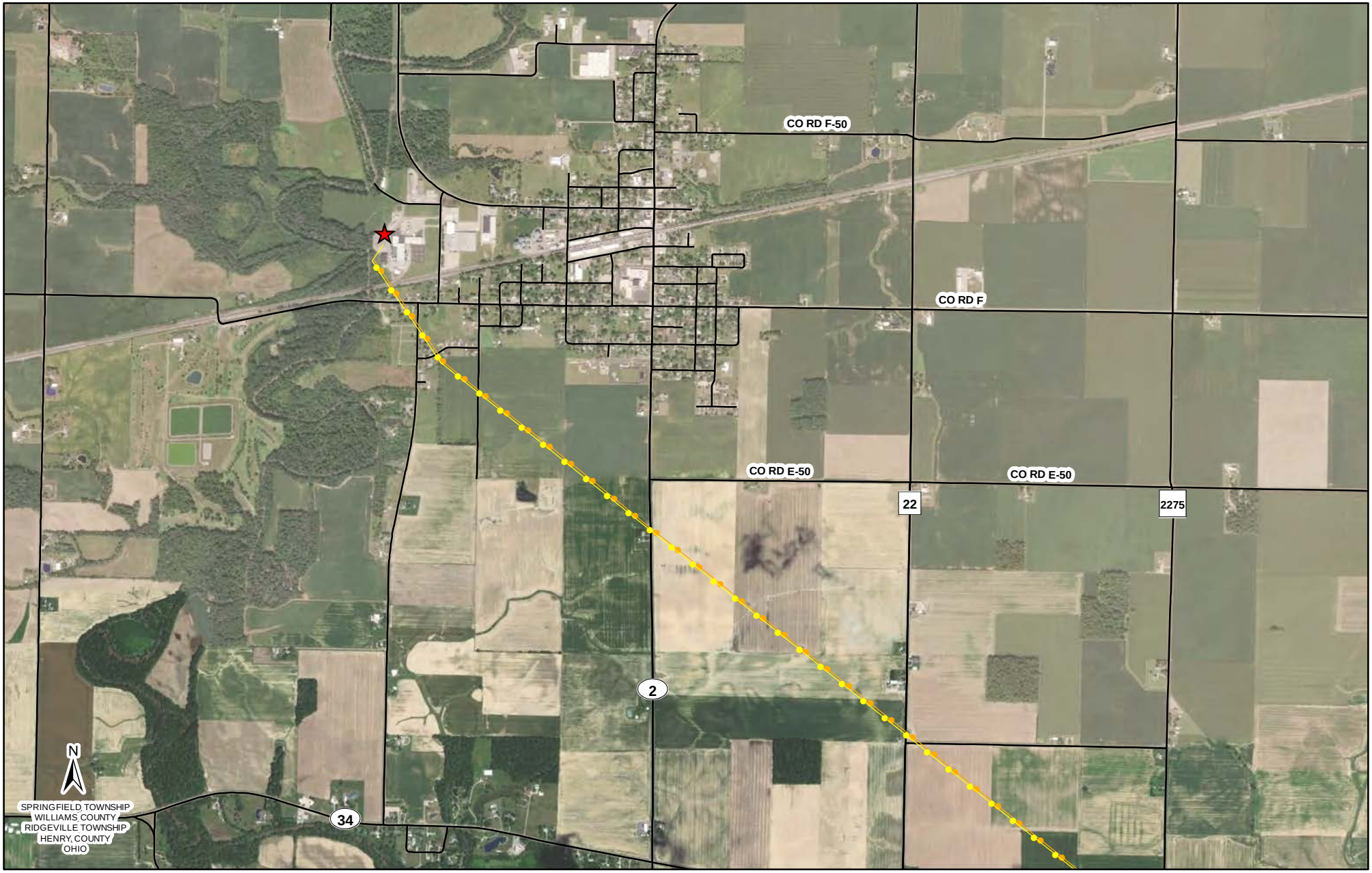
FirstEnergy

Created on 2/18/2019



LEGEND:

- Substation
- Napoleon-Richland-Stryker 138 kV
- Vacant Circuit
- Roads

0 1,000 2,000 4,000

Feet

Reference:
ESRI Imagery Overlay; ODOT

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

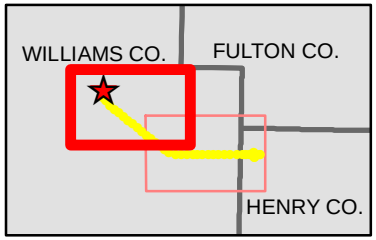
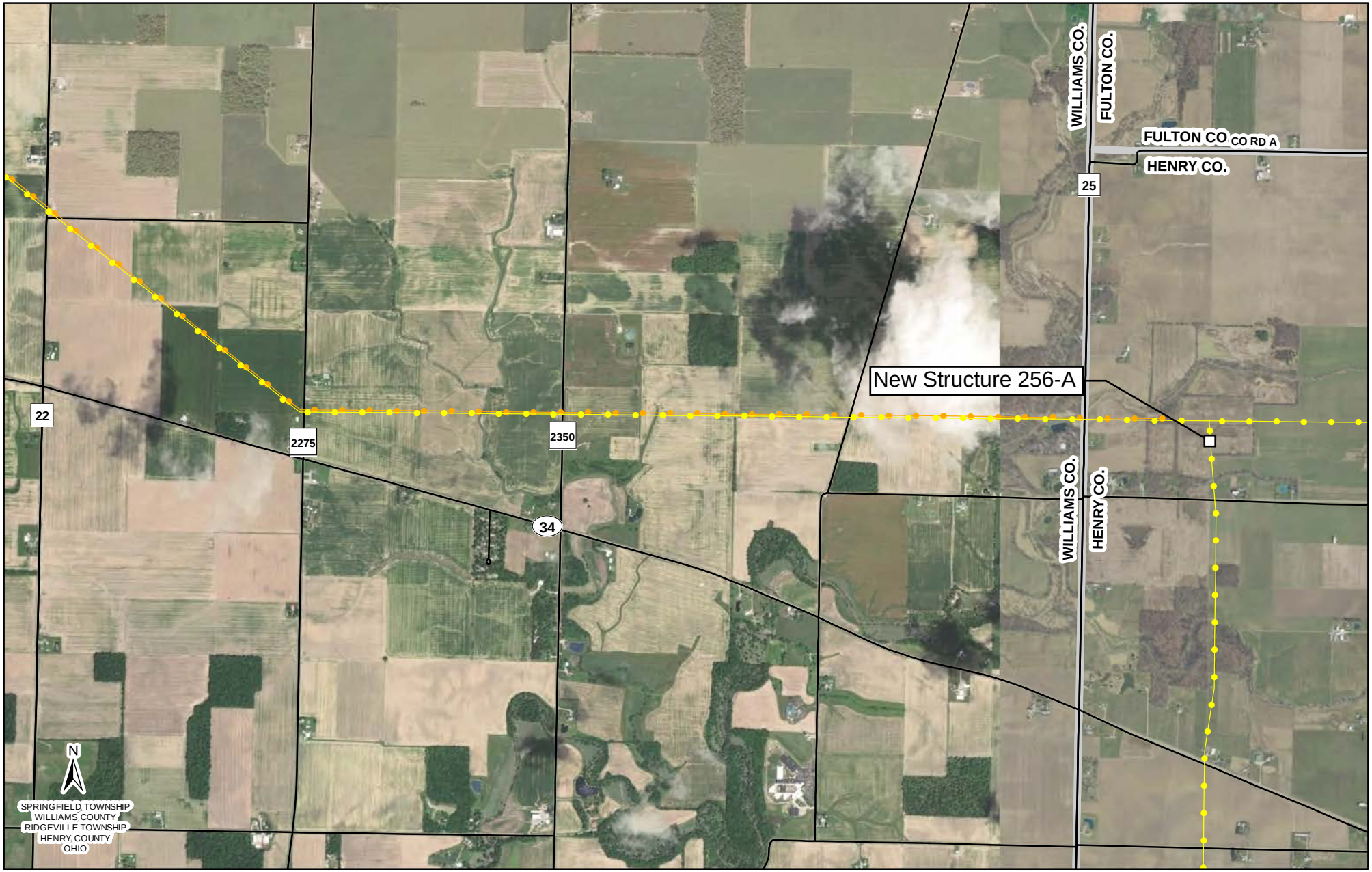


EXHIBIT 3

FirstEnergy

Napoleon-Richland-Stryker 138kV
Transmission Line Open Arm Project



LEGEND:

- Substation
- Napoleon-Richland-Stryker 138 kV
- Vacant Circuit
- Roads

0 1,000 2,000 4,000

Feet

Reference:
ESRI Imagery Overlay; ODOT

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

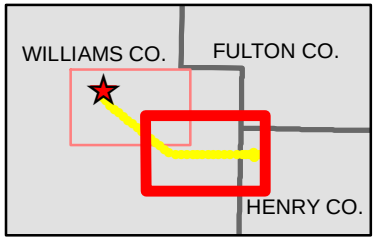


EXHIBIT 3

FirstEnergy

Napoleon-Richland-Stryker 138kV
Transmission Line Open Arm Project

ATSI Transmission Zone: Supplemental
Richland-Stryker-Napoleon 138 kV Three-Terminal Line Elimination Project

Previously Presented: 8/31/2018 SRRTEP

Problem Statement (Scope and Need/Drivers):

Operational Flexibility and Efficiency

- Improve system protection, coordination, and fault location under existing three-terminal line configuration.
- Improve operational flexibility during maintenance and restoration efforts.
- Reduce the amount of local load loss under (P6) contingency conditions.
  - *Loss of Allen Junction-Lyons 138 kV and Richland-Stryker-Napoleon 138 kV line*
  - *Results in potential 69 kV low voltage or local voltage collapse on the Stryker 69 kV system with load at risk approaching 65 MWs.*

Selected Solution:

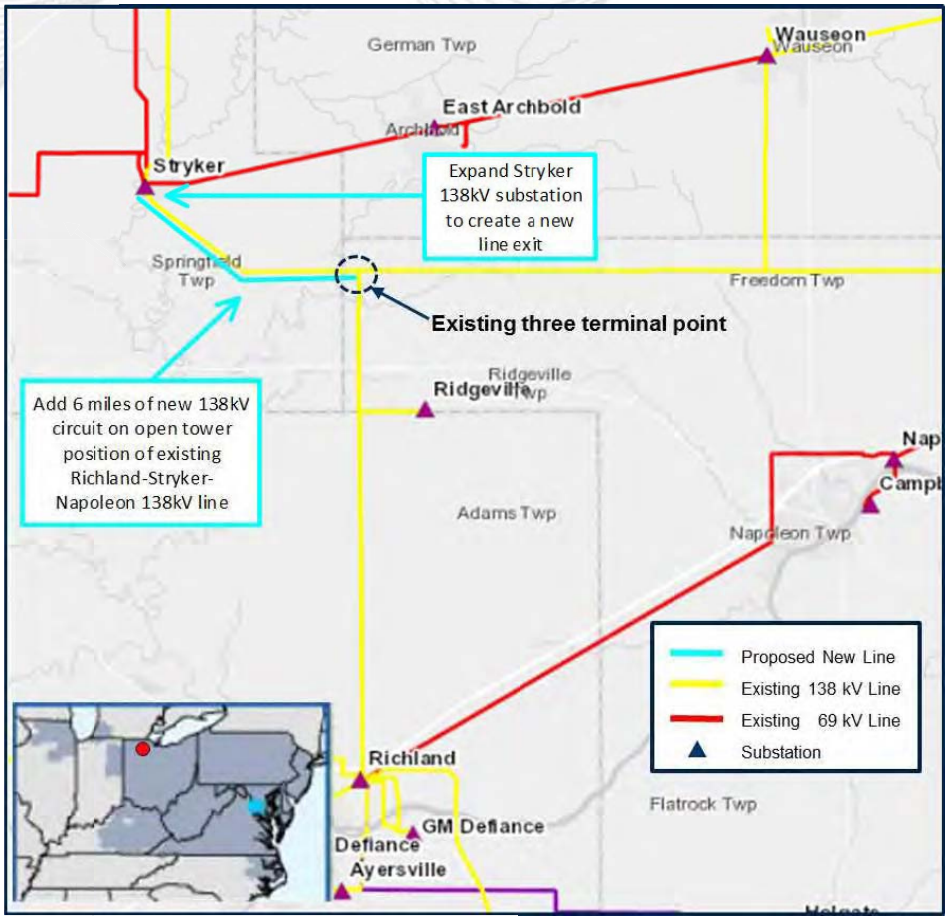
Richland-Stryker-Napoleon 138 kV Three-Terminal Line Elimination Project **(S1697)**

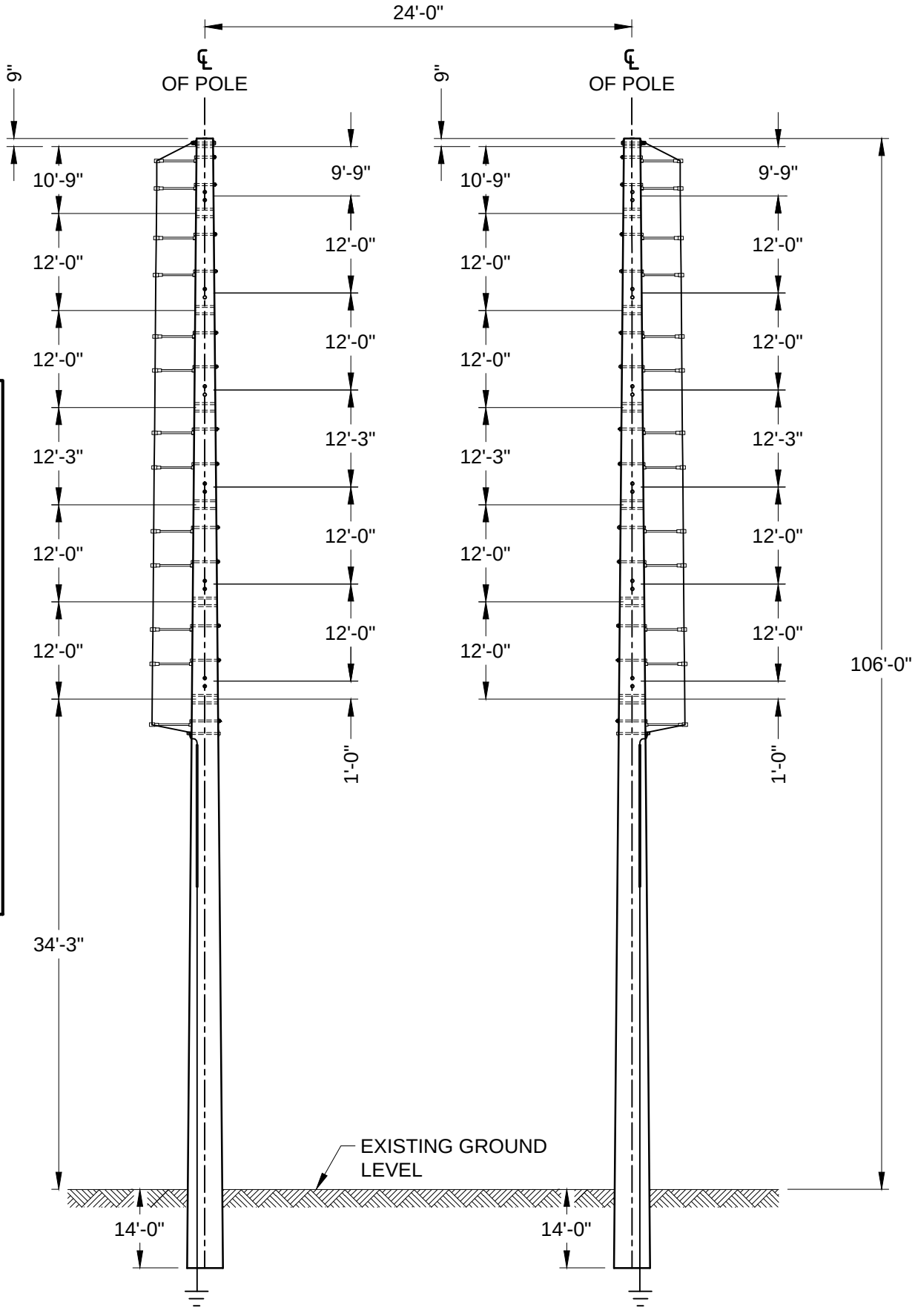
- Eliminate three terminal point on the Richland-Stryker-Napoleon 138 kV line.
- Add 6.0 miles of new 336 ACSR conductor to open tower position of Richland-Stryker-Napoleon 138 kV line.
- Reconfigure the existing Stryker tap location to create:
  - Richland – Stryker 138 kV line
  - Stryker – Napoleon 138 kV line
- Expand the existing 138 kV Stryker substation to incorporate a new line exit; install new 138 kV circuit breaker

Estimated Project Cost: $4.2 M

Projected IS Date: 12/31/2019

Status: Engineering





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PAPER SIZE: 8.5X11

DR. NMK/B&V 10/19	C.E.
CHK. AR/B&V 10/19	ORDER NO.
INS. NDL/B&V 10/19	WBS R/W
APP.	SCALE N.T.S.

NAPOLEON–STRYKER 138kV
RICHLAND–STRYKER 138kV
STR. #265A LAMINATED WOOD POLE

FirstEnergy Transmission Design	ASSET/OP. CO.	DWG NO.	SHEET	REV.
	ATSI/TE	EXHIBIT 5	1/1	

LEGEND:

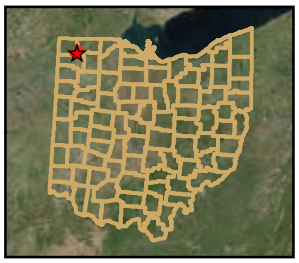
- Napoleon-Richland-Stryker 138 kV
- 0.50 Mile Buffer
- OGS Cemeteries
- NR Determinations of Eligibility
- Historic Structures

0 500 1,000 2,000
Feet

1 inch = 2,000 feet

REFERENCES
ESRI Aerial Imagery, Ohio SHPO

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



ATSI American Transmission Systems, Inc.

EXHIBIT 6

Napoleon-Richland-Stryker 138 kV
Second Circuit Addition Project

LEGEND:

- Napoleon-Richland-Stryker 138 kV
- 0.50 Mile Buffer
- OGS Cemeteries
- NR Determinations of Eligibility
- Historic Structures

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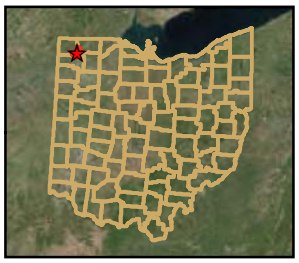
Feet

1 inch = 2,000 feet

REFERENCES
ESRI Aerial Imagery, Ohio SHPO

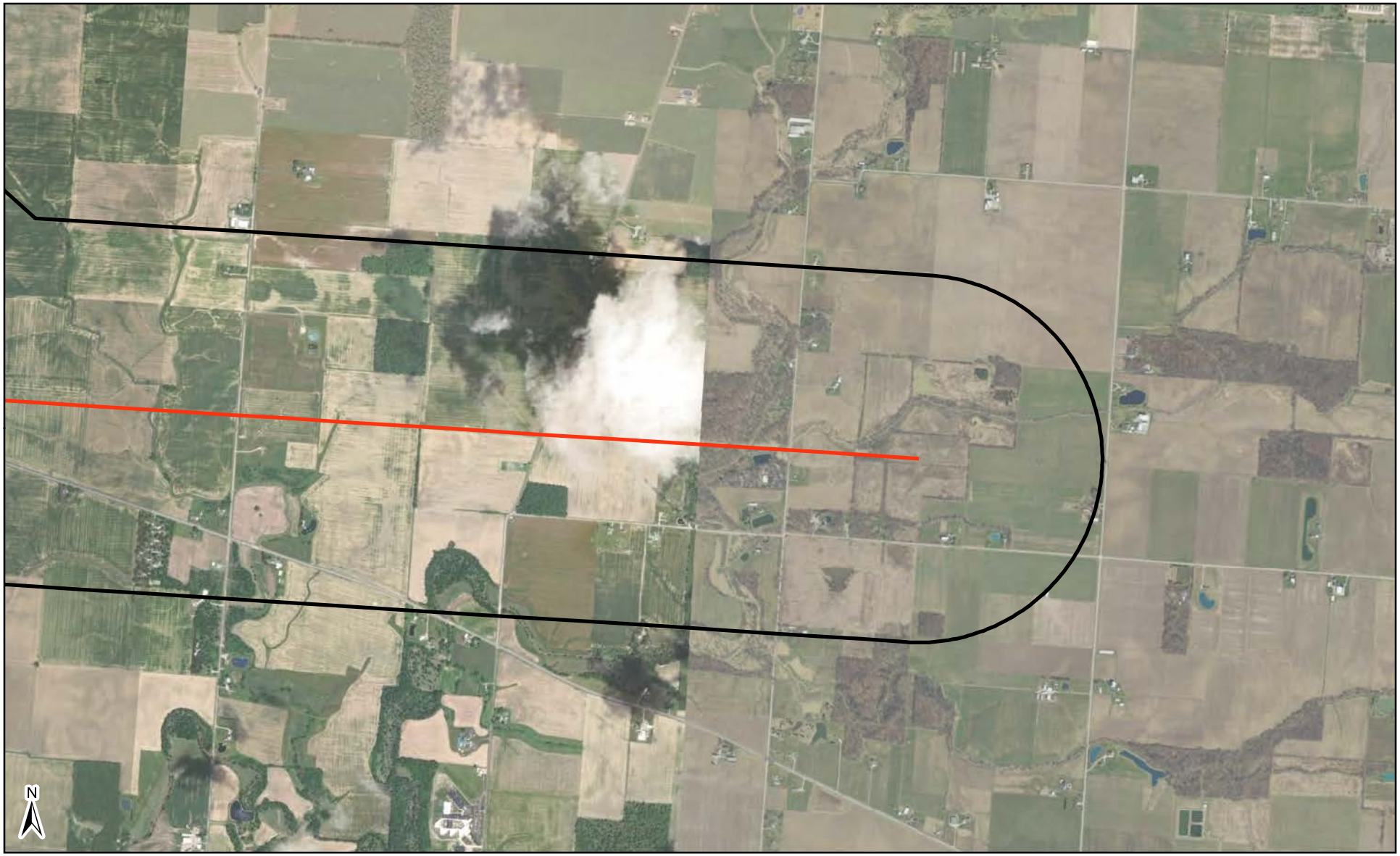
COORDINATE SYSTEM
NAD 1983 StatePlane Ohio North FIPS 3401 Feet; Projection: Lambert Conformal Conic; Units: Foot



ATSI American Transmission Systems, Inc

EXHIBIT 6

Napoleon-Richland-Stryker 138 kV
Second Circuit Addition Project



LEGEND:

- Napoleon-Richland-Stryker 138 kV
- 0.50 Mile Buffer
- OGS Cemeteries
- NR Determinations of Eligibility
- Historic Structures

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Feet

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REFERENCES
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COORDINATE SYSTEM
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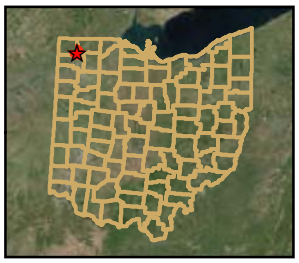


ATSI American Transmission Systems, Inc

EXHIBIT 6

Napoleon-Richland-Stryker 138 kV
Second Circuit Addition Project

EXHIBIT 7

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR — JAMES ZEHRINGER, DIRECTOR

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

January 7, 2019

Matt Thomayer
Louis Berger Group, Inc.
350 Edgeview Blvd., Suite 250
Exton, Pennsylvania 19341

Re: 18-1220; Napoleon-Richland-Stryker 138 kV Transmission Line Project

Project: The proposed project involves reconductoring approximately 5.5 miles of the existing Napoleon-Richland-Stryker 138 kV transmission line.

Location: The proposed project is located in Ridgeville and Springfield Townships, Henry and Williams County, Ohio.

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

Natural Heritage Database: The Natural Heritage Database has no records at or within a one-mile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

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

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

The project is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the white cat's paw (*Epioblasma obliquata perobliqua*), a state endangered and federally endangered mussel, the purple lilliput (*Toxolasma lividus*), a state endangered mussel and a federal species of concern, the rabbitsfoot (*Quadrula cylindrica cylindrica*), a state endangered and federal candidate mussel, the sharp-ridged pocketbook (*Lampsilis ovata*), a state endangered mussel, the long-solid (*Fusconaia maculata maculata*), a state endangered mussel, the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, and the black sandshell (*Ligumia recta*), a state threatened mussel.

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2018), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2018) can be found at:

http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf

The project is within the range of the gilt darter *(Percina evides),* a state endangered fish, the Iowa darter *(Etheostoma exile),* a state endangered fish, the pugnose minnow (*Opsopoeodus emiliae*), a state endangered fish, the greater redhorse (*Moxostoma valenciennesi*), a state threatened fish, and the lake chubsucker (*Erimyzon sucetta*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact these or other aquatic species.

The project is within the range of the Blanding's turtle (*Emydoidea blandingii*), a state threatened species. This species inhabits marshes, ponds, lakes, streams, wet meadows, and swampy forests. Although essentially aquatic, the Blanding's turtle will travel over land as it moves from one wetland to the next. Due to the location, the type of habitat at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the spotted turtle (*Clemmys guttata*), a state threatened species. This species prefers fens, bogs and marshes, but also is known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches. Due to the location, the type of habitat at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the blue-spotted salamander (*Ambystoma laterale)*, a state endangered species. Due to the location, the type of habitat at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the copperbelly water snake (*Nerodia erythrogaster neglecta*), a state endangered and federally threatened species. Due to the location, the type of habitat at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus cyaneus*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.

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

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

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

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or Sarah.Tebbe@dnr.state.oh.us if you have questions about these comments or need additional information.

John Kessler
Environmental Services Administrator

EXHIBIT 8

Thomayer, Matthew

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Tuesday, November 20, 2018 10:19 AM
To: Thomayer, Matthew
Cc: nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject: Napoleon-Stryker 138kV line Reconductor Project, Henry and Williams Counties

External

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994

TAILS# 03E15000-2019-TA-0279

Dear Mr. Thomayer,

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

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

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

Should the proposed site contain trees ≥3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, we

recommend that removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see http://www.fws.gov/midwest/endangered/mammals/nleb/index.html), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

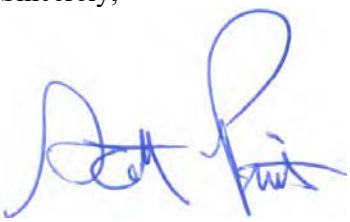
If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend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

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

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

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

Sincerely,



Scott Pruitt
Acting Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Kate Parsons, ODNR-DOW

EXHIBIT 9

WETLAND AND STREAM DELINEATION REPORT

NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

WILLIAMS AND HENRY COUNTIES, OHIO

WETLAND DELINEATION REPORT

Prepared for:
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341 White Pond Drive
Akron, OH 44320

Prepared by:
WSP USA
312 Elm Street, Suite 2500
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September 2019

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ACRONYMS AND ABBREVIATIONS

ATSI	American Transmission Systems Inc.
CWA	Clean Water Act
ESC	Environmental Survey Corridor
°F	Fahrenheit
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
FirstEnergy	FirstEnergy Corporation
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
kV	Kilovolt
NHD	National Hydrography Dataset
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OBL	Obligate wetland
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High-Water Mark
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PFO	Palustrine forested
PHWH	Primary Headwater Habitat
Project	Napoleon – Richland - Stryker 138 kV Transmission Line Rebuild Project
PSS	Palustrine scrub-shrub
QHEI	Qualitative Habitat Evaluation Index
ROW	Right-of-way
TNW	Traditionally navigable water
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WoUS	Waters of the United States

1.0 INTRODUCTION

On behalf of FirstEnergy (FE), WSP USA Inc. (WSP)1 conducted a wetland delineation of the proposed Napoleon – Richland – Stryker 138 kV Transmission Line Rebuild Project ("Project") located in the City of Stryker and Springfield Township within Williams County, Ohio, and located in Ridgeville Township within Henry County, Ohio. The wetland delineation was performed by individuals trained in the three-parameter methodology (hydrophytic vegetation, wetland hydrology, and hydric soils) adopted by the U.S. Army Corps of Engineers (USACE) as outlined in the USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0* (Environmental Laboratory, 2012) and in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987).

2.0 BACKGROUND INFORMATION

2.1 Project Area

The Project is located within Williams and Henry Counties, Ohio. The Environmental Survey Corridor (ESC) begins at Stryker Substation, west of Horton Street (41°30'08.0"N 84°25'45.8"W) and continues in a southeasterly direction, terminating at structure 265, north of Township Road V (41°28'28.6"N 84°20'06.7"W) as shown in Figure 1. The ESC is within three U.S. Geological Survey (USGS) 7.5-minute topographic map quadrangles: West Unity, Evansport, and Ridgeville Corners, Ohio. The ESC is approximately 5.5-miles long and 100 feet wide within the Project ROW and contains the approximately 1-acre Woodville Substation expansion area.

Topographic relief within the ESC is limited to relatively gradual elevation changes, with elevations ranging between 690 feet and 725 feet above sea level throughout the ESC (Figure 1).

Land uses and natural communities observed within the ESC include agricultural land, immature forested woodlots, existing roadways, substation, and residential land use, in addition to the identified streams and wetlands.

2.1.1 Annual Precipitation

Recent rainfall data for Williams and Henry Counties, Ohio was reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. the nearest weather station with both historical and recent precipitation records is located at the Toledo Express Airport, Ohio. Rainfall recorded in Toledo, Ohio was above normal for eight of nine months between November 2018 and July 2019 (Table 2-1). This data suggests climatic conditions were generally wetter than normal during the time period of the ecological survey. This was taken into consideration during the delineation.

[1] As of May 1, 2019. Louis Berger was retained by WSP Company.

TABLE 2-1: Recent Precipitation Data

Napoleon – Richland – Stryker 138 kV Transmission Line Project

2018 - 2019 Precipitation Data	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Total
Monthly Sum[1, 3]	4.13	2.82	1.72	2.65	3.53	4.83	4.66	4.05	5.31	33.70
Normal Precipitation[2, 3]	2.86	2.68	2.05	2.07	2.48	3.19	3.58	3.57	3.23	25.71
Monthly climatic condition	Above Normal	Above Normal	Below Normal	Above Normal	Above Normal	Above Normal	Above Normal	Above Normal	Above Normal	Above Normal

[1] Monthly weather summary from Toledo Express Airport, Ohio weather station (NOAA 2019)

[2] Climate Statistics at Individual Stations – Data Tables (NOAA 2019)

[3] Displayed in inches

2.1.2 Drainage Basins

The ESC is within the Tiffin (04100006), 8-digit Hydrologic Unit Code (HUC). The ESC crosses two 12-digit HUCs, as outlined in Table 2-2 (USDA, 2019):

TABLE 2-2: 12-Digit HUCs Crossed by the Project

Napoleon – Richland – Stryker 138 kV Transmission Line Project

HUC 12-Digit Code	HUC 12-Digit Name
04100006-05-02	Brush Creek
04100006-05-03	Village of Stryker – Tiffin River

Source: USDA 2019

2.1.3 Traditionally Navigable Waters

The U.S. Environmental Protection Agency (USEPA) and USACE assert jurisdiction over "all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce including all waters which are subject to the ebb and flow of the tide" (USACE and USEPA, 2008). These waters are considered traditionally navigable waters (TNW). All streams (See Section 4.1 for more detail) within the ESC drain to the Tiffin River, which is tributary to the Maumee River, a TNW.

3.0 METHODOLOGY

The purpose of the field survey was to determine whether wetlands and streams are present within the ESC that would meet the definition of Waters of the United States (WoUS) or be subject to regulations implemented by the Ohio Environmental Protection Agency (OEPA), and to document their extents and current conditions if present. The USACE and the USEPA define wetlands as areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR, Part 328.3). Identification and delineation of jurisdictional wetlands is based on the presence of the following three parameters:

1. Wetland hydrology – the area is inundated permanently or periodically, or the soil is saturated to the surface for sufficient duration during the growing season to support hydrophytic vegetation.
2. Hydrophytic vegetation – the dominant vegetation consists of species capable of growing in water or on substrate that is at least periodically deficient in oxygen as a result of the presence of water.
3. Hydric soils – soils that are saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions that favor the growth of hydrophytic vegetation.

The ESC was evaluated according to the procedures outlined in the USACE 1987 *Corps of Engineers Wetlands Delineation Manual ('87 Manual)* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0 (Regional Supplement)* (USACE, 2012). The Regional Supplement was released by the USACE to improve the accuracy and efficiency of wetland delineation procedures by addressing regional wetland characteristics and was finalized in 2012.

WSP performed the routine delineation method described in the *'87 Manual* and *Regional Supplement* that consisted of a desktop data review followed by a pedestrian site reconnaissance that included identification of vegetative communities, soils profile descriptions, recording geomorphological descriptions, and observations of hydrology. Evidence of mechanical alterations or disturbance having the potential to affect the wetland determination were also noted if present.

3.1 Desktop Review

Prior to conducting field surveys, WSP staff completed a desktop review by analyzing several federal and state documents for the presence of wetland and streams. This review included Natural Resources Conservation Service (NRCS) soil survey data, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps of Ohio, USGS 7.5-minute topographic maps, and USGS National Hydrography Dataset (NHD) stream and river data as an exercise to identify the occurrence and location of potential wetlands and streams.

3.2 Site Investigation

On November 12th and November 13th, 2018, and July 31, 2019 a WSP wetland delineator traversed the ESC to conduct a wetland and waters delineation. During field surveys, the physical boundaries of aquatic resources were recorded using a Trimble Global Positioning System (GPS) unit rated for sub-meter accuracy. The GPS data were then geo-corrected using GPS Pathfinder Office software (version 5.60) and reviewed for quality control. The methodology used to examine each parameter is described in the following sections.

3.2.1 Hydrology

During field surveys, WSP scientists assessed potential wetland areas for indicators of wetland hydrology described in the *'87 Manual* and *Regional Supplement.* Observation of at least one

primary indicator or at least two secondary indicators was sufficient to positively say wetland hydrology was present.

The *'87 Manual* requires that an area be inundated or saturated to the surface for an absolute minimum of five percent of the growing season (areas saturated between five percent and 12.5 percent of the growing season may or may not be wetlands, while areas saturated over 12.5 percent of the growing season fulfill the hydrology requirements for wetlands). The *Regional Supplement* states that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature (12-inch depth) is 41 degrees Fahrenheit (°F) or higher as an indicator of soil microbial activity. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later.

The *Regional Supplement* also states that if onsite data gathering is not practical, the growing season can be approximated by the number of days between the average (five years out of ten, or 50 percent probability) date of the last and first 28°F air temperature in the spring and fall, respectively. National Weather Service Agricultural Applied Climate Information System (AgACIS) WETS (wetlands determination) growing season data for Williams County indicates that in an average year, there are approximately 183 days without a killing frost. Five percent of the growing season is calculated to approximately 9.15 days. Data was not available for Henry County.

3.2.2 Vegetation

To determine the presence of hydrophytic vegetation, dominant vegetation was visually assessed for each stratum (tree, sapling and shrub, herb, and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), or upland (UPL) was assigned to each plant species based on the *2016 National List of Plant Species* (USACE. 2018)[2]. The hydrophytic vegetation indicators are applied in the sequence presented in the *Regional Supplement*, where the vegetation is determined to be hydrophytic after the first indicator in the sequence is met and no further vegetation analysis is required. In the majority of wetland determinations, the presence of hydrophytic vegetation is determined by applying the rapid test for hydrophytic vegetation (indictor 1) or the dominance test (indicator 2). Indicator 1 is met when all dominant species across all strata are OBL and/or FACW. Where the rapid test is not met, the dominance test is satisfied when more than 50 percent of the composition of the dominant species are rated OBL, FACW and/or FAC.

Indicators 1 and 2 are the first indicators that need to be considered, however some wetland plant communities may fail a test based only on dominant species. If the plant community fails the dominance test, but indicators of hydric soil and wetland hydrology are both present, WSP scientists use the prevalence index (indicator 3), or observations of plant morphological

[2] OBL: A plant that almost always occurs in wetlands, but rarely in uplands;
FACW: A plant that usually occurs in wetlands, but occasionally occurs in uplands;
FAC: A plant that commonly occurs in both wetland and uplands;
FACU: A plant that usually occurs in uplands, but occasionally occurs in wetlands; and
UPL: A plant that almost always occurs in uplands, but rarely occurs in wetlands.

adaptations for life in wetlands (indicator 4), to determine if an area has hydrophytic vegetation. Vegetation of an area was determined to be non-hydrophytic when none of the indicators for hydrophytic vegetation were satisfied.

3.2.3 Soils

The National Technical Committee for Hydric Soils defines hydric soils as those that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

Prior to beginning field work, NRCS soil survey data were reviewed for soil mapping units and soil series listed as hydric soils or containing hydric components. A table of the NRCS soil mapping units in the ESC is located in Section 3.1.1. To the extent possible, soils were observed to a depth of 20 inches below the soil surface; in instances where refusal was encountered before 20 inches, this was noted on field data sheets. Soils were examined in the field for hydric soil characteristics according to the guidelines in the *Regional Supplement Northcentral and Northeast*. A *Munsell Soil Color Chart* was used to identify the hue, value, and chroma of the soil matrix and redoximorphic features that may be present (Munsell Color Company, 2009).

3.3 Wetland Classification

Wetlands, streams, and other waters were classified according to the *Classification of Wetlands and Deepwater Habitats of the United States*, commonly referred to as the Cowardin Classification System (Cowardin et al., 1979). The waters identified within the ESC were classified as palustrine systems.

3.3.1 Palustrine Systems

Palustrine systems include non-tidal wetlands dominated by trees, shrubs, persistent emergents, mosses or lichens, and tidal wetlands where ocean-derived salinities are below 0.5 ppt (parts per thousand). This category also includes wetlands lacking such vegetation but with all of the following characteristics:

1. Less than 8 hectares (19.77 acres) in area.
2. Lacking an active wave-formed or bedrock boundary.
3. Water depth in the deepest part of the basin less than 2 meters (6.6 feet) at low water.
4. Ocean-derived salinities less than 0.5 ppt.

Palustrine systems are further classified by their dominant vegetation communities. In Pennsylvania the most common palustrine wetland systems are forested wetlands (approximately 45% of all palustrine wetlands), followed by open water (16%), emergent wetlands (13%), deciduous and evergreen scrub-shrub wetlands (13%), and mixed deciduous scrub-shrub and emergent wetlands (6%) (Fretwell et al. 1996). Commonly encountered subsystems in the northcentral and northeast region include:

- **Forested Wetland (PFO)** – The forested wetland class is characterized by woody vegetation that at least 3 inches diameter at breast height (DBH) or more and 6 meters (20 feet) tall or taller. All water regimes are included except subtidal.
- **Scrub-Shrub Wetland (PSS)** – The scrub-shrub wetland class includes areas dominated by woody vegetation less than 3 inches DBH and less than 6 meters (20 feet) tall. The plant types include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. All water regimes are included except subtidal.
- **Emergent Wetland (PEM)** – The emergent wetland class is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. The vegetation is usually dominated by perennial plants and is present for most of the growing season in most years. All water regimes are included except subtidal and irregularly exposed.

Unconsolidated Bottom (PUB) – The unconsolidated bottom class typically refers to ponds and are characterized by the lack of large stable surfaces for plant and animal attachment. PUB includes wetland and deepwater habitats with at least 25% cover of particles smaller than stones, and a vegetative cover less than 30%. They are usually found in areas with lower energy than rock bottoms and may be very unstable. Exposure to wave and current action, temperature, salinity, and light penetration determines the composition and distribution of organisms. Water regimes are restricted to subtidal, permanently flooded, intermittently exposed, and semi-permanently flooded.

3.4 Ohio Rapid Assessment Method v. 5.0

The OEPA Ohio Rapid Assessment Method for Wetlands v. 5.0 (ORAM) was developed to determine the relative ecological quality and level of disturbance of a particular wetland in order to meet requirements under Section 401 of the Clean Water Act. Wetlands are scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into subcategories under ORAM v. 5.0 resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1", 30 to 59.9 are "Category 2" and 60 to 100 are "Category 3". Transitional zones exist between “Categories 1 and 2” from 30 to 34.9 and between “Categories 2 and 3” from 60 to 64.9. However, according to the OEPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower Category (Mack, 2001).

3.4.1 Category 1 Wetlands

Category 1 wetlands support minimal wildlife habitat, hydrological and recreational functions, and do not provide for or contain critical habitats for threatened or endangered species. In addition, Category 1 wetlands are often hydrologically isolated and have some or all of the following characteristics: low species diversity, no significant habitat or wildlife use, limited potential to achieve wetland functions, and/or a predominance of non-native species. These limited quality wetlands are considered to be a resource that has been severely degraded or has a limited potential for restoration or is of low ecological functionality.

3.4.2 Category 2 Wetlands

Category 2 wetlands "...support moderate wildlife habitat, or hydrological or recreational functions," and as wetlands which are "...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." Category 2 wetlands constitute the broad middle category of "good" quality wetlands, and can be considered a functioning, diverse, healthy water resource that has ecological integrity and human value. Some Category 2 wetlands are lacking in human disturbance and considered to be naturally of moderate quality; others may have been Category 3 wetlands in the past but have been degraded to Category 2 status.

3.4.3 Category 3 Wetlands

Wetlands that are assigned to Category 3 have "...superior habitat, or superior hydrological or recreational functions." They are typified by high levels of diversity, a high proportion of native species, and/or high functional values. Category 3 wetlands include wetlands which contain or provide habitat for threatened or endangered species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide. A wetland may be a Category 3 wetland because it exhibits one or all of the above characteristics. For example, a forested wetland located in the flood plain of a river may exhibit "superior" hydrologic functions (e.g. flood retention, nutrient removal), but not contain mature trees or high levels of plant species diversity.

3.5 Stream and River Crossings

The Clean Water Act provides authority for states to issue water quality standards and designated uses to authorize certain activities in WoUS. upstream to the highest reaches of the tributary streams. In addition, the Federal Water Pollution Control Act of 1972 and its 1977 and 1987 amendments require knowledge of the potential fish or biological communities that can be supported in a stream or river, including upstream headwaters. Streams were identified by the presence of a defined bed and bank, and evidence of an ordinary high water mark (OHWM). The USACE defines OHWM as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (USACE, 2005).

Stream assessments were conducted using the methods described in the OEPA's Methods for Assessing Habitat in Flowing Waters: Using OEPA's *Qualitative Habitat Evaluation Index* (Rankin, 2006) and *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, Version 3* (Davic, 2012).

3.5.1 OEPA Qualitative Habitat Evaluation Index

The Qualitative Habitat Evaluation Index (QHEI) stream assessment method is designed to provide a rapid determination of habitat features that correspond to those physical factors that most

affect fish communities and which are generally important to other aquatic life (*e.g.,* macroinvertebrates). The quantitative measure of habitat used to calibrate the QHEI score are Indices (or Index) of Biotic Integrity (IBI) for fish. In most instances the QHEI is sufficient to give an indication of habitat quality, and the intensive quantitative analysis used to measure the IBI is not necessary. It is the IBI, rather than the QHEI, that is directly correlated with the aquatic life use designation for a particular surface water.

The QHEI method is generally considered appropriate for waterbodies with drainage basins greater than one square mile, if natural pools are greater than 40 cm, or if the water feature is shown as blue-line waterways on USGS 7.5-minute topographic quadrangle maps. In order to convey general stream habitat quality to the regulated public, the OEPA has assigned narrative ratings to QHEI scores. The ranges vary slightly for headwater streams (H are those with a watershed area less than or equal to 20 square miles) versus larger streams (L are those with a watershed area greater than 20 square miles). The Narrative Rating System includes: Very Poor (<30 H and L), Poor (30 to 42 H, 30 to 44 L), Fair (43 to 54 H, 45 to 59 L), Good (55 to 69 H, 60 to 74 L) and Excellent (70+ H, 75+ L).

3.5.2 OEPA Primary Headwater Habitat Evaluation Index

The Headwater streams are typically considered to be first-order and second-order streams, meaning streams that have no upstream tributaries (or "branches") and those that have only first-order tributaries, respectively. The stream order concept can be problematic when used to define headwater streams because stream-order designations vary depending upon the accuracy and resolution of the stream delineation. Headwater streams are generally not shown on USGS 7.5-minute topographic quadrangles and are sometimes difficult to distinguish on aerial photographs. Nevertheless, headwater streams are now recognized as useful monitoring units due to their abundance, widespread spatial scale and landscape position (Fritz, et al. 2006). Impacts to headwater streams can have a cascading effect on the downstream water quality and habitat value. The Headwater Habitat Evaluation Index (HHEI) is a rapid field assessment method for physical habitat that can be used to appraise the biological potential of most Primary Headwater Habitat (PHWH) streams. The HHEI was developed using many of the same techniques as used for QHEI, but has criteria specifically designed for headwater habitats. To use HHEI, the stream must have a "defined bed and bank, with either continuous or periodically flowing water, with watershed area less than or equal to 1.0 mi^2 (259 ha), ***and*** a maximum depth of water pools equal to or less than 15.75 inches (40 cm)" (Davic, 2012).

The HHEI method is used to discern the actual and expected biological conditions in primary headwater streams. The statewide sampling effort by the OEPA revealed there are three general types of PHW streams based upon the biological communities present. The three general PHW stream types are:

Ephemeral Aquatic Streams: Ephemeral aquatic streams have limited or no aquatic life potential, expect seasonally when flowing water is present for short time periods following precipitation or snow melt.

Small Drainage Warm Water Streams: Small drainage warm water streams are normally intermittent, but some may have perennial flow derived from shallow groundwater in which case

the ambient stream temperature remains relatively warm during summer and fluctuates a greater degree seasonally. These types of streams may exhibit moderately diverse communities of warm water adapted native fauna present either seasonally or year-round. Native fauna is characterized by species of vertebrates or benthic macroinvertebrates.

Spring Water Streams: For spring water streams the prevailing flow and temperature conditions of these streams are influenced by groundwater. They exhibit moderately diverse to highly diverse communities of cold water adapted native fauna present year-round.

4.0 RESULTS

The results presented in this report reflect the existing and reasonably foreseeable site conditions at the time of our survey. The results cannot apply to site changes occurring after the survey which WSP has not had the opportunity to review. During the course of any survey, site conditions may change over time due to human and/or natural causes; as such, the results presented in this report may be invalidated, either wholly or in part, by changes beyond the control of WSP.

A WSP ecologist surveyed the Project on November 12 and November 13, 2018 as well as July 31, 2019, by walking the corridor and evaluating for wetlands and other WoUS. Five streams and six wetlands were delineated within the ESC. The features identified within the ESC are depicted on the Wetland Delineation Map (Figure 3A through Figure 3L).

4.1 Desktop Review

Results of the desktop review and details of the wetlands delineated within the ESC are provided in the following sections. Completed USACE wetland determination data forms associated with each wetland and paired upland sample point are provided in Appendix A. The approximate location and extents of the wetlands delineated in this survey are depicted in Figures 3A through 3L. Color photographs were taken of the wetlands delineated during the field survey are provided in Appendix E.

4.1.1 Soils Evaluation

According to the NRCS Soil Data for Henry and Williams Counties, Ohio, there are 25 soil map units shown within the ESC, presented in Table 1 (follows text). Nine of the 25 soils map units are listed as Predominately Non-Hydric (1-32%), and five are listed as Predominately Hydric (66-99%), and one is listed as All Hydric (100%) according to the NRCS National Soil Information System for Ohio. Water features typically represent excavated ponds in the soil survey data and are not rated for hydric soil criteria. The soils observed by WSP staff during the reconnaissance of the ESC were consistent with the NRCS soil survey mapping.

4.1.2 National Wetland Inventory Map Review

National Wetland Inventory (NWI) polygons are potential wetland areas that have been identified from USFWS aerial photograph interpretation which have typically not been field verified. Forested and heavy scrub/shrub wetlands are often not shown on NWI maps as foliage effectively hides the visual signature that indicates the presence of standing water and moist soils from an

aerial view. The USFWS website states that the NWI maps are not intended or designed for jurisdictional wetland identification or location. As a result, NWI maps do not show all the wetlands found in a particular area nor do they necessarily provide accurate wetland boundaries. NWI maps are useful for providing indications of potential wetland areas, which are often supported by soil mapping and hydrologic predictions, based upon topographical analysis using USGS topographic maps.

According to the NWI maps of the West Unity, Evansport, and Ridgeville Corners, Ohio quadrangles, the ESC contains five mapped NWI polygons. These include: one palustrine forested, broad-leaved deciduous, seasonally flooded (PFO1C); one palustrine unconsolidated bottom, intermittently flooded, excavated (PUBGx); one riverine lower perennial, unconsolidated bottom, permanently flooded (R2UBH); one riverine intermittent, streambed, seasonally flooded; and one riverine unknown perennial, unconsolidated bottom, permanently flooded (R5UBH) (USFWS, 2016). Portions of the NWI polygons were mapped in the locations of delineated streams (Stream NRS-03, Stream NRS-04, and Stream NRS-05) and wetlands (Wetlands NRS-02). Locations of the NWI mapped wetlands are shown on Figures 2A through 2L.

4.2 Delineated Wetlands

The investigation of the ESC identified six wetlands totaling 3.39 acres within the limits of the ESC. These wetlands range in size from 0.30 to 1.04 acres and are depicted on Figures 3K through 3L. The reported wetland acreage only corresponds to areas delineated within the ESC as some wetlands extended beyond the survey boundary. All six delineated wetlands are classified as PEM. PFO and PSS wetlands were not identified within the ESC. All six wetlands appear to be hydrologically connected to surface waters that are tributaries to the Maumee River, and therefore will likely be considered jurisdictional by the USACE.

Table 4-1 provides a summary of wetlands identified within the ESC. Table 2 (follows text) provides specific wetland habitat types, acreages within the ESC, map tile numbers, and photo numbers associated with each delineated wetland. In areas where the wetland boundaries extended beyond the ESC, the data points were labeled as “open” to indicate that the feature continues outside of the ESC.

A total of three Category 1 wetlands (1.29 acres) and three Category 2 wetlands (2.10 acres) were identified within the ESC. Category 3 wetlands were not identified within the ESC. Classification of wetlands Category 1 or Category 2 was based on ORAM scores (ranging from 18.5 to 35). Generally, Category 1 wetlands scored low due to a variety of factors such as: limited size; intensity of surrounding land use and narrow buffer areas; disturbance to soils, vegetation, and hydrology; and the presence of invasive species. Generally, the Category 2 wetlands exhibited relatively larger upland buffers with hydrology generally recovered from previous manipulation due to filling, grading, and construction of ditches.

TABLE 4-1: Wetland Summary Table

Napoleon – Richland - Stryker 138 kV Transmission Line Rebuild Project

Wetland Type	ORAM Category			Number of Wetlands	Acreage within ESC[1]
	Category 1	Category 2	Category 3		
PEM	3	3	0	6	3.39
Totals	3	3	0	6	3.39

[1]This acreage only corresponds to the area delineated within the environmental survey corridor.

Completed USACE wetland and upland determination forms are provided in Appendix A. ORAM data forms are provided in Appendix B. Representative photographs were taken of each wetland during the field survey and are provided in Appendix E.

4.3 Streams and Rivers

A total of five streams, totaling 818 linear feet, were identified within the ESC as shown in Figures 3A-3L. Stream NRS-01 and Stream NRS-05 were identified as intermittent streams. Streams NRS-02, NRS-03, and NRS-04 were identified as perennial. Stream NRS-01 and Stream NRS-05 were assessed using the HHEI methodology (drainage area less than 1 mi^2); Streams NRS-02, NRS-03, and NRS-04 were assessed using the QHEI methodology (drainage area greater than 1 mi^2). These streams appear to have significant nexus with a TNW and are therefore likely to be considered jurisdictional by the USACE. It is noted that the USACE will make the final determination of significant nexus with a TNW.

Table 3 (follows text) provides the waterbody name, flow regime, stream length in the ESC, map tile, and photograph number associated with each delineated stream. Completed QHEI and HHEI forms are provided in Appendix C and D, respectively. Representative photographs were taken of each stream during the field survey and are provided in Appendix E. Locations of streams identified within the ESC are shown in Figure 3A through 3L.

4.3.1 QHEI Stream Results

Three streams (Stream NRS-02, NRS-03, and NRS-04) totaling 677 linear feet within the ESC were evaluated using the QHEI methodology. One stream (Stream NRS-02) was identified as Very Poor Warmwater Habitat. Two streams (Stream NRS-03 and Stream NRS-04) were identified as Poor Warmwater Habitat. Table 4-2 provides a summary of streams assessed using the QHEI. Details regarding individual streams are provided in Table 3 (follows text).

TABLE 4-2: QHEI Summary Table

Napoleon – Richland – Stryker 138 kV Transmission Line Rebuild Project

Flow Regime	QHEI Narrative Category					Number of Streams	Length (ft.) within ESC[1]
	Very Poor Warmwater	Poor Warmwater	Fair Warmwater	Good Warmwater	Excellent Warmwater		
Perennial	1	2	0	0	0	3	677
Total	1	2	0	0	0	3	677

[1]The length only corresponds to the linear feet delineated within the environmental survey area.

4.3.2 HHEI Stream Results

Two streams (Stream NRS-01 and NRS-05) totaling 141 linear feet within the ESC were evaluated using the HHEI methodology. Both streams were identified as Modified, Small Drainage, Warmwater Streams. Details regarding individual streams are provided in Table 3 (follows text).

4.4 Ponds/Open Water

There were no ponds found within the ESC.

5.0 SUMMARY

WSP conducted a wetland delineation and stream assessment of the Napoleon – Richland – Stryker 138 kV Transmission Line Rebuild Project on November 12th, November 13th, 2018, and July 31st, 2019. A total of six wetlands and five streams were delineated within the ESC.

All of the six wetlands, totaling 3.39 acres, appear to be hydrologically connected to surface waters that are tributaries to the Maumee River, and therefore will likely be considered jurisdictional by the USACE. All wetlands were classified as PEM. A total of three Category 1 wetlands (1.29 acres) and three Category 2 wetlands (2.10 acres) were identified within the ESC. Category 3 wetlands were not identified within the ESC. The five streams, totaling 818 linear feet, identified within the ESC include two intermittent streams and three perennial streams.

The results discussed in this report are confined to the ESC limits described in earlier sections and depicted on Figures 3A-3L. Similarly, the data described is often for an area that is larger than the actual Project limits-of-disturbance for construction, therefore, lengths and acreages listed in the report are likely not representative of actual Project impacts. If it is determined that this Project will impact Waters of the U.S., actual impacted lengths and acreages will be supplied in a permit application. Additionally, the results presented in this report should not be construed as a jurisdictional determination. If a jurisdictional determination is desired, one can be acquired through obtaining an approved Jurisdictional Determination (JD) or Preliminary Jurisdictional Determination (PJD) through the USACE.

Wetlands, excavated ponds, stream channels, and rivers are regulated by the USACE and OEPA. Any encroachments, fill material, or crossings of these areas will require permit authorization from the associated state and federal agencies. Should it be determined that the Project may impact

potentially regulated waters, WSP can work to determine whether a JD or PJD is recommended, as well as support submittal for necessary permits.

6.0 REFERENCES

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Tables

Table 1. NRCS Soil Map Units in the ESC			
Symbol	**Soil Map Unit Name and Description**	**Hydric Rating[1]**	**Hydric %**
DeA	Del Rey loam, 0 to 2 percent slopes	Predominantly Non-Hydric	5
DfA	Del Rey silty clay loam, 0 to 2 percent slopes	Predominantly Non-Hydric	5
DfB	Del Rey silty clay loam, 2 to 6 percent slopes	Predominantly Non-Hydric	5
FsA	Fulton loam, 0 to 2 percent slopes	Predominantly Non-Hydric	5
FsB	Fulton loam, 2 to 6 percent slopes	Not Hydric	0
FuA	Fulton silty clay loam, 0 to 2 percent slopes	Predominantly Non-Hydric	5
FuB	Fulton silty clay loam, 2 to 6 percent slopes	Not Hydric	0
HkA	Haskins sandy loam, 0 to 3 percent slopes	Predominantly Non-Hydric	5
HnA	Haskins loam, 0 to 3 percent slopes	Predominantly Non-Hydric	5
KlA	Kibbie very fine sandy loam, 0 to 2 percent slopes	Predominantly Non-Hydric	5
KlB	Kibbie very fine sandy loam, 2 to 6 percent slopes	Predominantly Non-Hydric	5
Lc	Latty silty clay, till substratum, 0 to 1 percent slopes	Predominantly Hydric	87
Lf	Lenawee silty clay loam, 0 to 1 percent slopes	Predominantly Hydric	93
LwC2	Lucas silty clay loam, 6 to 12 percent slopes, moderately eroded	Not Hydric	0
LxC3	Lucas silty clay, 6 to 12 percent slopes, severely eroded	Not Hydric	0
LxE3	Lucas silty clay, 12 to 45 percent slopes, severely eroded	Not Hydric	0
LwE3	Lucas silty clay, 12 to 45 percent slopes, severely eroded	Not Hydric	0
Md	Mermill loam	Predominantly Hydric	95
SdB	Seward loamy fine sand, 2 to 6 percent slopes	Not Hydric	0
SgB	Shinrock silt loam, 2 to 6 percent slopes	Not Hydric	0
SgC	Shinrock silt loam, 6 to 12 percent slopes	Not Hydric	0
So	Sloan silty clay loam	Predominantly Hydric	95
To	Toledo silty clay, 0 to 1 percent slopes	Predominantly Hydric	93
TuB	Tuscola Variant fine sandy loam, 1 to 6 percent slopes	Not Hydric	0
Wa	Wabasha silty clay	All Hydric	100

[1] Not Hydric = 0% hydric soil component, Predominantly Not Hydric = 1-32%, Partially Hydric =33-65%, Predominantly Hydric = 66-99%, and All Hydric = 100%.

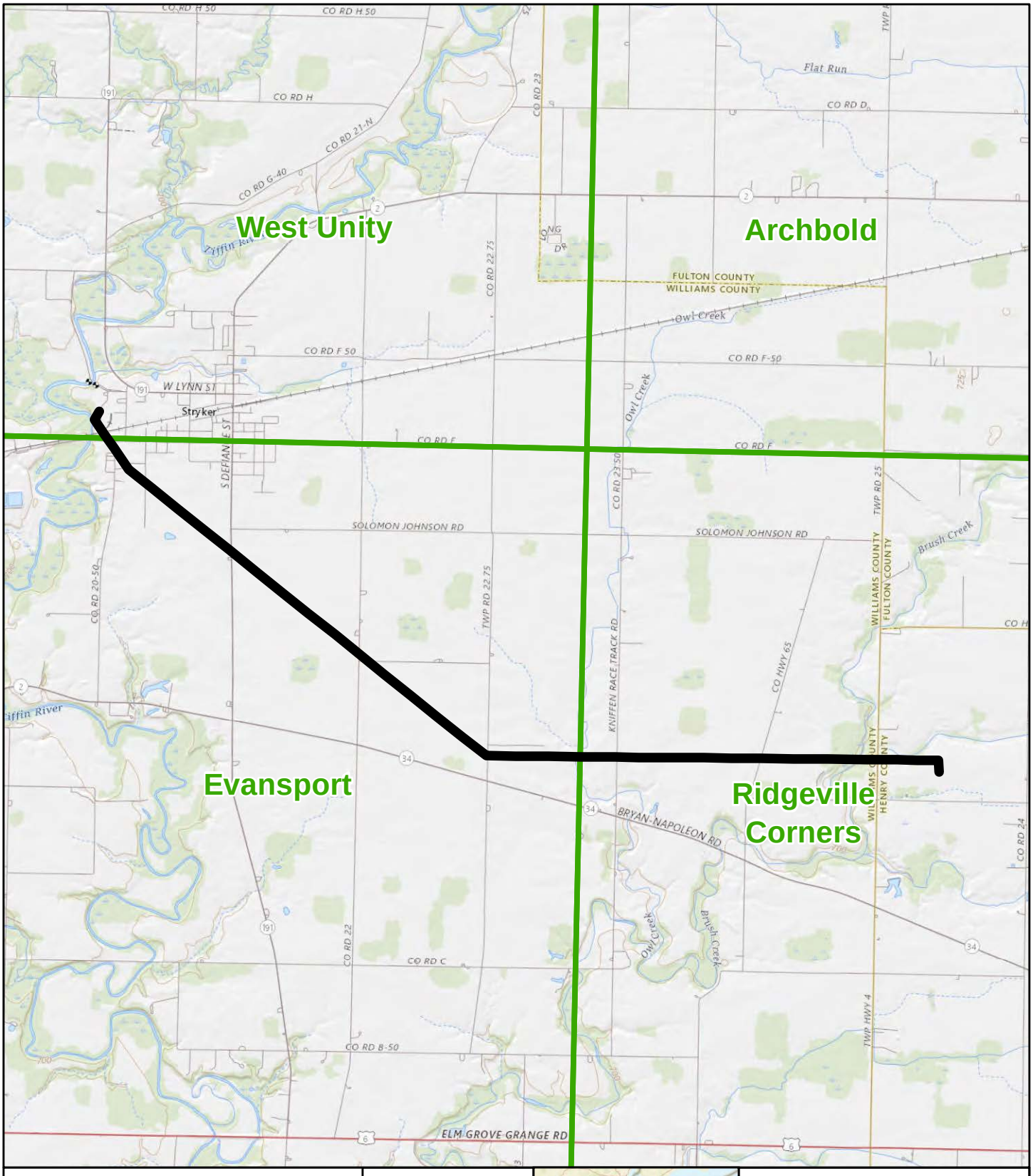
Table 2. Wetlands Delineated Within the ESC								
Wetland ID	**Latitude**	**Longitude**	**Map Tile**	**Photo #**	**Cowardin Classification**	**Delineated Acreage**	**Length Crossed by Centerline (ft.)**	**ORAM Category (Score)**
Wetland NRS-01	41.47452078	-84.3464057	3K	13-14	PEM	0.30	152.4	Category One (21)
Wetland NRS-02	41.47452593	-84.3446569	3L	15-16	PEM	0.64	277.9	Category Two (35)
Wetland NRS-03	41.47456893	-84.34313365	3L	17-18	PEM	1.04	503.0	Category Two (35)
Wetland NRS-04	41.47455796	-84.34155035	3L	19-20	PEM	0.34	138.8	Category One (18.5)
Wetland NRS-05	41.47462497	-84.33864311	3L	21-22	PEM	0.65	240.1	Category One (27)
Wetland NRS-06	41.4736822	-84.33509061	3L	23-24	PEM	0.42	105.6	Category Two (31.5)

Notes: PEM = palustrine emergent, PSS = palustrine scrub-shrub, PFO = palustrine forested, PUB = palustrine unconsolidated bottom (pond).
Acreages are approximate based on GPS data and are rounded to two decimals

Table 3. Streams Delineated within the ESC										
Stream ID	**Waterbody**	**Latitude**	**Longitude**	**Tile Map**	**Photo #**	**Flow Regime**	**Linear Feet**	**QHEI Score**	**HHEI Score**	**HHEI or QHEI Category**
Stream NRS-01	UNT to Tiffin River	41.50076681	-84.42914706	3A	1-3	Intermittent	72	N/A	35	Modified Small Drainage Warmwater Stream
Stream NRS-02	Owl Creek	41.47428584	-84.37529398	3I	4-6	Perennial	144	26.5	N/A	Very Poor Warmwater Habitat
Stream NRS-03	Brush Creek	41.47453822	-84.34407438	3L	7-8	Perennial	129	37.5	N/A	Poor Warmwater Habitat
Stream NRS-04	UNT to Brush Creek	41.47448987	-84.34251104	3L	9-10	Perennial	404	31.5	N/A	Poor Warmwater Habitat
Stream NRS-05	UNT to Brush Creek	41.47166138	-84.33682018	3L	11-12	Intermittent	69	N/A	56	Modified Small Drainage Warmwater Stream

Notes: UNT = unnamed tributary
Lengths are approximate based on GPS data and are rounded to the nearest foot.

Figures



Project Route

USGS 24k Quad Boundary

Sources:
Topo (USGS)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019

NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 1: Project Location Map

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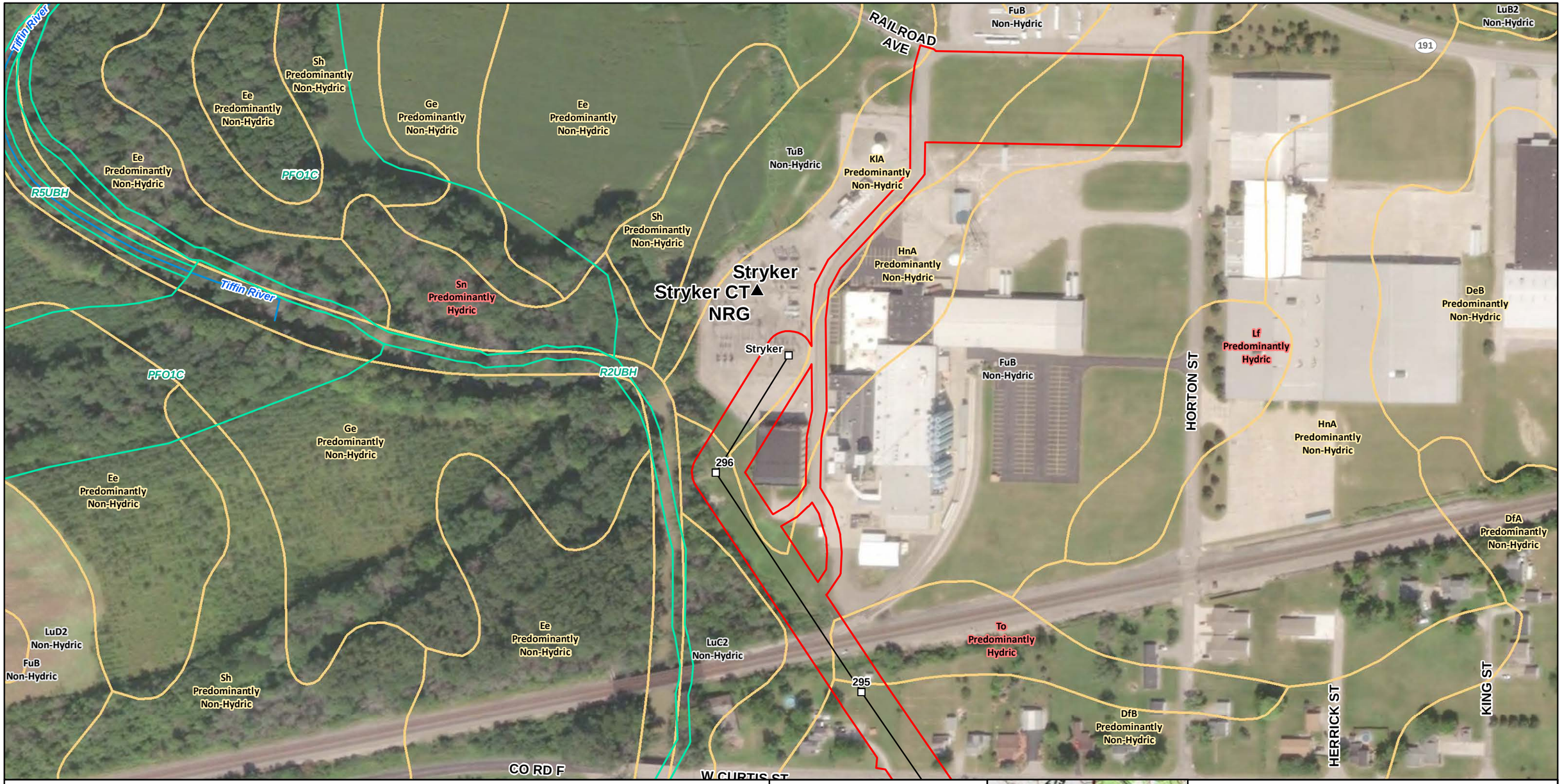
A First Energy Company

WSP

N

0 0.25 0.5 1 Miles

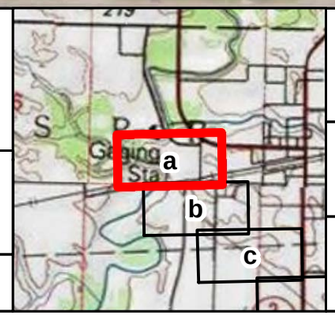


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 2a: Environmental Base Map

ToledoEdison® A FirstEnergy Company

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0 200 400 Feet

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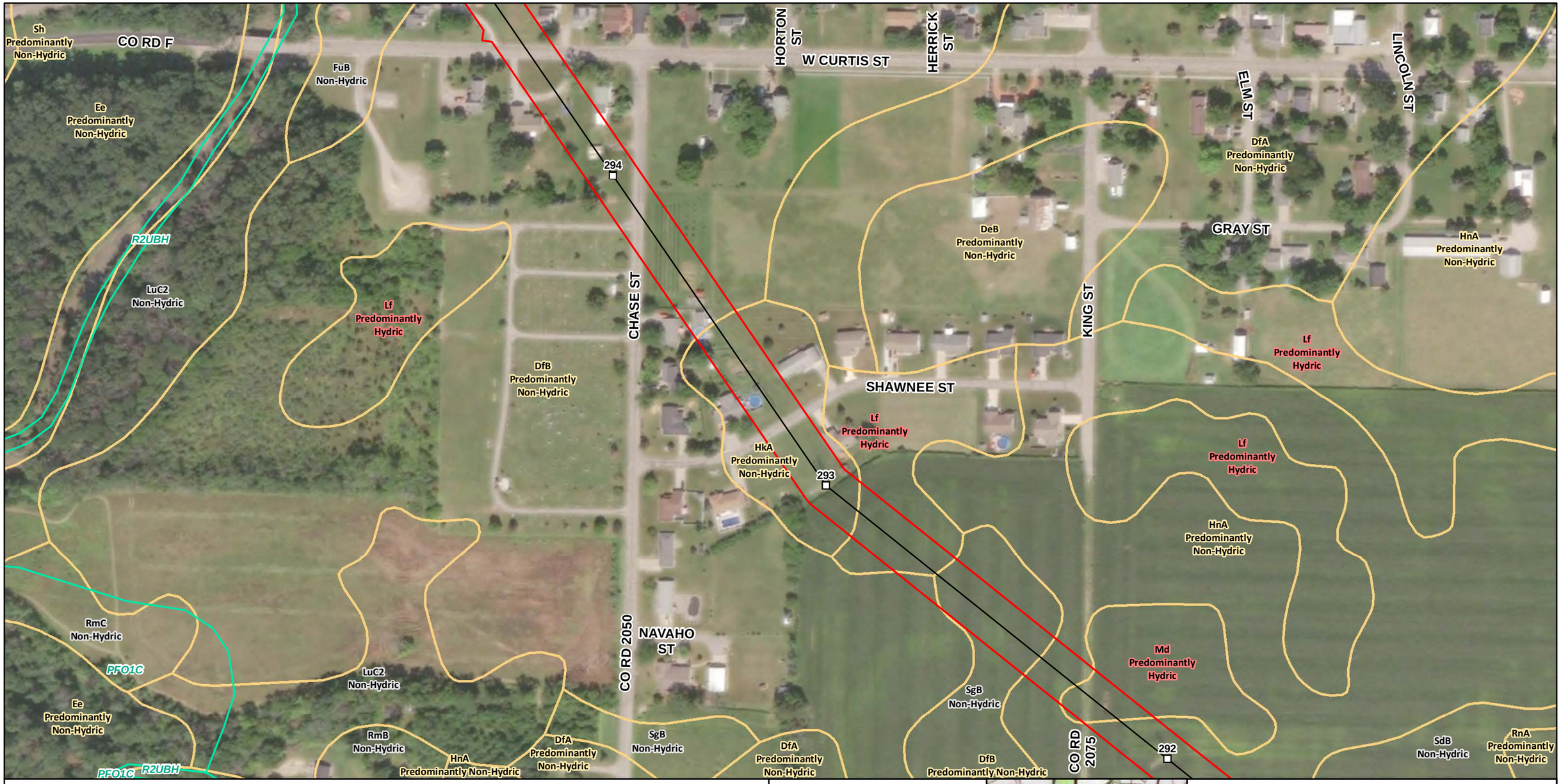
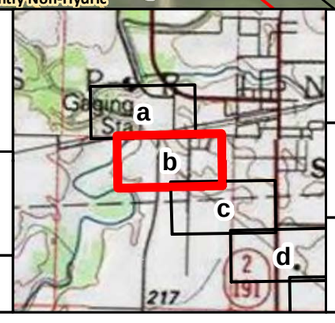


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 2b: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

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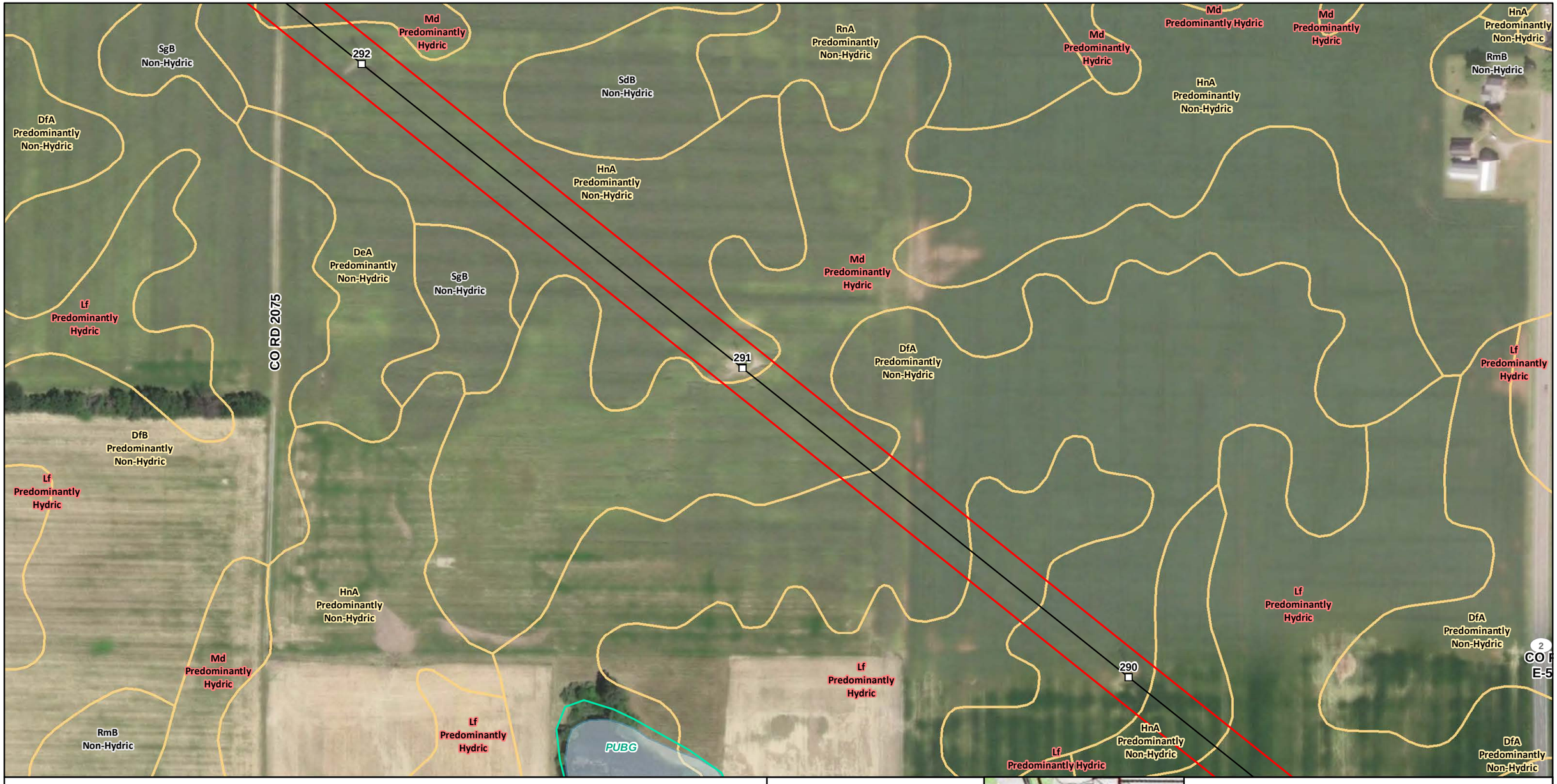
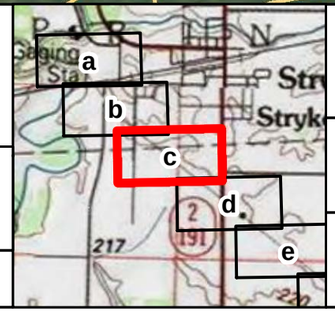


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 2c: Environmental Base Map

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wsp

0 200 400 Feet

N

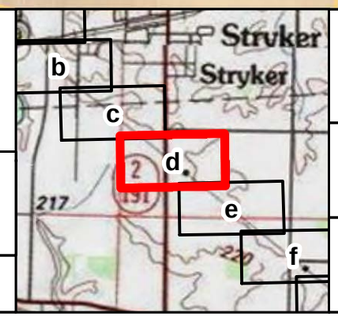
DfA Predominantly Non-Hydric
HnA Predominantly Non-Hydric
DfA Predominantly Non-Hydric
DfA Predominantly Non-Hydric
DfA Predominantly Non-Hydric
DfA Predominantly Non-Hydric
289
Lf Predominantly Hydric
DfA Predominantly Non-Hydric
DfA Predominantly Non-Hydric
2
HnA Predominantly Non-Hydric
DfA Predominantly Non-Hydric
Lf Predominantly Hydric
288
DfA Predominantly Non-Hydric
DfA Predominantly Non-Hydric
DfA Predominantly Non-Hydric
DeB Predominantly Non-Hydric
DfA Predominantly Non-Hydric
DeA Predominantly Non-Hydric
Lf Predominantly Hydric

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 2d: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

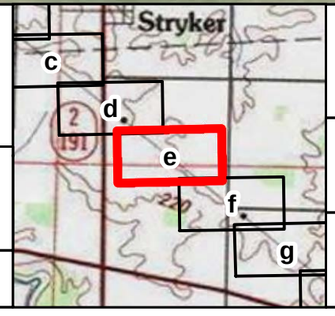
N

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 2e: Environmental Base Map

ToledoEdison
A FirstEnergy Company

wsp

0 200 400 Feet

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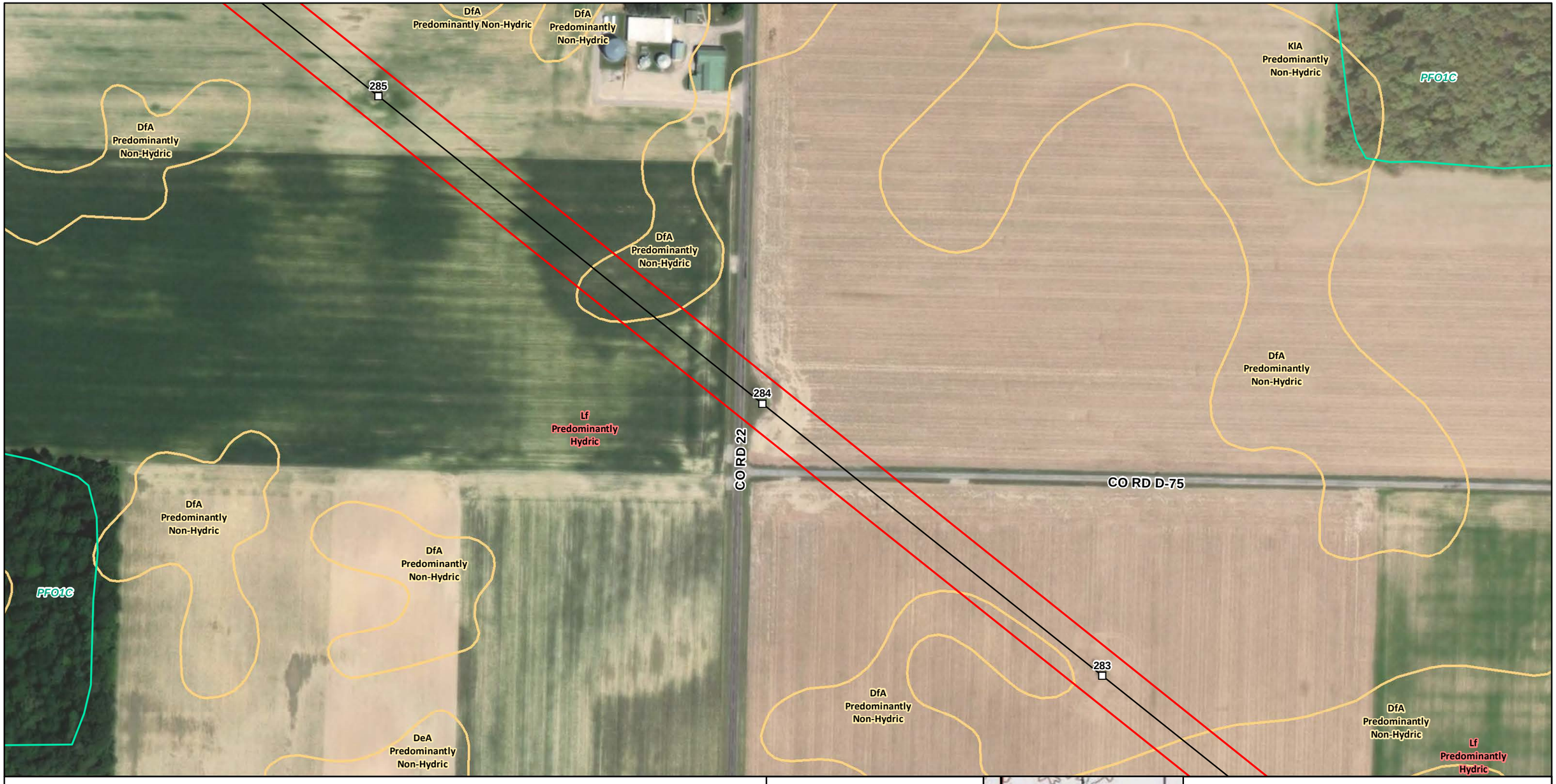
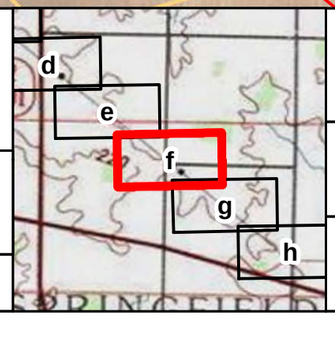


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 2f: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

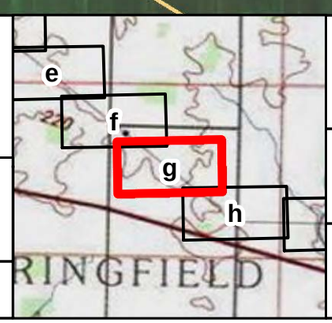
N

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

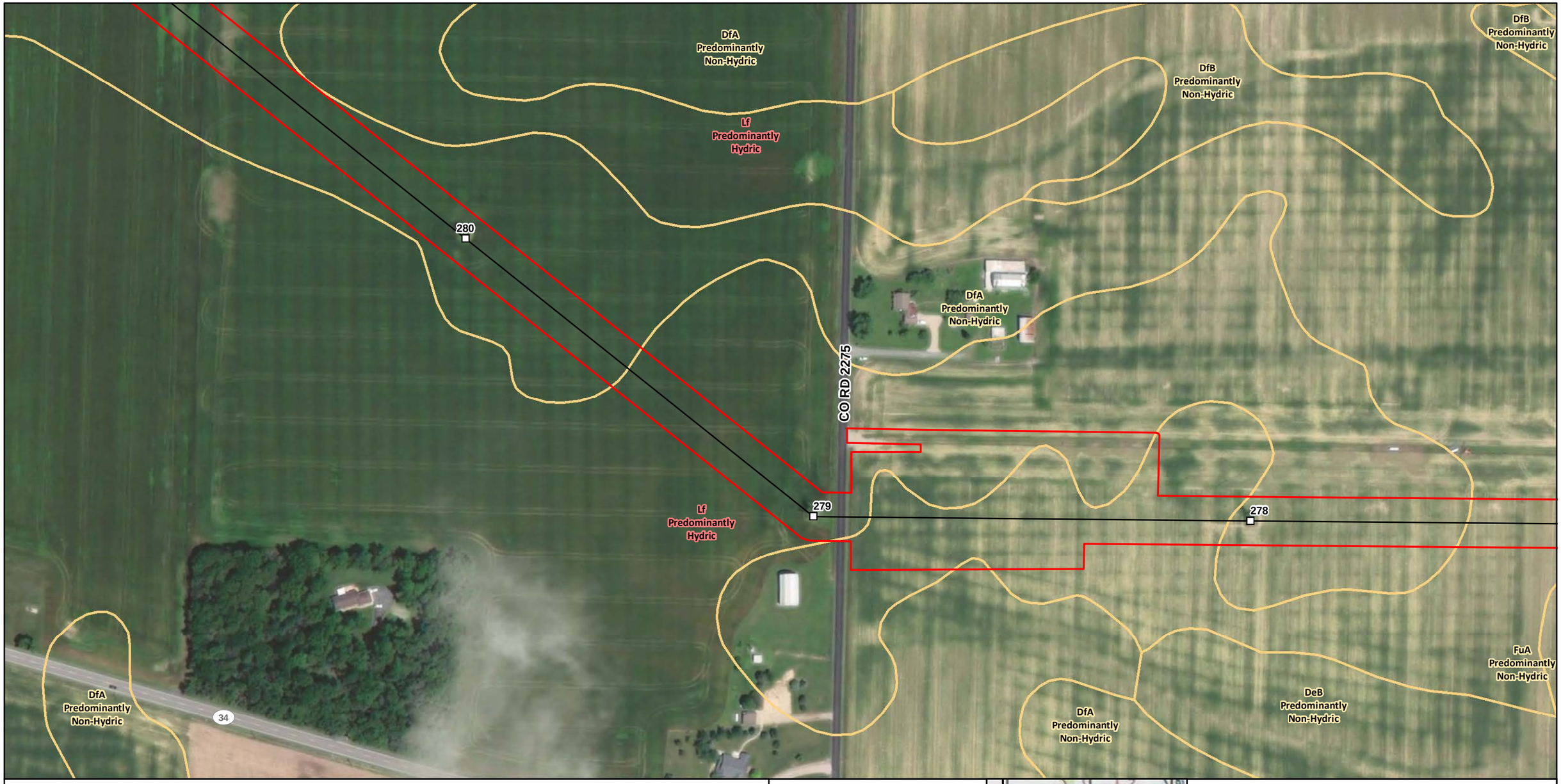
Figure 2g: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

N

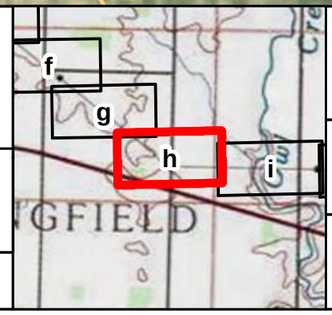


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

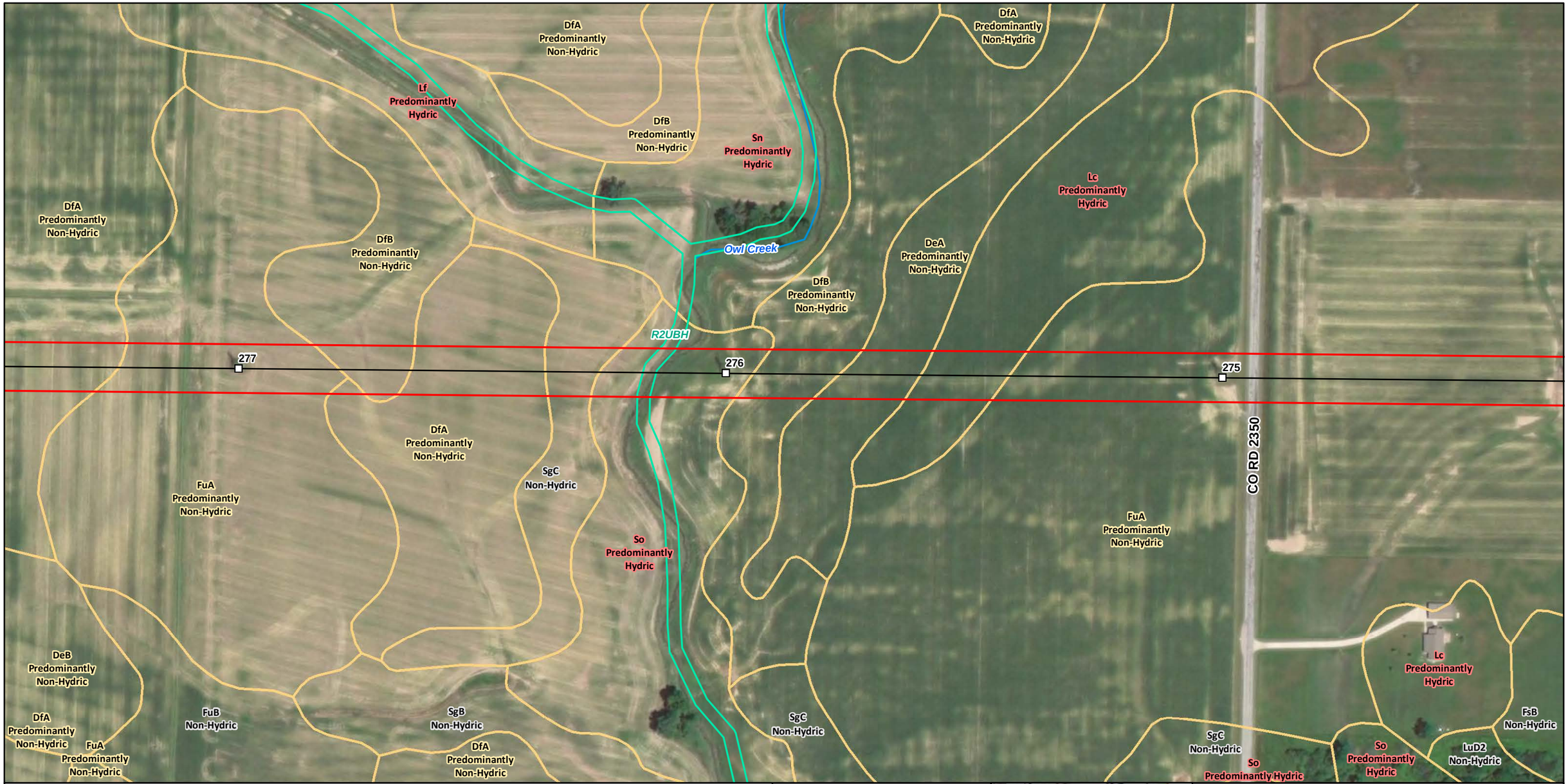
Figure 2h: Environmental Base Map

ToledoEdison
A FirstEnergy Company

wsp

0 200 400 Feet

N

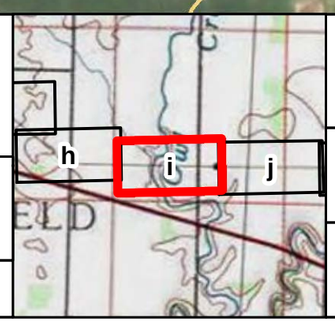


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Towship Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

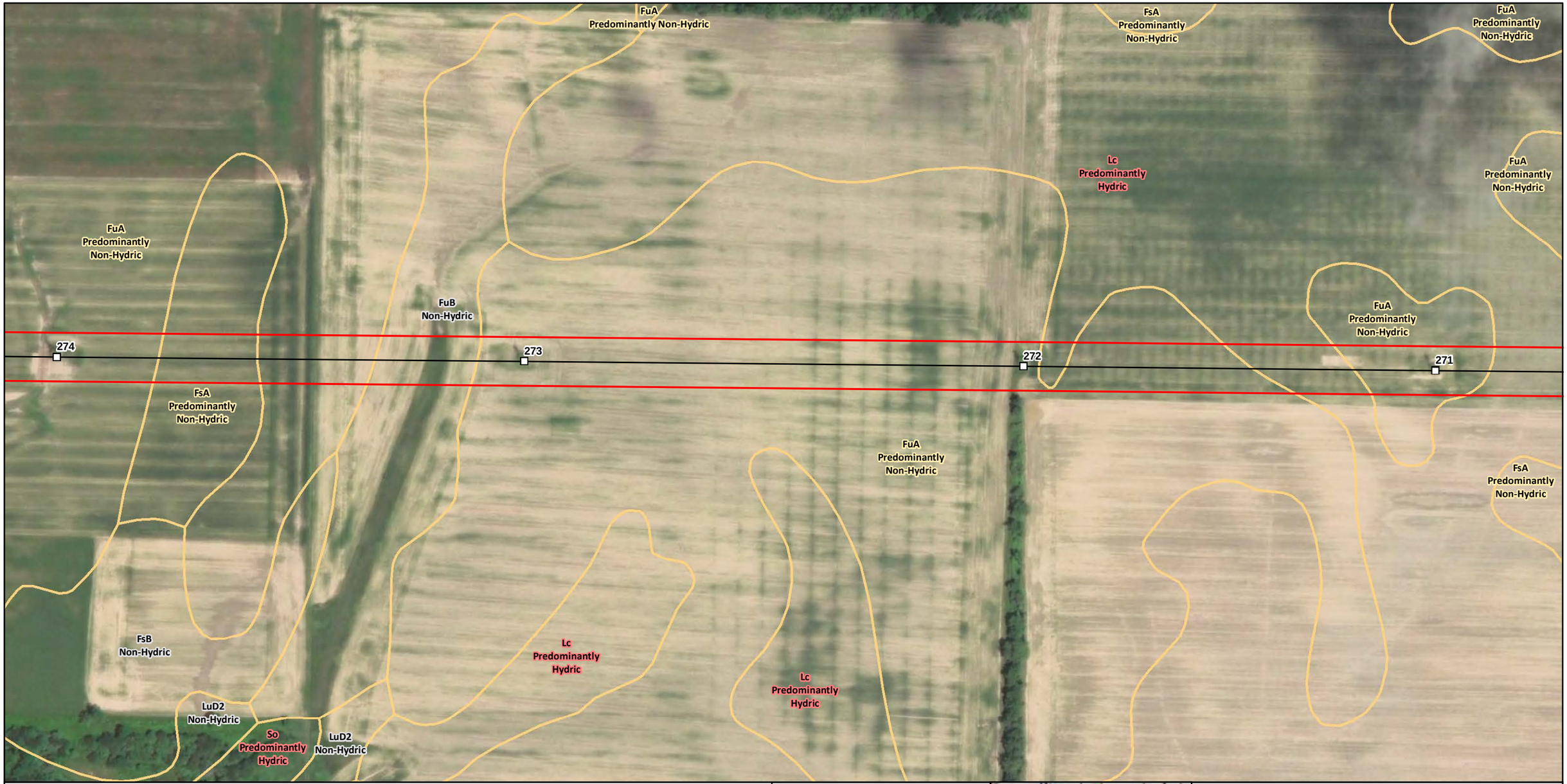
Figure 2i: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

N

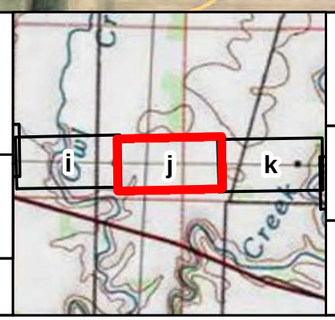


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 2j: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

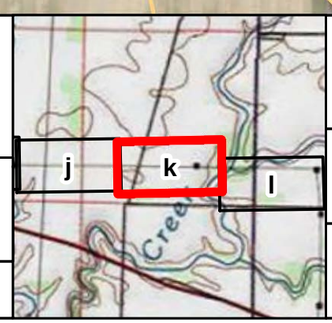
N

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

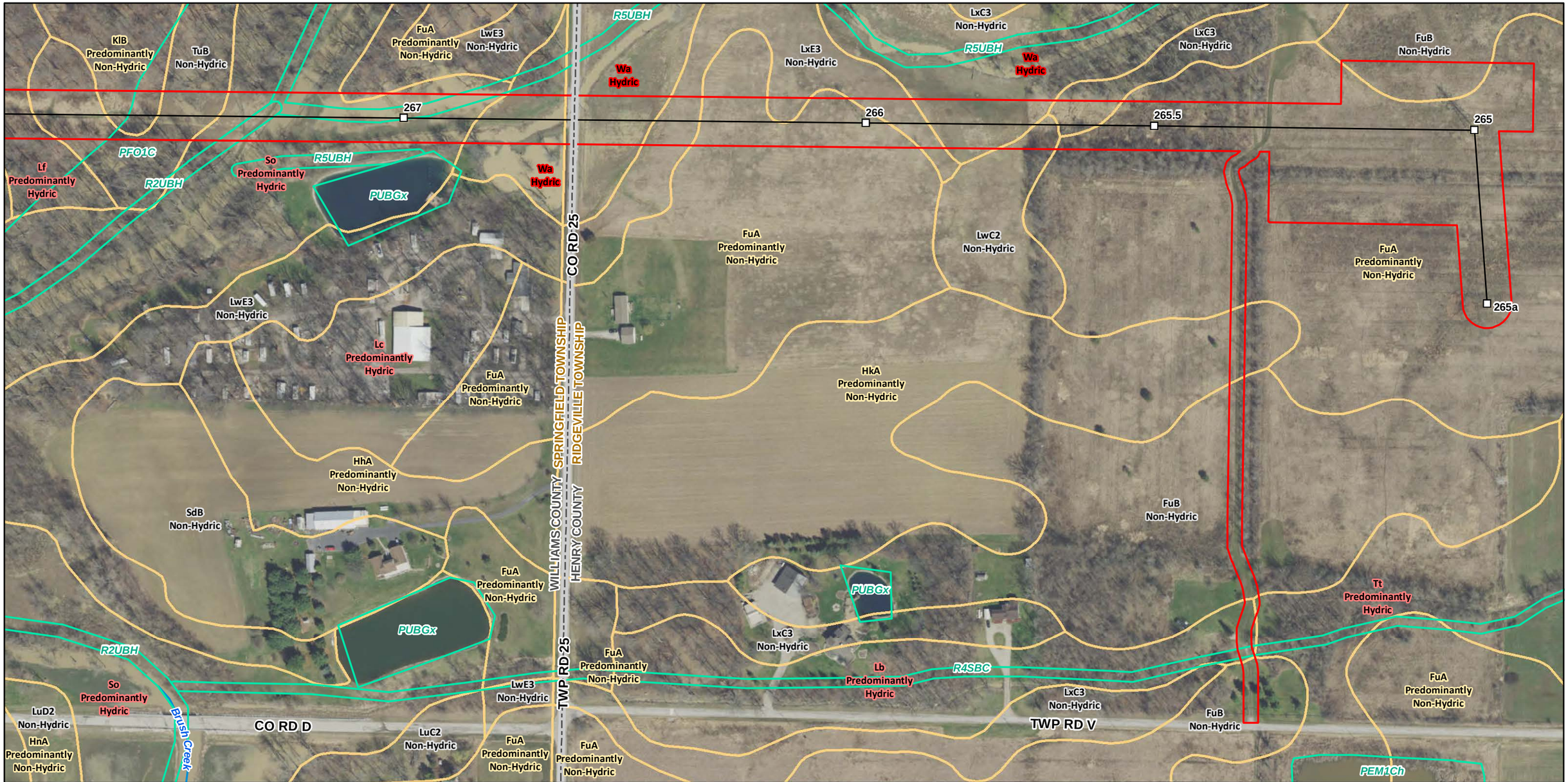
Figure 2k: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

N

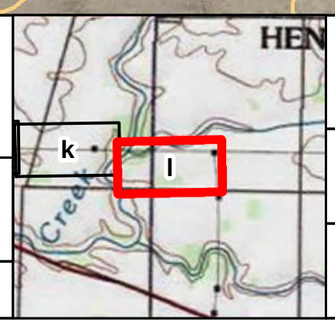


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Towship Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

Augsut 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

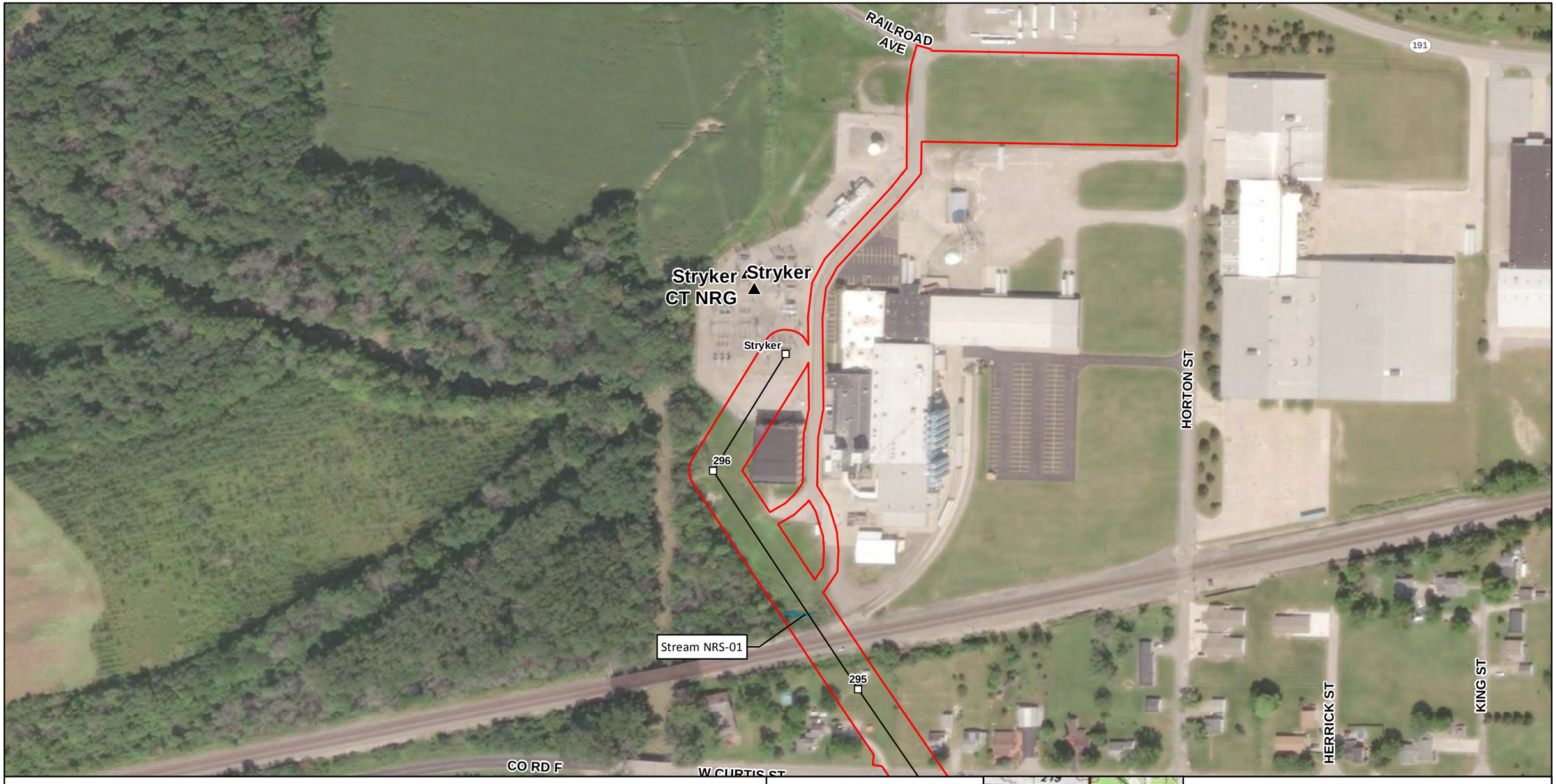
Figure 2I: Environmental Base Map

ToledoEdison
A FirstEnergy Company

wsp

0 200 400 Feet

N

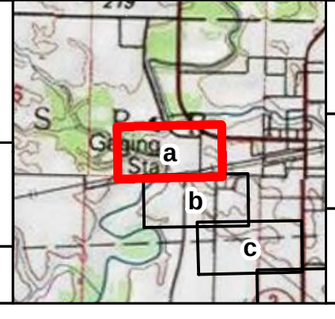


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

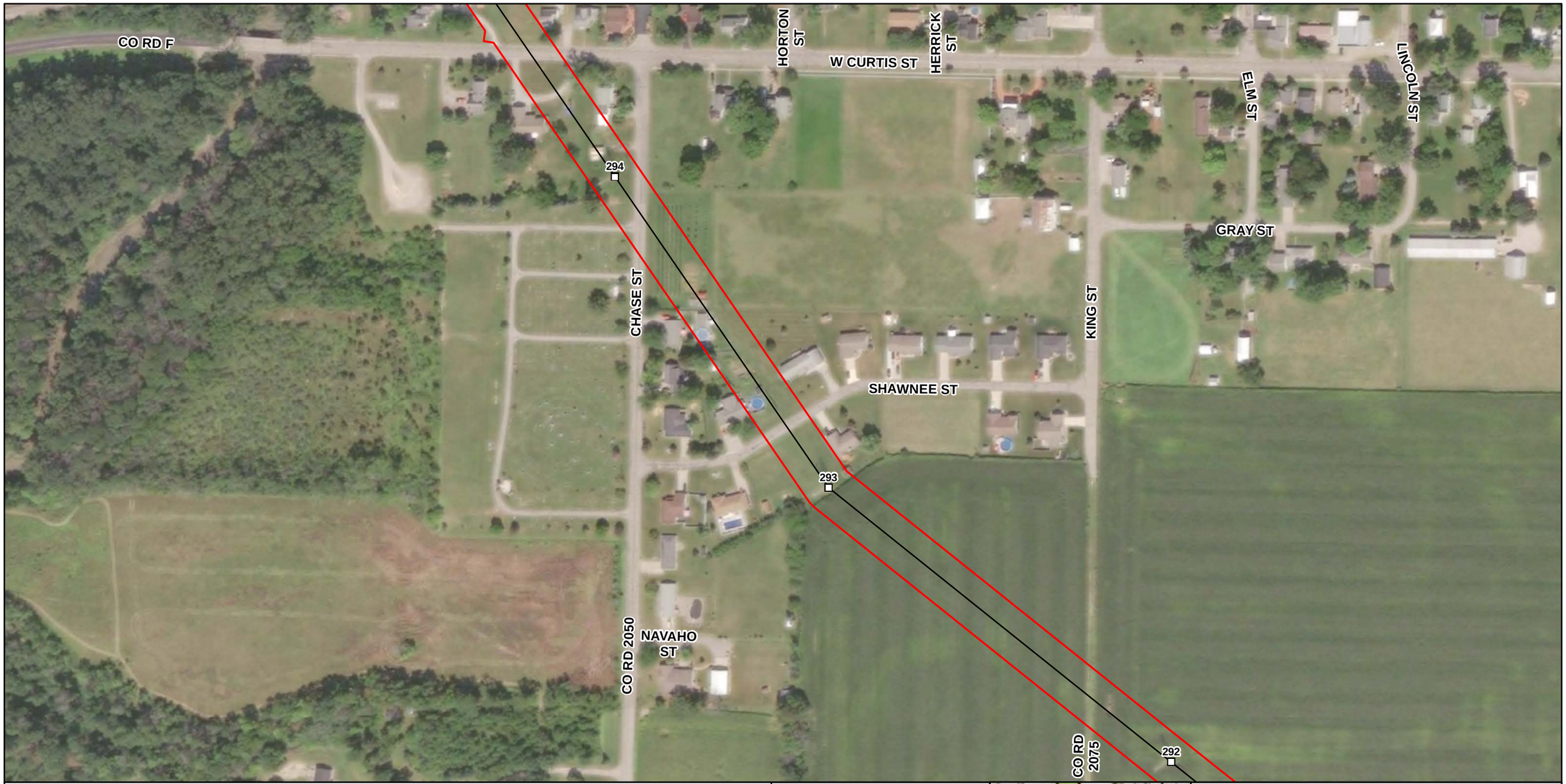
Figure 3a: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

N

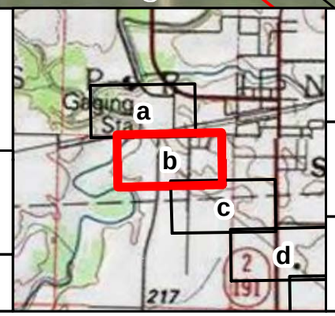


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 3b: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

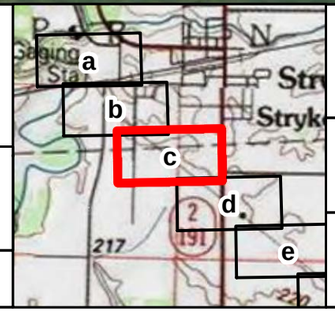
N

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 3c: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

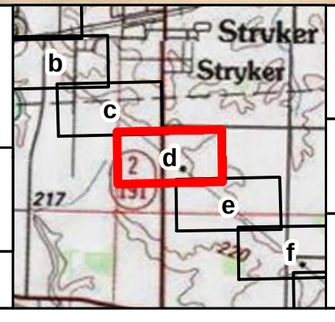
N

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

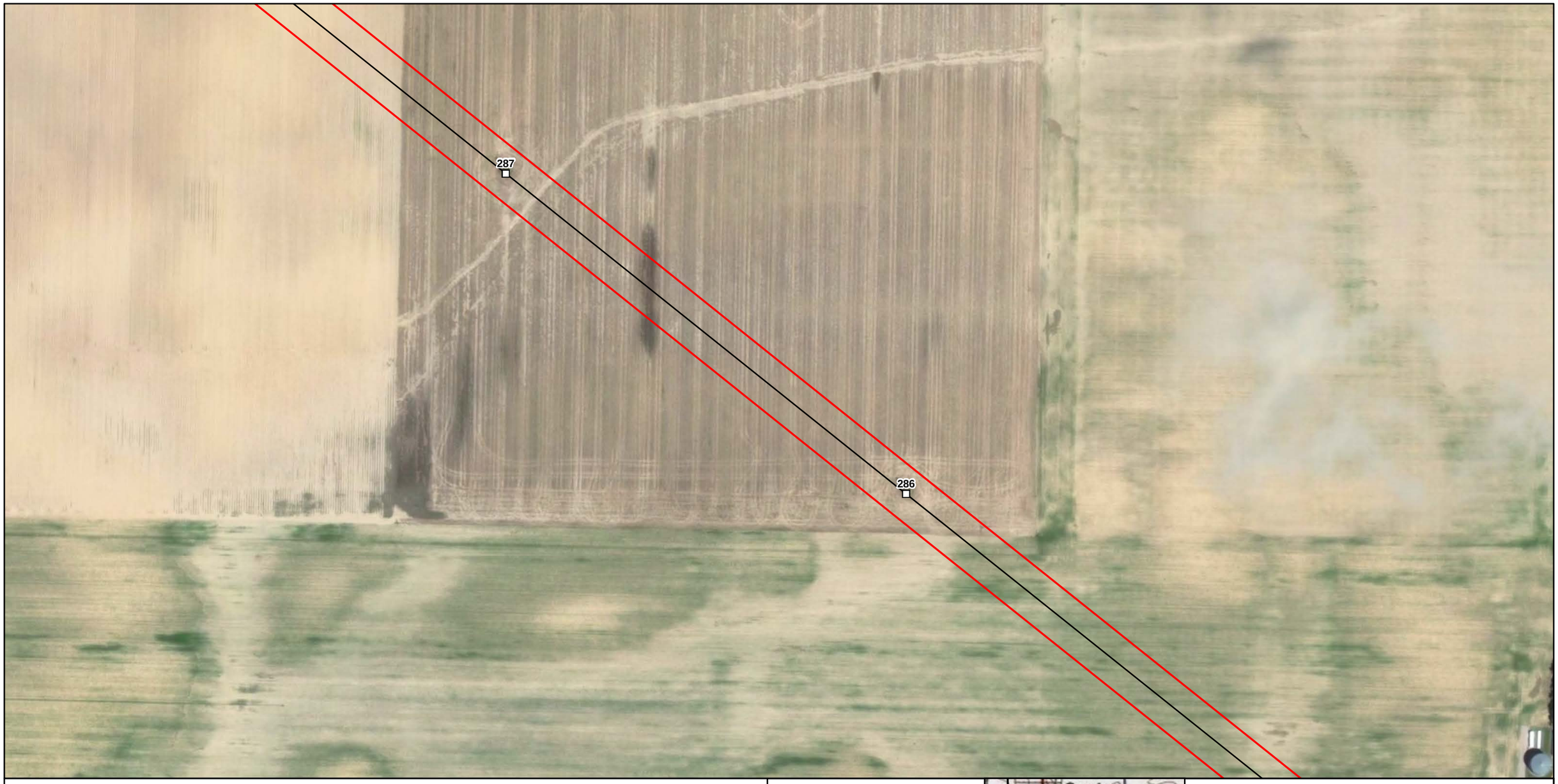
Figure 3d: Wetland Delineation Map

ToledoEdison
A FirstEnergy Company

wsp

0 200 400 Feet

N

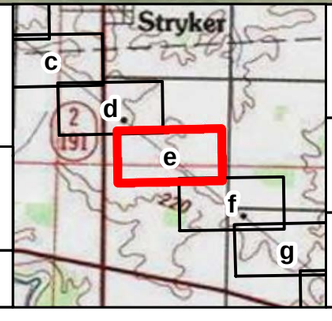


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 3e: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

N

285

284

283

CO RD 22

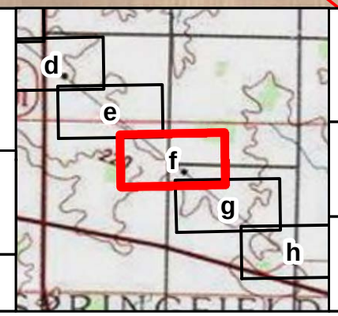
CO RD D-75

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 3f: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

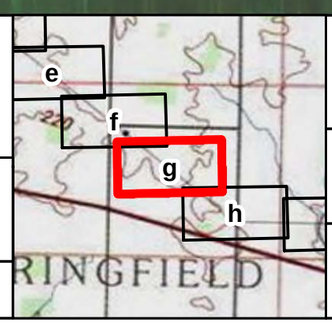
N

Substation
Structure
Project Route
Survey Area
County Boundary
Township Boundary
Upland Data Point
Wetland Data Point
Delineated Stream
Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 3g: Wetland Delineation Map

ToledoEdison
A FirstEnergy Company

wsp

0 200 400 Feet

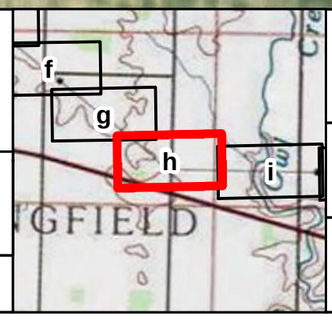
N

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Towship Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

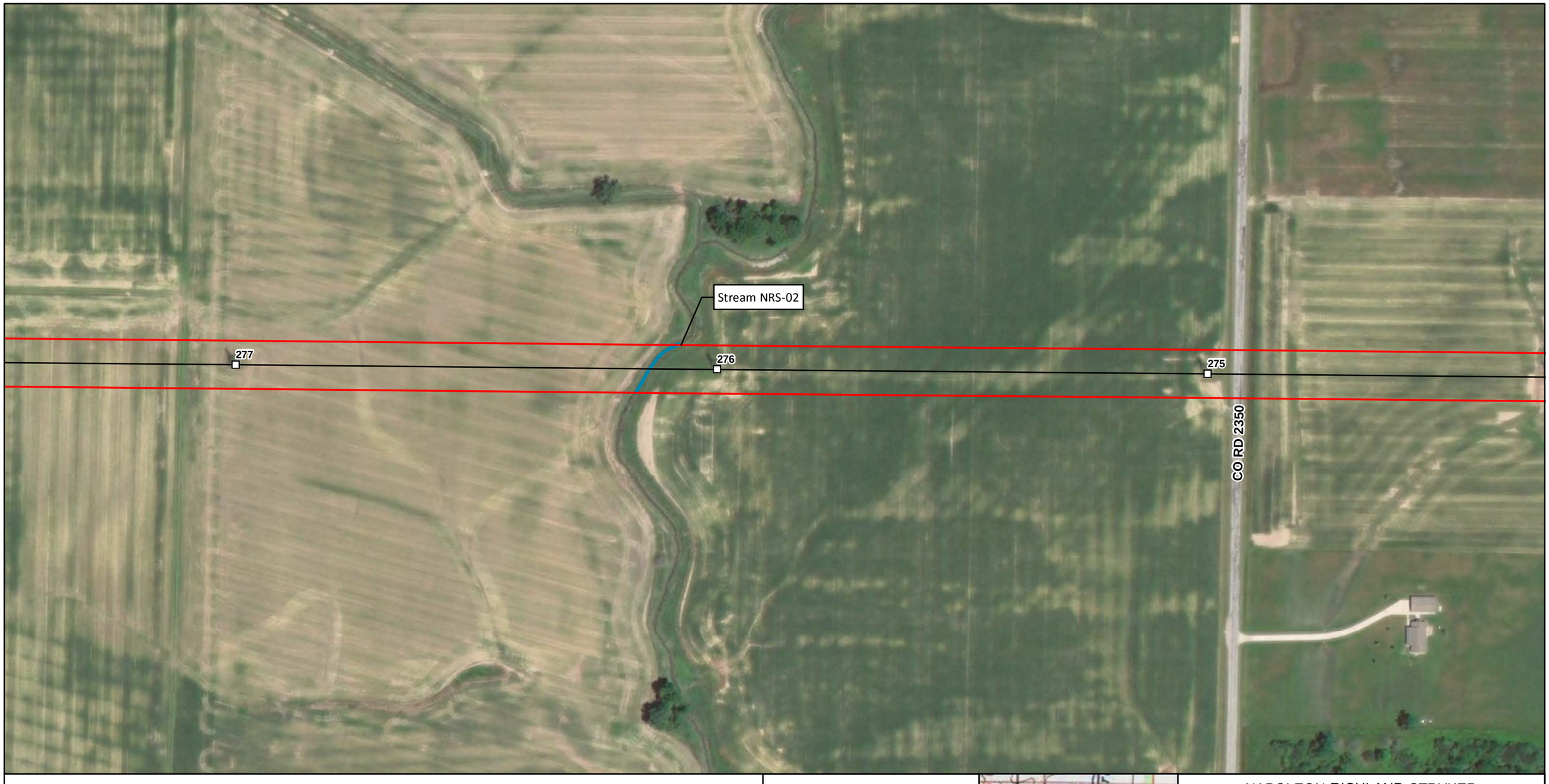
Figure 3h: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

N

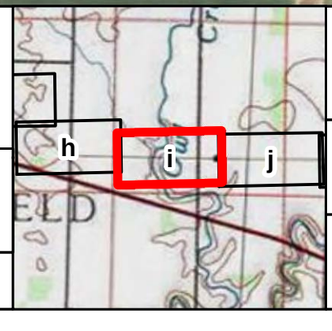


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 3i: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

N

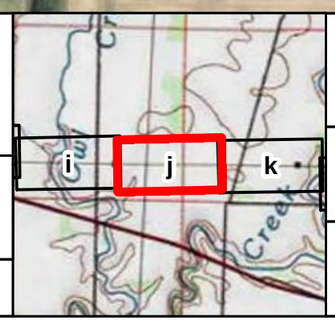
274
273
272
271

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Towship Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 3j: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

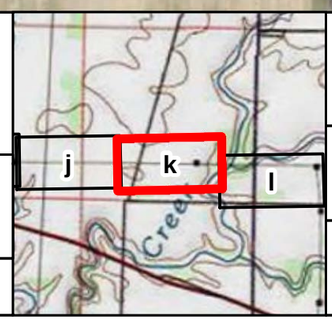
N

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

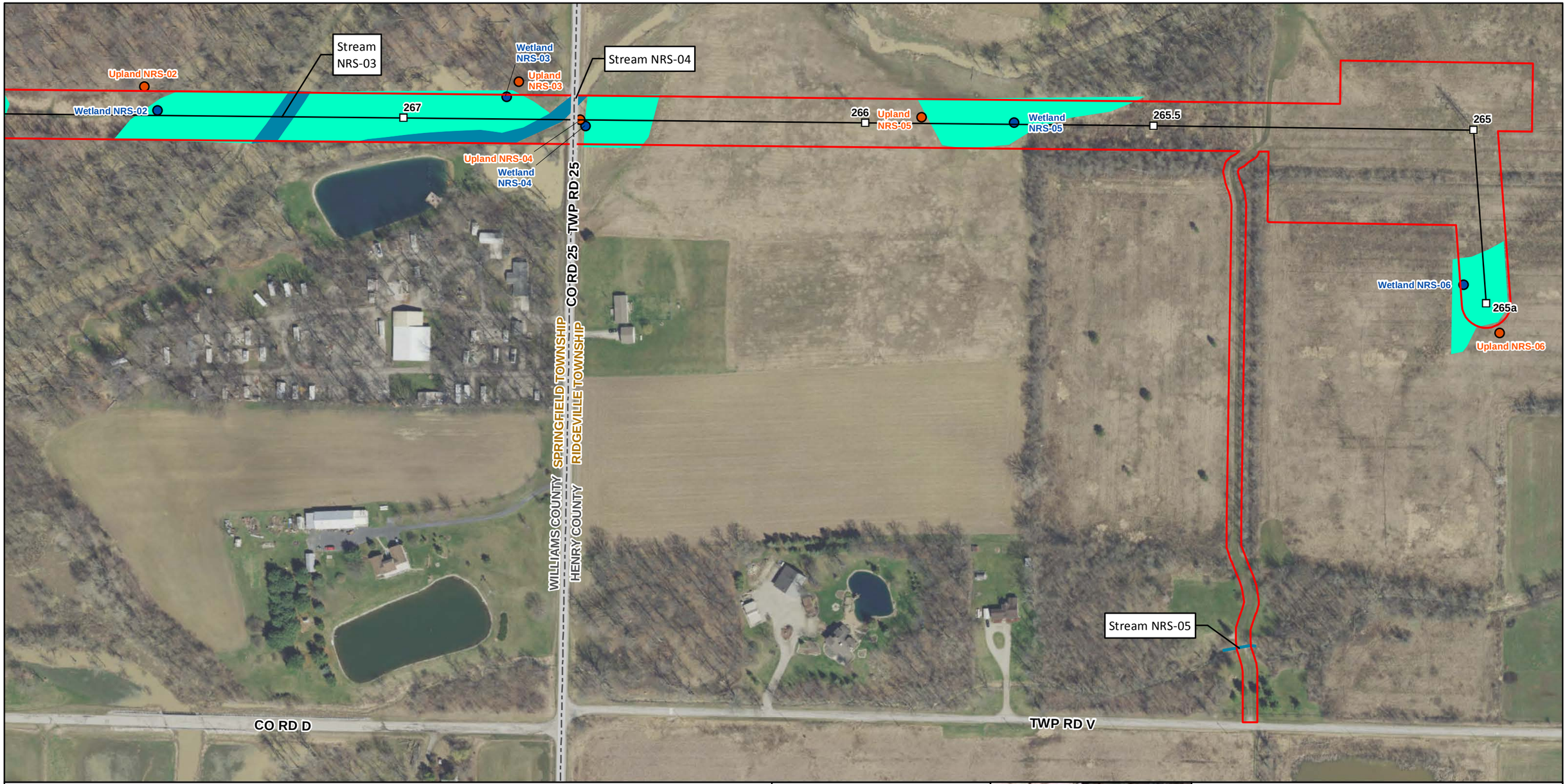
Figure 3k: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

N

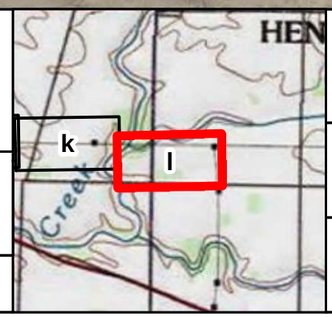


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

August 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE

Figure 3I: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

N

Appendix A.

USACE Wetland Determination Forms Northcentral and Northeast Region

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181113

Applicant/Owner: FirstEnergy State: OH Sampling Point: w-mdt-11/12/2018-02

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range:

Landform (hillside, terrace, etc.): valley Local relief (concave, convex, none): concave Slope %:

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.474521 Long: -84.346406 Datum: WGS 84

Soil Map Unit Name: SdB, Seward loamy fine sand, 2 to 6 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
PEM wetland located in depressional area of ROW with a drainage.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- x 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 on 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)
- x 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)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 4

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:
Saturated throughout with water in drainage swale through middle of wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1.			
2. *Phalaris arundinacea*	100	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_X_ 2 - Dominance Test is >50%

_X_ 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** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
periodically mowed.

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/1	95	10YR 3/3	5	C	M	Loamy/Clayey	silty clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)
- ? Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181113

Applicant/Owner: FirstEnergy State: OH Sampling Point: ____

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range: ____

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope %: ____

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.474589 Long: -84.346678 Datum: WGS 84

Soil Map Unit Name: SdB, Seward loamy fine sand, 2 to 6 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Upland point in ROW for PEM wetland w-mdt-11/13/2018-03 (Wetland NRS-01).

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 on 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 x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Solidago sp.*	30	Yes	FAC
2. *Phalaris arundinacea*	10	No	FACW
3. *Poa pratensis*	30	Yes	FACU
4. *Dipsacus fullonum*	15	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	30	x 3 =	90
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	85 (A)		290 (B)

Prevalence Index = B/A = 3.41

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** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					Loamy/Clayey	silt loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181113

Applicant/Owner: FirstEnergy State: OH Sampling Point: w-mdt-11/12/2018-02

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range:

Landform (hillside, terrace, etc.): valley Local relief (concave, convex, none): concave Slope %:

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.474526 Long: -84.344657 Datum: WGS 84

Soil Map Unit Name: So, Sloan silty clay loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
PEM wetland located in ROW/floodplain adjacent to a perennial stream.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- x 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 on 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)
- x Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes x	No ____	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:
Saturated throughout with water in pit at 10" and signs wetland may be inundated during winter and early spring when adjacent perennial stream floods.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1.			
2. *Phalaris arundinacea*	100	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_X_ 2 - Dominance Test is >50%

_X_ 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** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
periodically mowed.

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 5/1	100					Loamy/Clayey	silty clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ? Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181113

Applicant/Owner: FirstEnergy State: OH Sampling Point:

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range:

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope %:

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.474685 Long: -84.345115 Datum: WGS 84

Soil Map Unit Name: KiB; Kibbie very fine sandy loam, 2 to 6 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
Upland point in upland forest north of ROW for PEM wetland w-mdt-11/13/2018-02 (Wetland NRS-02).

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 on 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 x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	10	No	FACU
2. *Acer saccharum*	60	Yes	FACU
3. *Fagus grandifolia*	30	Yes	FACU
4.			
5.			
6.			
7.			
	100	=Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (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	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

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** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point Field ID: upl-mdf-11/13/2018-02

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					Loamy/Clayey	silt loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181113

Applicant/Owner: FirstEnergy State: OH Sampling Point: w-mdt-11/12/2018-02

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range:

Landform (hillside, terrace, etc.): valley Local relief (concave, convex, none): concave Slope %:

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.474569 Long: -84.34134 Datum: WGS 84

Soil Map Unit Name: So, Sloan silty clay loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
PEM wetland located in ROW/floodplain adjacent to two perennial streams.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- x 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 on 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)
- x Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:
Saturated throughout and signs wetland may be inundated during winter and early spring when adjacent perennial streams floods.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1.			
2. *Phalaris arundinacea*	100	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_X_ 2 - Dominance Test is >50%

_X_ 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** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
periodically mowed.

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	95	10YR 3/6	5	C	M	Loamy/Clayey	silty clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181113

Applicant/Owner: FirstEnergy State: OH Sampling Point:

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range:

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope %:

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.474758 Long: -84.342303 Datum: WGS 84

Soil Map Unit Name: LwE3, Lucas silty clay, 12 to 45 percent slopes, severly eroded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
Upland point in upland forest north of ROW for PEM wetland w-mdt-11/13/2018-01 (Wetland NRS-03).

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 on 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 x Depth (inches): ____
Water Table Present? Yes ____ No x Depth (inches): ____
Saturation Present? Yes ____ No x Depth (inches): ____
(includes capillary fringe)

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point:
Field ID: upl-mdt-~~11/13/2018~~-01

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Carya ovata*	60	Yes	FACU
2. *Acer saccharum*	20	Yes	FACU
3. *Fagus grandifolia*	10	No	FACU
4.			
5.			
6.			
7.			
	90	=Total Cover	

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

Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		=Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (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	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	90 (A)		360 (B)

Prevalence Index = B/A = 4.00

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** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point Field ID: upl-mdf-~~11/13/2018-01~~

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					Loamy/Clayey	silt loam
8-11	10YR 5/3	98	10YR 5/6	2	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181112

Applicant/Owner: FirstEnergy State: OH Sampling Point: w-mdt-11/12/2018-02

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range:

Landform (hillside, terrace, etc.): valley Local relief (concave, convex, none): concave Slope %:

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.474558 Long: -84.34155 Datum: WGS 84

Soil Map Unit Name: Wa, Wabasha silty clay NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
PEM wetland located in ROW/hayfield adjacent to a perennial stream.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- x 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 on 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)
- x Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:
Saturated throughout and signs wetland may be inundated during winter and early spring when adjacent perennial streams floods.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1.			
2. *Phalaris arundinacea*	100	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_X_ 2 - Dominance Test is >50%

_X_ 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** _X_ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
periodically mowed.

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/1	100					Loamy/Clayey	silty clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- _x_ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181112

Applicant/Owner: FirstEnergy State: OH Sampling Point: ____

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range: ____

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope %: ____

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.474551 Long: -84.341841 Datum: WGS 84

Soil Map Unit Name: Wa, Wabasha silty clay NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Upland point along road/ROW for PEM wetland w-mdt-11/12/2018-02 (Wetland NRS-04).

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 on 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 x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Poa pratensis*	90	Yes	FACU
2. *Phalaris arundinacea*	20	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	110 (A)		400 (B)

Prevalence Index = B/A = 3.64

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** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					Loamy/Clayey	silt loam w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181112

Applicant/Owner: FirstEnergy State: OH Sampling Point: w-mdt-11/12/2018-01

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range:

Landform (hillside, terrace, etc.): valley Local relief (concave, convex, none): concave Slope %:

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.474625 Long: -84.338643 Datum: WGS 84

Soil Map Unit Name: Wa, Wabasha silty clay NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
PEM wetland located in a hay field and ROW adjacent to a perennial stream.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- x 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 on 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)
- x Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 10

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:
Saturated throughout and signs wetland may be inundated during winter and early spring when adjacent perennial stream floods.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Carex lacustris*	70	Yes	OBL
2. *Phalaris arundinacea*	40	Yes	FACW
3. *Carex vulpinoidea*	10	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	120 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	40	x 2 =	80
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		160 (B)

Prevalence Index = B/A = 1.33

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_X_ 2 - Dominance Test is >50%

_X_ 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** _X_ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
portion of wetland in hay field is periodically mowed.

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/1	95	10YR 4/4	5	C	M	Loamy/Clayey	silty clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181112

Applicant/Owner: FirstEnergy State: OH Sampling Point: ____

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range: ____

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope %: ____

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.474608 Long: -84.339282 Datum: WGS 84

Soil Map Unit Name: LxE3, Lucas silty clay, 12 to 45 percent slopes, severly eroded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Upland point in hayfield/ROW for PEM wetland w-mdt-11/12/2018-01 (Wetland NRS-05).

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 on 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 x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point:
Field ID: upl-mdt-~~11/12/2018~~-01

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Poa pratensis*	90	Yes	FACU
2. *Phalaris arundinacea*	10	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	100 (A)		380 (B)

Prevalence Index = B/A = 3.80

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** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point Field ID: upl-mdf-~~11/12/2018-01~~

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/3	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181113

Applicant/Owner: FirstEnergy State: OH Sampling Point: w-mdt-11/12/2018-02

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range:

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope %:

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.473635 Long: -84.335046 Datum: WGS 84

Soil Map Unit Name: FuA, Fulton silty clay loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
PEM wetland located in a wide depressional area across the ROW with a drainage ditch.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- x 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 on 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)
- x 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)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 4

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:
Saturated throughout with water in drainage swale through middle of wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Fraxinus pennsylvanica*	10	Yes	FACW
2. *Ulmus americana*	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	15 =Total Cover		
Herb Stratum (Plot size:)			
1. *Carex vulpinoidea*	60	Yes	OBL
2. *Scirpus atrovirens*	25	Yes	OBL
3. *Juncus effusus*	20	No	OBL
4. *Scirpus cyperinus*	15	No	OBL
5. *Agrimonia parviflora*	10	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	130 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	120	x 1 =	120
FACW species	15	x 2 =	30
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	145 (A)		180 (B)

Prevalence Index = B/A = 1.24

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_X_ 2 - Dominance Test is >50%

_X_ 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** _X_ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
periodically mowed.

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/1	95	10YR 3/4	5	C	M	Loamy/Clayey	silty clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Napoleon-Richland-East Leipsic 138 kV Transmission Line City/County: Henry Sampling Date: 20181113

Applicant/Owner: FirstEnergy State: OH Sampling Point: _____

Investigator(s): M.Thomayer, K. Coleman; WSP Section, Township, Range: _____

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope %: _____

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: 41.473376 Long: -84.335025 Datum: WGS 84

Soil Map Unit Name: FuA, Fulton silty clay loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Upland data point in old field/ROW for PEM wetland w-mdt-070/31/2019 (Wetland NRS-06).

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 on 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 x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: Field ID: upl-mdt-~~07/31/2019~~-01

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Juniperus virginiana*	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	5 =Total Cover		
Herb Stratum (Plot size:)			
1. *Dactylis glomerata*	30	Yes	FACU
2. *Solidago sp.*	25	Yes	FAC
3. *Cirsium arvense*	15	No	FACU
4. *Carex sp.*	30	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	55	x 3 =	165
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	105 (A)		365 (B)

Prevalence Index = B/A = 3.48

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** X

Remarks: (Include photo numbers here or on a separate sheet.)
periodically mowed.

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/1	98	10YR 4/3	2	C	M	Loamy/Clayey	silty clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- _x_ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

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 Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Appendix B.

OEPA ORAM Data Sheets

Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 13 Nov 2018

Field ID: w-mdt-11/13/2018-03

1	1
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)
- [X] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

5	6
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)
- [X] LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- [X] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

11	17
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 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [X] <0.4m (<15.7in) (1)

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

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

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

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

Check all disturbances observed

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

7	24
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)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

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

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

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

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

Check all disturbances observed

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

24
subtotal this page

last revised 1 February 2001 jjm

Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 13 Nov 2018

Field ID: w-mdt-11/13/2018-03

24
subtotal first page

0	24
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-3	21
max 20 pts.	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

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

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

21

Category 1 Wetland

End of Quantitative Rating. Complete Categorization Worksheets.

Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 13 Nov 2018

Field ID: w-mdt-11/13/2018-02

2	2
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)
- [X] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

9	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)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

20	31
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)
- [X] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

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

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

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

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

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

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

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

Check all disturbances observed

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

7	38
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)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

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

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

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

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

Check all disturbances observed

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

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Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 13 Nov 2018

Field ID: w-mdt-11/13/2018-02

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subtotal first page

0 (max 10 pts.) | 38 (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)

-3 (max 20 pts.) | 35 (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

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

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

35

Category 2 Wetland

End of Quantitative Rating. Complete Categorization Worksheets.

Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 13 Nov 2018

Field ID: w-mdt-11/13/2018-01

2	2
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)
- [X] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

9	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)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

20	31
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)
- [X] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

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

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

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

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

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

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

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

Check all disturbances observed

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

7	38
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)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

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

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

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

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

Check all disturbances observed

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

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Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 13 Nov 2018

Field ID: w-mdt-11/13/2018-01

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subtotal first page

0 (max 10 pts.) | 38 (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)

-3 (max 20 pts.) | 35 (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

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

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

35

Category 2 Wetland

End of Quantitative Rating. Complete Categorization Worksheets.

Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 12 Nov 2018

Field ID: w-mdt-11/12/2018-02

2	2
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)
- [X] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

1	3
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

11	14
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)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [X] Part of riparian or upland corridor (1)

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

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

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

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

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

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

Check all disturbances observed

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

5.5	19.5
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

- [ ] None or none apparent (4)
- [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)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [X] Poor (1)

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

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

Check all disturbances observed

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

19.5
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Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 12 Nov 2018

Field ID: w-mdt-11/12/2018-02

19.5
subtotal first page

0 (max 10 pts.) | 19.5 (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)

-1 (max 20 pts.) | 18.5 (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)
- [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.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

18.5

Category 1 Wetland

End of Quantitative Rating. Complete Categorization Worksheets.

Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 12 Nov 2018

Field ID: w-mdt-11/12/2018-01

2	2
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)
- [X] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

8	10
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)
- [X] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9	19
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)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [X] Part of riparian or upland corridor (1)

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

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

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

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

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

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

Check all disturbances observed

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

7	26
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)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

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

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

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

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

Check all disturbances observed

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

26
subtotal this page

last revised 1 February 2001 jjm

Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 12 Nov 2018

Field ID: w-mdt-11/12/2018-01

26
subtotal first page

0	26
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

1	27
max 20 pts.	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.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

27

Category 1 Wetland

End of Quantitative Rating. Complete Categorization Worksheets.

Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer; WSP	**Date:** 31 July 2019

Field ID: w-mdt-07/31/2019-01

2	2
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)
- [X] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

12	14
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.

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

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

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

11.5	25.5
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)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [X] Part of riparian or upland corridor (1)

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

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

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

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

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

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

Check all disturbances observed

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

7	32.5
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

32.5
subtotal this page

last revised 1 February 2001 jjm

Site: Napoleon-Richland-Stryker 138 kV Tline	**Rater(s):** M.Thomayer, K. Coleman; WSP	**Date:** 31 July 2019

Field ID: w-mdt-07/31/2019-01

32.5
subtotal first page

0	32.5
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-1	31.5
max 20 pts.	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)
- [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.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

31.5

Category 2 Wetland

End of Quantitative Rating. Complete Categorization Worksheets.

Appendix C.

OEPA QHEI Data Forms

Field ID: s-mdt-11/12/2018-02 Report ID: Stream NRS-02

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 26.5

Stream & Location: Napoleon-Richland-Stryker 138 kV Tline Owl Creek RM: _ _ _._ Date: 11 / 12 / 18

M.Thomayer, K. Coleman; WSP Scorers Full Name & Affiliation: OEPA Class: Very Poor Warmwater Habitat Stream

River Code: _ _ _ - _ _ _ - _ _ _ STORET #: _ _ _ _ _ _ Lat./ Long.: (NAD 83 - decimal °) _ _ . _ _ _ _ _ /8_ . _ _ _ _ Office verified location ☐

1] SUBSTRATE

Check *ONLY* **Two** substrate *TYPE BOXES*; estimate % or note every type present

Check ONE (*Or 2 & average*)

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]			☐ ☐ MUCK [2]		
☐ ☐ GRAVEL [7]			☒ ☒ SILT [2]	100	100
☐ ☐ SAND [6]			☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

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

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☒ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

EMBEDDEDNESS

SILT
- ☒ HEAVY [-2]
- ☐ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]

QUALITY
- ☒ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Substrate: -2 (Maximum 20)

Comments

2] INSTREAM COVER

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

____ UNDERCUT BANKS [1]	____ POOLS > 70cm [2]	____ OXBOWS, BACKWATERS [1]
1 OVERHANGING VEGETATION [1]	____ ROOTWADS [1]	____ AQUATIC MACROPHYTES [1]
____ SHALLOWS (IN SLOW WATER) [1]	____ BOULDERS [1]	____ LOGS OR WOODY DEBRIS [1]
____ ROOTMATS [1]		

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☒ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover Maximum 20: 4

3] CHANNEL MORPHOLOGY

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

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☐ LOW [2]
- ☒ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

CHANNELIZATION
- ☐ NONE [6]
- ☒ RECOVERED [4]
- ☒ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Comments

Channel Maximum 20: 7.5

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

EROSION

L	R	
☒	☒	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH

L	R	
☐	☐	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☒	☒	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY

L	R	
☐	☐	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☐	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☒	☒	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian Maximum 10: 4

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check **ONE** (*ONLY!*)
- ☐ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☒ < 0.2m [0]

CHANNEL WIDTH

Check ONE (*Or 2 & average*)
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☒ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ☒ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments 6"

Pool / Current Maximum 12: 2

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*). ☐ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☒ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☒ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☒ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☒ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run Maximum 8: 3

6] GRADIENT

(15 ft/mi)

DRAINAGE AREA

(5.25 mi²)

- ☐ VERY LOW - LOW [2-4]
- ☒ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: 20 %GLIDE: 60

%RUN: 10 %RIFFLE: 10

Gradient Maximum 10: 8

A] SAMPLED REACH

Check ALL that apply

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Field ID: s-mdt-11/12/2018-02 Report ID: Stream NRS-02

METHOD

- ☐ BOAT
- ☒ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass- 2nd	
☐ HIGH	☐
☐ UP	☐
☒ NORMAL	☐
☐ LOW	☐
☐ DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

CLARITY

1st --sample pass-- 2nd	
☐ < 20 cm	☐
☐ 20-<40 cm	☐
☐ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

_____ meters

CANOPY

- ☒ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

1st pass _____ cm

2nd _____ cm

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

POOL: AREA ☐ >100ft² DEPTH ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

E] ISSUES

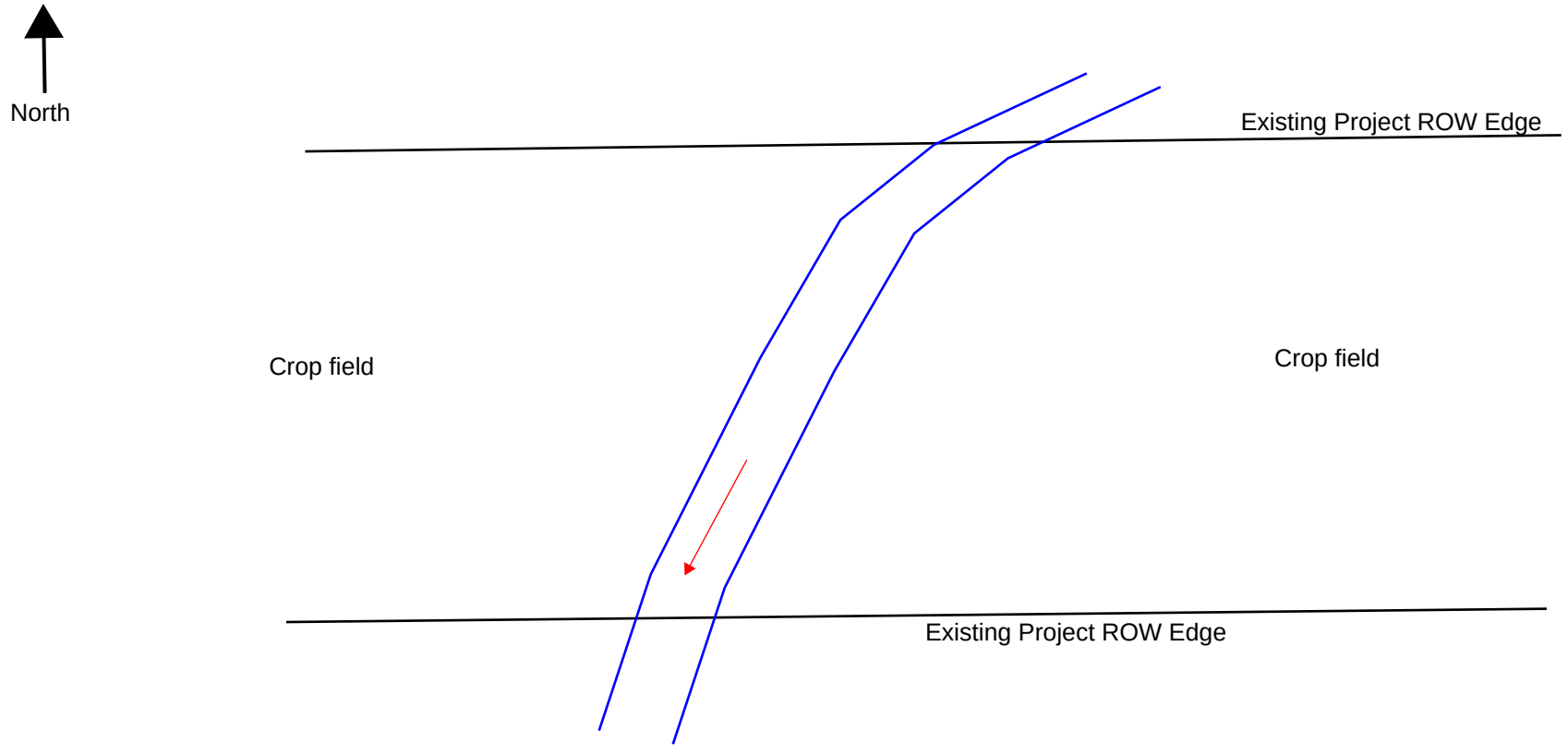
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Field ID: s-mdt-11/13/2018-02 Report ID: Stream NRS-03

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 37.5

Stream & Location: Napoleon-Richland-Stryker 138 kV Tline Brush Creek **RM:** _ _ _._ **Date:** 11 / 13 / 18

M.Thomayer, K. Coleman; WSP **Scorers Full Name & Affiliation:** OEPA Class: Poor Warmwater Habitat Stream

River Code: _ _ _ - _ _ _ - _ _ _ **STORET #:** _ _ _ _ _ _ **Lat./ Long.:** (NAD 83 - decimal °) _ _ . _ _ _ _ _ /8_ . _ _ _ _ _ **Office verified location** ☐

1] SUBSTRATE

Check ***ONLY Two*** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]			☐ ☐ MUCK [2]		
☐ ☐ GRAVEL [7]			☒ ☒ SILT [2]	100	100
☐ ☐ SAND [6]			☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

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

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☒ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

SILT / EMBEDDEDNESS

QUALITY
- ☐ HEAVY [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]
- ☐ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Substrate 0 *Maximum 20*

Comments

2] INSTREAM COVER

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

_ UNDERCUT BANKS [1]	_ POOLS > 70cm [2]	_ OXBOWS, BACKWATERS [1]	
1 OVERHANGING VEGETATION [1]	_ ROOTWADS [1]	_ AQUATIC MACROPHYTES [1]	
_ SHALLOWS (IN SLOW WATER) [1]	_ BOULDERS [1]	_ LOGS OR WOODY DEBRIS [1]	
_ ROOTMATS [1]			

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☒ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Cover *Maximum 20* 4

Comments

3] CHANNEL MORPHOLOGY

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

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☐ LOW [2]
- ☒ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

CHANNELIZATION
- ☐ NONE [6]
- ☒ RECOVERED [4]
- ☒ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Channel *Maximum 20* 7.5

Comments

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION L	EROSION R	
☒	☒	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH L	RIPARIAN WIDTH R	
☐	☐	WIDE > 50m [4]
☒	☒	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☐	☐	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY L	FLOOD PLAIN QUALITY R	
☐	☐	FOREST, SWAMP [3]
☒	☒	SHRUB OR OLD FIELD [2]
☐	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Riparian *Maximum 10* 8

Comments

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check **ONE** (*ONLY!*)
- ☒ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (*Or 2 & average*)
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☒ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ☒ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Pool / Current *Maximum 12* 8

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*). ☒ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Riffle / Run *Maximum 8* 0

Comments

6] GRADIENT

DRAINAGE AREA (39 mi²)

(7 ft/mi)
- ☐ VERY LOW - LOW [2-4]
- ☒ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: 5 %GLIDE: 95 %RUN: 0 %RIFFLE: 0

Gradient *Maximum 10* 10

A] SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☒ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-	2nd
☐ HIGH	☐
☐ UP	☐
☒ NORMAL	☐
☐ LOW	☐
☐ DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

CLARITY

1st --sample pass--	2nd
☐ < 20 cm	☐
☐ 20-<40 cm	☐
☐ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

_____ meters

CANOPY

- ☒ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

pass 1st _____ cm

pass 2nd _____ cm

C] RECREATION

POOL: AREA ☐ >100ft² DEPTH ☐ >3ft

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Field ID: s-mdt-11/13/2018-02 Report ID: Stream NRS-03

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

D] MAINTENANCE

Circle some & *COMMENT*

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

E] ISSUES

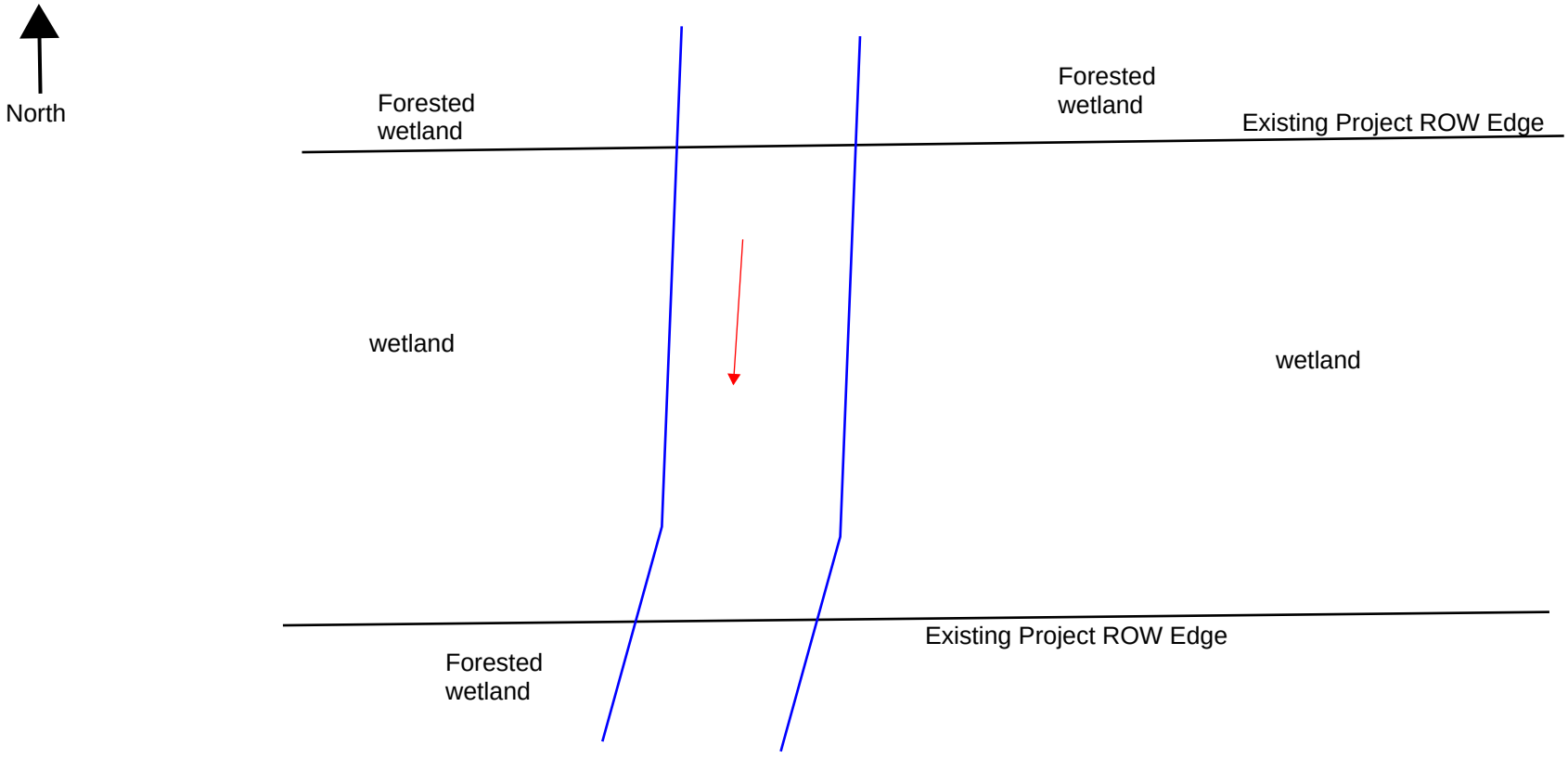
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Field ID: s-mdt-11/13/2018-01 Report ID: Stream NRS-04

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 31.5

Stream & Location: Napoleon-Richland-Stryker 138 kV Tline **RM:** _ _ _._ **Date:** 11 / 13 / 18

M.Thomayer, K. Coleman; WSP **Scorers Full Name & Affiliation:** OEPA Class: Poor Warmwater Habitat Stream

River Code: _ _ _-_ _ _-_ _ _ **STORET #:** _ _ _ _ _ _ **Lat./ Long.:** (NAD 83 - decimal °) _ _ . _ _ _ _ _ /8_ . _ _ _ _ _ **Office verified location** ☐

1] SUBSTRATE

Check ***ONLY Two*** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]			☐ ☐ MUCK [2]		
☐ ☐ GRAVEL [7]			☒ ☒ SILT [2]	100	100
☐ ☐ SAND [6]			☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

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

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☒ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

SILT / EMBEDDEDNESS

QUALITY
- ☐ HEAVY [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]
- ☐ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Comments

Substrate 0 *Maximum 20*

2] INSTREAM COVER

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

____ UNDERCUT BANKS [1]	____ POOLS > 70cm [2]	____ OXBOWS, BACKWATERS [1]
1 OVERHANGING VEGETATION [1]	____ ROOTWADS [1]	____ AQUATIC MACROPHYTES [1]
____ SHALLOWS (IN SLOW WATER) [1]	____ BOULDERS [1]	____ LOGS OR WOODY DEBRIS [1]
____ ROOTMATS [1]		

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☒ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover *Maximum 20* 4

3] CHANNEL MORPHOLOGY

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

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☐ LOW [2]
- ☒ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

CHANNELIZATION
- ☐ NONE [6]
- ☒ RECOVERED [4]
- ☒ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Comments

Channel *Maximum 20* 7.5

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION

L	R	
☒	☒	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH

L	R	
☐	☐	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☒	☒	NARROW 5-10m [2]
☐	☐	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY

L	R	
☐	☐	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☒	☒	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian *Maximum 10* 6

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check **ONE** (*ONLY!*)
- ☒ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (*Or 2 & average*)
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☒ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

☐ TORRENTIAL [-1]	☒ SLOW [1]
☐ VERY FAST [1]	☐ INTERSTITIAL [-1]
☐ FAST [1]	☐ INTERMITTENT [-2]
☐ MODERATE [1]	☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current *Maximum 12* 8

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*). ☒ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run *Maximum 8* 0

6] GRADIENT

(7.45 ft/mi)

DRAINAGE AREA

(4.6 mi²)

- ☐ VERY LOW - LOW [2-4]
- ☒ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: 20 %GLIDE: 60

%RUN: 10 %RIFFLE: 10

Gradient *Maximum 10* 6

A] SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☒ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-		2nd
☐	HIGH	☐
☐	UP	☐
☒	NORMAL	☐
☐	LOW	☐
☐	DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

CLARITY

1st --sample pass--		2nd
☐	< 20 cm	☐
☐	20-<40 cm	☐
☐	40-70 cm	☐
☐	> 70 cm/ CTB	☐
☐	SECCHI DEPTH	☐

_____ meters

CANOPY

- ☒ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

1st pass _____ cm

2nd pass _____ cm

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Field ID: s-mdt-11/13/2018-01 Report ID: Stream NRS-04

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

E] ISSUES

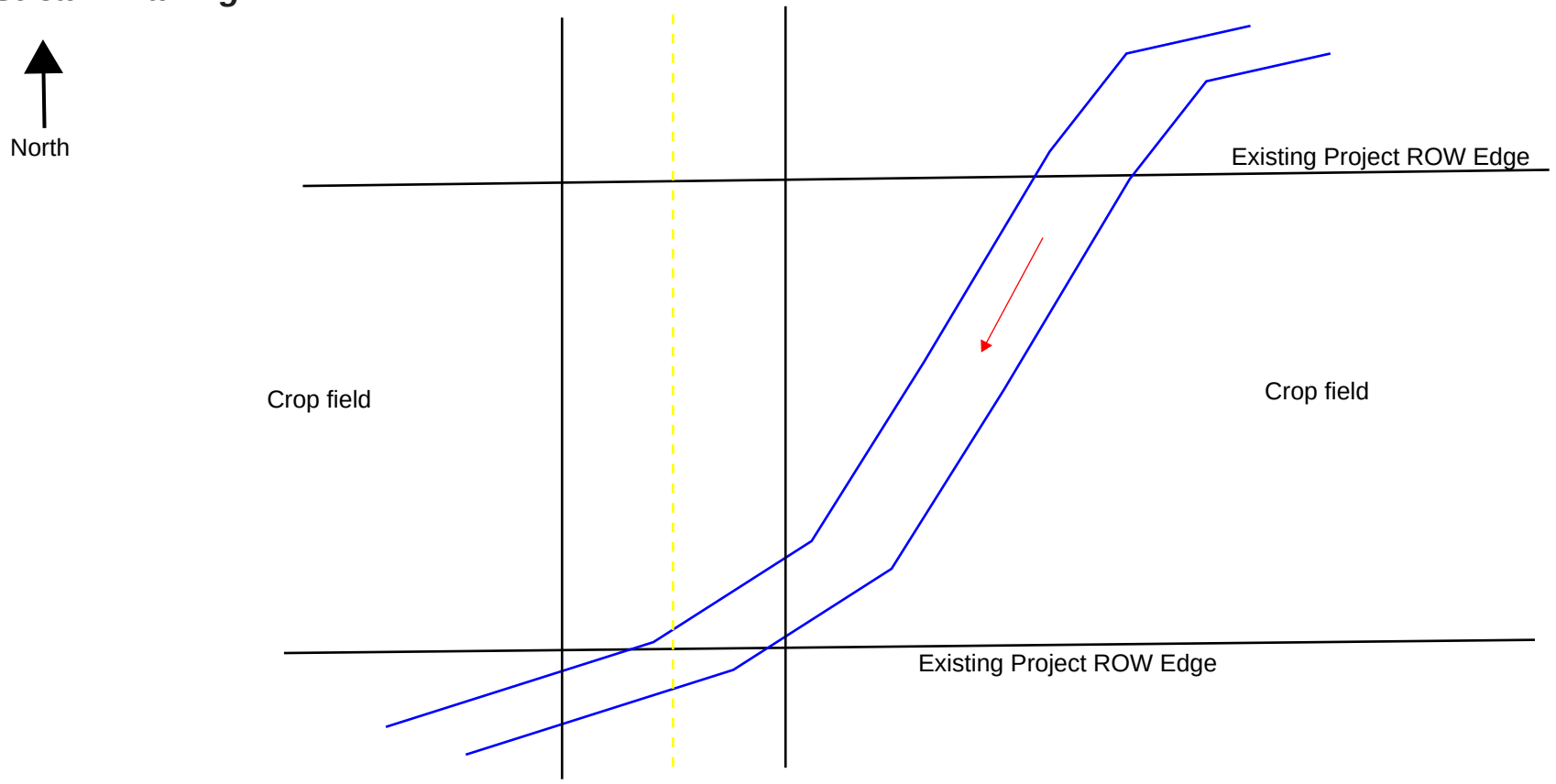
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Appendix D.

OEPA HHEI Data Forms

Field Methods for Evaluating Primary Headwater Streams in Ohio — Version 4.0
Ohio EPA, Division of Surface Water — October 2018

PHW Stream Type: Modified Small Drainage Warmwater Stream

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) 35

SITE NAME/LOCATION: Napoleon-Richland-Stryker 138 kV Tline — Intermittent
SITE NUMBER: ____ RIVER BASIN: ____ RIVER CODE: ____ DRAINAGE AREA (mi²): ____
LENGTH OF STREAM REACH (ft): ____ LAT: ____ LONG: ____ RIVER MILE: ____
DATE: 20181112 SCORER: M.Thomayer COMMENTS: Channelized intermittent stream originating at culverts.

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	15
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pts]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]		☐	CLAY or HARDPAN [0 pt]	5
☒	GRAVEL (2-64 mm) [9 pts]	80	☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12

TOTAL NUMBER OF SUBSTRATE TYPES: 3 (B)

HHEI Metric Points
Substrate Max = 40: 15
A + B

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

☐	> 30 centimeters [20 pts]	☒	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: ____ MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: 15

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

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☒	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: ____ AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☒	☒	Urban or Industrial
☒	☒	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

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

☒	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream; flowing from recent rains.

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

☒	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Williams Township/City: _____

MISCELLANEOUS

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

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100% in ROW

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

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

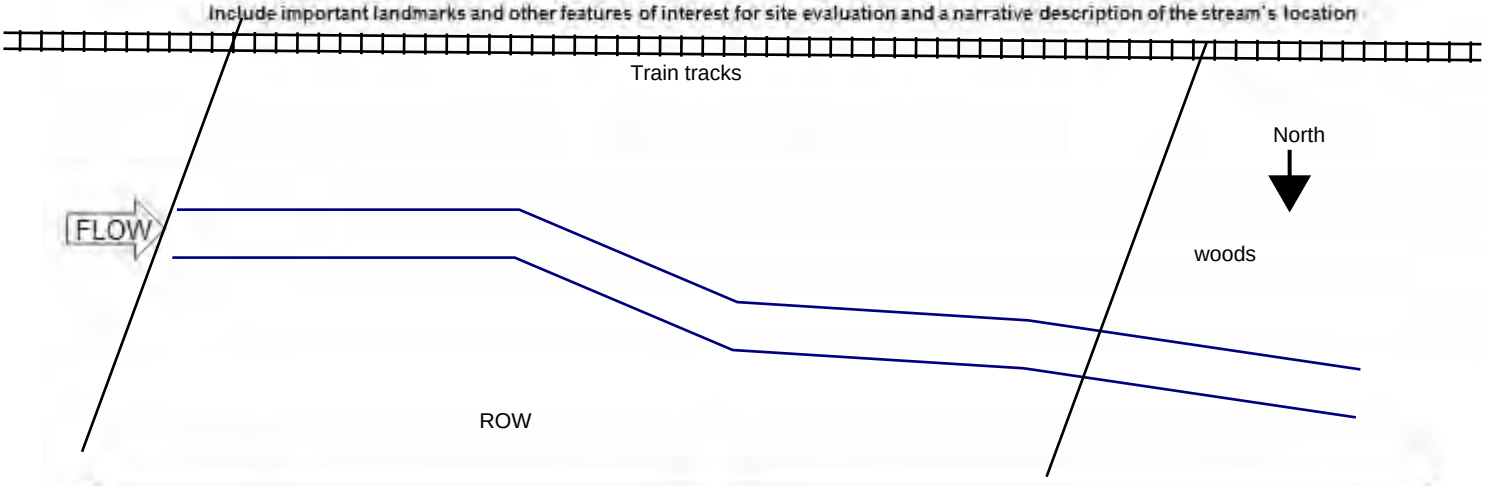
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

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

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



Field Methods for Evaluating Primary Headwater Streams in Ohio — Version 4.0
Ohio EPA, Division of Surface Water — October 2018

PHW Stream Type: Modified Small Drainage Warmwater Stream

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) 56

SITE NAME/LOCATION: Napoleon-Richland-Stryker 138 kV Tline — Intermittent
SITE NUMBER: ____ RIVER BASIN: ____ RIVER CODE: ____ DRAINAGE AREA (mi²): ____
LENGTH OF STREAM REACH (ft): ____ LAT: ____ LONG: ____ RIVER MILE: ____
DATE: 20190731 SCORER: M.Thomayer COMMENTS: Channelized intermittent stream with culverts for private lane.

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	40
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pts]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]		☒	CLAY or HARDPAN [0 pt]	50
☐	GRAVEL (2-64 mm) [9 pts]		☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	10

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

TOTAL NUMBER OF SUBSTRATE TYPES: 3 (B)

HHEI Metric Points
Substrate Max = 40: 6
A + B

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

- ☐ > 30 centimeters [20 pts]
- ☒ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: ____ MAXIMUM POOL DEPTH (inches): 10

Pool Depth Max = 30: 30

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

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☒ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: ____ AVERAGE BANKFULL WIDTH (feet): 5

Bankfull Width Max=30: 20

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☒	☒ Narrow <5m	☒	☒ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: ____

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

- ☒ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream; flowing from recent rains.

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

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☒ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
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☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Henry Township/City: _____

MISCELLANEOUS

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

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100% in ROW

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

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

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Comments Regarding Biology: _____

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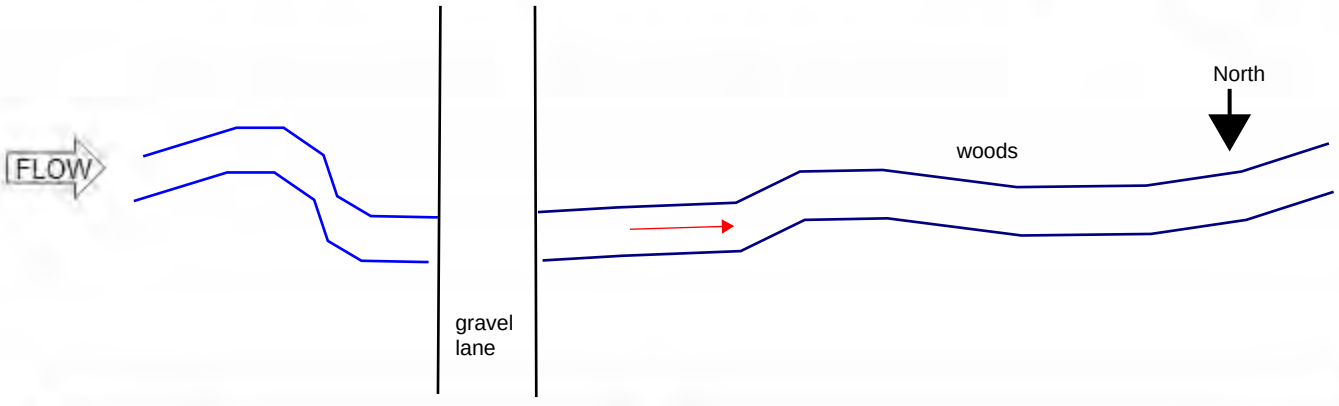


Appendix E.

Representative Photographs

Project Title: NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 1

Stream NRS - 01 (intermittent) facing upstream on November 12, 2008. Map Page 3A.

PHOTOGRAPH 2

Stream NRS - 01 (intermittent) facing downstream on November 12, 2018. Map Page 3A.

Project Title:	NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 3

Stream NRS - 01 (intermittent) substrate on November 12, 2018. Map Page 3A.

PHOTOGRAPH 4

Stream NRS - 02 (perennial) facing upstream on November 12, 2018. Map Page 3I.

Project Title: NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 5

Stream NRS - 02 (perennial) facing downstream on November 12, 2018. Map Page 3I.

PHOTOGRAPH 6

Stream NRS - 02 (perennial) substrate on November 12, 2018. Map Page 3I.

Project Title: NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 7

Stream NRS - 03 (perennial) facing upstream on November 13, 2018. Map Page 3L.

PHOTOGRAPH 8

Stream NRS - 03 (perennial) facing downstream on November 13, 2018. Map Page 3L.

Project Title: NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 9

Stream NRS - 04 (perennial) facing upstream on November 13, 2018. Map Page 3L.

PHOTOGRAPH 10

Stream NRS - 04 (perennial) facing downstream on November 13, 2018. Map Page 3L.

Project Title: NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 11

Stream NRS - 05 (intermittent) facing upstream on July 31, 2019. Map Page 3L.

PHOTOGRAPH 12

Stream NRS - 05 (intermittent) facing downstream on July 31, 2019. Map Page 3L.

Project Title:	NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 13

Wetland NRS - 01 (PEM) facing west on November 13, 2018. Map Page 3K.

PHOTOGRAPH 14

Wetland NRS - 01 (PEM) facing south on November 13, 2018. Map Page 3K.

Project Title: NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 15

Wetland NRS - 02 (PEM) facing east on November 13, 2018. Map Page 3L.

PHOTOGRAPH 16

Wetland NRS - 02 (PEM) facing west on November 13, 2018. Map Page 3L.

Project Title: NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 17

Wetland NRS - 03 (PEM) facing east on November 13, 2018. Map Page 3L.

PHOTOGRAPH 18

Wetland NRS - 03 (PEM) facing west on November 13, 2018. Map Page 3L.

Project Title: NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 19

Wetland NRS - 04 (PEM) facing east on November 12, 2018. Map Page 3L.

PHOTOGRAPH 20

Wetland NRS - 04 (PEM) facing west on November 12, 2018. Map Page 3L.

Project Title:	NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 21

Wetland NRS - 05 (PEM) facing east on November 12, 2018. Map Page 3L.

PHOTOGRAPH 22

Wetland NRS - 05 (PEM) facing west on November 12, 2018. Map Page 3L.

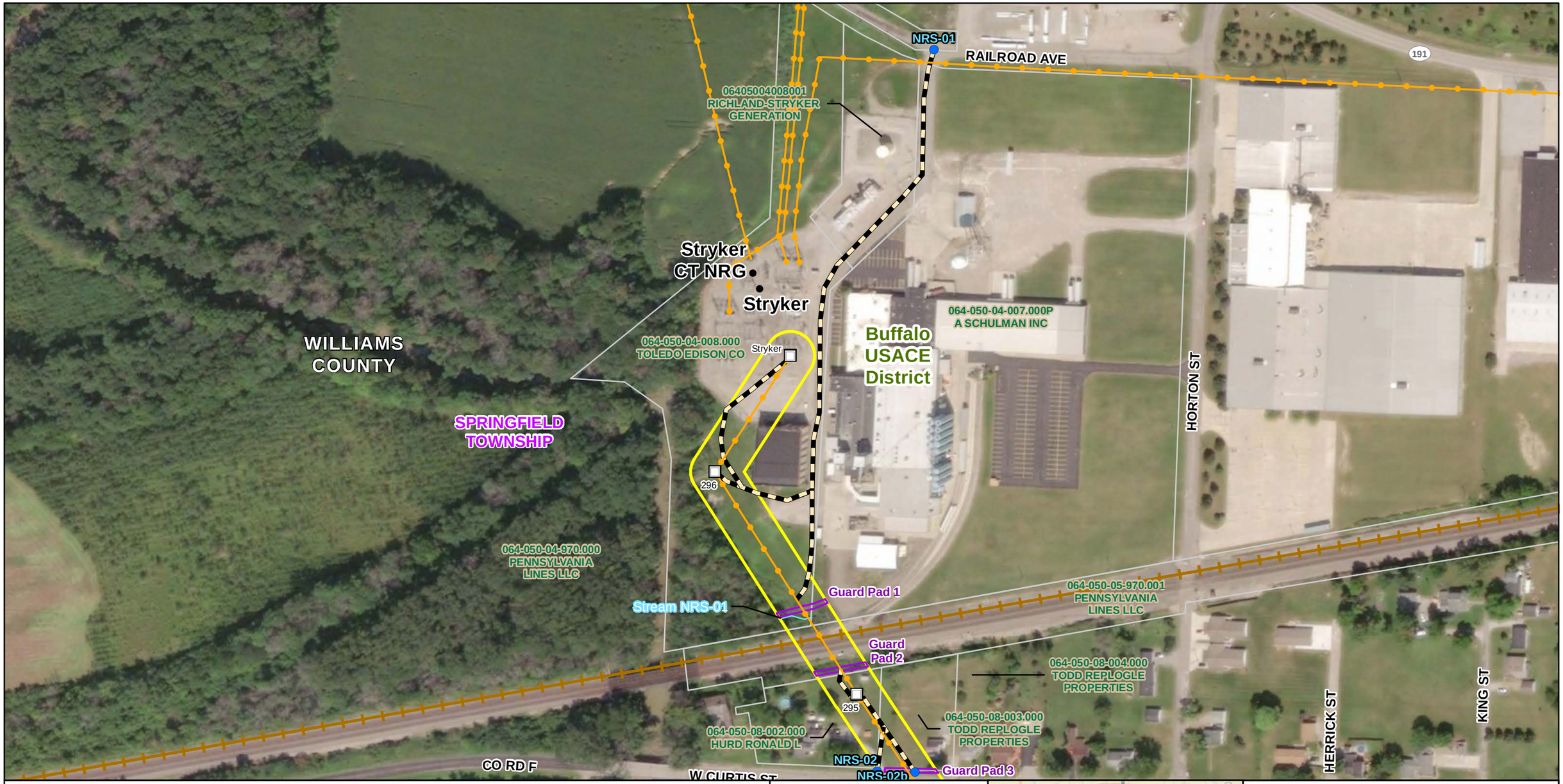
Project Title: NAPOLEON – RICHLAND – STRYKER 138 KV TRANSMISSION LINE REBUILD PROJECT

PHOTOGRAPH 23

Wetland NRS - 06 (PEM) facing north on July 31, 2019. Map Page 3L.

PHOTOGRAPH 24

Wetland NRS - 06 (PEM) facing south on July 31, 2019. Map Page 3L.



- Access Point
- Bald Eagle Observation Point
- Substation
- Structure
- Access Road
- Existing Transmission Line
- Railroad
- County Boundary
- Delineated Stream
- Delineated Wetland
- Guard Location
- Impacted Parcel
- Landing Zone
- Laydown Yard
- Pull Site
- Project 100-Foot Right-of-Way (ROW)
- Township Boundary

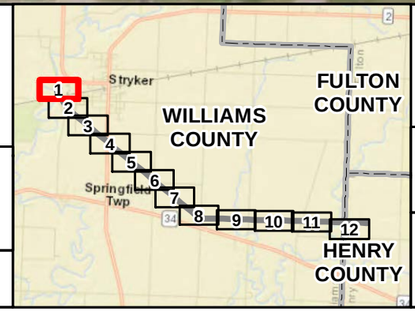
EXHIBIT 10

Page 1 of 12

Sources:
Imagery (ESRI 2018)

Coordinate System:
NAD 1983 UTM Zone 17N
Datum: North American 1983

July 29, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE
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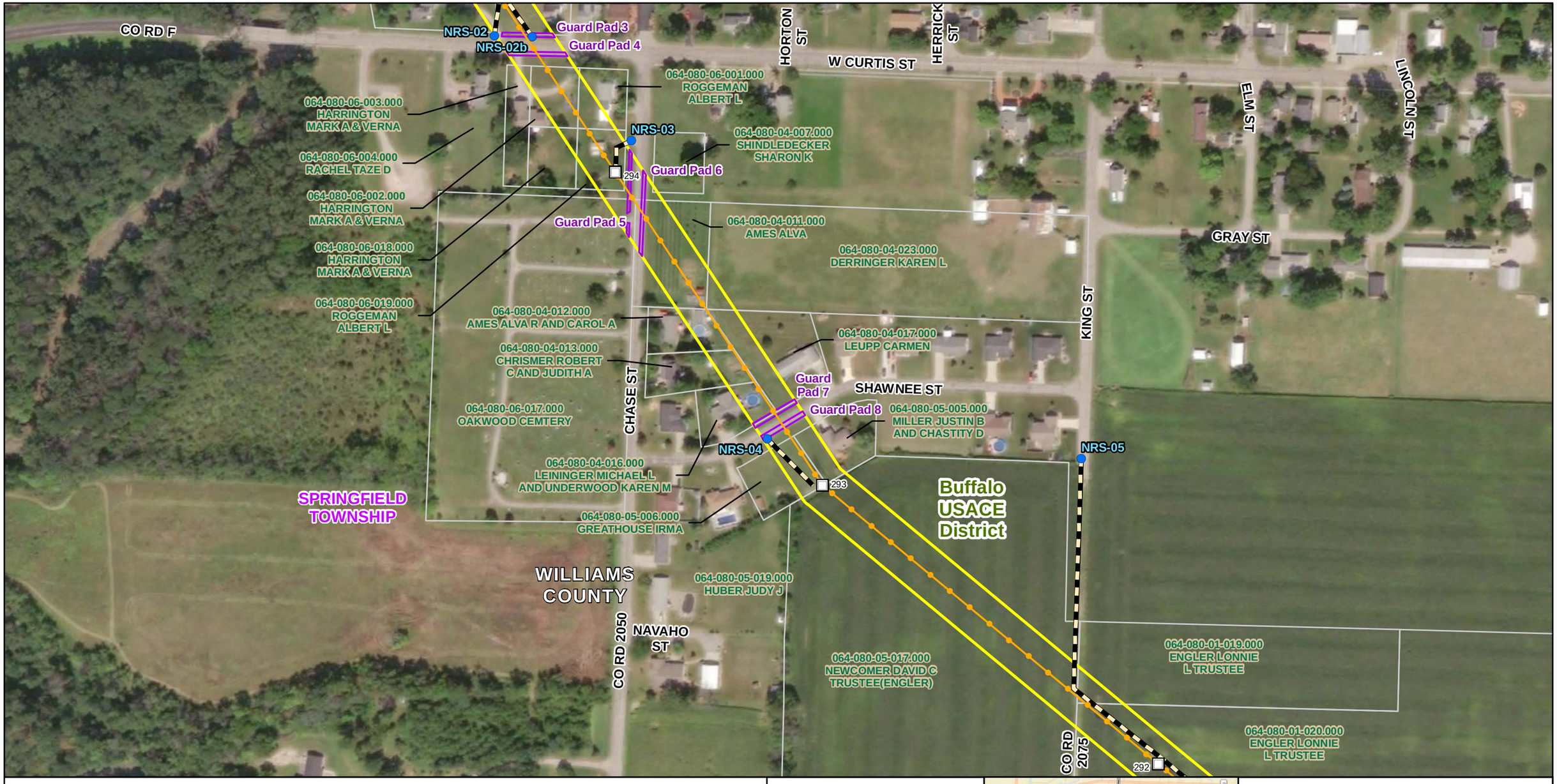

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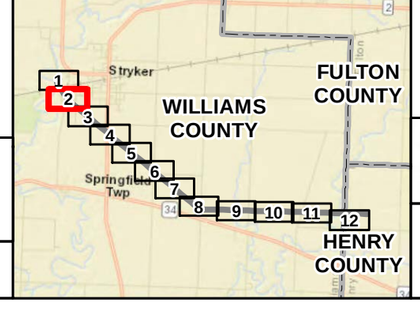

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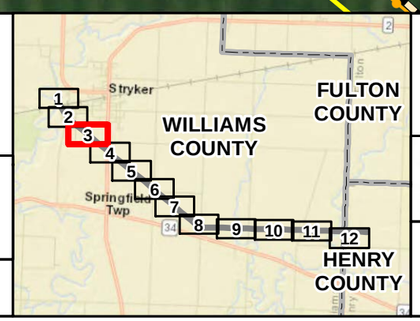

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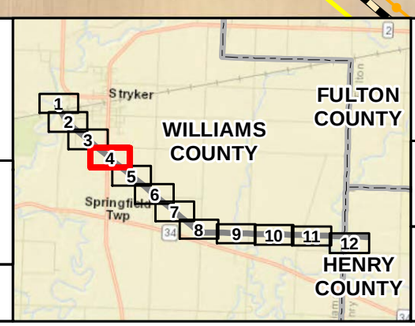

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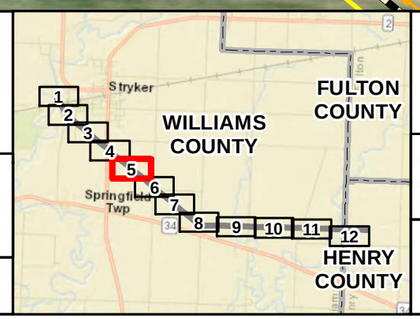

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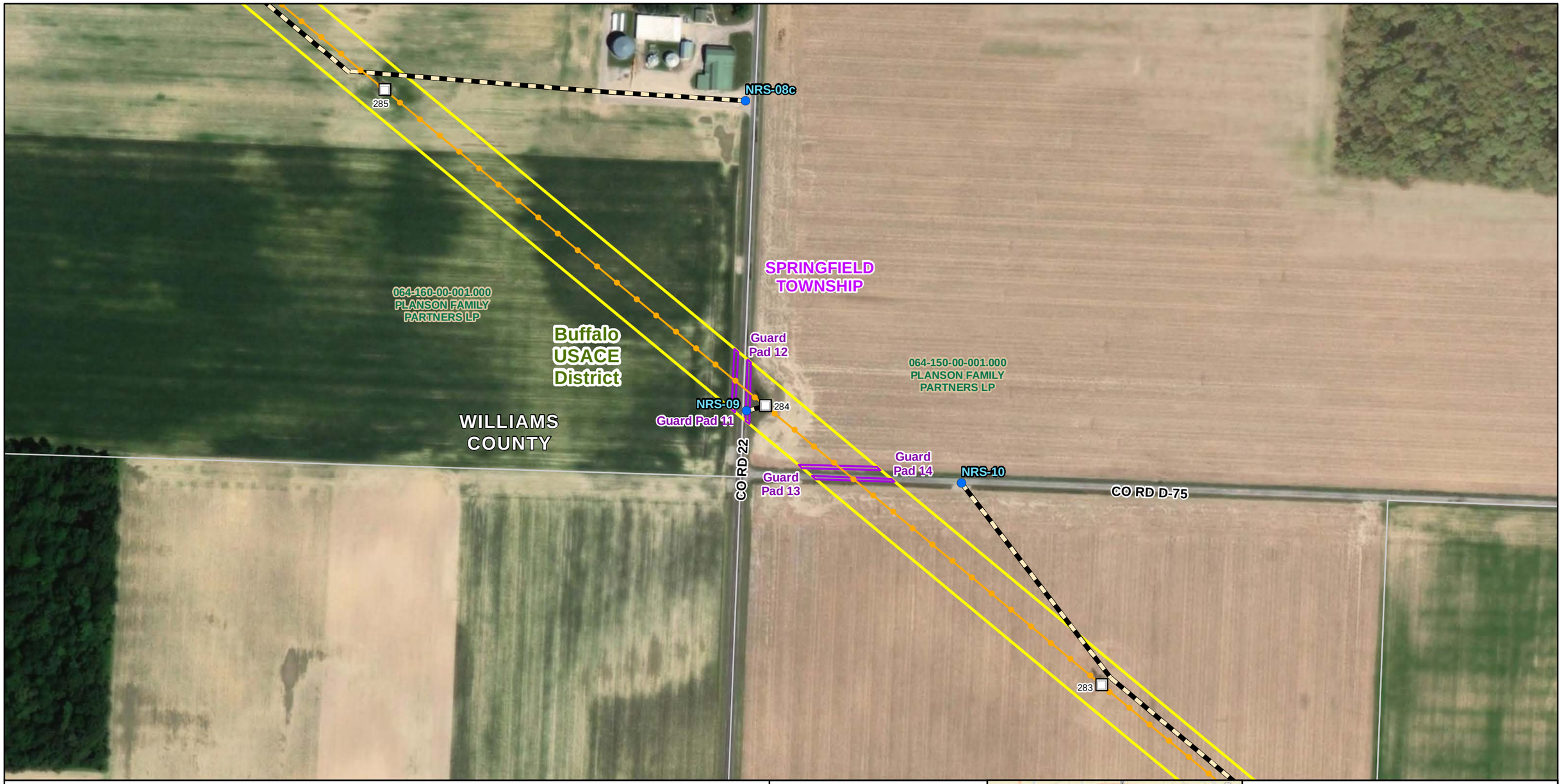

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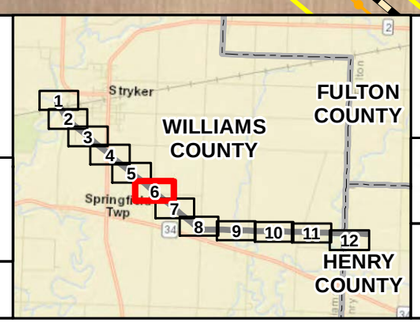

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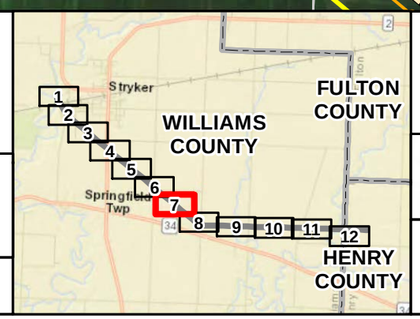

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064-150-00-013.000
RUFFER JAMES
E TRUSTEE

064-150-00-015.000
RUFFER EDDIE
J AND JULIE M

064-150-00-016.000
RUFFER ED J
AND JULIE

064-150-00-008.001
FISH ARTHUR WILLIAMS MARVIN
AND NORMA JEAN (LE) ETAL

064-150-00-008.002
STUCKEY LARRY
D (LE) ETAL

064-140-00-007.000
STUCKEY LARRY
D (LE) ETAL

SPRINGFIELD
TOWNSHIP

Buffalo
USACE
District

WILLIAMS
COUNTY

CO RD 2275

280
279
278

NRS-12
NRS-11
NRS-11b

Guard Pad 15
Guard Pad 16

Laydown 1

Landing
Zone 1

34

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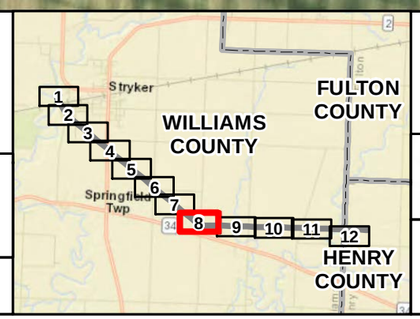

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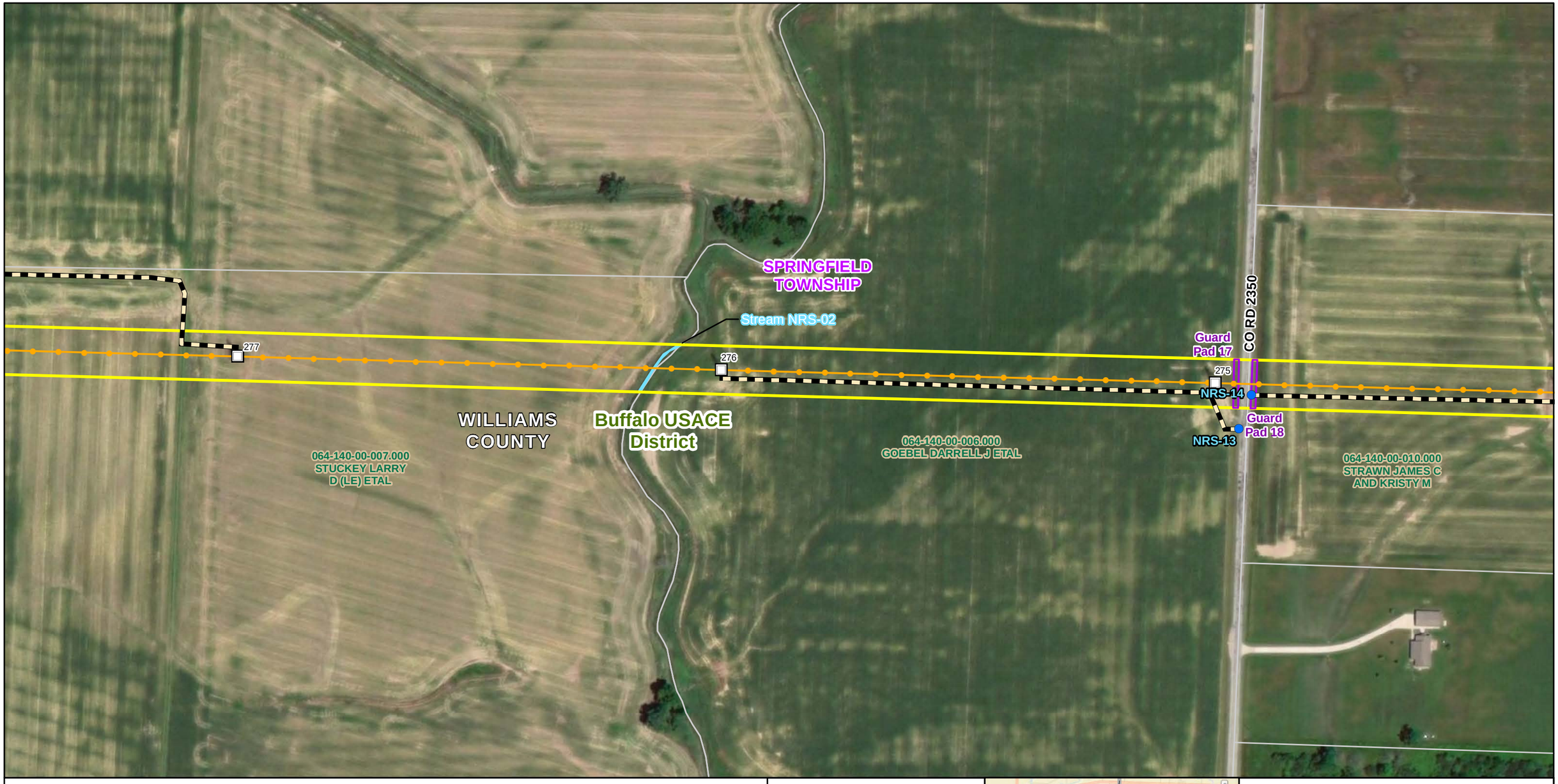

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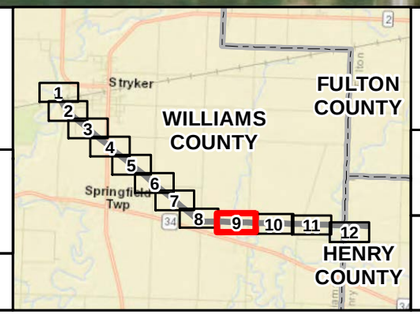

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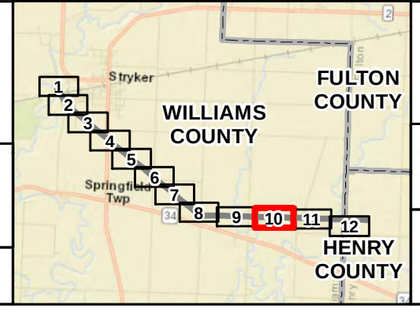

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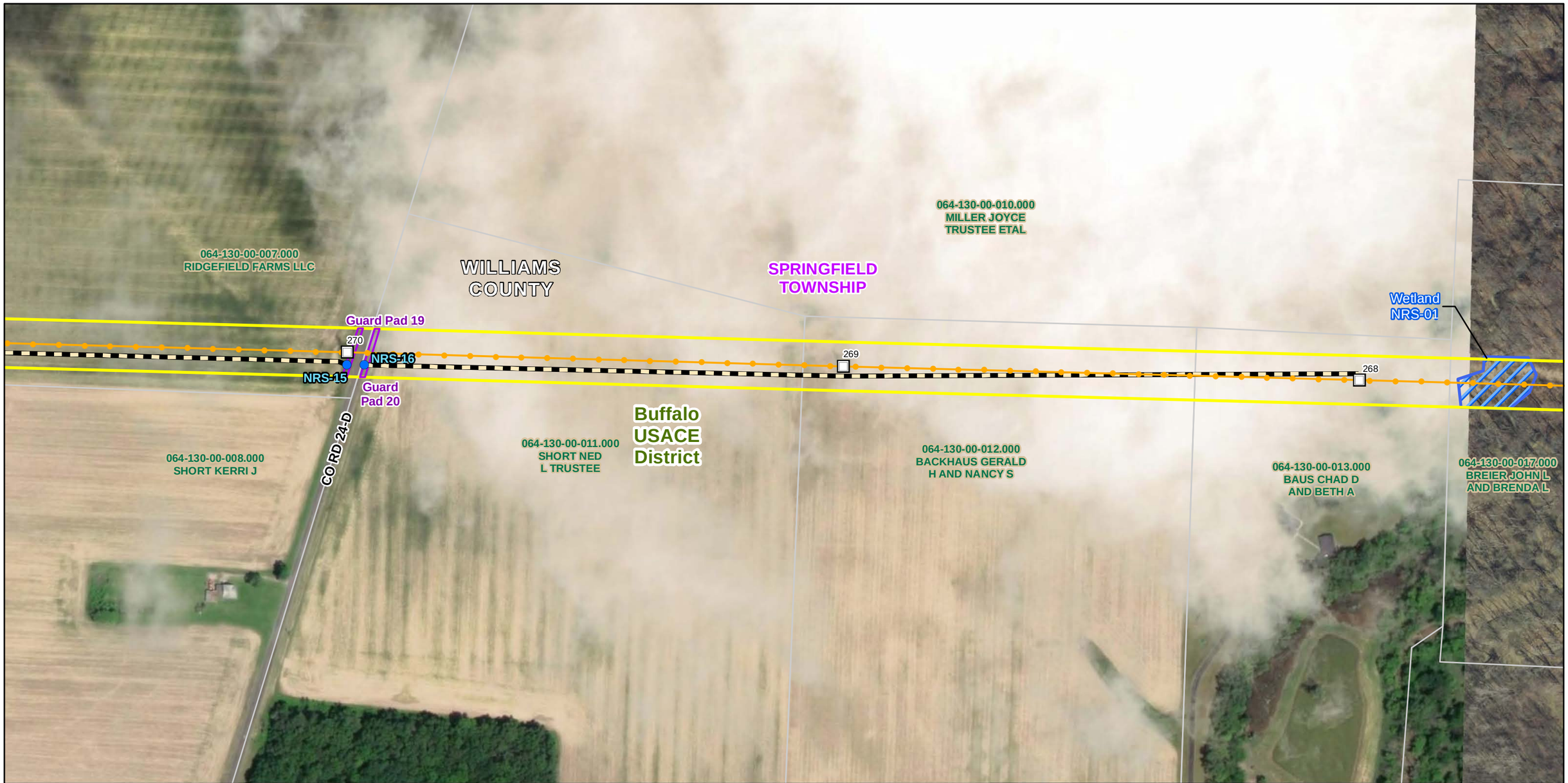
0 200 400 Feet

N

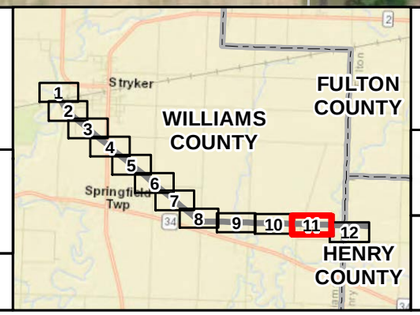


- Access Point
- Bald Eagle Observation Point
- Substation
- Structure
- Access Road
- Existing Transmission Line
- Railroad
- County Boundary
- Delineated Stream
- Delineated Wetland
- Guard Location
- Impacted Parcel
- Landing Zone
- Laydown Yard
- Pull Site
- Project 100-Foot Right-of-Way (ROW)
- Township Boundary

Sources:
Imagery (ESRI 2018)

Coordinate System:
NAD 1983 UTM Zone 17N
Datum: North American 1983

July 29, 2019



NAPOLEON-RICHLAND-STRYKER 138 KV TRANSMISSION LINE

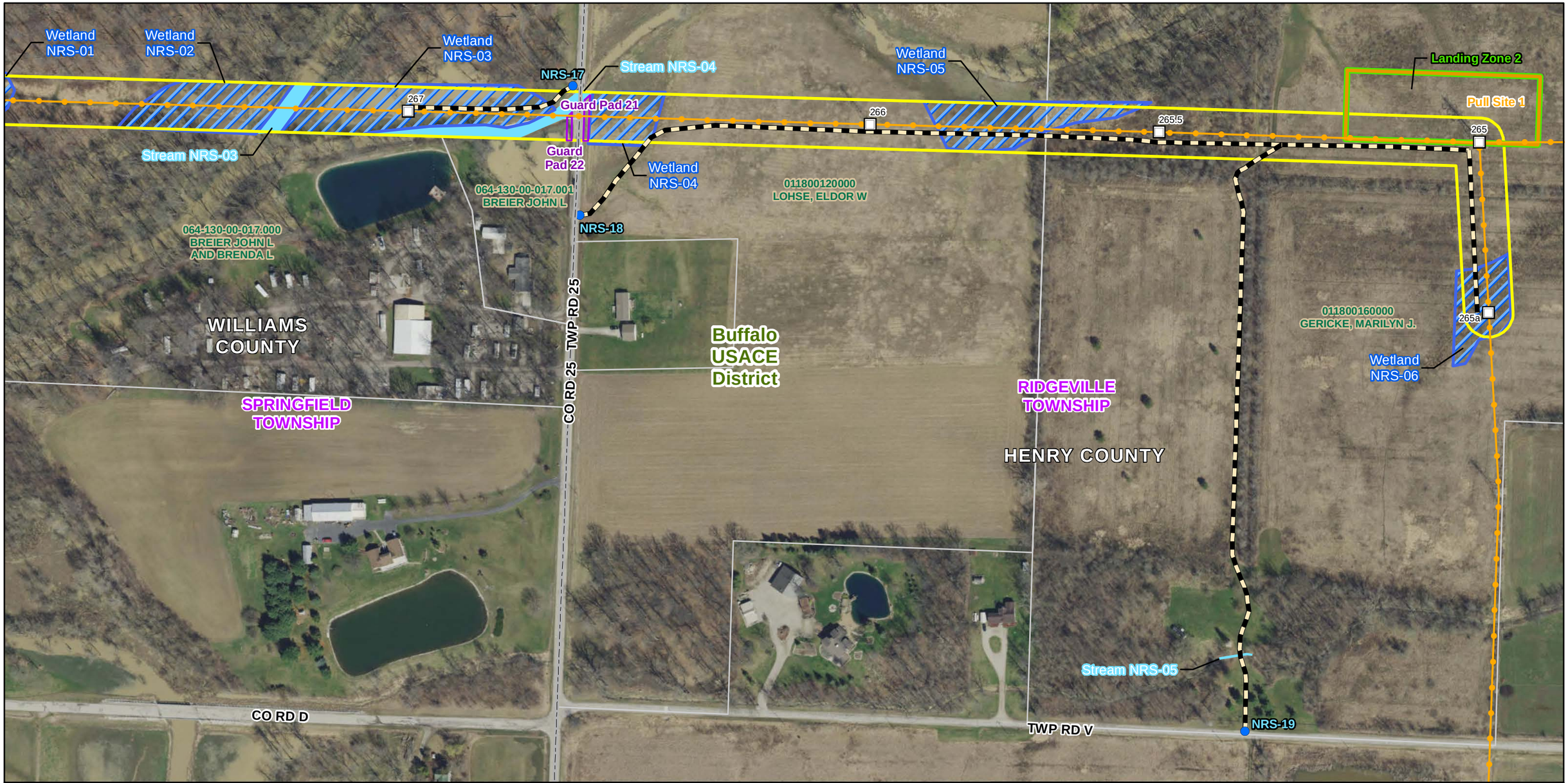
Access Maps

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

N



- Access Point
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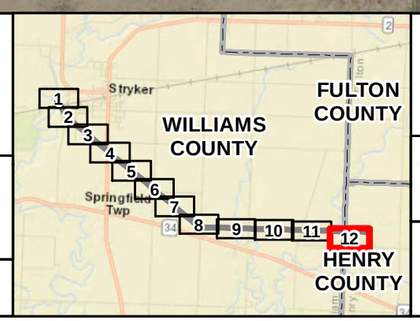
- Township Boundary

Sources:
Imagery (ESRI 2018)

Coordinate System:
NAD 1983 UTM Zone 17N
Datum: North American 1983

August 22, 2019



NAPOLEON-RICHLAND-STRYKER
138 KV TRANSMISSION LINE
Access Maps

ToledoEdison® A FirstEnergy Company

wsp

0 200 400 Feet

0 1,000 2,000 Feet

1:24,000

Project Area

Flood Plain Zone Type

A

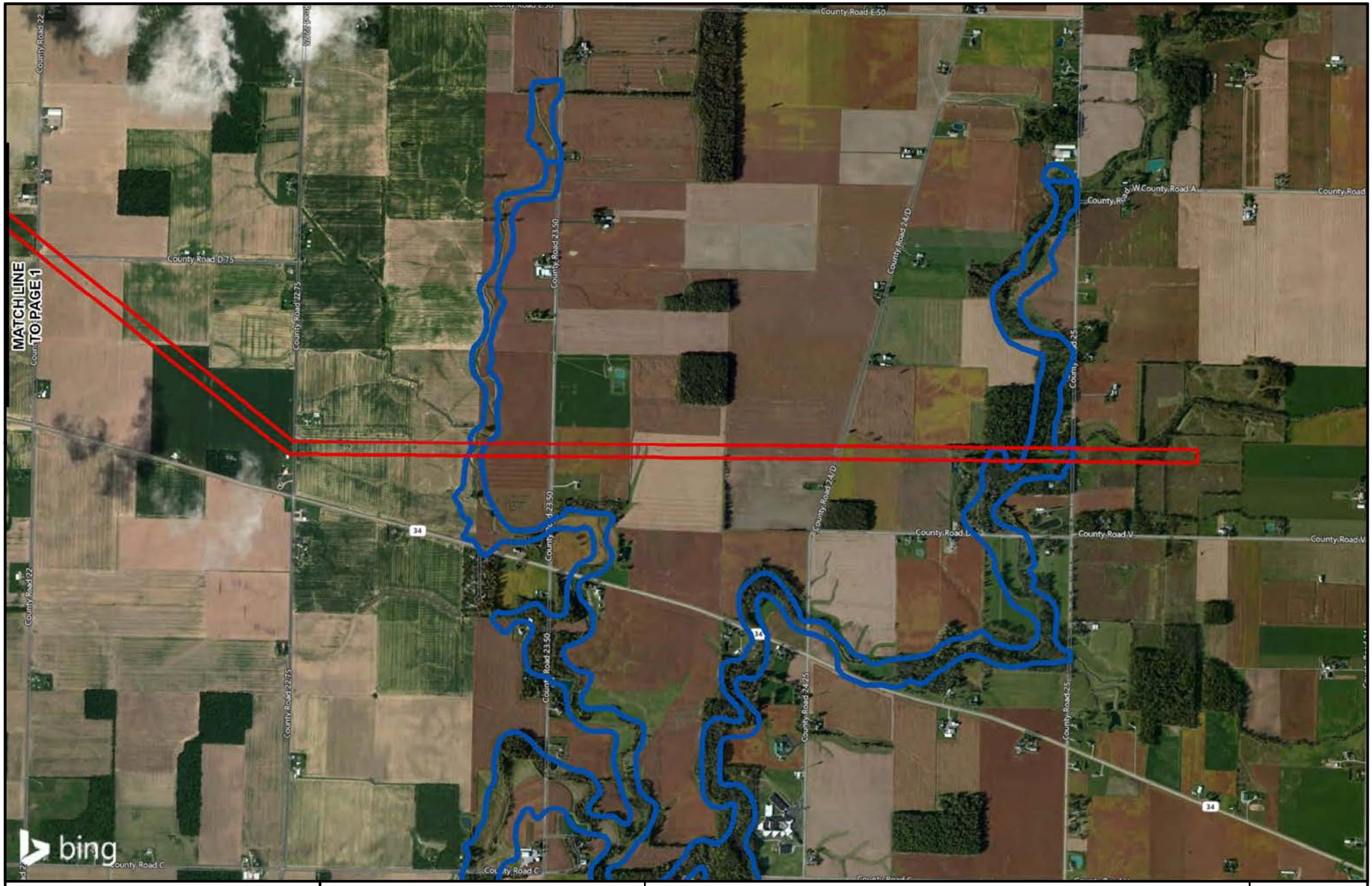
Napoleon-Richland-Stryker 138 kV Transmission Line Open Arm Project

Exhibit 11

N

FirstEnergy

Created on 9/13/2019



0 1,000 2,000 Feet

1:24,000

Project Area

Flood Plain Zone Type

A

Napoleon-Richland-Stryker 138 kV Transmission Line Open Arm Project

Exhibit 11

N

FirstEnergy

Created on 9/13/2019