AMERICAN TRANSMISSION SYSTEMS, INCORPORATED
A FIRSTENERGY COMPANY

LETTER OF NOTIFICATION

EAST SPRINGFIELD-LONDON #2 138 kV TRANSMISSION LINE EXTENSIONS TO NORTH TITUS SUBSTATION PROJECT

OPSB CASE NO.: 18-0086-EL-BLN

February 1, 2018

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

LETTER OF NOTIFICATION
EAST SPRINGFIELD-LONDON #2 138 kV TRANSMISSION LINE
EXTENSION TO NORTH TITUS SUBSTATION PROJECT

The following information is being provided in accordance with the procedures in the Ohio Administrative Code (OAC) Chapter 4906-6 for the application and 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 ("Board") as a Letter of Notification application.

4906-6-05: ACCELERATED APPLICATION REQUIREMENTS

4906-6-05: Name

Name of Project: East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project ("Project").

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

In this Project, American Transmission Systems, Incorporated ("ATSI"), a FirstEnergy company, is proposing to construct two separate transmission line segments from the East Springfield-London #2 138 kV Transmission Line to the new North Titus Substation. These lines will be an approximately 1.0-mile-long East Springfield-North Titus 138 kV Transmission Line and an approximately 0.6-mile-long London-North Titus 138 kV Transmission Line. The Project is needed for Silfex Inc.'s ("Silfex") new manufacturing facility located in the City of Springfield, Clark County, Ohio.

The proposed East Springfield-North Titus 138 kV Transmission Line Extension begins approximately 2,170 feet (0.41 miles) north of the intersection of S. Charlestown Pike (State Route 41) and Gateway Blvd and approximately 250 to the south of existing Structure #5720. The route of this extension then trends east approximately 4,520 feet (0.86 miles) before turning to the southeast for approximately 265 feet (0.05 miles). The route then trends east for approximately 290 (0.05 miles) feet to the proposed location of North Titus Substation. The total length of this route will be approximately 5,075 feet (0.96

miles). This route requires fifteen (15) new structures of which twelve (12) are shown in Exhibit 4, two (2) are shown in Exhibit 6, and one (1) is shown in Exhibit 9.

The proposed London-North Titus 138 kV Transmission Line Extension begins approximately 35 feet (0.01 miles) west of Titus Road and approximately 60 feet (0.01 miles) east of existing Structure #5728. The route of this extension trends to the north approximately 1,060 feet (0.20 miles) before turning to the northeast for approximately 390 feet (0.07 miles). The route then heads north for approximately 1,330 (0.25 miles) feet before turning to the east for approximately 125 feet (0.02 miles) and into the proposed location of North Titus Substation. The total length of this route will be approximately 2,905 feet (0.55 miles). This route will install eight (8) new structures of which three (3) are shown in Exhibit 4, three (3) are shown in Exhibit 5, one (1) is shown in Exhibit 7, and one (1) is shown in Exhibit 8.

795 kcmil 26/7 ACSR conductor and 7#8 Alumoweld shield wire will be installed on both new transmission line extensions to North Titus Substation. The existing 477 kcmil 26/7 ACSR conductors and 7#8 Alumoweld shield wire strung between the new tap structures adjacent to existing structures #5720 and #5728 shall remain installed and be de-energized.

The general location of the Project is shown in Exhibit 1, a partial copy of the United States Geologic Survey, Clark County OH, Quad Map, ID number o39083. Exhibit 2 is a copy of Bing aerial imagery of the Project area. The general layout is shown in Exhibit 3. The Project will be located in Springfield Township and the City of Springfield, Clark County Ohio.

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

The Project meets the requirements for a Letter of Notification because the Project is within the types of projects defined by Items (1)(b) and (1)(d)(ii) of the Application Requirement Matrix for Electric Power Transmission Lines, Appendix A of OAC Rule 4906-1-01. These items state:

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

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

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

(d) Line(s) primarily needed to attract or meet the requirements of a specific customer or customers, as follows:

(ii) Any portion of the line is on property owned by someone other than the specific customer or applicant.

The proposed Project is within the requirements of Item (1)(b) as the total length of the Project is approximately 1.55 miles long. The proposed Project is within the requirements of Item (1)(d)(ii) as it involves the new construction of two transmission line extensions that are needed for Silfex and a portion of the transmission lines is on property owned by someone other than Silfex or ATSI.

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

The Project is needed to provide power to Silfex's new manufacturing facility. Silfex is requesting separate lines, in a diverse path, to reduce the risk of failure during their manufacturing process if they experience loss of power. Their operation is highly sensitive to power interruption, which can result not only in a significant loss of production, but can also create a safety issue for the facility

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. 2017 Long-Term Forecast Report. This map was submitted to the PUCO in Case No. 17-0913-EL-FOR under Rule 4901:5-5:04 (C)(2)(b) of the Ohio Administrative Code. The map is incorporated by reference only. This map shows ATSI's 345 kV and 138 kV transmission lines and transmission substations including the East Springfield-London #2 138 kV Transmission Line. The project area is located approximately 2 ½ inches (11" x 17" printed version) from the left edge of the map and 8 $^{6}/_{10}$ 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.

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

The general area of the Project was carefully considered to identify potential routes that are constructible, minimize potential impacts to the extent practical, and meet the needs of the new manufacturing facility. The entire Gateway Industrial Park area was surveyed for possible routes. Early in this process the Springfield Chamber of Commerce, Gateway Industrial Park, and local property owners were engaged to provide input into the process. Based on the public input received, resource agency reviews and existing land use considerations, as well as the findings of field assessments, the proposed routes were selected.

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

The City of Springfield Chamber of Commerce and the existing landowners and occupants of the Gateway Industrial Park were advised of this Project during fourth quarter 2017 to seek input with respect to route selection. ATSI's manager of External Affairs will continue to advise local officials of features and the status of the proposed Project as necessary. ATSI will maintain a copy of this Letter of Notification on FirstEnergy's website. Letters will be sent to affected property owners at least 7 days before construction begins on the Project informing them of the Project's start and a proposed timeframe of construction and restoration activities.

ATSI will publish notice of the Project in The Springfield Sun. Additionally, letters will be sent to affected property owners when this Letter of Notification is submitted to the Board informing them of the Project.

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

The construction schedule for this Project is expected to begin as early as March 1, 2018 and completed by November 30, 2018.

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

Exhibit 1 depicts the general location of the Project. This Exhibit provides a partial copy of the United States Geological Survey, Clark County OH, quadrangle map (Quad Order ID o39083). Exhibit 2 provides a copy Bing of aerial imagery of the project area.

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

The Project is located on existing, new, and public right-of-way. New right-of-way is required for a majority of the Project. Table 1 contains a list of property owners affected by the Project.

Table 1: Property Owner List

Parcel Number	Property Owner	Property Address	Easement Type	Easement Status
300-07-00010-200-001	Brian and Jennifer Harbage	S. Charleston Pk Rear	Right of Way	Obtained
300-07-00010-400-001	Brian and Jennifer Harbage	780 Titus Ln	Tree Clearing	Obtained
300-07-00010-400-002	Brian and Jennifer Harbage	780 Titus Ln	Construction Storage	Obtained
300-07-00010-200-005	Community Improvement Corporation of Springfield and Clark County, OH	S. Charleston Pk Rear	Right of Way	Obtained

Table 1: Property Owner List				
Parcel Number	**Property Owner**	**Property Address**	**Easement Type**	**Easement Status**
300-07-00010-200-003	Community Improvement Corporation of Springfield and Clark County, OH	S. Charleston Pk Rear	Right of Way	Obtained
300-07-00004-000-071	Reed Elselvier, Inc.	601 Benjamin Dr	Right of Way	Will Be Obtained
330-07-00004-000-060	NTD Properties, LTD	785 Benjamin Dr	Tree Clearing	Will Be Obtained
330-07-00004-000-063	Benjamin Dr (City of Springfield, Ohio)	Benjamin Dr	Right of Way	Will Be Obtained
330-07-00004-000-064	Dole Dried Fruit and Nut Company	660 Benjamin Dr	Right of Way	Will Be Obtained
305-07-00004-000-012	Bud Antle, Inc.	693 Titus Rd	Right of Way	Will Be Obtained
300-07-00004-000-013	Marion L. Cornell	787 Titus Rd	Tree Clearing	Obtained
330-07-00004-000-062	4890 Gateway, LLC	4980 Gateway Blvd	Right of Way	Will Be Obtained
300-07-00004-000-018	Matthew A. & Victoria Clark	790 Titus Rd	Tree Clearing	Will Be Obtained
305-07-00004-000-069	Silfex, Inc.	1000 Titus Rd	Right of Way	Will Be Obtained
330-07-00004-000-068	Fibricon Enterprises II, Inc.	4981 Gateway Blvd	Right of Way	Will Be Obtained
N/A	ODOT (I-70)	I-70	Right of Way/Permit	Will Be Obtained
300-07-00003-200-001	Allen E. Hayslip, Jr	1266 Titus Rd	Tree Clearing	Will Be Obtained

Table 1: Property Owner List				
Parcel Number	**Property Owner**	**Property Address**	**Easement Type**	**Easement Status**
330-07-00004-500-004	Norfolk Southern	Railroad	Right or Way/Permit	Will Be Obtained
300-07-00003-600-001	Ohio Edison Company	1243 Titus Rd	N/A	Owned in Fee

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

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

The transmission line construction will have the following characteristics:

Voltage: 138 kV

Conductors: 795 kcmil 26/7 ACSR

Static Wire: OPGW & 7#8 Alumoweld

Insulators: Polymer

ROW Width: 60 feet

Land Requirements: 135 feet from the edge of right-of-way needed for adjacent tree clearing.

Structure Types: Exhibit 4: Single Circuit, Wood Pole, Horizontal Post Tangent Structure. Fifteen (15) structures are needed.

Exhibit 5: Single Circuit, Steel Pole, Deadend Angles 0-60 Degree Structure. Three (3) structures are needed.

Exhibit 6: Single Circuit, Wood Pole, Deadend Angels 20-60 Degrees Structure. Approximately two (2) structure is needed.

Exhibit 7: Single Circuit, Wood Pole, Deadend 60-120 Degrees Structure. Approximately one (1) structure is needed.

Exhibit 8: Double Circuit, Steel Pole, 3-Way Deadend Tap Structure. Approximately one (1) structure is needed.

Exhibit 9: Double Circuit, Steel Pole, 3-Way Deadend Tap Structure. Approximately one (1) structure is needed.

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

The closest occupied residence or institution is approximately 102 feet from the proposed transmission line centerline therefore no Electric and Magnetic Field ("EMF") calculations are required by this code provision.

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

The estimated capital cost for the proposed Project is approximately $3,491,351. The cost of the proposed Project will be split among ATSI and Silfex Inc. ATSI will cover the cost of one single circuit tap line to the proposed substation, which is estimated at approximately $2,247,800. This is an ATSI cost because of the potential for future extension and service to other customers in the area for the single circuit tap line. Silfex, Inc. will pay for the remainder of the overall Project cost, which will consist of the construction of the second transmission line tap and North Titus substation.

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

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

The Project is located in Springfield Township and the City of Springfield, Clark County Ohio. The main land use around the Project is a mixture of agricultural and industrial land.

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

Agricultural land does exist within the Project's disturbance area. Approximately 0.35 miles in length of the right-of-way for the proposed East Springfield-North Titus 138 kV Extension is on the edge of 4 parcels that aerial photography indicated are used for agricultural purposes. A list of all agricultural land and acreage including agricultural district land is given in Table 2.

Table 2: Agricultural Lands within the Project's Disturbance Area				
Parcel Number	**Property Owner**	**Acreage**	**Agricultural District**	**Agricultural District Expiration**
300-07-00010-200-001	Brian and Jennifer Harbage	17.78	No	N/A
300-07-00010-200-005	Community Improvement Corporation of Springfield and Clark County, OH	31.80	No	N/A
300-07-00010-200-003	Community Improvement Corporation of Springfield and Clark County, OH	29.03	No	N/A
305-07-00004-000-012	Bud Antle, Inc.	26.55	No	N/A

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

As part of the investigation, 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 10. The specific locations of any archeological resources are excluded from the map and are instead listed in Table 3.

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 no listed NRHP sites and no NRHP eligible sites were identified within 0.5 miles of the Project potential disturbance area.

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. Seven (7) OAI listed archeological

resource has been previously inventoried within 0.5 miles of the Project area and is shown in Table 3. Two (2) OHI listed structural resources are located within 0.5 miles of the Project area and are shown in Table 4. Four (4) previous Phase I archeological resource surveys were conducted within 0.5 miles of the Project area and is provided in Table 5. One (1) OSG cemeteries is located within 0.5 miles of the Project area and is provided in Table 6.

Table 3. List of OAI Listed Archeological Resources

OAI Number	Affiliation	Description	County	Quad Name
CL0568	Prehistoric	Unknown Prehistoric	Clark	New Moorefield
CL0573	Historic	Non-Aboriginal	Clark	New Moorefield
CL0577	Prehistoric	Unknown Prehistoric	Clark	New Moorefield
CL0578	Prehistoric	Unknown Prehistoric	Clark	New Moorefield
CL0579	Prehistoric	Unknown Prehistoric	Clark	New Moorefield
CL0580	Prehistoric	Unknown Prehistoric	Clark	New Moorefield
CL0598	Historic	Non-Aboriginal	Clark	New Moorefield

Table 4. List of OHI Listed Structural Resources

OHI Number	Present Name	Historic Use	County	Municipality
CLA0202501	Terry S. & Pamela J. Merrill House	Single Dwelling	Clark	Springfield Township
CLA0202601	Walton E. Cox	Single Dwelling	Clark	Springfield Township

Table 5. List of Previous Cultural & Historic Resource Survey			
Year	**Name**	**County**	**Municipality**
1986	Letter Report: An Archaeological Reconnaissance Of The CLA-41-12.50 Project Area: Springfield Township, Clark County, Ohio	Clark	Springfield Township
2006	Phase I Archaeological Field Reconnaissance of a Proposed Technology Park in Springfield, Clark County, Ohio	Clark	Springfield Township
2006	Phase I Archaeological Field Reconnaissance of a Proposed Technology park (Tracts II and III) in Springfield, Clark County, Ohio	Clark	Springfield Township
2013	Phase I Archaeological Survey of the East Springfield-London 138 KV Electric Transmission Line Project, (Union Township) Madison and (Harmony Township and the City of Springfield) Clark Counties, Ohio	Clark	Springfield Township

Table 6. List of OGS cemeteries			
OGS ID	**Name**	**Municipality, County**	**Location**
1747	Titus	Springfield Township, Clark County	Not Confident/Location Lost -West of Titus Road. Between US 40 and I-70

The closest OAI listed archaeological site is approximately 0.11 miles away from the proposed East Springfield-North Titus 138 kV Extension. Several other OAI listed archeological sites are identified at slightly greater distances. All of the more proximate OAI listed sites are identified in a 2006 Phase I field survey, the "Phase I Archaeological Field Reconnaissance of a Proposed Technology park (Tracts II and III) in Springfield, Clark County, Ohio". An approximately 0.30-mile segment of the western end of the proposed East Springfield-North Titus 138 kV Extension is also located within the previous Phase I survey area. Given the previous Phase I and the fact that the rest of the proposed Project area is located within an existing developed industrial park, no potential impacts to any archeological sites are expected from the Project.

The closest OHI structure is located approximately 0.23 miles north of the proposed East Springfield-North Titus 138 kV Transmission Line Extension. Given the distance away from the proposed Project no impacts are expected.

One OGS cemetery was identified in the search. However, according to the information obtained the location of the cemetery was lost with the only description being somewhere west of Titus Road between US-40 and I-70. Based on the land usage in this area as either tilled farmland or as an industrial park, it is unlikely that the cemetery is located within the Project limits. Additionally, field surveys completed during the stream and wetlands delineation did not reveal any features suggestive of a cemetery, therefore no impacts to the referenced OGS cemetery are expected.

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

Table 7 shows the list of government agency requirements and the filing status at the time of filing.

Table 7. List of Government Agency Requirements to be Secured Prior to Construction

Agency	Permit Requirement	Status
Ohio EPA	General NPDES Construction Strom Water Permit	Will be Filed
Clark County Engineers Office	County Level SWP3	Will be Filed
ODOT	Aerial Crossing Permit (I-70)	Will be Filed
ODOT	Access Road Permit	Will be Filed
City of Springfield	Access Road Permits	Will be Filed
City of Springfield	Roadway Occupancy Permits	Will be Filed
Norfolk Southern	Aerial Crossing Permit (Railroad)	Will Be Filed

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

ATSI contracted AECOM to submit a request to the Ohio Department of Natural Resources ("ODNR") Office of Real Estate to conduct an Environmental Review. As part of the Environmental Review, the ODNR Office of Real Estate conducted a search of the ODNR Division of Wildlife's Natural Heritage Database to research the presence of any endangered, threatened, or rare species within one (1) mile of the Project area. The ODNR's Office of Real Estate's response on January 19, 2018 indicated that two (2) federal and state endangered species, one (1) federal threatened and state endangered species, two (2) state endangered species, and three (3) state threatened species are within the range of the identified Project area. A copy of ODNR's Office of Real Estate's response is included as Exhibit 11.

AECOM also submitted a request to the US Fish and Wildlife Service ("USFWS") for an Ecological Review to research the presence of any endangered, threatened, or rare species within one (1) mile of the Project area. A copy of USFWS's Ecological Review response is included as Exhibit 12. The USFWS's response on December 19, 2017 indicated that they have records of one (1) federal and state endangered species, and one (1) federal and state threatened species. A list of all endangered, threatened, and rare species, as identified by ODNR and USFWS, is provided in Table 8.

Table 8: 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
Rayed Bean	*Villosa fabalis*	Endangered	Endangered	Perennial Streams
Snuffbox	*Epioblasma triquetra*	Endangered	Endangered	Perennial Streams
Iowa Darter	*Etheostoma exile*	N/A	Endangered	Perennial Streams

Table 8: List of Endangered, Threatened, and Rare Species				
Common Name	**Scientific Name**	**Federal Listed Status**	**State Listed Status**	**Affected Habitat**
Tonguetied Minnow	*Exoglossum laurae*	N/A	Threatened	Perennial Streams
Spotted Turtle	*Clemmys guttata*	N/A	Threatened	Wetlands, Pond Edges
Eastern Massasauga	*Sistrurus catenatus*	Threatened	Endangered	Wetlands and Bordering Upland Areas
Kirtland's Snake	*Clonophis kirtlandii*	N/A	Threatened	Wetlands
Upland Sandpiper	*Bartramia longicauda*	N/A	Endangered	Dry grasslands, Pastures, Hayfields

The response from ODNR and USFWS indicated the Project is within the range of the federal and state endangered Indiana Bat (*Myotis sodalis*) and the federal threatened Northern Long-Eared Bat (*Myotis septentrionalis*). This Project will require tree clearing on approximately 0.5 miles of the East Springfield-North Titus 138 kV Transmission Line Extension and approximately 0.1 miles of the London-North Titus 138 kV Transmission Extension. ATSI will adhere to the seasonal tree clearing restrictions between October 1st and March 31st to avoid any potential impacts to these species. If this schedule cannot be achieved and the clearing of trees outside of this window is necessary, consultation with ODNR and USFWS will be completed prior to clearing.

The response from ODNR indicated that the Project Area is within the range of the Rayed Bean (*Villosa fabalis*), the Snuffbox (*Epioblasma triquetra*), the Iowa Darter (*Etheostoma exile*), and the Tonguetied Minnow (*Exoglossum laurae*). No impacts to these species are expected as is stated in the ODNR response due to the Project's location and the lack of any impacts to streams.

The response from ODNR indicated that the Project Area is within the range of the Spotted Turtle (*Clemmys guttata*). No impacts to this species is expected due to the Project's location and in the lack of impacts to wetlands or ponds as is stated in the ODNR response.

The response from ODNR indicated that the Project Area is within the range of the Eastern Massasauga (*Sistrurus catenatus*), and the Kirtland's Snake (*Clonophis kirtlandii*). No impacts to these species are expected as is stated in the ODNR response due to the Project's location and that no work is proposed in wetlands.

The response from ODNR indicated that the Project Area is within the range of the Upland Sandpiper (*Bartramia longicauda*). This species nests on dry grasslands, pastures, and hayfield habitats and the nesting period is April 15th to July 31st. Impacts to this type of habitat is not anticipated. Additionally, Access roads to the Project Area will be constructed before April 15th .and therefore, the project is not likely to impact this species, no impacts to this species are anticipated as is as stated in the ODNR response

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

ATSI contracted AECOM to submit a request to the ODNR Office of Real Estate to conduct an Environmental Review. The ODNR Office of Real Estate researched the presence of any unique ecological sites, geological features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forest, national wildlife refuges, or other protected natural areas within one (1) mile of the project area. The ODNR's Office of Real Estate's response on January 19, 2018 indicated that they have two (2) records of the aforementioned areas within one (1) mile of the identified Project Area.

The unique ecological sites identified within one (1) mile of the Project Area include the Prairie Fen Plant Community and the Redmond Fen Conservation Site. Although the response from the ODNR did not specify the exact location of these areas, no areas meeting the characteristics of a fen community are located within the Project Area. Therefore, no impacts to these areas resulting from the Project are anticipated.

ATSI also hired AECOM to conduct a wetland and stream assessment of the Project area. AECOM's investigation focused on an approximately 200-foot survey corridor along the proposed right-of-way. During the study, AECOM identified two (2) wetlands totaling approximately 0.15 acres, one (1) intermittent stream totaling approximately 224 feet in length, and one (1) pond totaling approximately 0.1 acres within the surveyed corridor. Detailed results of the survey are shown in AECOM's Wetland Delineation and Stream Assessment Report in Exhibit 13.

No structures will be placed within wetland areas and temporary construction access for the Project will avoid streams and wetland areas to the extent practicable. Temporary access, where necessary will utilize construction matting to avoid impacts. Additionally, orange construction fencing will be installed to prevent unplanned access to adjacent sensitive areas. A map of the construction access for the Project will provide to Broad as soon as it is available.

The Project work limits do not encroach on any regulated flood plains based on a review of online FEMA Flood Insurance Rate Mapping.

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 Electric Safety Code as adopted by the PUCO and will meet all applicable safety standards established by the Occupational Safety and Health Administration.

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

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

This Letter of Notification application is being provided concurrently with its docketing with the Board to the following officials in Springfield Township and the City of Springfield, Clark County, Ohio.

Clark County

Commissioner Melanie F. Wilt
Clark County Commissioners
50 E. Columbia St.
Springfield, OH 45501

Commissioner Lowell McGlothin
Clark County Commissioners
50 E. Columbia St.
Springfield, OH 45501

Commissioner Richard Lohnes
Clark County Commissioners
50 E. Columbia St.
Springfield, OH 45501

Ms. Jennifer Hutchinson
Clark County Administrator
50 E. Columbia St.
Springfield, OH 45501

Ms. Jo Anderson, Chairperson
Clark County Planning Commission
Springview Government Center
3130 E. Main Street,
Springfield, OH 45505

Ms. Elaine Stevenson, Vice-Chair
Clark County Planning Commission
Springview Government Center
3130 E. Main Street,
Springfield, OH 45505

Mr. Johnathan A. Burr, P.E., P.S.
Clark County Engineer
4075 Laybourne Road
Springfield, OH 45505

Mr. Chris Simpson, District Adm.
Clark County SWCD
Springview Government Center
3130 E. Main St.
Springfield, Ohio 45505

City of Springfield

Mr. Jim Bodenmiller, City Manager
City of Springfield
76 E High St, 3rd Floor
Springfield, OH 45502

Mr. Bryan Heck,
Deputy City Manager
City of Springfield
76 E High St, 3rd Floor
Springfield, OH 45502

Mr. Warren R. Copeland, Mayor
City of Springfield
76 E High St
Springfield, OH 45502

Ms. Joyce Chilton, Asst. Mayor
City of Springfield
76 E High St
Springfield, OH 45502

Ms. Jill Pierce, Clerk
City of Springfield
76 E High St
Springfield, OH 45502

Mr. Tom Franzen
Director of Economic Development
City of Springfield
76 E High St, 3rd Floor
Springfield, OH 45502

Mr. Leo Shanayda
City Engineer
City of Springfield
76 E High St, 2rd Floor
Springfield, OH 45502

Mr. Stephen Thompson
Planning Administrator
City of Springfield
76 E High St,
Springfield, OH 45502

Springfield Township

Mr. Tim Foley, Trustee
Springfield Township
2777 Springfield Xenia Rd,
Springfield, OH 45506

Mr. Jim Scoby, Trustee
Springfield Township
2777 Springfield Xenia Rd,
Springfield, OH 45506

Mr. John Roeder, Trustee
Springfield Township
2777 Springfield Xenia Rd,
Springfield, OH 45506

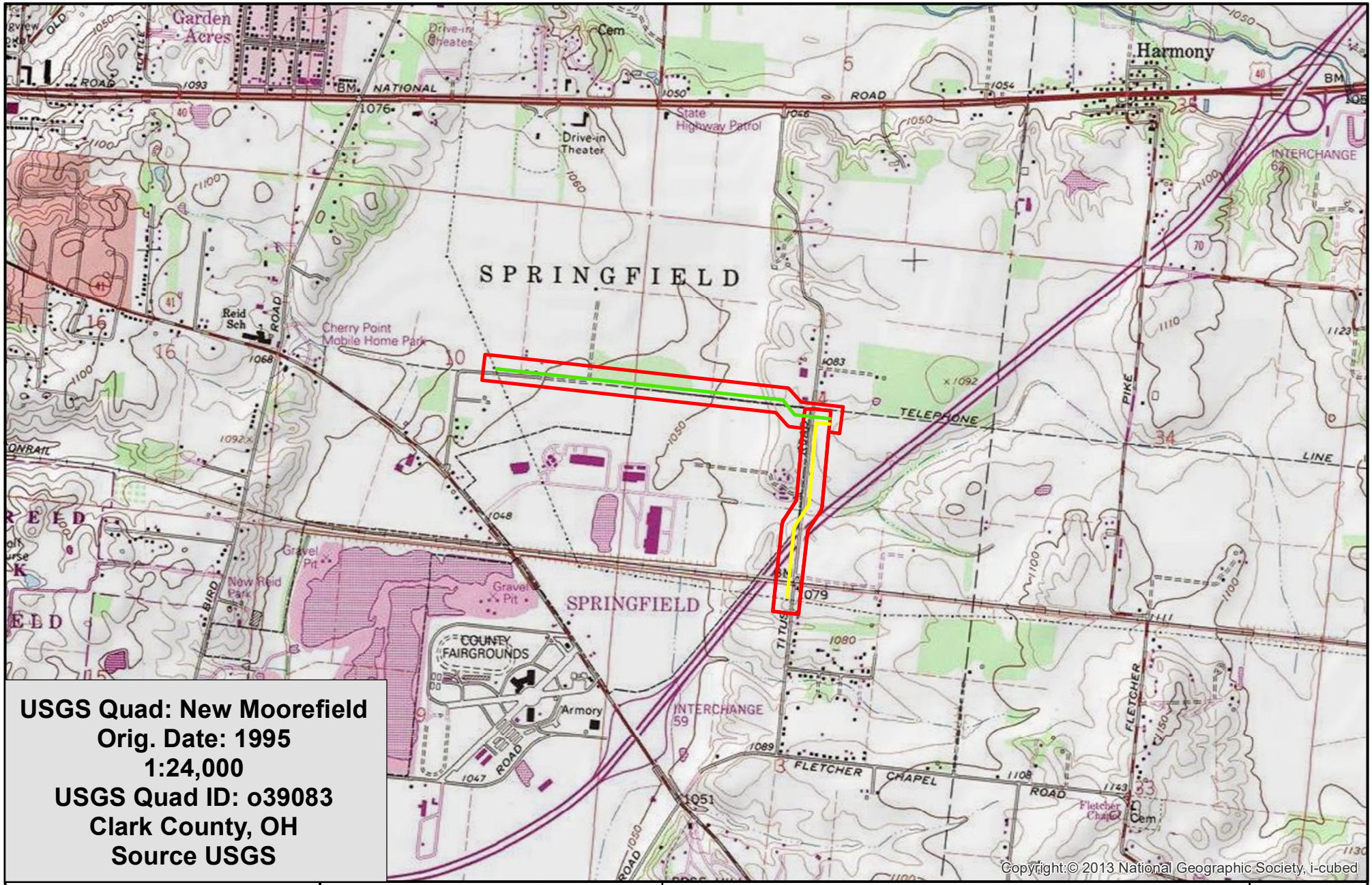
Mr. Mike Hively, Fiscal Officer
Springfield Township
2777 Springfield Xenia Rd,
Springfield, OH 45506

Library

Ms. Sally Rizer, Director
Clark County Public Library
201 South Fountain Avenue
Springfield, OH 45506

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) and 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).



USGS Quad: New Moorefield
Orig. Date: 1995
1:24,000
USGS Quad ID: o39083
Clark County, OH
Source USGS

0 1,200 2,400 3,600 Feet

1:24,000

East Springfield-North Titus 138 kV Extension

London-North Titus 138 kV Extension

Project Area

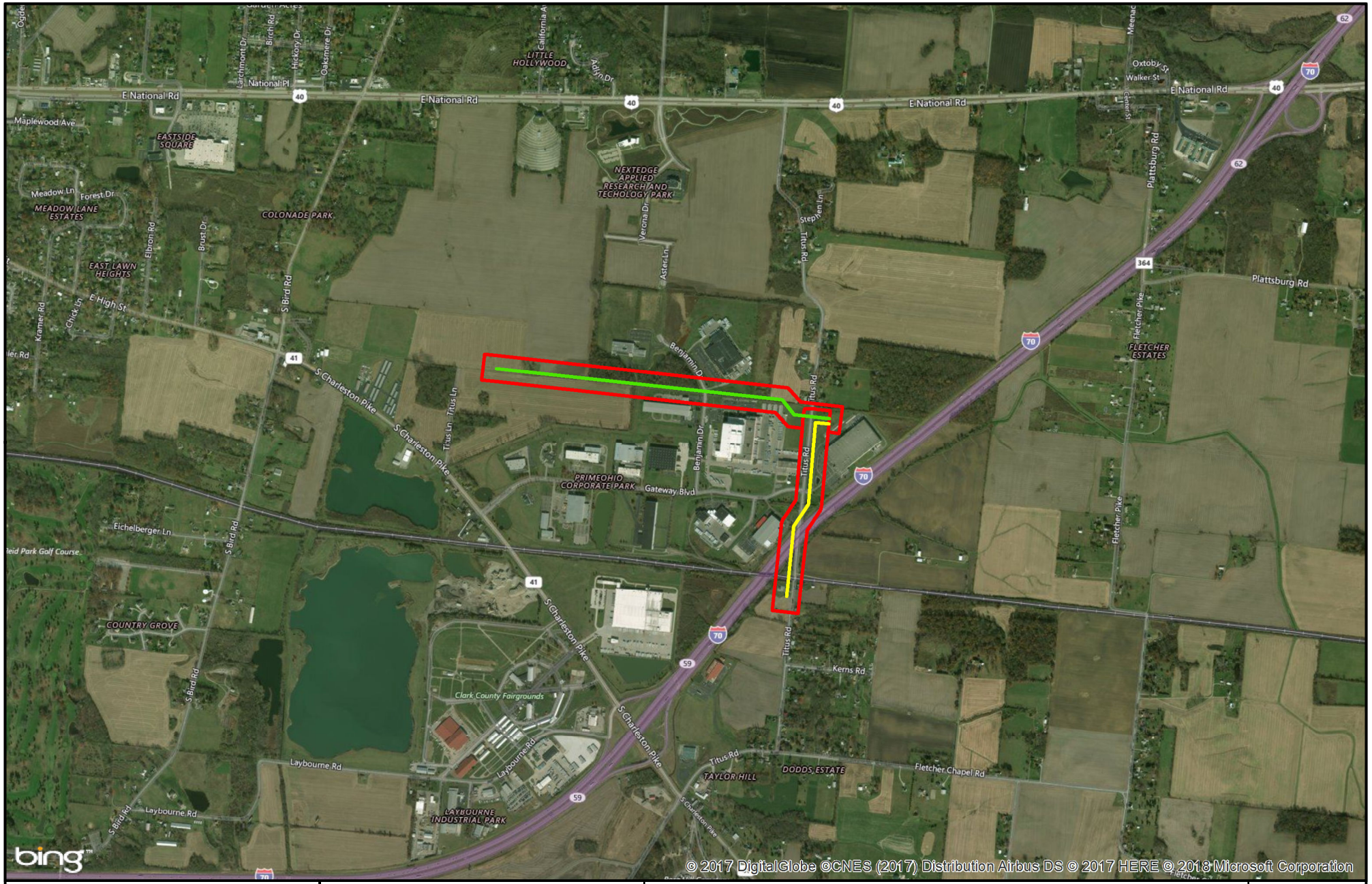
East Springfield-London #2 138kV Transmission Line Extension to North Titus Substation Project

Exhibit 1

N

FirstEnergy

Created on 1/5/2018



0 1,200 2,400 3,600 Feet

1:24,000

East Springfield-North Titus 138 kV Extension

London-North Titus 138 kV Extension

Project Area

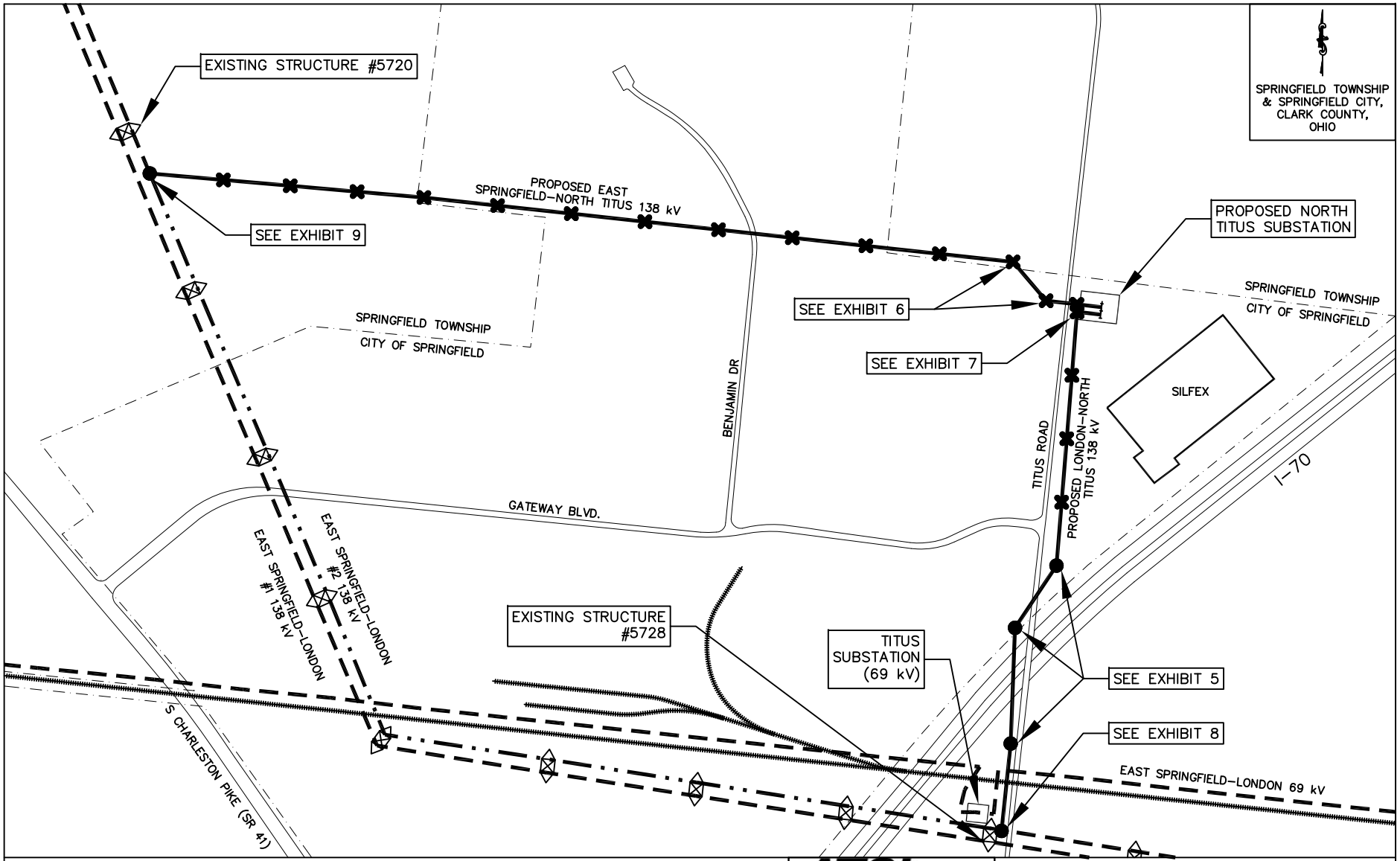
East Springfield-London #2 138kV Transmission Line Extension to North Titus Substation Project

Exhibit 2

N

FirstEnergy

Created on 1/5/2018



LEGEND

- EXISTING CONDUCTOR
- DE–ENERGIZED CONDUCTOR
- PROPOSED CONDUCTOR
- EXISTING RAILROAD
- EXISTING STEEL LATTICE STRUCTURE
- PROPOSED STEEL POLE STRUCTURE
- PROPOSED WOOD POLE STRUCTURE

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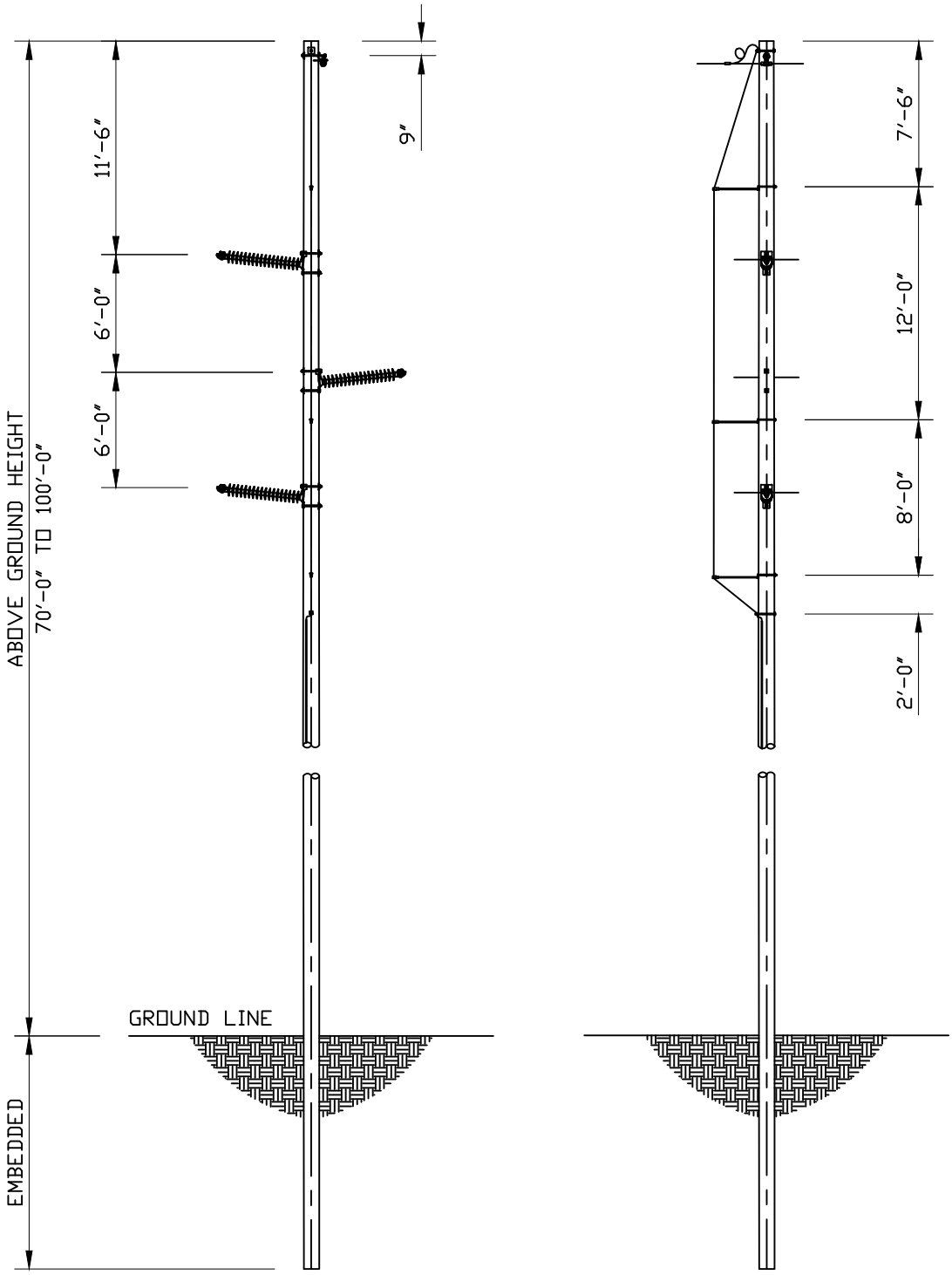
EAST SPRINGFIELD–LONDON #2 138 kV
TRANSMISSION LINE EXTENSION NORTH
TITUS SUBSTATION PROJECT

GENERAL LAYOUT

EXHIBIT 3



**NOT TO SCALE

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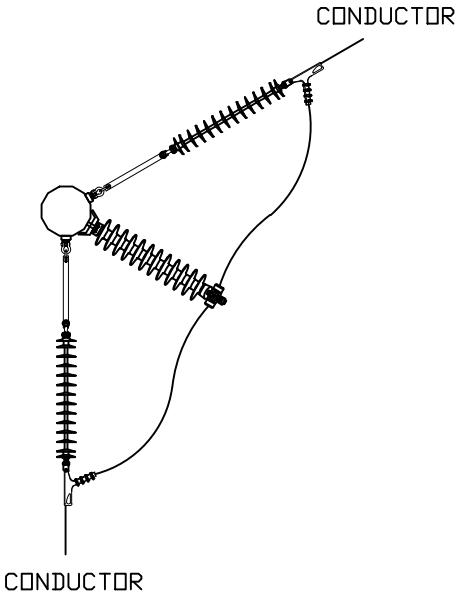
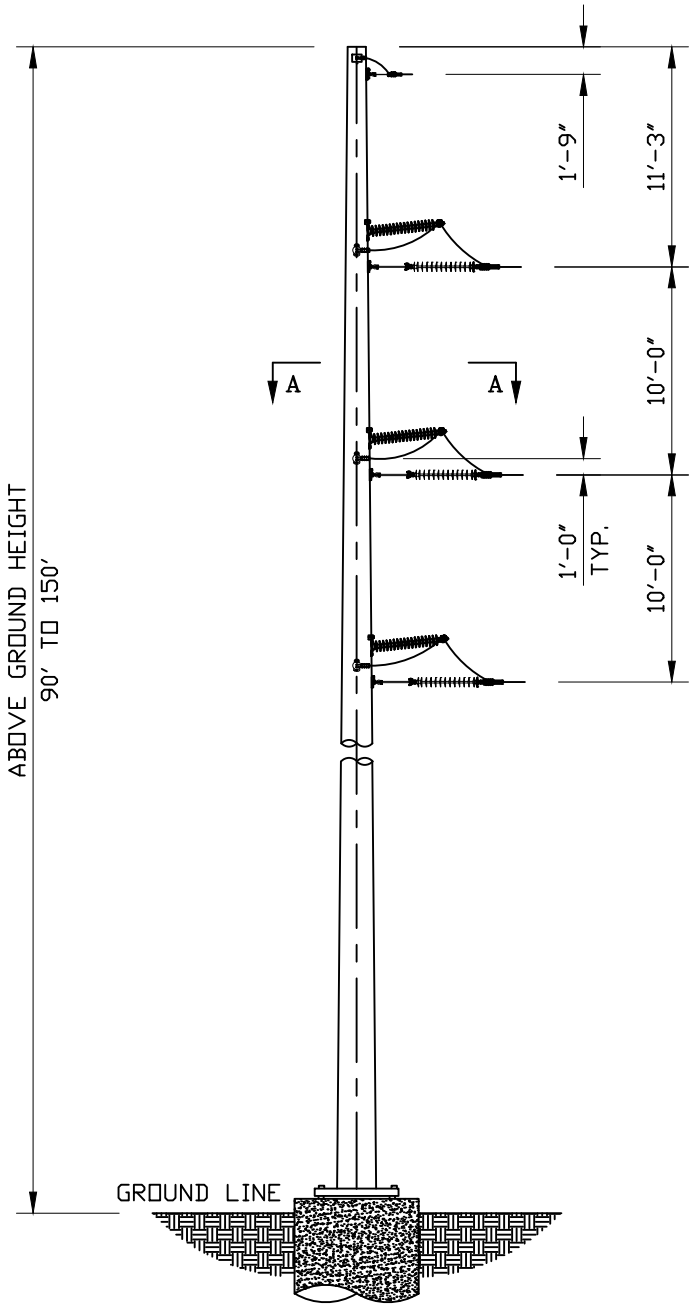
EAST SPRINGFIELD–LONDON #2 138kV
TRANSMISSION LINE EXTENSIONS TO
NORTH TITUS SUBSTATION PROJECT

SINGLE CIRCUIT, WOOD POLE
HORIZONTAL POST, TANGENT STRUCTURE

EXHIBIT 4



SECTION A–A



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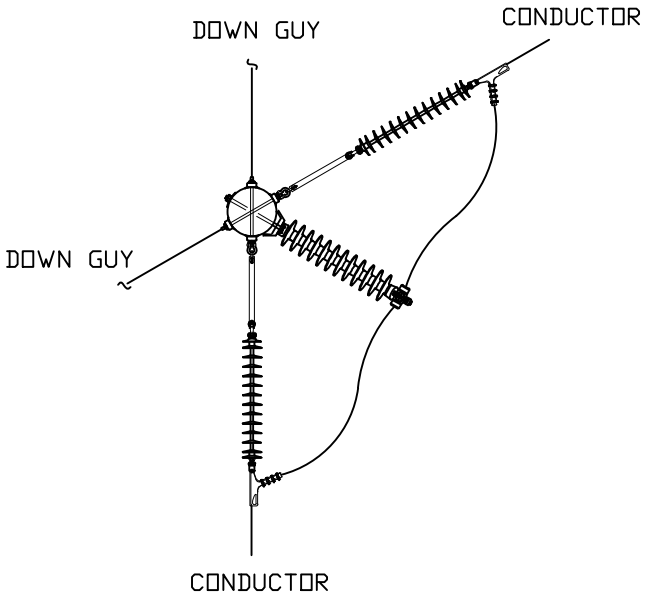
EAST SPRINGFIELD–LONDON #2 138kV
TRANSMISSION LINE EXTENSIONS TO
NORTH TITUS SUBSTATION PROJECT

SINGLE CIRCUIT, STEEL POLE
DEADEND ANGLES 0–60 DEGREES

EXHIBIT 5



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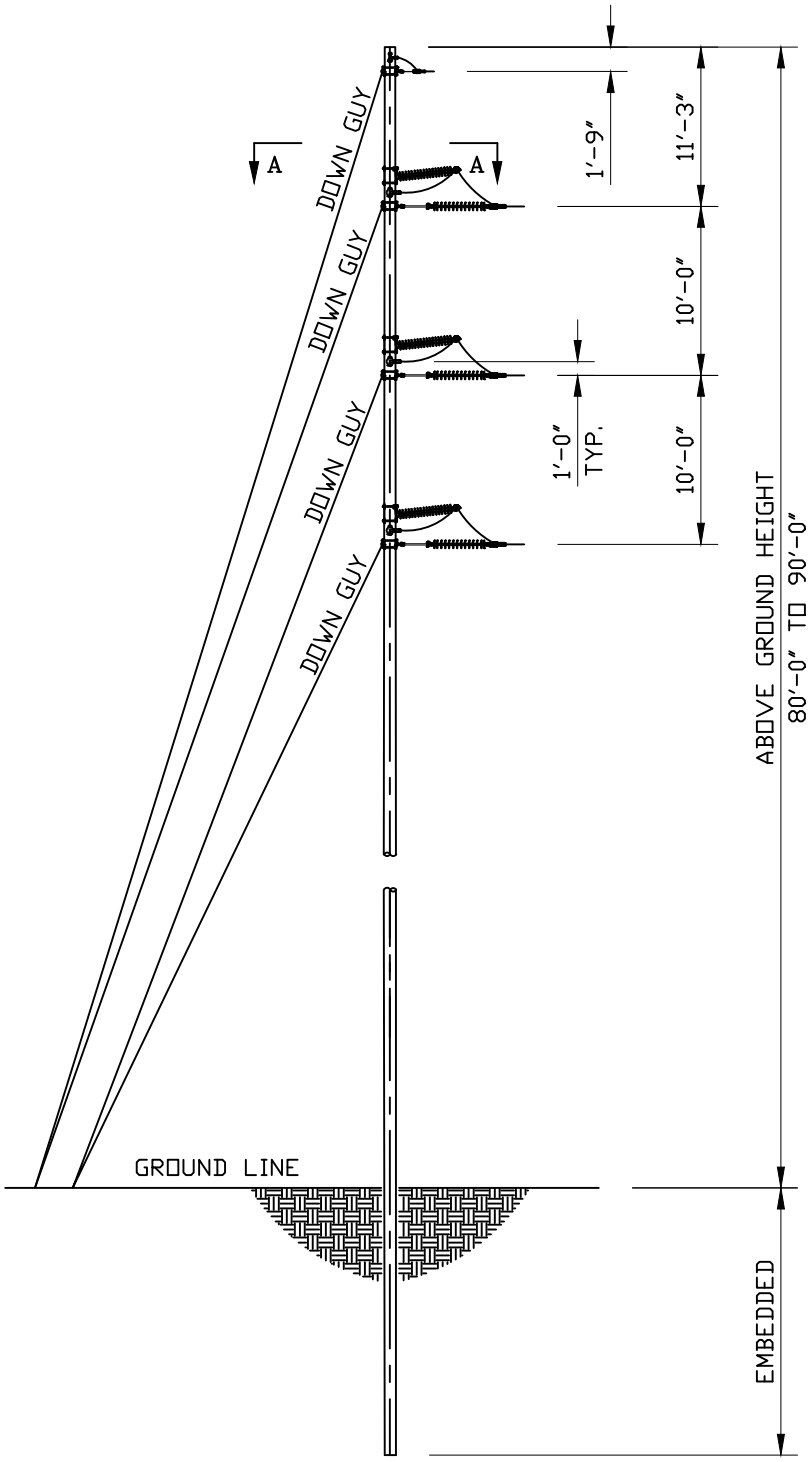

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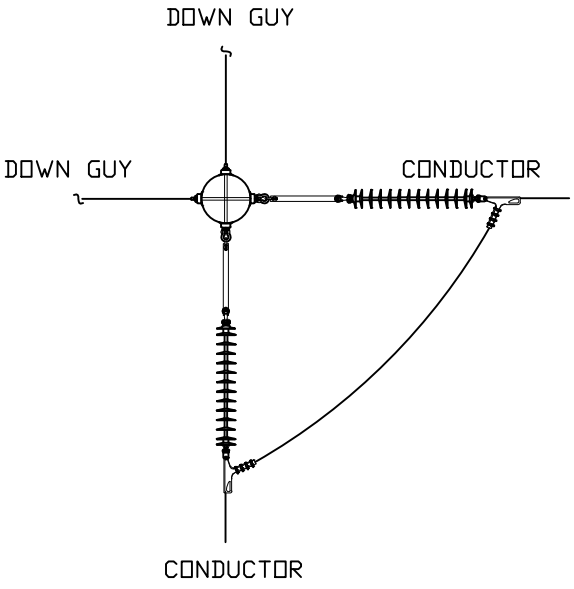
EAST SPRINGFIELD–LONDON #2 138kV
TRANSMISSION LINE EXTENSIONS TO
NORTH TITUS SUBSTATION PROJECT

SINGLE CIRCUIT, WOOD POLE
DEADEND ANGLES 20–60 DEGREES

EXHIBIT 6



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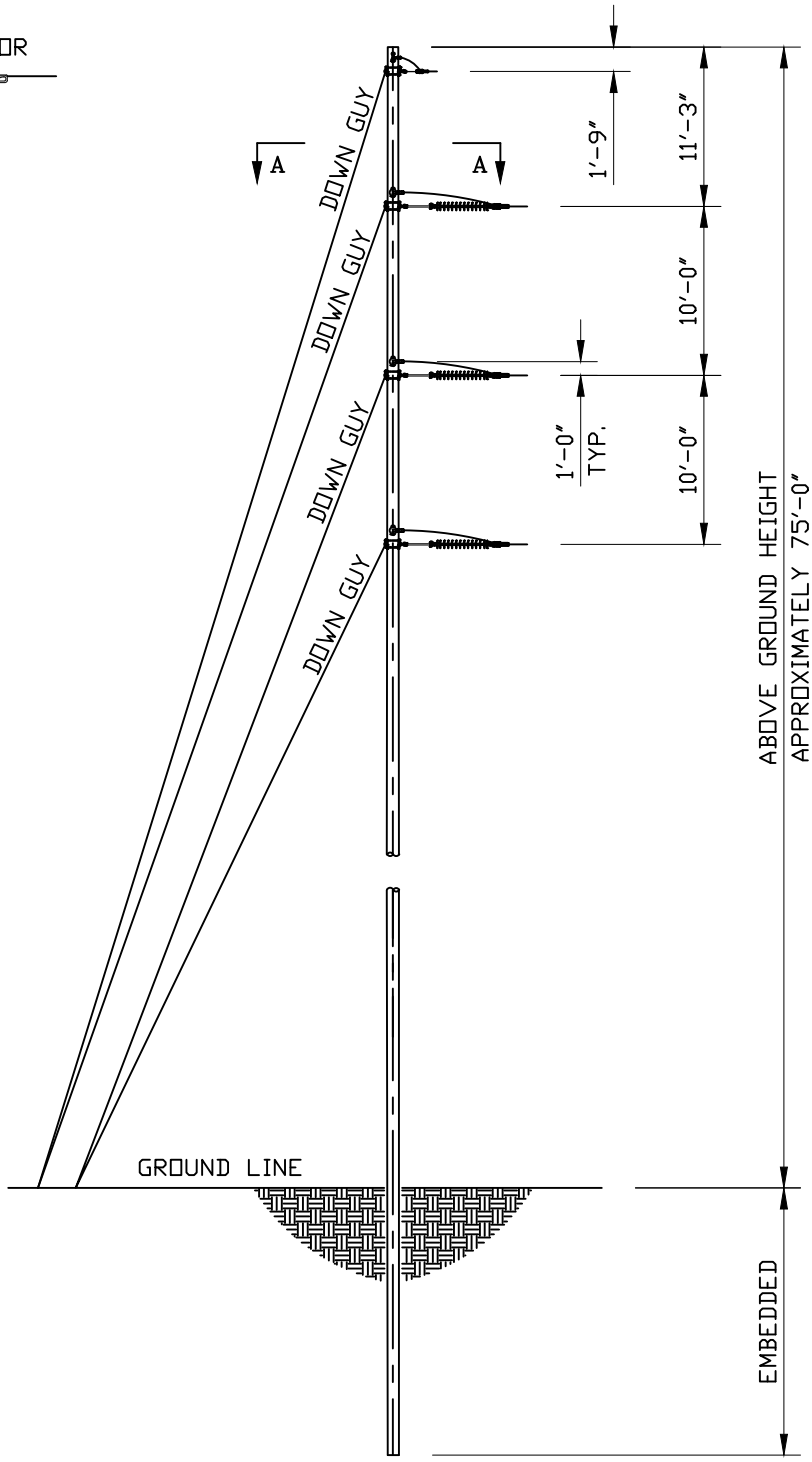

**NOT TO SCALE

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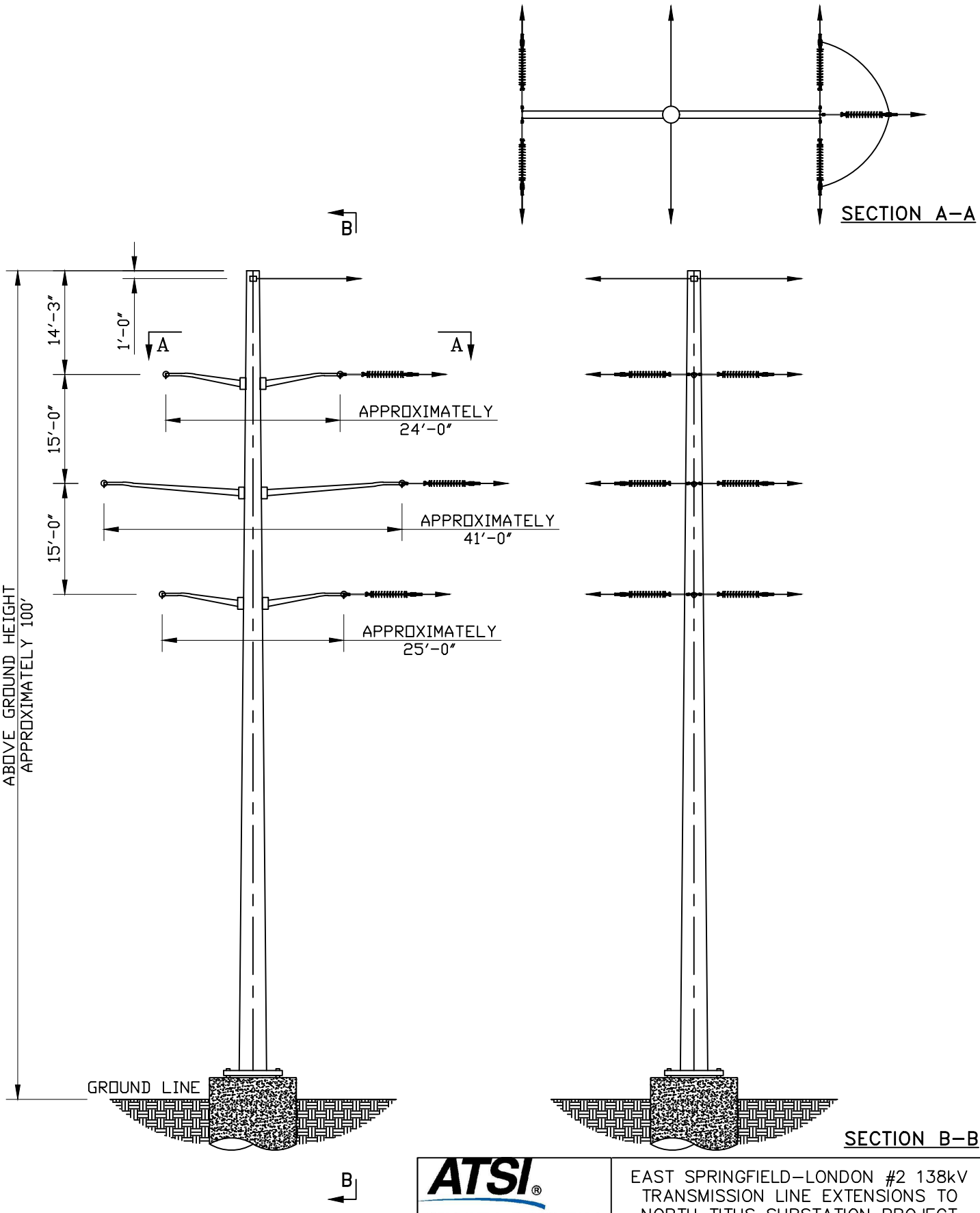
EAST SPRINGFIELD–LONDON #2 138kV
TRANSMISSION LINE EXTENSIONS TO
NORTH TITUS SUBSTATION PROJECT

SINGLE CIRCUIT, WOOD POLE
DEADEND ANGLES 60–120 DEGREES

EXHIBIT 7



**NOT TO SCALE

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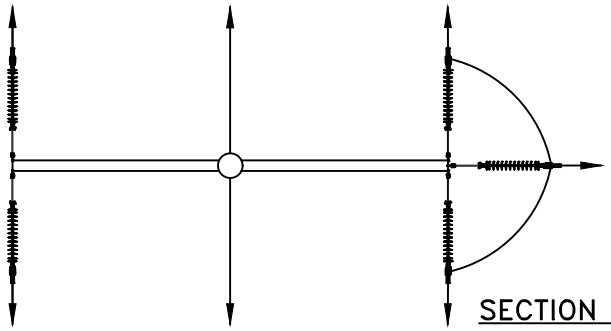
EAST SPRINGFIELD–LONDON #2 138kV
TRANSMISSION LINE EXTENSIONS TO
NORTH TITUS SUBSTATION PROJECT

DOUBLE CIRCUIT, STEEL POLE
3–WAY DEADEND TAP STRUCTURE

EXHIBIT 8



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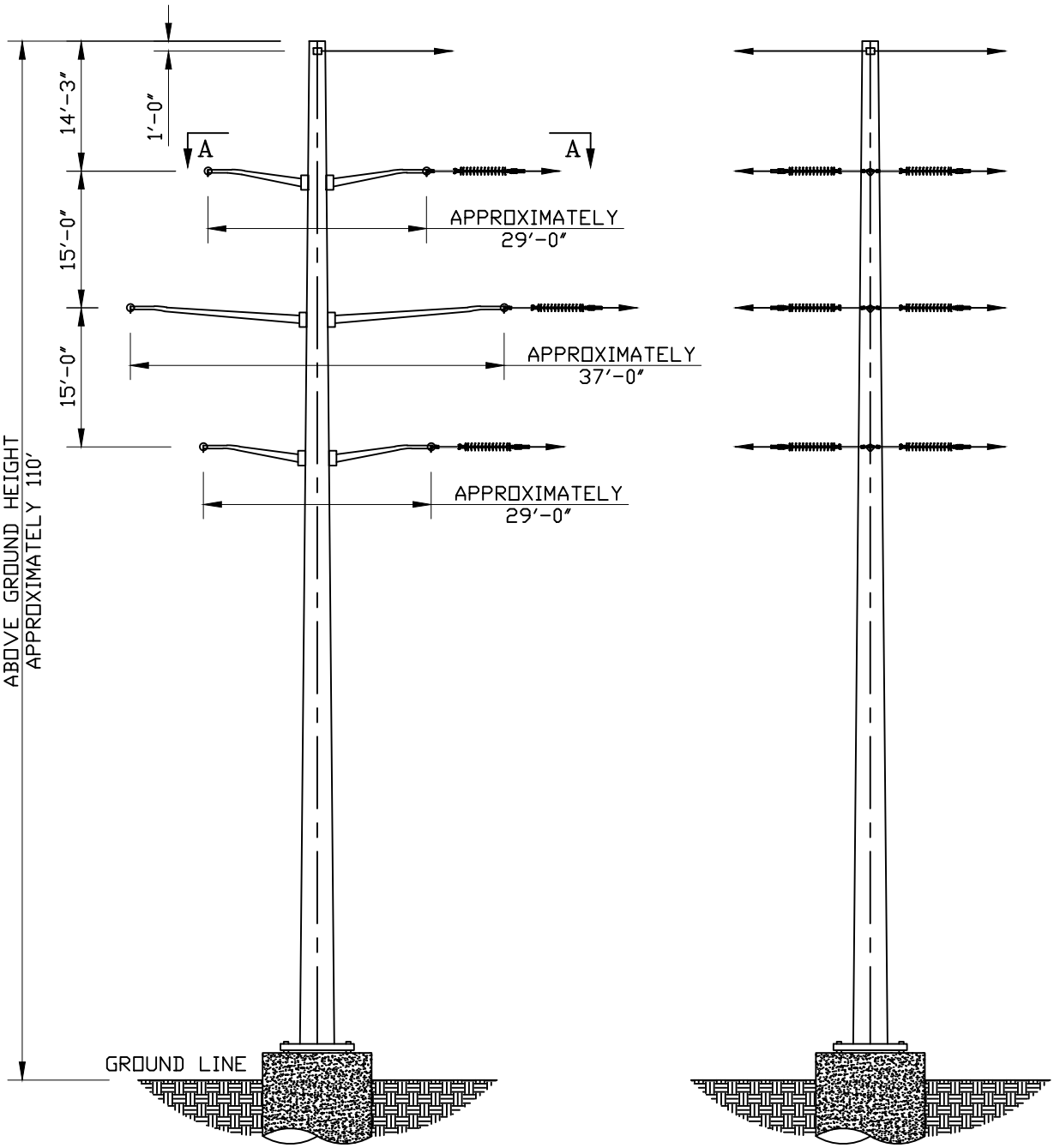

SECTION B–B

**NOT TO SCALE

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EAST SPRINGFIELD–LONDON #2 138kV
TRANSMISSION LINE EXTENSIONS TO
NORTH TITUS SUBSTATION PROJECT

DOUBLE CIRCUIT, STEEL POLE
3–WAY DEADEND TAP STRUCTURE

EXHIBIT 9

Ohio Historic Preservation Office

Legend

- NR Listings
  - Listed
  - National Historic Landmark
  - Delisted
- NR Determinations of Eligibi
- Historic Structures
- Historic Bridges
- Historic Tax Credit Projects
- OGS Cemeteries
  - Confident
  - Not Confident
- Dams
- UTM Zone Split
- NR Boundaries
- Phase1
- Phase2
- Phase3
- Historic Previously Surveyed

0 0.30 0.61 Miles

1: 24,000

Copyright/Disclaimer

Datum: [Datum]

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

EXHIBIT 11

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 19, 2018

Jason Tucker
AECOM
525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Re: 18-016; Silflex 138 kV Transmission Line Extension Project

Project: The proposed project involves the extension of the existing East Springfield-London Number 1 and 2 138 kV transmission lines to loop through a new customer substation.

Location: The proposed project is located in Springfield Township, Clark County, Ohio.

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

Natural Heritage Database: The Natural Heritage Database has the following records at or within a one-mile radius of the project area.

Yellow sedge (*Carex flava*), P
Prairie rattlesnake-root (*Nabulus racemosus*), P
Blue-leaved willow (*Salix myricoides*), P
Prairie fen plant community
Redmond Fen Conservation Site

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.

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. This information is provided to inform you of features present within your project area and vicinity. Additional comments on some of the features may be found in pertinent sections below.

EXHIBIT 11

Statuses are defined as: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; A = species recently added to state inventory, status not yet determined; X = presumed extirpated in Ohio; FE = federal endangered, FT = federal threatened, FSC = federal species of concern, FC = federal candidate species.

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: 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 rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, and the snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the Iowa darter *(Etheostoma exile)*, a state endangered fish, and the tonguetied minnow (*Exoglossum laurae*), a state threatened fish. The DOW recommends no in-water work 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 spotted turtle (*Clemmys guttata*), a state threatened species. This species prefers fens, bogs and marshes, but is also 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 present 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 eastern massasauga (*Sistrurus catenatus*), a state endangered and a federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. Due to

EXHIBIT 11

the location, the type of habitat present 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 Kirtland's snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet meadows and other wetlands. Due to the location, the type of habitat present 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 upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 to July 31. If this type of 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 John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler
ODNR Office of Real Estate
2045 Morse Road, Building E-2
Columbus, Ohio 43229-6693
John.Kessler@dnr.state.oh.us

EXHIBIT 12

Tucker, Jason

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Tuesday, December 19, 2017 2:20 PM
To: Tucker, Jason
Cc: nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us; betsey.ewoldt@aecom.com
Subject: Silflex 138 kV Transmission Line Extension Project, Clark Co.

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

TAILS# 03E15000-2018-TA-0339

Dear Mr. Tucker,

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 summer 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,

Dan Everson
Field Supervisor

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

EXHIBIT 12

East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project
Case Number 18-0086-EL-BLN

Date: February 1, 2018

Exhibit 13
Wetland Delineation And Stream Assessment Report

EAST SPRINGFIELD-LONDON #2 138 KV TRANSMISSION LINE EXTENSTIONS TO NORTH TITUS SUBSTATION PROJECT

WETLAND DELINEATION AND STREAM ASSESSMENT REPORT

Prepared for:
American Transmission Systems, Inc.
a FirstEnergy Company
76 South Main Street
Akron, Ohio 44308

525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

January 2018

TABLE OF CONTENTS

TABLES

Number

FIGURES

Number

APPENDICES

Appendix

LIST OF ACRONYMS and ABBREVIATIONS

DBH	Diameter at Breast Height
EPA	Environmental Protection Agency
FAC	Facultative
FACU	Facultative upland
FACW	Facultative wetland
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
IBI	Index of Biotic Integrity
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OBL	Obligate wetland
OHWM	Ordinary high water mark
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PHWH	Primary Headwater Habitat
QHEI	Qualitative Habitat Evaluation Index
ROW	Right-of-way
UPL	Upland
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

American Transmission Systems, Inc. (ATSI), a FirstEnergy Company (FirstEnergy) is proposing to build the East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project (Project) in the City of Springfield and Springfield Township, Clark County, Ohio. In this Project, ATSI is proposing to extend two segments of the East Springfield-London #2 138 kV Transmission Line to the new North Titus Substation creating two new lines. These lines will be an approximately 1.0-mile-long East Springfield-North Titus 138 kV Transmission Line and an approximately 0.6-mile-long London-North Titus 138 kV Transmission Line. The Project is needed for Silfex Inc.'s (Silfex) new manufacturing facility located at 1000 Titus Road in the City of Springfield, Ohio. The Project location is shown on Figure 1.

Land uses crossed by the Project survey corridor were assigned a general classification based upon the principal land characteristics of the location as observed through aerial photography review and observations during the field surveys. General land use types in the vicinity of the proposed Project include: agricultural, commercial lots, wetlands, wooded lots, and maintained transmission line right-of-way (ROW). Commercial lots are the dominant land use in the vicinity of the Project.

2.0 METHODOLOGY

The purpose of the field survey was to assess whether wetlands and other "waters of the U.S." exist within the Project's proposed 200-foot wide ROW. Prior to conducting field surveys, digital and published county Natural Resources Conservation Service (NRCS) soil surveys, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and U.S. Geological Survey (USGS) 7.5-minute topographic maps were reviewed as an exercise to identify the occurrence and location of potential wetland areas.

On December 11 and 15, 2017, AECOM ecologists walked the Project survey corridor to conduct a wetland delineation and stream assessment. During the field survey, the physical boundaries of observed water features were recorded using sub-decimeter accurate Trimble Global Positioning System (GPS) units. The GPS data was imported into ArcMap GIS software, where the data was then reviewed and edited for accuracy.

2.1 WETLAND DELINEATION

The Project survey corridor was evaluated according to the procedures outlined in the U.S. Army Corps of Engineers (USACE) *1987 Wetland Delineation Manual* (*1987 Manual*) (Environmental

Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (*Regional Supplement*) (USACE, 2010). The *Regional Supplement* was released in August 2010 by the USACE to address regional wetland characteristics and improve the accuracy and efficiency of wetland delineation procedures. The *1987 Manual and Regional Supplement* define wetlands as areas that have positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation. Wetland boundaries are placed where one or more of these parameters give way to upland characteristics.

Since quantitative data were not available for any of the identified wetlands, AECOM utilized the routine delineation method described in the *1987 Manual* and *Regional Supplement* that consisted of a pedestrian site reconnaissance, including identifying the vegetation communities, soils identification, a geomorphologic assessment of hydrology, and notation of disturbance. The methodology used to examine each parameter is described in the following sections.

2.1.1 SOILS

Soils were examined for hydric soil characteristics using a spade shovel to extract soil samples. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 2010) was used to identify the hue, value, and chroma of the matrix and mottles of the soils. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics (Environmental Laboratory, 1987). In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.

2.1.2 HYDROLOGY

The *1987 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-in. depth) is 41 degree Fahrenheit (^{o}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. The National Weather Service WETS data obtained from the NRCS National Water and Climate Center reveals for Clark County that in an average year, this period lasts from April 15 to October 24, or 192 days. In the Project area, five percent of the growing season equates to approximately ten days.

The soils and ground surface were examined for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the *1987 Manual* and the *Regional Supplement*. Evidence indicating wetland hydrology typically includes primary indicators such as surface water, saturation, water marks, drift deposits, water-stained leaves, sediment deposits and oxidized rhizospheres on living roots; and secondary indicators such as, drainage patterns, geomorphic position, micro-topographic relief, and a positive Facultative (FAC)-neutral test (USACE, 2010).

2.1.3 VEGETATION

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the U.S. Army Corps of Engineers *2016 National Wetland Plant List: Midwest Region*, which encompasses the area of the Project. An area is determined to have hydrophytic vegetation when, under normal circumstances, 50 percent or more of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when more than 50 percent of the composition of the dominant species was FACU and/or UPL species. In addition to the dominance test, the FAC-Neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation. Recent USACE guidance indicates that to the extent possible, the hydrophytic vegetation decision should be based on the plant community that is normally present during the wet portion of the growing season in a normal rainfall year (USACE, 2010).

2.1.4 WETLAND CLASSIFICATIONS

Wetlands were classified based on the naming convention found in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al*, 1979). All identified wetlands within the survey corridor were classified as freshwater, Palustrine systems, which include non-tidal wetlands dominated by trees, shrubs, emergents, mosses, or lichens. Three palustrine wetland classifications are possible.

- ***PEM*** – Palustrine emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

- ***PSS*** – Palustrine scrub/shrub wetlands are characterized by woody vegetation that is less than three inches diameter at breast height (DBH), and greater than 3.28 feet tall. The woody angiosperms (i.e. small trees or shrubs) in this broad leaved deciduous community have relatively wide, flat leaves that are shed annually during the cold or dry season.

- ***PFO*** – Palustrine forested wetlands are characterized by woody vegetation that is three inches or more DBH, regardless of total height. These wetlands generally include an overstory of broad-leaved and needle-leaved trees, an understory or young saplings and shrubs, and an herbaceous layer.

For some wetlands, multiple Cowardin classifications may be present where more than one classification's vegetation is dominant. Where multiple Cowardin classifications are present, the predominant Cowardin classification is listed first, and the less dominant classification will follow.

2.1.5 OHIO RAPID ASSESSMENT METHOD v. 5.0

The Ohio Environmental Protection Agency (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).

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.

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.

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.

2.2 STREAM CROSSINGS

Regulatory activities under the Clean Water Act provide authority for states to issue water quality standards and "designated uses" to all waters of the U.S. 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* (OEPA, 2012).

2.2.1 OEPA QUALITATIVE HABITAT EVALUATION INDEX

The qualitative habitat evaluation index (QHEI) 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).

2.2.2 OEPA PRIMARY HEADWATER HABITAT EVALUATION INDEX

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)" (OEPA, 2012).

Headwater streams are scored on the basis of channel substrate composition, bankfull width, and maximum pool depth. Assessments result in a score (0 to 100) that is converted to a specific PHWH stream class. Streams that are scored from 0 to 29.9 are typically grouped into "Class 1 PHWH Streams", 30 to 69.9 are "Class 2 PHWH Streams", and 70 to 100 are "Class 3 PHWH Streams". Technically, a stream can score relatively high, but actually belong in a lower class, and vice-versa. According to the OEPA, if the stream score falls into a class and the scorer feels that based on site observations that score does not reflect the actual stream class, a decision-making flow chart can be used to determine appropriate PHWH stream class using the HHEI protocol (OEPA, 2012). Evidence of anthropogenic alterations to the natural channel will result in a "Modified" qualifier for the stream.

Class 1 PHWH Streams: Class 1 PHWH Streams are those that have "normally dry channels with little or no aquatic life present" (OEPA, 2012). These waterways are usually ephemeral, with water present for short periods of time due to infiltration from snowmelts or rainwater runoff.

Class 2 PHWH Streams: Class 2 PHWH Streams are equivalent to "warm-water habitat" streams. This stream class has a "moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis" (OEPA, 2012). These species communities are composed of vertebrates (fish and salamanders) and/or benthic macroinvertebrates that are considered pioneering, headwater temporary, and/or temperature facultative species.

Class 3 PHWH Streams: Class 3 PHWH Streams usually have perennial water flow with cool-cold water adapted native fauna. The community of Class 3 PHWH Streams is comprised of vertebrates (either cold water adapted species of headwater fish and or obligate aquatic species of salamanders, with larval stages present), and/or a diverse community of benthic cool water adapted macroinvertebrates present in the stream continuously (on an annual basis).

3.0 RESULTS

Within the Project survey corridor, AECOM delineated two wetlands, one stream, and one pond. These wetlands and other features are discussed in detail in the following sections.

3.1 WETLAND DELINEATION

3.1.1 Preliminary Soils Evaluation

Soils in each wetland were observed and documented as part of the delineation methodology. According to the USDA/NRCS Web Soil Surveys of Clark County, Ohio (NRCS 2017), and the NRCS Hydric Soils Lists of Ohio, 6 soil series are mapped within the Project survey corridor (NRCS 2017). Of those 6 soil series, 1 soil series contain soil map units that are listed with hydric components. Table 1 provides a detailed overview of all soil series and soil map units within the Project survey corridor. Soil map units located within the Project survey corridor are shown on Figures 2A-2D.

TABLE 1
SOIL MAP UNITS AND DESCRIPTIONS WITHIN THE EAST SPRINGFIELD-LONDON #2 138 KV TRANSMISSION LINE EXTENSIONS TO NORTH TITUS SUBSTATION PROJECT SURVEY CORRIDOR

Soil Series	Symbol	Map Unit Description	Topographic Setting	Hydric	Hydric Component (%)
Eldean	EmA	Eldean silt loam, 0 to 2 percent slopes	Flats	Not hydric	Lippincott (7%), Westland (6%)
Kokomo	Ko	Kokomo silty clay loam, 0 to 2 percent slopes	Depressions, till plains	Hydric	Kokomo (90%)
Miamian	MhB	Miamian silt loam, 2 to 6 percent slopes	Till plains on till plains	Not hydric	Brookston (5%)
	MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded	Till plains	Not hydric	None
	MkD2	Miamian silty clay loam, 12 to 18 percent slopes, eroded	Till plains	Not hydric	None
	MmC3	Miamian clay loam, shallow to dense till substratum, 6 to 12 percent slopes, severely eroded	Till plains	Not hydric	Brookston (5%), Kokomo (5%)
	MmD3	Miamian clay loam, shallow to dense till substratum, 12 to 18 percent slopes, severely eroded	Till plains	Not hydric	None
Ockley	OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	Terraces	Not hydric	Westland (5%)
Thackery	ThA	Thackery silt loam, 0 to 2 percent slopes	Stream terraces	Not hydric	None
Waynetown	WrA	Waynetown silt loam, 0 to 2 percent slopes	Outwash plains	Not hydric	Drummer (10%)

NOTES:
(1) Data sources include:
USDA, NRCS. 2017 Web Soil Survey. Available online at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm
USDA, NRCS, 2018. National Hydric Soils List by State. Available online at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/
USDA, NRCS. 1999. Soil Survey of Clark County, Ohio.

3.1.2 National Wetland Inventory Map Review

National Wetland Inventory (NWI) wetlands are areas of potential wetland 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 New Moorefield, Ohio quadrangle, the Project survey corridor contains two mapped NWI wetlands: one palustrine unconsolidated bottom, artificially flooded (PUBK), and one riverine, intermittent, stream bed, seasonally flooded (R4SBC) (USFWS, 2017). The two mapped wetlands were delineated in the field as Pond ESL-1 and Stream ESL-1. Locations of the NWI mapped wetlands are shown on Figure 2.

3.1.3 Delineated Wetlands

During the delineation, AECOM identified two wetlands at a total of 0.15 acre within the Project survey corridor.

The wetlands identified within the Project survey corridor consists of the PEM wetland habitat type. See Table 2 for a summary of the delineated wetland within the Project survey corridor.

TABLE 2
DELINEATED WETLANDS WITHIN THE EAST SPRINGFIELD-LONDON #2 138 KV TRANSMISSION LINE EXTENSIONS TO NORTH TITUS SUBSTATION PROJECT SURVEY CORRIDOR

Wetland Name	Latitude	Longitude	Cowardin Wetland Type	NWI Classification	ORAM Score	ORAM Category	Acreage within Survey Corridor
Wetland ESL-1	39.91099	-83.71894	PEM	None	17.5	Category 1	0.04
Wetland ESL-3	39.91120	-83.71817	PEM	None	13	Category 1	0.11
Total: 2	PEM: 2						**0.15**

Cowardin Wetland Type[a]: PEM = palustrine emergent

The location and approximate extent of the wetlands identified within the survey corridor is shown on Figure 3B. Completed USACE wetland and upland delineation forms are provided in

Appendix A. Representative color photographs were taken of the delineated wetland during the field survey and are provided in Appendix D.

3.1.4 Delineated Wetlands ORAM V5.0 Results

Within the Project survey corridor, the two wetlands are a Category 1 wetland. Wetland ESL-1 had an ORAM score of 17.5 and Wetland ESL-3 had an ORAM score of 13. Completed ORAM forms are provided in Appendix B.

Category 1 Wetlands

The Category 1 wetlands delineated within the Project survey corridor both consist of a PEM wetland. Wetland ESL-1 had an ORAM score of 17.5 and Wetland ESL-3 had an ORAM score of 13. These wetlands exhibited very narrow upland buffers and intensive use of adjacent upland areas (commercial), exhibited limited plant community development with a sparse to moderate percentage of invasive species, and characteristically had habitat and hydrology in the early stages of recovering from previous manipulation due to commercial development or other disturbances.

Category 2 Wetlands

No Category 2 wetlands were identified during the field surveys within the Project survey corridor.

Category 3 Wetlands

No Category 3 wetlands were identified during the field surveys within the Project survey corridor.

3.2 STREAM CROSSINGS

AECOM identified one stream, totaling 224 linear feet, within the Project survey corridor, as listed in Table 3. The stream was identified as an intermittent stream. Based on the Stream Eligibility Web Map found on the Ohio EPA 401 website, Stream ESL-1 is located in a watershed potentially eligible for impacts permitted through Nationwide Permit 12. Under the nationwide permits for Ohio document that was reissued in March 2017, impacts to streams in possibly eligible watersheds will require a more detailed survey, which is outlined in the NWP document. No impacts to the stream are expected at this time.

AECOM has preliminarily determined that all assessed streams within the Project survey corridor appear to be jurisdictional (i.e., waters of the U.S.), as they all appear to be tributaries

that flow into or combine with other streams (waters of the U.S). The location of the stream identified within the survey corridor is shown on Figure 3C.

TABLE 3
DELINEATED STREAMS WITHIN THE EAST SPRINGFIELD-LONDON #2 138 KV TRANSMISSION LINE EXTENSIONS TO NORTH TITUS SUBSTATION PROJECT SURVEY CORRIDOR

Report Name	Latitude	Longitude	Waterbody	Flow Regime	Form Used[a]	Score	Class or Narrative Description[b]	Bankfull Width (feet)	Maximum Pool Depth (inches)	OEPA 401 WQC Eligibility for Nationwide Permits	Linear Feet within Survey Corridor and Work Limits
Stream ESL-1	39.906319	-83.713746	Tributary to the North Fork Little Miami River	Intermittent	QHEI	45.5	FWW	3.5	6	Possibly Eligible	224
Total: 1											**224**

Form Used[a] : QHEI = Qualitative Habitat Evaluation Index, HHEI = Headwater Habitat Evaluation Index, NA = Not Assessed (default to the State of Ohio's assessment)
Class or Narrative Description[b] : FWW = Fair Warmwater

3.2.1 Qualitative Habitat Evaluation Index

One intermittent stream totaling 224 linear feet was assessed using the QHEI methodology within the Project survey corridor. The completed QHEI form for this stream is provided in Appendix C. Representative color photographs were taken of the stream during the field survey and are provided in Appendix D.

Fair Warmwater Stream – Stream ESL-1, totaling 224 linear feet, was designated as a fair Warmwater stream with a score of 45.5. Stream ESL-1 was identified as an intermittent stream. The substrates generally consisted of gravel and sand, with lesser amounts of cobble and silt. The stream generally showed evidence of no to little bank erosion, low channel sinuosity, fair to good channel development, and no in-stream cover. The maximum pool depth was six inches, and bank full width was 3.5 feet on average.

3.2.2 Primary Headwater Habitat Evaluation Index

There were no streams within the Project survey corridor assessed using the HHEI methodology.

3.3 PONDS

One pond, totaling approximately 0.10 acre, was identified within the Project survey corridor. This pond appears to be man-made for stormwater retention. The location of the pond is shown on Figure 3C. A representative color photograph taken of the pond during the field survey is provided in Appendix D.

4.0 SUMMARY

The ecological survey of the Project 200-foot wide survey corridor identified a total of two wetlands, one stream, and one pond. AECOM identified two emergent wetlands within the Project survey corridor. Both wetlands were a Category 1 wetland with a score of 17.5 (Wetland ESL-1) and 13 (Wetland ESL-3). No Category 2 or Category 3 wetlands were identified within the Project survey corridor.

AECOM identified one intermittent stream within the Project survey corridor. The stream was assessed using the QHEI methodology (drainage area greater than 1 mi^2). This stream was identified as a fair warmwater stream with a score of 45.5.

One pond, totaling approximately 0.10 acre, was identified within the Project survey corridor. The pond appears to be man-made for stormwater retention purposes.

The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance; therefore, lengths and acreages listed in this report may not constitute the actual impacts of the Project defined in subsequent permit applications. If necessary, a separate report that identifies the actual Project impacts will be provided with agency submittals.

The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which AECOM is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to natural processes or human impacts at the project site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of AECOM.

5.0 REFERENCES

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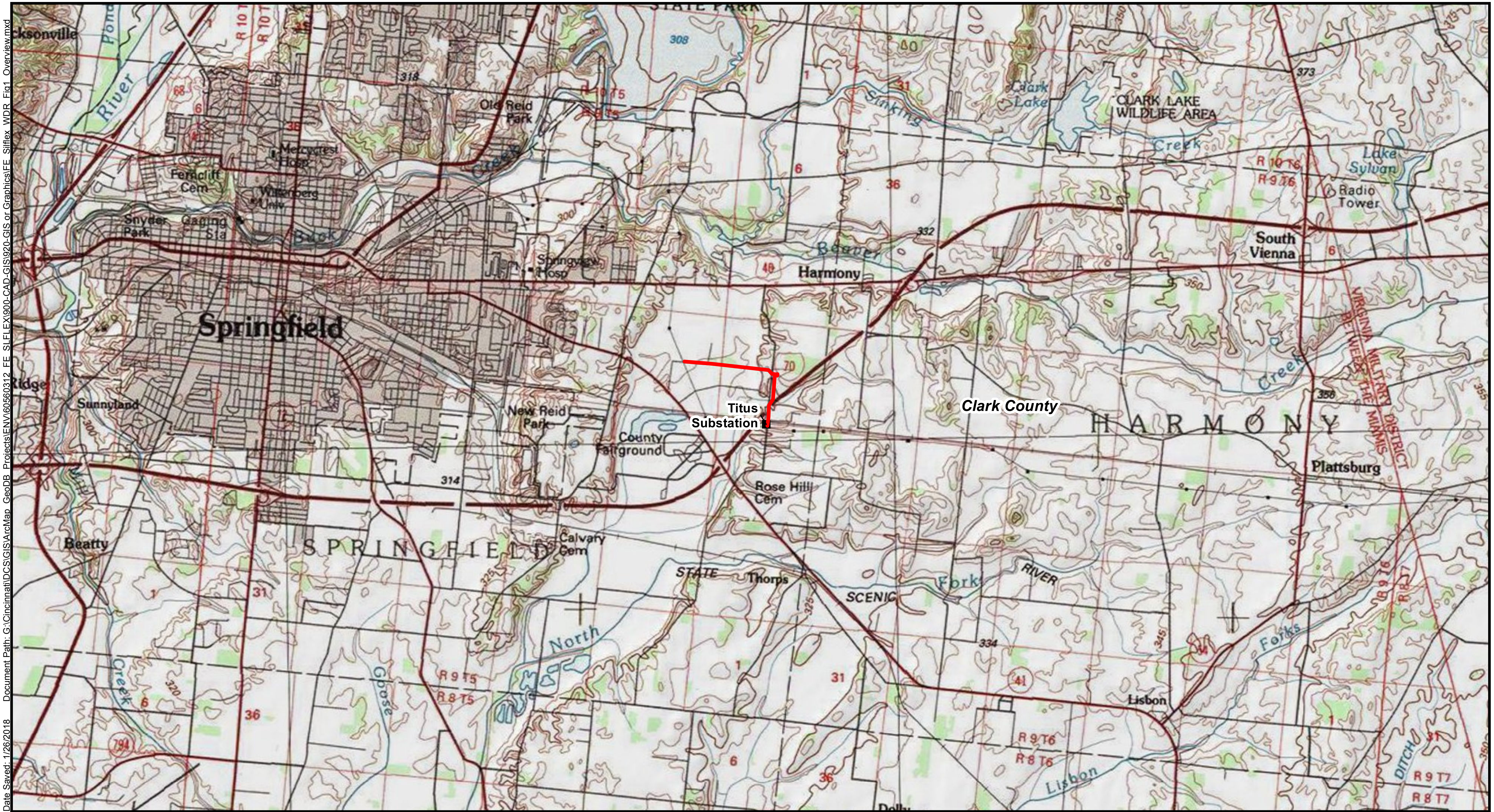
Springfield
Clark County
Titus
Substation
HARMONY
SPRINGFIELD
Harmony
South
Vienna
Plattsburg
Lisbon
New Reid
Park
County
Fairground
Rose Hill
Cem
Calvary
Cem
Thorps
Beatty
Sunnyland
Snyder
Park
Ferncliff
Cem
Wittenberg
Univ
Mercycrest
Hosp
Old Reid
Park
Springview
Hosp
CLARK LAKE
WILDLIFE AREA
Clark
Lake
Radio
Tower
Lake
Sylvan
STATE
SCENIC
RIVER
VIRGINIA MILITARY DISTRICT
BETWEEN THE MIAMIS
Beaver
Creek
Sinking
North
Fork
Goose
Creek
Lisbon
Buck
Creek
Mad
River
R 9 T5
R 8 T5
R 9 T6
R 8 T6
R 10 T6
R 9 T6
R 9 T7
R 8 T7

LEGEND

Proposed East Springfield-London #2 Transmission Line Extensions

■ Existing Substation

0 1 2

Miles

BASE MAP SOURCE:
ArcGIS Online, USA Topo Maps

ATSI

East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project

FIGURE 1
OVERVIEW MAP

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AECOM

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Soil Unit	Soil Unit Description	Hydric Soil	Drainage Class	Acreage within Survey Corridor
WrA	Waynetown silt loam, 0 to 2 percent slopes	No	Somewhat poorly drained	3.55
MmD3	Miamian clay loam, shallow to dense till substratum, 12 to 18 percent slopes, severely eroded	No	Well drained	1.52
MmC3	Miamian clay loam, shallow to dense till substratum, 6 to 12 percent slopes, severely eroded	No	Well drained	4.51
ThA	Thackery silt loam, 0 to 2 percent slopes	No	Moderately well drained	4.65
EmA	Eldean silt loam, 0 to 2 percent slopes	No	Well drained	1.36
Ko	Kokomo silty clay loam, 0 to 2 percent slopes	Yes	Very poorly drained	16.69
MhB	Miamian silt loam, 2 to 6 percent slopes	Yes	Well drained	4.57
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded	No	Well drained	5.29
MkD2	Miamian silty clay loam, 12 to 18 percent slopes, eroded	No	Well drained	1.11
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	No	Well drained	2.11

LEGEND

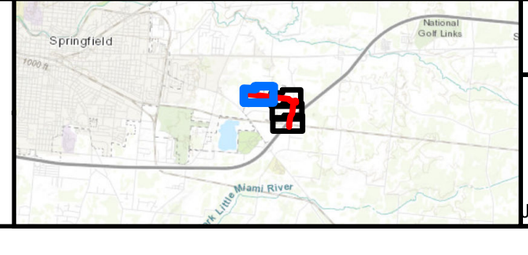
- Proposed East Springfield-London #2 Transmission Line Extensions
- Existing Substation
- Project Survey Boundary
- National Wetland Inventory (NWI)

Soil Unit

EmA, Ko, MhB, MhB2, MkD2, MmC3, MmD3, OcA, ThA, WrA

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, USA Topo Maps



ATSI

East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project

FIGURE 2A
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

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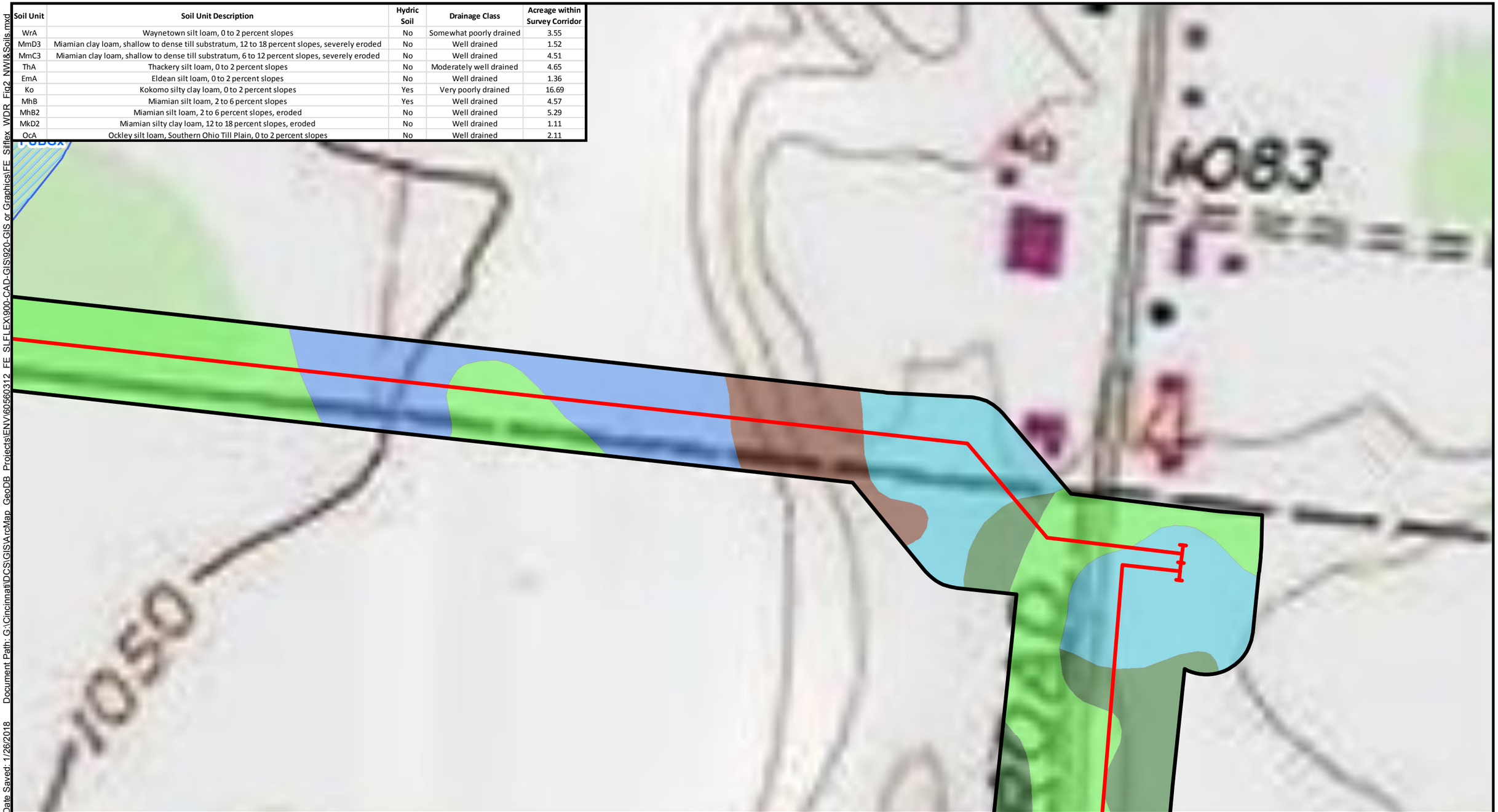
Soil Unit	Soil Unit Description	Hydric Soil	Drainage Class	Acreage within Survey Corridor
WrA	Waynetown silt loam, 0 to 2 percent slopes	No	Somewhat poorly drained	3.55
MmD3	Miamian clay loam, shallow to dense till substratum, 12 to 18 percent slopes, severely eroded	No	Well drained	1.52
MmC3	Miamian clay loam, shallow to dense till substratum, 6 to 12 percent slopes, severely eroded	No	Well drained	4.51
ThA	Thackery silt loam, 0 to 2 percent slopes	No	Moderately well drained	4.65
EmA	Eldean silt loam, 0 to 2 percent slopes	No	Well drained	1.36
Ko	Kokomo silty clay loam, 0 to 2 percent slopes	Yes	Very poorly drained	16.69
MhB	Miamian silt loam, 2 to 6 percent slopes	Yes	Well drained	4.57
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded	No	Well drained	5.29
MkD2	Miamian silty clay loam, 12 to 18 percent slopes, eroded	No	Well drained	1.11
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	No	Well drained	2.11



LEGEND

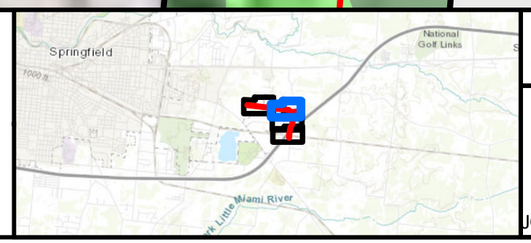
- Proposed East Springfield-London #2 Transmission Line Extensions
- Existing Substation
- Project Survey Boundary
- National Wetland Inventory (NWI)

Soil Unit

EmA, Ko, MhB, MhB2, MkD2, MmC3, MmD3, OcA, ThA, WrA

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, USA Topo Maps



ATSI

East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project

FIGURE 2B
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60560312

AECOM

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Soil Unit	Soil Unit Description	Hydric Soil	Drainage Class	Acreage within Survey Corridor
WrA	Waynetown silt loam, 0 to 2 percent slopes	No	Somewhat poorly drained	3.55
MmD3	Miamian clay loam, shallow to dense till substratum, 12 to 18 percent slopes, severely eroded	No	Well drained	1.52
MmC3	Miamian clay loam, shallow to dense till substratum, 6 to 12 percent slopes, severely eroded	No	Well drained	4.51
ThA	Thackery silt loam, 0 to 2 percent slopes	No	Moderately well drained	4.65
EmA	Eldean silt loam, 0 to 2 percent slopes	No	Well drained	1.36
Ko	Kokomo silty clay loam, 0 to 2 percent slopes	Yes	Very poorly drained	16.69
MhB	Miamian silt loam, 2 to 6 percent slopes	Yes	Well drained	4.57
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded	No	Well drained	5.29
MkD2	Miamian silty clay loam, 12 to 18 percent slopes, eroded	No	Well drained	1.11
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	No	Well drained	2.11

LEGEND

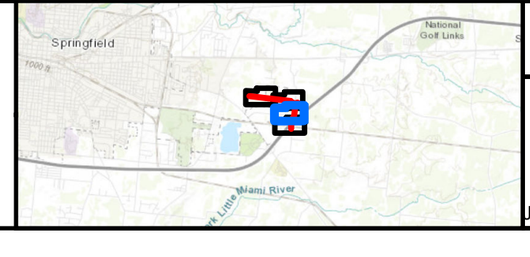
- Proposed East Springfield-London #2 Transmission Line Extensions
- Existing Substation
- Project Survey Boundary
- National Wetland Inventory (NWI)

Soil Unit

EmA, Ko, MhB, MhB2, MkD2, MmC3, MmD3, OcA, ThA, WrA

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, USA Topo Maps



ATSI

East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project

FIGURE 2C
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60560312

AECOM

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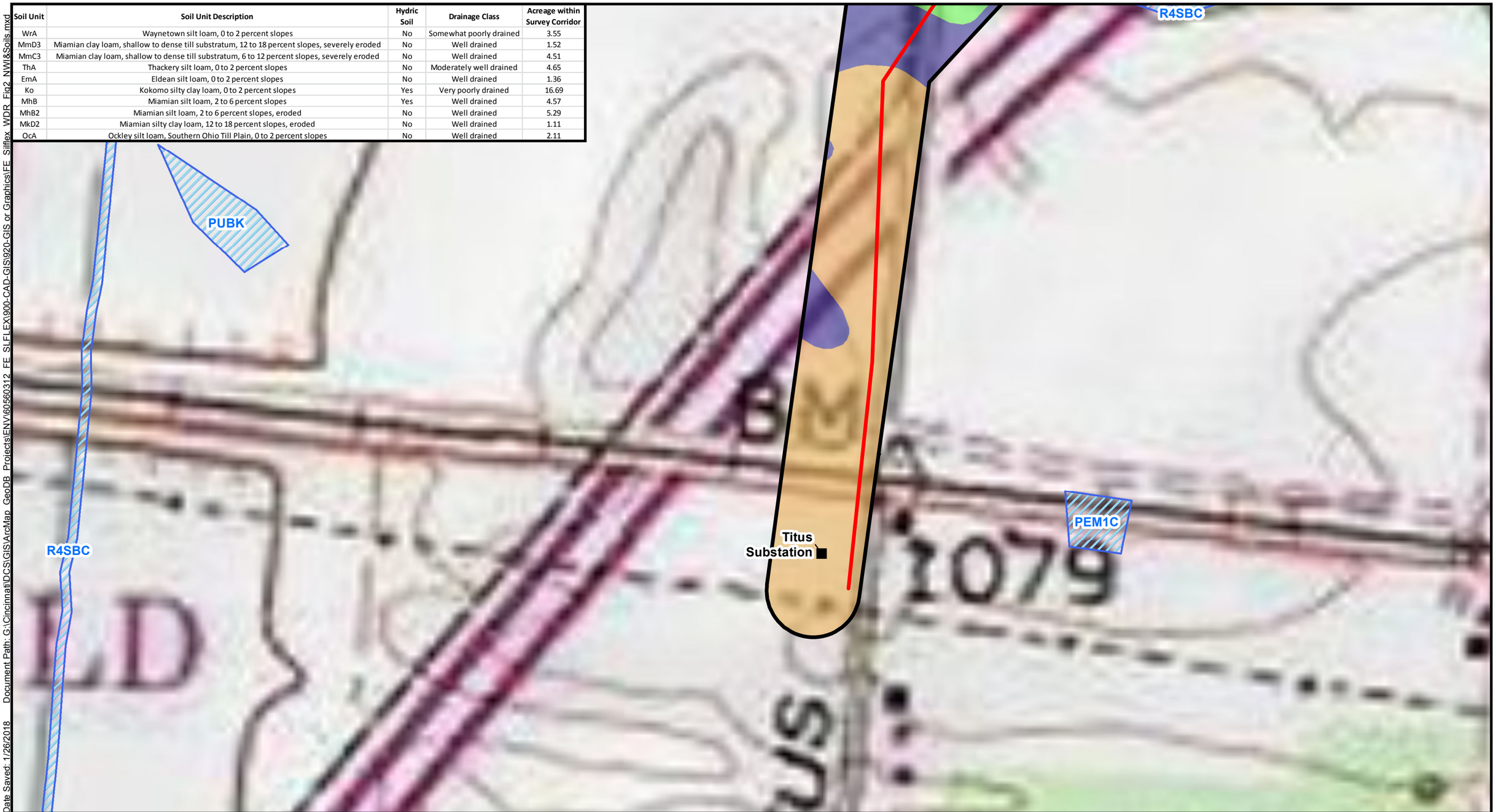
Soil Unit	Soil Unit Description	Hydric Soil	Drainage Class	Acreage within Survey Corridor
WrA	Waynetown silt loam, 0 to 2 percent slopes	No	Somewhat poorly drained	3.55
MmD3	Miamian clay loam, shallow to dense till substratum, 12 to 18 percent slopes, severely eroded	No	Well drained	1.52
MmC3	Miamian clay loam, shallow to dense till substratum, 6 to 12 percent slopes, severely eroded	No	Well drained	4.51
ThA	Thackery silt loam, 0 to 2 percent slopes	No	Moderately well drained	4.65
EmA	Eldean silt loam, 0 to 2 percent slopes	No	Well drained	1.36
Ko	Kokomo silty clay loam, 0 to 2 percent slopes	Yes	Very poorly drained	16.69
MhB	Miamian silt loam, 2 to 6 percent slopes	Yes	Well drained	4.57
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded	No	Well drained	5.29
MkD2	Miamian silty clay loam, 12 to 18 percent slopes, eroded	No	Well drained	1.11
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	No	Well drained	2.11



LEGEND

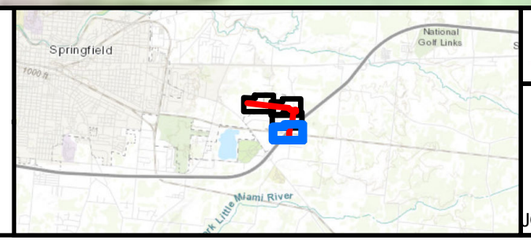
- Proposed East Springfield-London #2 Transmission Line Extensions
- Existing Substation
- Project Survey Boundary
- National Wetland Inventory (NWI)

Soil Unit

EmA, Ko, MhB, MhB2, MkD2, MmC3, MmD3, OcA, ThA, WrA

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, USA Topo Maps



ATSI

East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project

FIGURE 2D
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60560312

AECOM

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Ohio EPA 401
Possibly
Eligible

Benjamin Dr

bing

LEGEND

- Proposed East Springfield-London #2 Transmission Line Extensions
- Existing Substation
- Project Survey Boundary
- Ohio EPA 401 WQC for Nationwide Permit
- Delineated Stream (HHEI)
- Delineated Wetland Inside of Survey Corridor
- Approximate Wetland Outside of Survey Corridor
- Delineated Pond
- Upland Data Point
- Wetland Data Point
- Non JD Ditch

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, Bing Maps Aerial

Miami River

ATSI

East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project

FIGURE 3A
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60560312

AECOM

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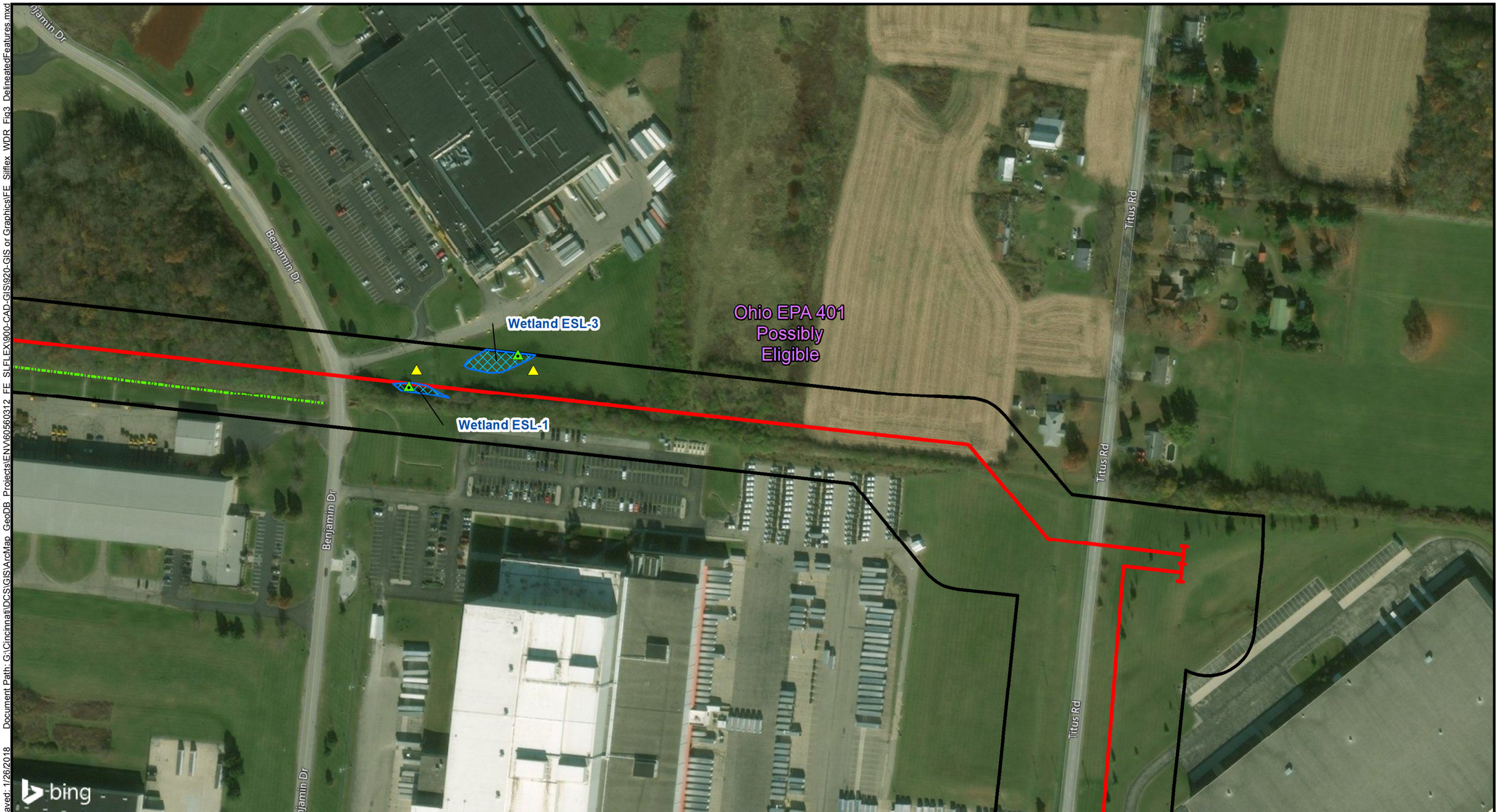
Date Saved: 1/26/2018 Document Path: G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60560312_FE_SLFLEX\900-CAD-GIS\920-GIS or Graphics\FE_Silflex_WDR_Fig3_DelineatedFeatures.mxd

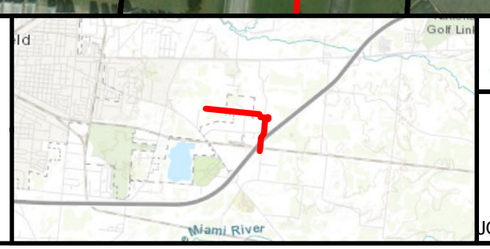


LEGEND

- Proposed East Springfield-London #2 Transmission Line Extensions
- Existing Substation
- Project Survey Boundary
- Ohio EPA 401 WQC for Nationwide Permit
- Delineated Stream (HHEI)
- Delineated Wetland Inside of Survey Corridor
- Approximate Wetland Outside of Survey Corridor
- Delineated Pond
- Upland Data Point
- Wetland Data Point
- Non JD Ditch

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, Bing Maps Aerial



ATSI

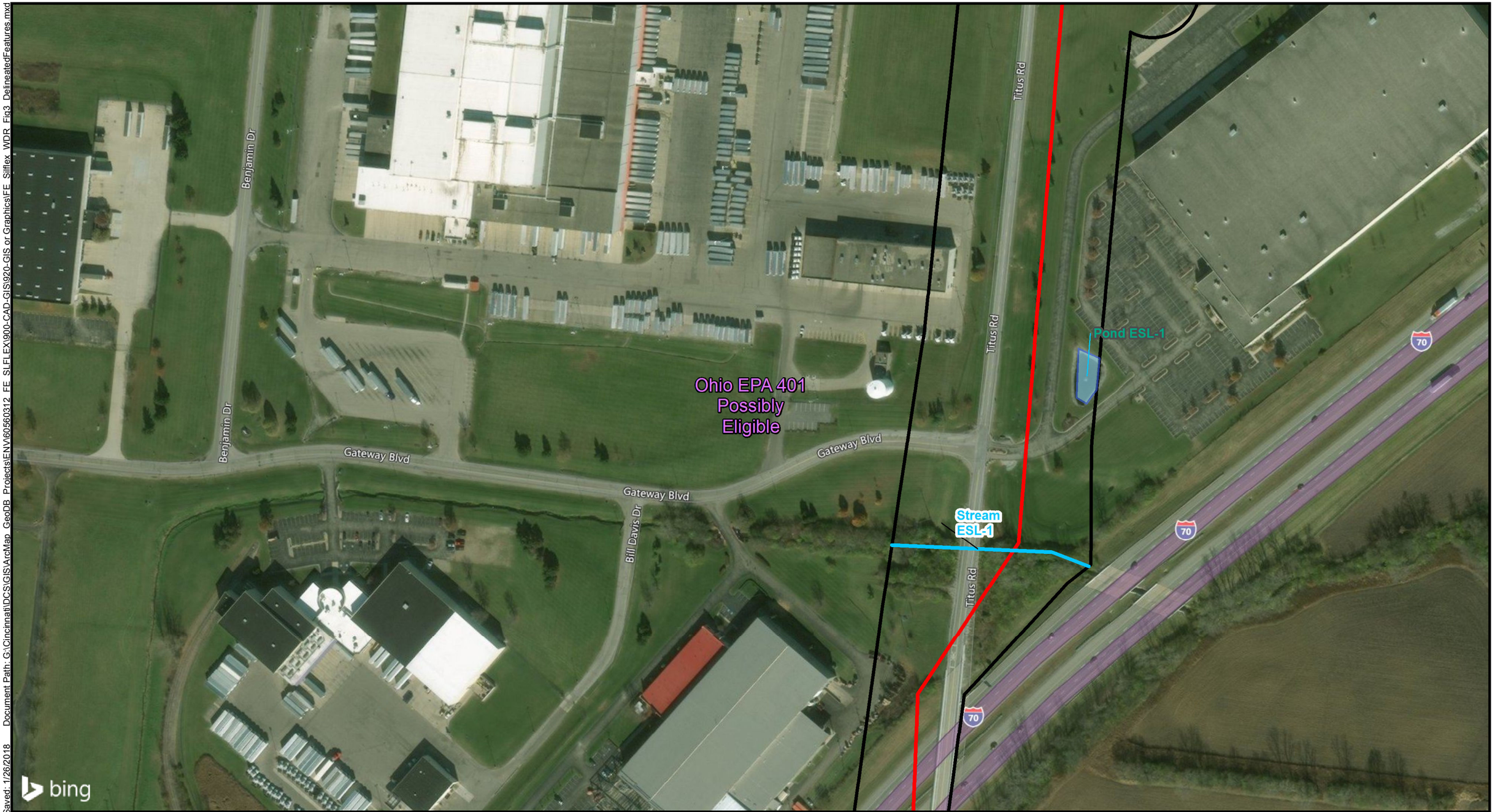
East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project

FIGURE 3B
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60560312

AECOM

Date Saved: 1/26/2018 Document Path: G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60560312_FE_SLFLEX\900-CAD-GIS\920-GIS or Graphics\FE_Silflex_WDR_Fig3_DelineatedFeatures.mxd



LEGEND

- Proposed East Springfield-London #2 Transmission Line Extensions
- Existing Substation
- Project Survey Boundary
- Ohio EPA 401 WQC for Nationwide Permit
- Delineated Stream (HHEI)
- Delineated Wetland Inside of Survey Corridor
- Approximate Wetland Outside of Survey Corridor
- Delineated Pond
- Upland Data Point
- Wetland Data Point
- Non JD Ditch

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, Bing Maps Aerial

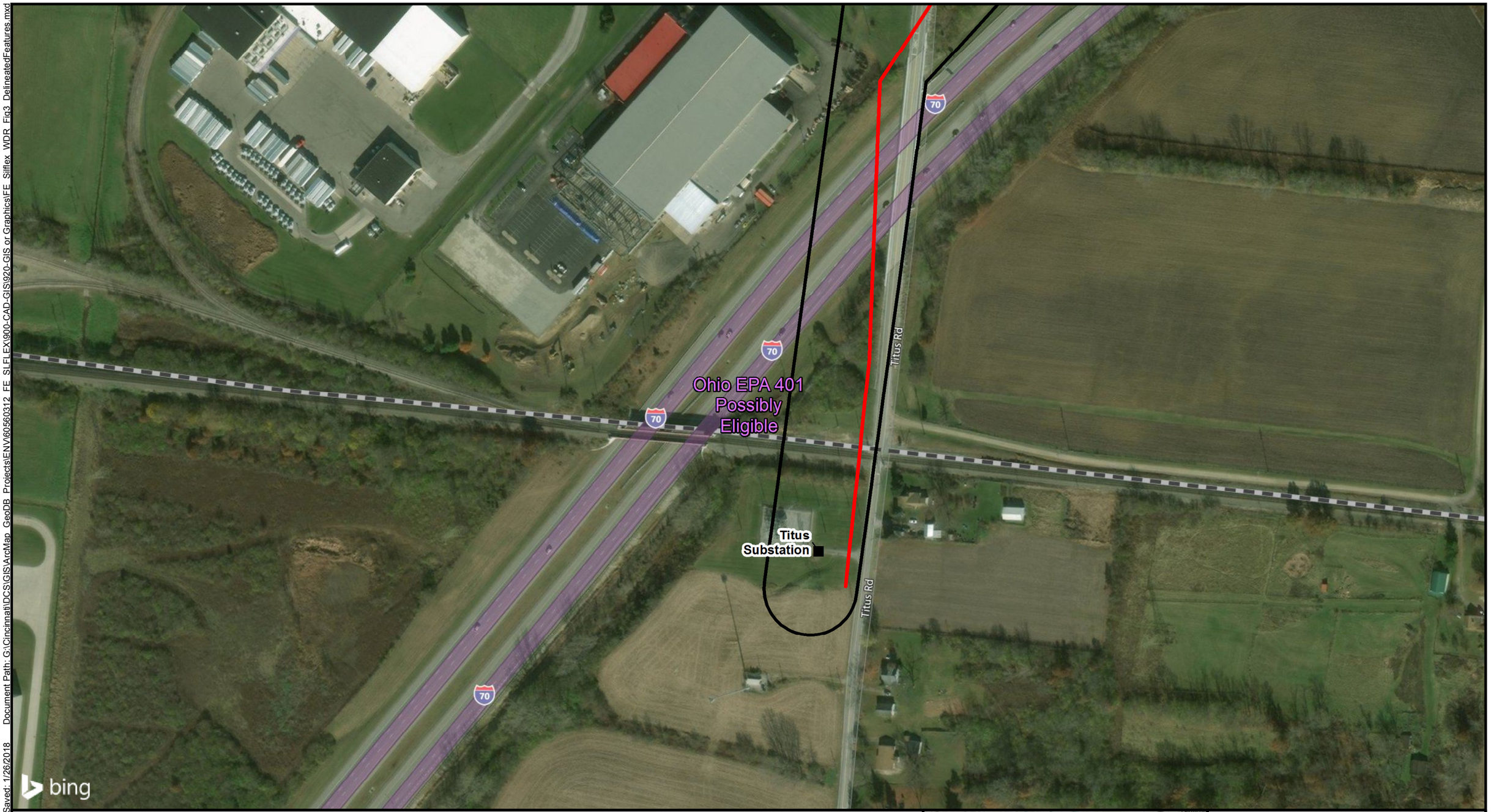
ATSI

East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project

FIGURE 3C
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60560312

AECOM



LEGEND

- Proposed East Springfield-London #2 Transmission Line Extensions
- Existing Substation
- Project Survey Boundary
- Ohio EPA 401 WQC for Nationwide Permit
- Delineated Stream (HHEI)
- Delineated Wetland Inside of Survey Corridor
- Approximate Wetland Outside of Survey Corridor
- Delineated Pond
- Upland Data Point
- Wetland Data Point
- Non JD Ditch

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, Bing Maps Aerial

ATSI

East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project

FIGURE 3D
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60560312

AECOM

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APPENDIX A

U.S. ARMY CORPS OF ENGINEERS WETLAND & UPLAND FORMS

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: silflex | City/County: Clark | Sampling Date: 11-Dec-17

Applicant/Owner: FirstEnergy | State: OH | Sampling Point: **w-01**

Investigator(s): BAE, PJR | Section, Township, Range: S 4 T 5E R 9N

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave

Slope: 0.0% / 0.0 ° | Lat.: 39.911089 | Long.: -83.7189483 | Datum: NAD 83

Soil Map Unit Name: Thackery silt loam, 0 to 2 percent slopes (ThA) | NWI classification: N/A

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
PEM wetland in isolated depressional area between mowed lawn and berm.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size:)				
1. Apocynum cannabinum	50	☑	47.6%	FAC
2. Phalaris arundinacea	40	☑	38.1%	FACW
3. Scirpus cyperinus	15	☐	14.3%	OBL
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	105	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= 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	15	x 1 =	15
FACW species	40	x 2 =	80
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		245 (B)

Prevalence Index = B/A = 2.333

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.**

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **w-01**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0-12	10YR 4/2	95	10YR 5/6	5	C	M	Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

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)
- ☐ True Aquatic Plants (B14)
- ☐ 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)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Silflex | City/County: Clark | Sampling Date: 23-Jan-18

Applicant/Owner: FE | State: OH | Sampling Point: **w-bae-180123-01**

Investigator(s): BAE | Section, Township, Range: 4 T 5E R 9N

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): concave

Slope: 0.0% / 0.0 ° | Lat.: 39.91120187 | Long.: -83.71817305 | Datum: NAD 83

Soil Map Unit Nam: ThA | NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of ye: Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? | Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? | (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
mowed wetland in field

VEGETATION - Use scientific names of plants.

	Absolute	Dominant Species?	Rel.Strat	Indicator
Tree Stratu (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratu (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratu (Plot size:)				
1. Phalaris arundinacea	90	☑	90.0%	FACW
2. Juncus effusus	10	☐	10.0%	OBL
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	100	= Total Cover		
Woody Vine Stratu (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test workshee

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: 100.0% (A/B)

Prevalence Index workshee

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		190 (B)

Prevalence Index = B/A = 1.900

Hydrophytic Vegetation Indicato

- ☑ **1 - Rapid Test for Hydrophytic Vegetati**
- ☑ **2 - Dominance Test is > 50**
- ☑ **3 - Prevalence Index is ≤3.** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Expla**

[1] **Indicators of hydric soil and wetland hydrology must**

Hydrophytic Vegetation Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by

SOIL

Sampling Point: **w-bae-180123-01**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indic

Depth (inches	Matrix Color (moist		%	Redox Features Color (moist		%	Type [1]	Loc[2]	Texture	Remarks
0-12	10YR	4/2	85	10YR	5/8	15	C	M		

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]

- ☐ Coast Prairie Redox (A1
- ☐ Dark Surface (S7
- ☐ Iron Manganese Masses (F1
- ☐ Very Shallow Dark Surface (TF1
- ☐ Other (Explain in Remark

[3] Indicators of hydrophytic vegetation and wetland hydrology must be

Restrictive Layer (if observed

Type:

Depth (inches):

Hydric Soil Present Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicator

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)
- ☐ True Aquatic Plants (B14)
- ☐ 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)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two requir

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
Water Table Present?	Yes ◉	No ○	Depth (inches):	5
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Presen Yes ◉ No ○

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

Remarks:

Upland ESL-1

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Silflex | City/County: Clark | Sampling Date: 11-Dec-17

Applicant/Owner: FirstEnergy | State: OH | Sampling Point: **upl-01**

Investigator(s): BAE, PJR | Section, Township, Range: S 4 T 5E R 9N

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): flat

Slope: 0.0% / 0.0 ° | Lat.: 39.9110088 | Long.: -83.7190034 | Datum: NAD 83

Soil Map Unit Name: Thackery silt loam, 0 to 2 percent slopes (ThA) | NWI classification: none

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size:)				
1. Poa pratensis	50	☑	50.0%	FAC
2. Festuca arundinacea	50	☑	50.0%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	100	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	100 (A)		350 (B)

Prevalence Index = B/A = 3.500

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.**

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **upl-01**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR 4/2	100					Silt Loam	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

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)
- ☐ True Aquatic Plants (B14)
- ☐ 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)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

Upland ESL-3

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Silflex | City/County: Clark | Sampling Date: 23-Jan-18

Applicant/Owner: FE | State: OH | Sampling Point: **upl-bae-180123-01**

Investigator(s): BAE | Section, Township, Range: 4 T 5E R 9N

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none: none

Slope: 0.0% / 0.0 ° | Lat.: 439.9111251 | Long.: -83.7180536 | Datum: NAD 83

Soil Map Unit Nam: ThA | NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of ye: Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? | Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? | (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:
upland dp

VEGETATION - Use scientific names of plants.

	Absolute	Dominant Species?	Rel.Strat	Indicator
Tree Stratu (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratu (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratu (Plot size:)				
1. Poa pratensis	30	☑	30.0%	FAC
2. Festuca arundinacea	70	☑	70.0%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	100	= Total Cover		
Woody Vine Stratu (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test workshee

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 50.0% (A/B)

Prevalence Index workshee

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	100 (A)		370 (B)

Prevalence Index = B/A = 3.700

Hydrophytic Vegetation Indicato

- ☐ **1 - Rapid Test for Hydrophytic Vegetati**
- ☐ **2 - Dominance Test is > 50**
- ☐ **3 - Prevalence Index is ≤3.** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Expla**

[1] **Indicators of hydric soil and wetland hydrology must**

Hydrophytic Vegetation Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by

SOIL

Sampling Point: **upl-bae-180123-01**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indic

Depth (inches	Matrix Color (moist		%	Redox Features Color (moist		%	Type [1]	Loc[2]	Texture	Remarks
0-12	10YR	4/3	100						Silt Loam	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]

- ☐ Coast Prairie Redox (A1
- ☐ Dark Surface (S7
- ☐ Iron Manganese Masses (F1
- ☐ Very Shallow Dark Surface (TF1
- ☐ Other (Explain in Remark

[3] Indicators of hydrophytic vegetation and wetland hydrology must be

Restrictive Layer (if observed

Type: _____

Depth (inches): _____

Hydric Soil Present Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicator

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)
- ☐ True Aquatic Plants (B14)
- ☐ 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)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two requir

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Presen Yes ○ No ◉

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

Remarks:

Upland ESL-4

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Silfex City/County: Clark Sampling Date: 26-Jan-18

Applicant/Owner: AEP State: OH Sampling Point: **Upl-Pjr-012618-01**

Investigator(s): PJR Section, Township, Range: S 4 T 5E R 9N

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none

Slope: 0.0% 0.0 ° Lat.: 39.9111259 Long.: -83.72305699 Datum: NAD 83

Soil Map Unit Name: EmA NWI classification: N/A

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks: Data point was taken in non-jurisdictional ditch/swale area. Hydric soils were not present and vegetation was marginal. Hydrology only present due to recent snow melt and heavy rain event.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size:)			
1. Poa pratensis	60	☑ 98.4%	FAC
2. Plantago lanceolata	1	☐ 1.6%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
	61	= Total Cover	
Woody Vine Stratu (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	61 (A)		184 (B)

Prevalence Index = B/A = 3.016

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.**

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **Upl-Pir-012618-01**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc [2]	Texture	Remarks
0-6	7.5YR	5/8	65	10YR	5/2	35	C	M	Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

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)
- ☐ True Aquatic Plants (B14)
- ☐ 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)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
Water Table Present?	Yes ◉	No ○	Depth (inches):	3
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

APPENDIX B

OEPA WETLAND ORAM FORMS

Wetland ESL-1

Site: Tline	Rater(s): B. Ewoldt	Date: 12/11/2017

Field Id:

w-bae-171211-01

0 | 0 Metric 1. Wetland Area (size).

max 6 pts | subtotal

Select one size class and assign score.

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

0.04 acres

3 | 3 Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal

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

	WIDE. Buffers average 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)
x	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
x	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

8.0 | 11.0 Metric 3. Hydrology.

max 30 pts. | subtotal

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

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

3b. Connectivity. Score all that apply.

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

3c. Maximum water depth. Select one.

	>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

	ditch		point source (nonstormwater)
	tile	x	filling/grading
	dike		road bed/RR track
	weir		dredging
	stormwater input		Other:

6.5 | 17.5 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

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)
	Recent or no recovery (1)

Check all disturbances observed

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

17.5

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ESL-1

Site: Tline	Rater(s): B. Ewoldt	Date: 12/11/2017

Field Id:
w-bae-171211-01

	17.5 subtotal this page
0	**17.5** subtotal

Metric 5. Special Wetlands.

max 10 pts.

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 Praires (10)
	Known occurrence state/federal threatened or endangered species (10)
	Significant migratory songbird/water fowl habitat or usage (10)
	Category 1 Wetland. See Question 5 Qualitative Rating (-10)

0	**17.5** subtotal

Metric 6. Plant communities, interspersion, microtopography.

max 20pts.

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 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.

	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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare threatened or endangered spp to
A predominance of native species, with nonnative spp high 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

Category 1

17.5	**GRAND TOTAL(max 100 pts)**

Wetland ESL-3

Site: Tline	Rater(s): B. Ewoldt	Date: 1/23/2018

Field Id:

w-bae-180123-01

1 | 1 Metric 1. Wetland Area (size).

max 6 pts | subtotal

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)

0.16 acres

3 | 4 Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal

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

	WIDE. Buffers average 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)
x	LOW. Old field (>10 years), shrubland, 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)

6.0 | 10.0 Metric 3. Hydrology.

max 30 pts. | subtotal

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

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

3b. Connectivity. Score all that apply.

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

3c. Maximum water depth. Select one.

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

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

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

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

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

Check all disturbances observed

x	ditch		point source (nonstormwater)
	tile	x	filling/grading
	dike		road bed/RR track
	weir		dredging
	stormwater input		Other:

5 | 15 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

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

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

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

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

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

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

Check all disturbances observed

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

15

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland ESL-3

Site: Tline	Rater(s): B. Ewoldt	Date: 1/23/2018

Field Id:
w-bae-180123-01

	15
	subtotal this page
0	**15**
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 Praires (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 5 Qualitative Rating (-10)

-2	**13**
max 20pts.	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 Table 1 ORAM long form for list. Add or deduct points for coverage

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] 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 1 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 2 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 3 vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare threatened or endangered spp to
A predominance of native species, with nonnative spp high 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

Category 1

13	**GRAND TOTAL(max 100 pts)**

APPENDIX C

OEPA QHEI STREAM FORMS

Stream SF-1 | Fair Warmwater

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 45.5

Stream & Location: Silflex Industrial Park **RM:** _ _ _._ **Date:** 12/11/17

QH-bae-20171211-01, **Scorers Full Name & Affiliation:** Betsy Ewoldt/AECOM

River Code:_ _ _-_ _ _-_ _ _ **STORET #:**_ _ _ _ _ _ **Lat./ Long.:** (NAD 83 - decimal °) 39.906319, -83.71375 **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]		15	☐ ☐ MUCK [2]		
☑ ☐ GRAVEL [7]		50	☐ ☐ SILT [2]		5
☐ ☑ SAND [6]		30	☐ ☐ 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 15 *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.

0 UNDERCUT BANKS [1]	0 POOLS > 70cm [2]	0 OXBOWS, BACKWATERS [1]
0 OVERHANGING VEGETATION [1]	0 ROOTWADS [1]	0 AQUATIC MACROPHYTES [1]
0 SHALLOWS (IN SLOW WATER) [1]	0 BOULDERS [1]	0 LOGS OR WOODY DEBRIS [1]
0 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* 1

3] CHANNEL MORPHOLOGY

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☑ GOOD [5]	☑ RECOVERED [4]	☑ MODERATE [2]
☑ LOW [2]	☑ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

Channel *Maximum 20* 12

4] BANK EROSION AND RIPARIAN ZONE

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

River right looking downstream

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

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

L	R	FLOOD PLAIN QUALITY
☐	☐	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

Pool / Current *Maximum 12* 3

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

Comments

Riffle / Run *Maximum 8* 4.5

6] GRADIENT (6.67 ft/mi)

DRAINAGE AREA (2.6 mi²)

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

%POOL: 10 **%GLIDE:** **%RUN:** 70 **%RIFFLE:** 20

Gradient *Maximum 10* 6

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.

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

200 feet

CLARITY

1st --sample pass--	2nd
☐ < 20 cm	☐
☐ 20-<40 cm	☐
☐ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

CANOPY

- ☐ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

1st pass _____ cm

2nd _____ cm

C] REC

B] AESTHETIC

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

ION

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

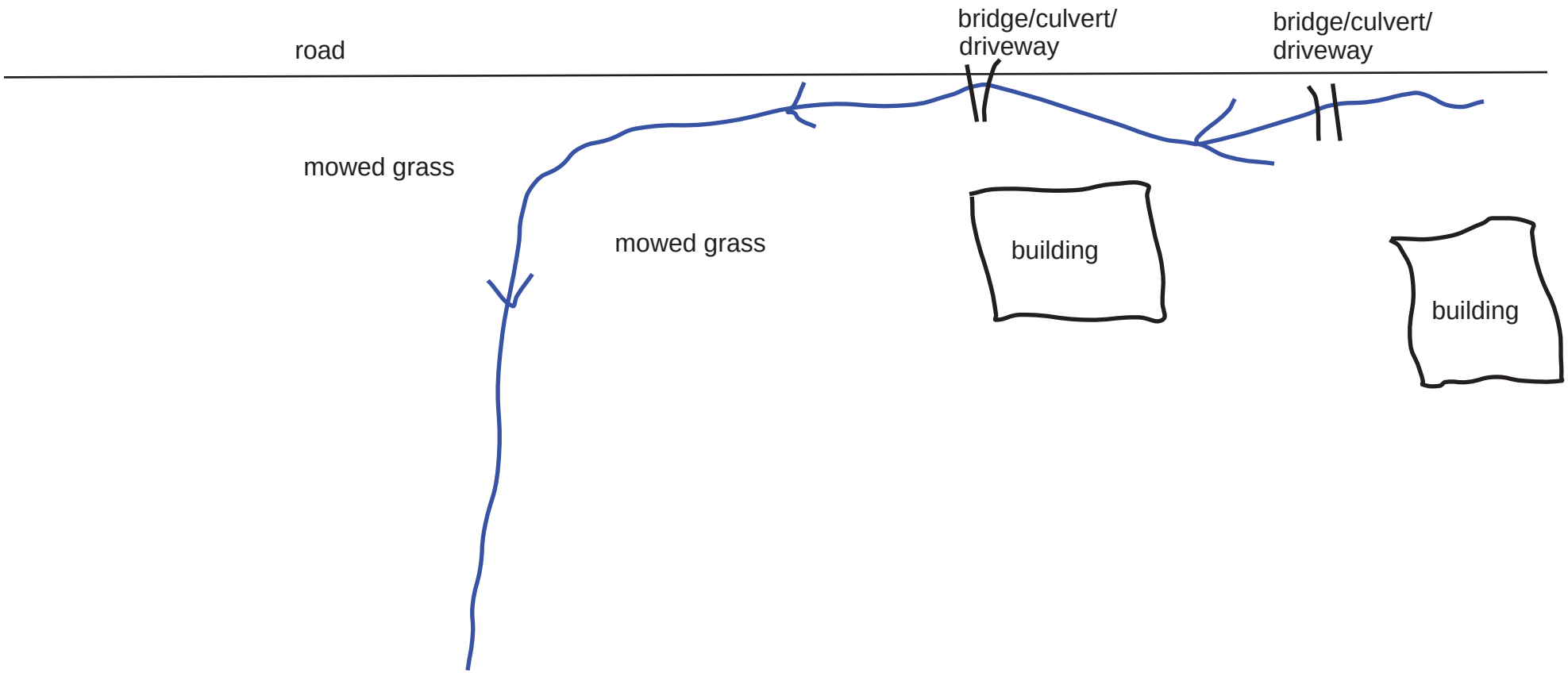
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width 5'
- $\bar{x}$ depth
- max. depth 10"
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Le *Tree:*

Stream Drawing:



APPENDIX D

DELINEATED FEATURES PHOTOGRAPHS

D1– WETLANDS

PHOTOGRAPHIC RECORD
Wetlands

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc	East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project	60560312

Photo Location 1

Date/Location:
December 11, 2017

Description:

Wetland ESL-1

PEM Wetland

Category 1

Facing North

Facing East

Facing South

Facing West

Soil Pit

PHOTOGRAPHIC RECORD
Wetlands

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc	East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project	60560312

Photo Location 2

Date/Location:
January 23, 2018

Description:

Wetland ESL-3

PEM Wetland

Category 1

Facing North

Facing East

Facing South

Facing West

Soil Pit

PHOTOGRAPHIC RECORD
Wetlands

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc	East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project	60560312

Photo Location 3

Date/Location:
January 23, 2018

Description:

Non-jurisdictional Ditch

Facing South

Facing North

Soil Pit

D2 –QHEI STREAMS

PHOTOGRAPHIC RECORD
STREAMS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc	East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project	60560312

Photo Location 1

Date/Location:

December 11, 2017

Description:

Stream ESL-1

Intermittent

Fair Warmwater

QHEI stream

Facing Upstream

Facing Downstream

Substrate

D3 – PONDS

PHOTOGRAPHIC RECORD
PONDS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc	East Springfield-London #2 138 kV Transmission Line Extensions to North Titus Substation Project	60560312

Photo Location 1 **Date:** December 11, 2017 **Description:** Pond ESL-1 Facing Southeast