### APPENDIX C

# AREAS OF ECOLOGICAL CONCERN, WETLAND DETERMINATION, AND STREAM ASSESSMENT REPORT

### TIDD-GABLE 138 KV TRANSMISSION LINE REBUILD PROJECT, JEFFERSON COUNTY, OHIO

### AREAS OF ECOLOGICAL CONCERN, WETLAND DETERMINATION, AND STREAM ASSESSMENT REPORT

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Project #: 60513702

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#### TABLE OF CONTENTS

1.0	PRO	JECT DESCRIPTION	1	
2.0	METHODS			
	2.1	Special Status Ecological Areas	1	
	2.2	Wetland Assessment		
	2.3	Stream and River Crossings	3	
3.0	RESULTS			
	3.1	Special Status Ecological Areas	4	
	3.2	Wetland Assessment		
	3.3	Stream and River Crossings	6	
4.0	SUM	IMARY		
5.0	CONCLUSION			
6.0	ERENCES	9		

#### TABLES

#### Number

TABLE 1	NWI WETLANDS IDENTIFIED WITHIN THE PROJECT SURVEY CORRIDOR
TABLE 2	WETLANDS IDENTIFIED WITHIN THE PROJECT SURVEY CORRIDOR
TABLE 3	STREAMS IDENTIFIED WITHIN THE PROJECT SURVEY CORRIDOR

## FIGURES (follow tables)

#### Number

FIGURES 1 to 13

ECOLOGICAL SURVEY RESULTS

#### APPENDICES (follow figures)

#### Number

ATTACHMENT A	WETLAND FORMS Attachment A.1: U.S. Army Corps of Engineers (USACE) Forms
	Attachment A.2: Ohio Rapid Assessment Method (ORAM) Forms
ATTACHMENT B	STREAM FORMS
ATTACHMENT C	PHOTOGRAPHS
	Attachment B.1: Representative Wetland Photographs
	Attachment B.2: Representative Stream Photographs





#### 1.0 **PROJECT DESCRIPTION**

This document presents the results of the wetland and stream assessment conducted by AECOM for American Electric Power Ohio Transmission Company's (AEP Ohio Transco) proposed Tidd-Gable 138 kV Transmission Line Rebuild Project (Project). AEP Ohio Transco is proposing to rebuild approximately 5.8 miles of 138 kV electric transmission lines in Jefferson County, Ohio. The new line will connect Tidd Station and Gable Station, by rebuilding portions of the Tidd-South Cadiz and Windsor-Canton 138 kV lines. Approximately one mile of the project length will be rebuilt outside of existing right-of-way (ROW) to improve constructability.

As part of the Ohio Power Siting Board (OPSB) Letter of Notification (LON) requirements, AEP Ohio Transco is required to describe the investigation concerning the presence or absence of areas of ecological concern as stated in Ohio Administrative Code (OAC) Rule 4906-6-05(B)(10)(f). This rule states:

- (10) The applicant shall describe the social and ecological impacts of the project.
  - (f) Provide a description of the applicant's investigation concerning the presence or absence of areas of ecological concern (including national and state forests and parks, floodplains, wetlands, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, and wildlife sanctuaries) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

AEP Ohio Transco retained AECOM to review areas of ecological concern, as defined above, within the proposed Project vicinity and conduct a field survey of waters of the U.S. within the limits of the existing and proposed transmission line right-of-way and associated proposed construction access roads. This report will be used to assist AEP Ohio Transco's efforts to avoid impacts to areas of ecological concern present in the survey area during construction.

#### 2.0 METHODS

#### 2.1 Special Status Ecological Areas

AECOM reviewed maps and Geographical Information System (GIS) data in order to identify national and state forests and parks, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, and wildlife sanctuaries in the Project vicinity. GIS data sources included the Ohio Department of Natural Resources (ODNR) Ohio Natural Heritage Database and federal land and parks layers available from Environmental Systems Research Institute (ESRI). Property ownership within 1,000 feet of the Project was reviewed to identify parcels that may have special status. AECOM also noted land use during the field reconnaissance conducted during July 2016.



Floodplains were evaluated based on the Federal Emergency Management Agency's (FEMA) Flood Map Viewer (https://hazards.fema.gov/wps/portal/mapviewer).

#### 2.2 Wetland Assessment

The purpose of the field survey was to assess whether wetlands and other "waters of the U.S." exist within the Project survey corridor. Prior to conducting field 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. 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.

In July 2016, AECOM ecologists walked the Project survey corridor (200-foot wide) 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.

The 200-foot wide 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: Eastern Mountains and Piedmont Region (Regional Supplement) (2012). The Regional Supplement was released in January 2012 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.

<u>Wetland Classifications:</u> 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. One Palustrine wetland class was identified within the Project survey corridor and is as follows:





 PEM – 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.

**Ohio Rapid Assessment Method v. 5.0:** The Ohio Environmental Protection Agency's (OEPA) Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 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 (CWA). 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 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 "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).

#### 2.3 Stream and River 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 Ohio EPA's Methods for Assessing Habitat in Flowing Waters: Using Ohio EPA's Qualitative Habitat Evaluation Index (Rankin, 2006) and Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, Version 3 (Davic, 2012).

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 Ohio EPA 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).

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<sup>2</sup> (259 ha), and a maximum depth of water pools equal to or less than 15.75 inches (40 cm)" (Davic, 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 (Davic, 2012). Evidence of anthropogenic alterations to the natural channel will result in a "Modified" qualifier for the stream.

#### 3.0 RESULTS

#### 3.1 Special Status Ecological Areas

AECOM conducted a review of published resources and consulted with agencies to identify national or state forests and parks, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, wildlife sanctuaries and floodplains



crossed by and in the immediate vicinity of the Project. No natural areas were identified at or within one mile of the Project.

According to the FEMA National Flood Hazard Layer (NFHL) (GIS shapefile), the Project is not located within a Flood Zone. The project is entirely located within Flood Zone X, an area with minimal flood hazard. No changes in flood elevations are anticipated as a result of the Project.

#### 3.2 Wetland Assessment

**<u>National Wetland Inventory Map Review</u>**: According to the NWI map of the Smithfield, Steubenville West, and Tiltonsville, Ohio quadrangles, there are four mapped NWI wetlands located within the Project survey corridor: one palustrine emergent wetland (PEM1C), one palustrine forested/shrub wetland (PFO1A), one palustrine scrub/shrub wetland (PSS1C), and one pond (PUBGh). See Table 1 for a full description of each wetland.

Cowardin Wetland Type	Description	Acreage within Survey Corridor
PEM1C	Palustrine Emergent, Seasonally Flooded	0.22
PFO1A	Palustrine Forested, Temporarily Flooded	0.39
PSS1C	Palustrine Scrub/Shrub, Seasonally Flooded	0.17
PUBGh	Palustrine Unconsolidated Bottom, Intermittently exposed, Impoundment	0.65

TABLE 1

#### NWI WETLANDS IDENTIFIED WITHIN THE PROJECT SURVEY CORRIDOR

<u>Wetland Delineation</u>: Two wetlands, totaling 0.52 acre, were delineated within the Project survey corridor as shown in Table 2. Some wetland boundaries extend beyond the 200-foot wide survey corridor, but only portions of those wetlands identified within the study corridor were assessed.

#### TABLE 2

#### WETLANDS IDENTIFIED WITHIN THE PROJECT SURVEY CORRIDOR

Report Name	Latitude	Longitude	Cowardin Wetland Type	ORAM Score	ORAM Category	Acreage within Survey Corridor		
Wetland 1	40.250725	-80.692429	PEM	15.5	Category 1	0.01		
Wetland 2	40.247938	-80.710169	PEM	28	Category 1	0.51		
Total: 2 wetlands								

The two wetlands identified within the Project survey corridor are both palustrine emergent (PEM) wetland habitat types. ORAM scores for these two wetlands were 15.5 (Wetland 1) and 28 (Wetland 2), which



classifies them as Category 1 wetlands. No Category 2 or 3 wetlands were identified in the Project survey corridor.

The location and approximate extents of the wetlands, as delineated within the Project survey area are shown on Figures 1 through 13. Completed USACE and ORAM forms are provided in Attachment A. Representative color photographs taken of the wetlands are provided in Attachment C.

#### 3.3 Stream and River Crossings

AECOM identified 14 streams, totaling 3,131 linear feet, within the 200-foot wide Project survey corridor (Table 3). Three perennial streams totaling 684 linear feet; seven intermittent streams totaling 1,719 linear feet; one ephemeral stream totaling 95 linear feet were observed. Three additional streams were observed, but were not fully evaluated due to steep and unsafe terrain, totaling 634 linear feet.

#### Max Bankfull Length within Report Flow Pool Latitude Longitude Score Width Survey Form Category Name Regime Depth (feet) Corridor (feet) (inches) Fair Warmwater 40.255374 -80.652255 Perennial QHEI 55.0 8 229 Stream 01 12 Stream 02 40.253103 -80.676804 Ephemeral HHEI 29.0 Modified Class 1 0 2.5 95 40.253218 -80.676997 HHEI 205 Stream 03 Intermittent 52.0 Class 2 3.5 3 Stream 04 40.253246 -80.677328 Intermittent HHEI 25.0 Modified Class1 1 1 253 Stream 05 40.252607 -80.681989 Perennial QHEI 38.0 Poor Warmwater 8 10 203 Stream 06 40.250506 -80.692100 Intermittent HHEI 26.0 Modified Class 1 2 1.5 255 Stream 07 40.247975 -80.708963 Intermittent HHEI 16.0 Modified Class 1 1.5 3 207 Stream 08 40.248136 -80.710384 Intermittent HHEI 27.0 Modified Class 1 318 4 3 Stream 09 40.249553 -80.725876 Intermittent HHEI 57.0 Modified Class 2 4 12 150 Stream 10 40.249531 -80.726158 Perennial QHEI 57.0 Fair Warmwater 30 15 252 Stream 11 40.249104 -80.735901 Intermittent HHEI 76.0 Class 3 6 12 331 Determined 40.253348 N/A 201 -80.664064 N/A N/A N/A N/A N/A Stream 01 Determined 40.253306 -80.668039 N/A N/A N/A N/A N/A N/A 208 Stream 02 Determined 40.249175 -80.698803 225 N/A N/A N/A N/A N/A N/A Stream 03 Total: 14 Streams; 11 Assessed Streams, 3 Determined Streams 3,131

TABLE 3 STREAMS IDENTIFIED WITHIN THE PROJECT SURVEY CORRIDOR

N/A: Information was unable to be determined due to terrain and safety issues.





#### Qualitative Habitat Evaluation Index:

Three streams within the Project survey corridor were assessed using the QHEI methodology. Two streams are classified as a Fair Warmwater habitat streams and one stream is classified as a Poor Warmwater habitat stream. The total length of the QHEI streams in the survey corridor is 684 linear feet. Forms for the streams assessed using the QHEI methodology are provided in Attachment B.

#### Primary Headwater Habitat Evaluation Index:

Eight headwater streams, totaling 1,719 linear feet, were assessed using the HHEI methodology for streams with drainage areas less than one square mile. The locations of identified streams within the survey corridor are shown on Figures 1 through 13. Representative color photographs are provided in Attachment C.

Three additional HHEI streams were observed from a distance, but were unable to be evaluated due to location and unsafe terrain. The three determined streams, totaling 634 linear feet, are headwater streams with drainage areas less than one square mile.

AECOM has preliminarily determined that all assessed streams within the 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).

#### 3.4 Ponds

Two ponds, totaling 0.45 acre, were identified within the 200-foot wide survey corridor. The ponds appeared to be man-made for recreational, wildlife, and/or livestock use. The location and approximate extent of the ponds identified within the Project survey corridor are shown on Figures 1 through 13.

#### 4.0 SUMMARY

No national forests or parks, designated or proposed wilderness areas, National or State Wild and Scenic Rivers, wildlife areas, wildlife refuges, wildlife management areas, or wildlife sanctuaries were identified within 1,000 feet of the proposed Project.

The Project is not located within any 100-year flood zones. The project is entirely located within Flood Zone X, an area with minimal flood hazard. No changes in flood elevations are anticipated as a result of the Project.

Two wetlands, totaling 0.52 acres, were identified within the Project survey corridor. Both of these wetlands were classified as PEM Category 1 wetlands. Fourteen streams were identified within the Project survey corridor, totaling 3,132 linear feet. Three streams were classified as perennial, seven as intermittent, and one as ephemeral. Three additional streams were observed from a distance, but were unable to be evaluated due to location and unsafe terrain. Two ponds were also identified within the Project survey corridor.





#### 5.0 CONCLUSION

This report will be used to assist AEP Ohio Transco's efforts to avoid special status ecological areas, wetlands, and streams to the extent possible during construction of the Project, thereby minimizing impacts to these features identified within the Project area. Due to the planned use of timber matting for access roads and work pads while working in wetlands and streams, no permanent impacts are anticipated. Erosion control methods including silt fencing are expected to be used where appropriate to minimize runoff-related impacts to stream channels and wetlands. As a result, significant impacts to waters of the U.S. are not anticipated.

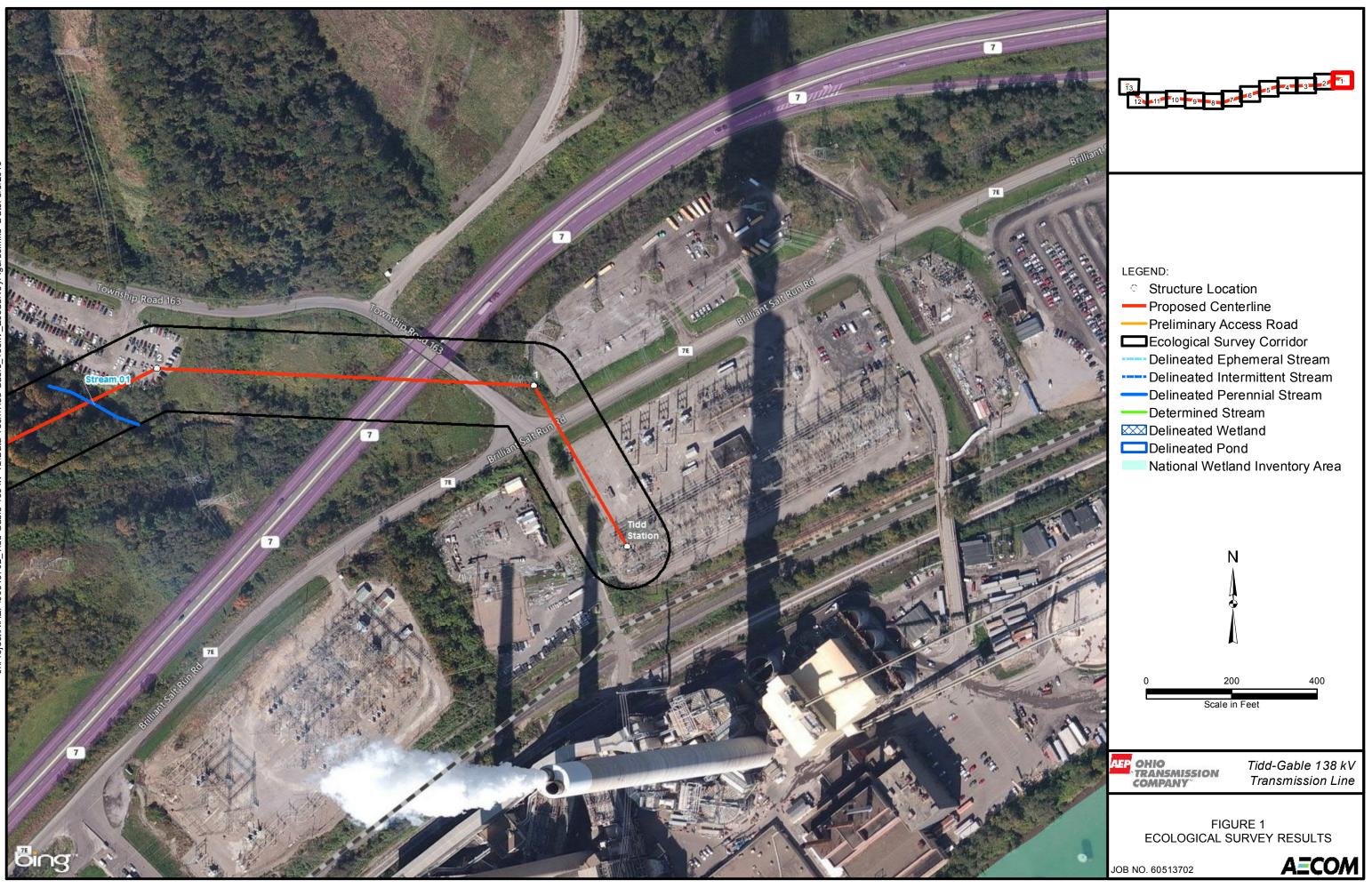
The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which AECOM is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due 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 become invalidated, wholly or in part, by changes beyond the control of AECOM.

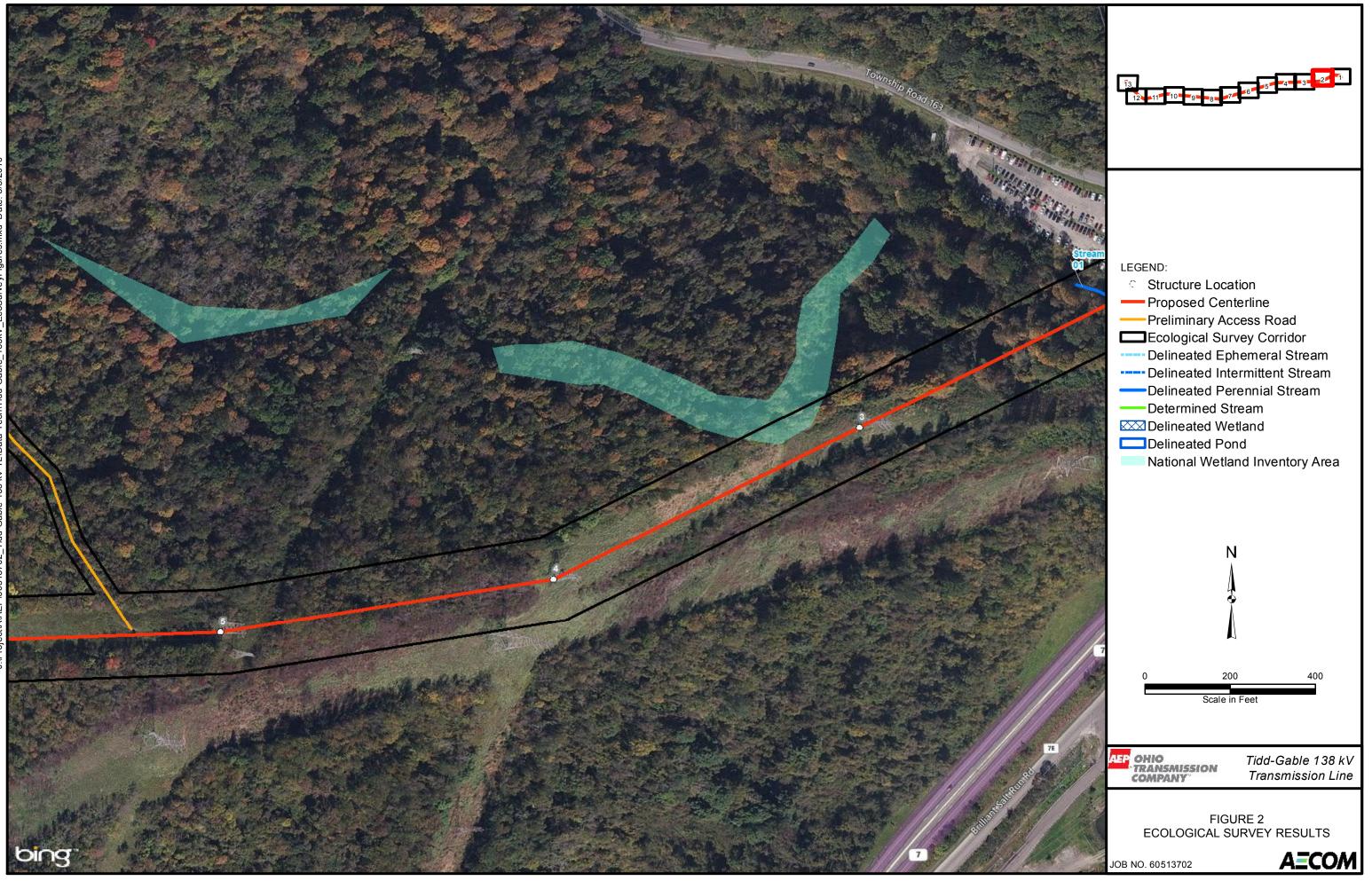


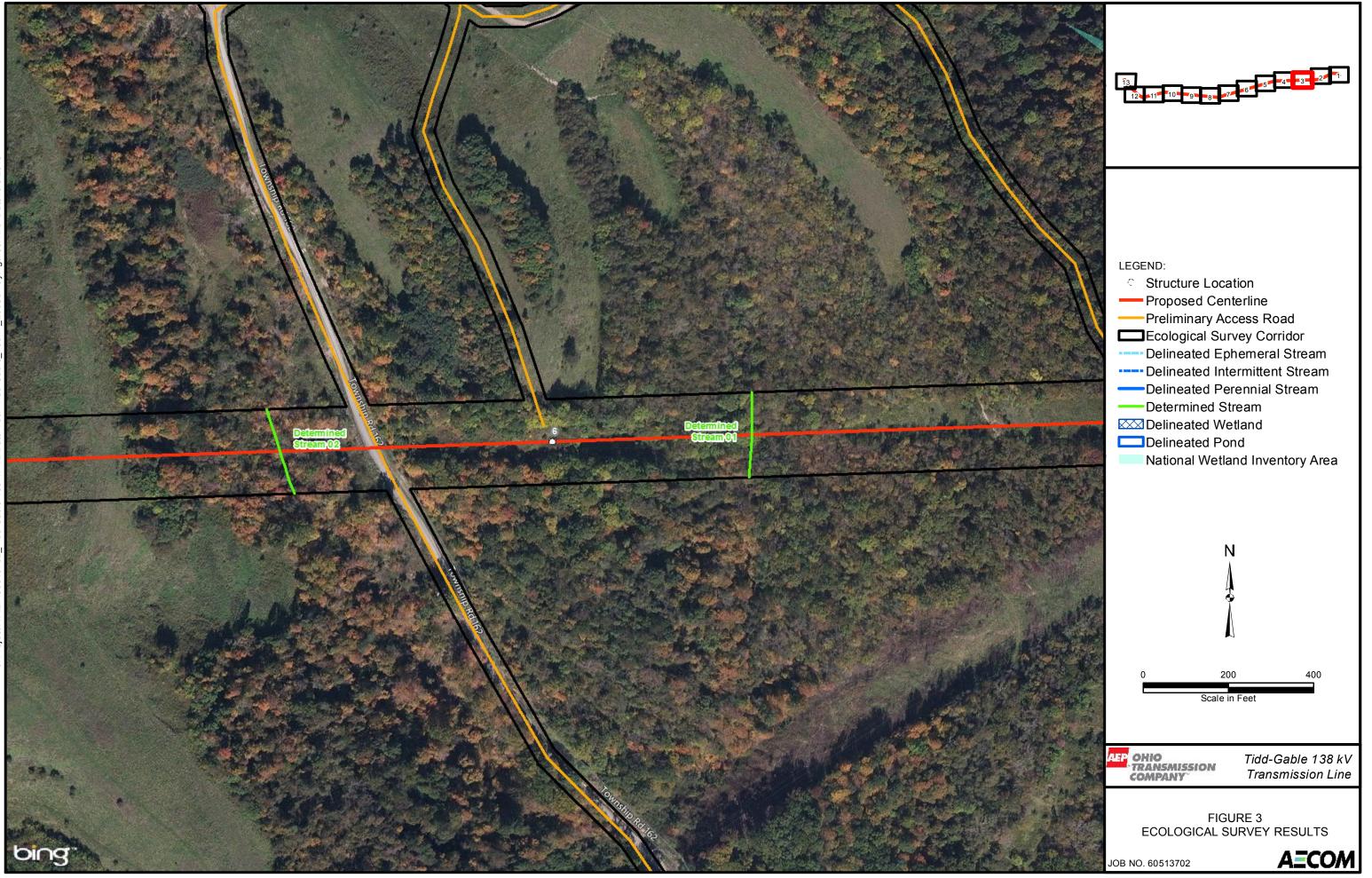


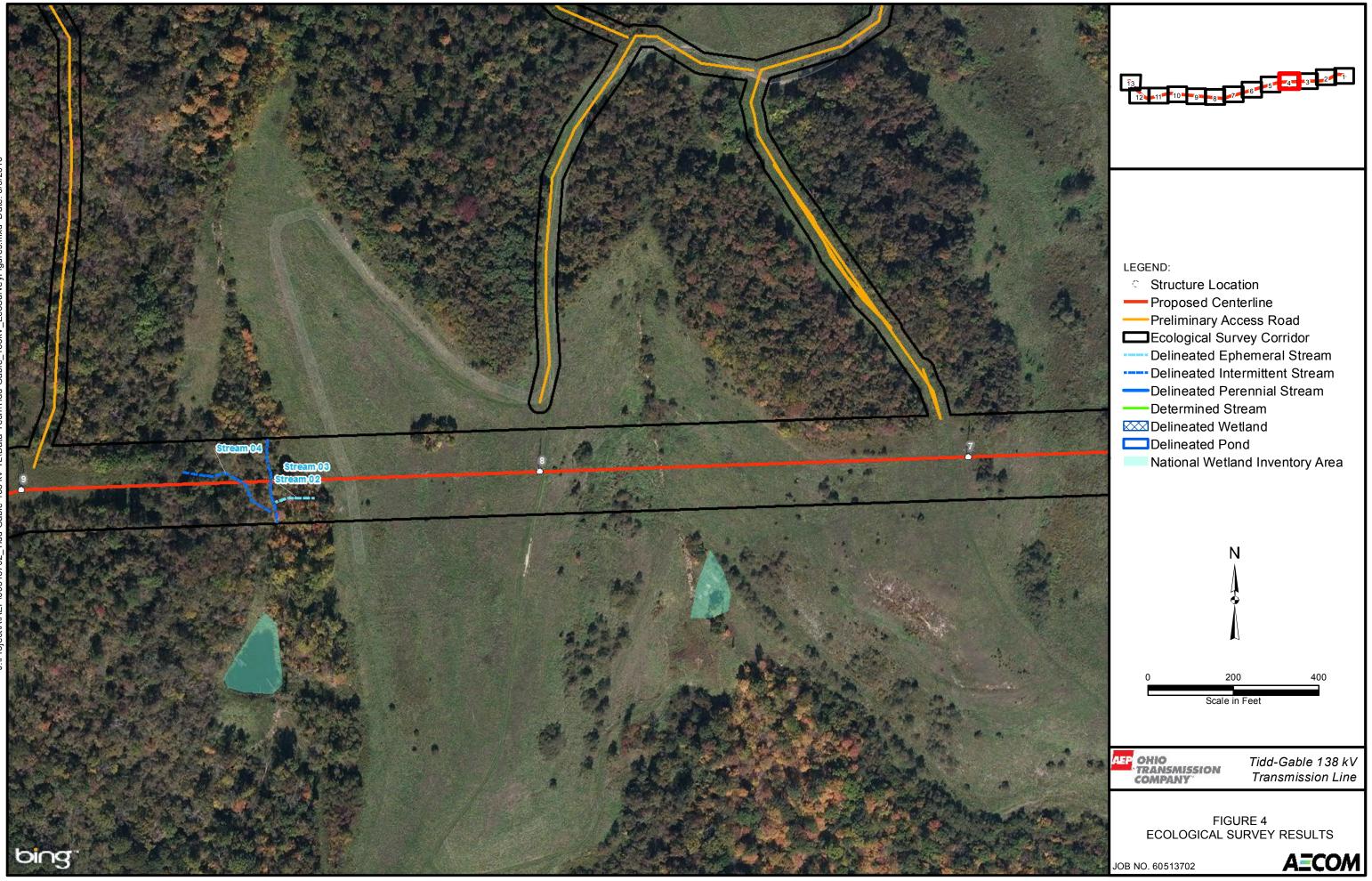
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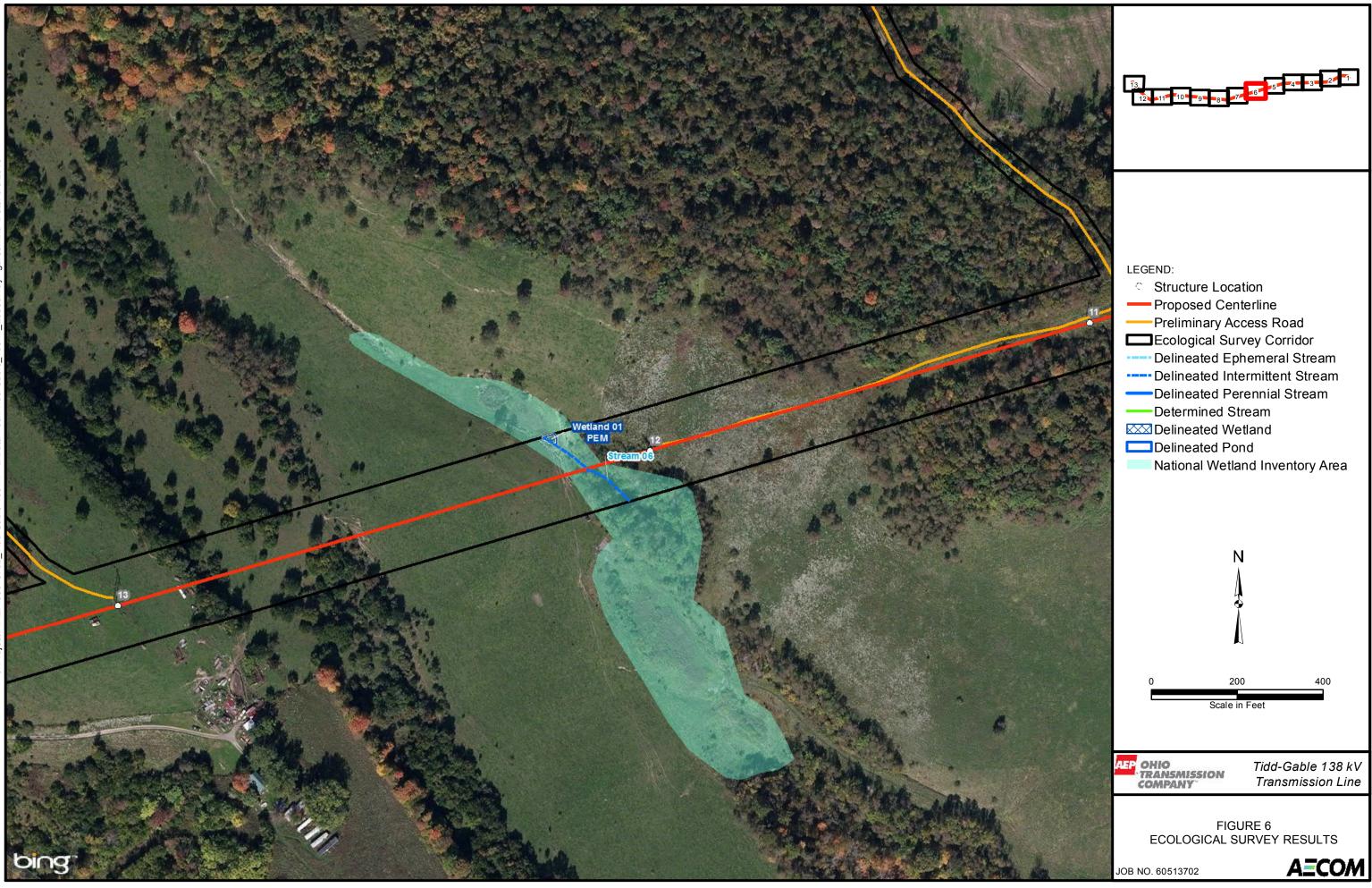




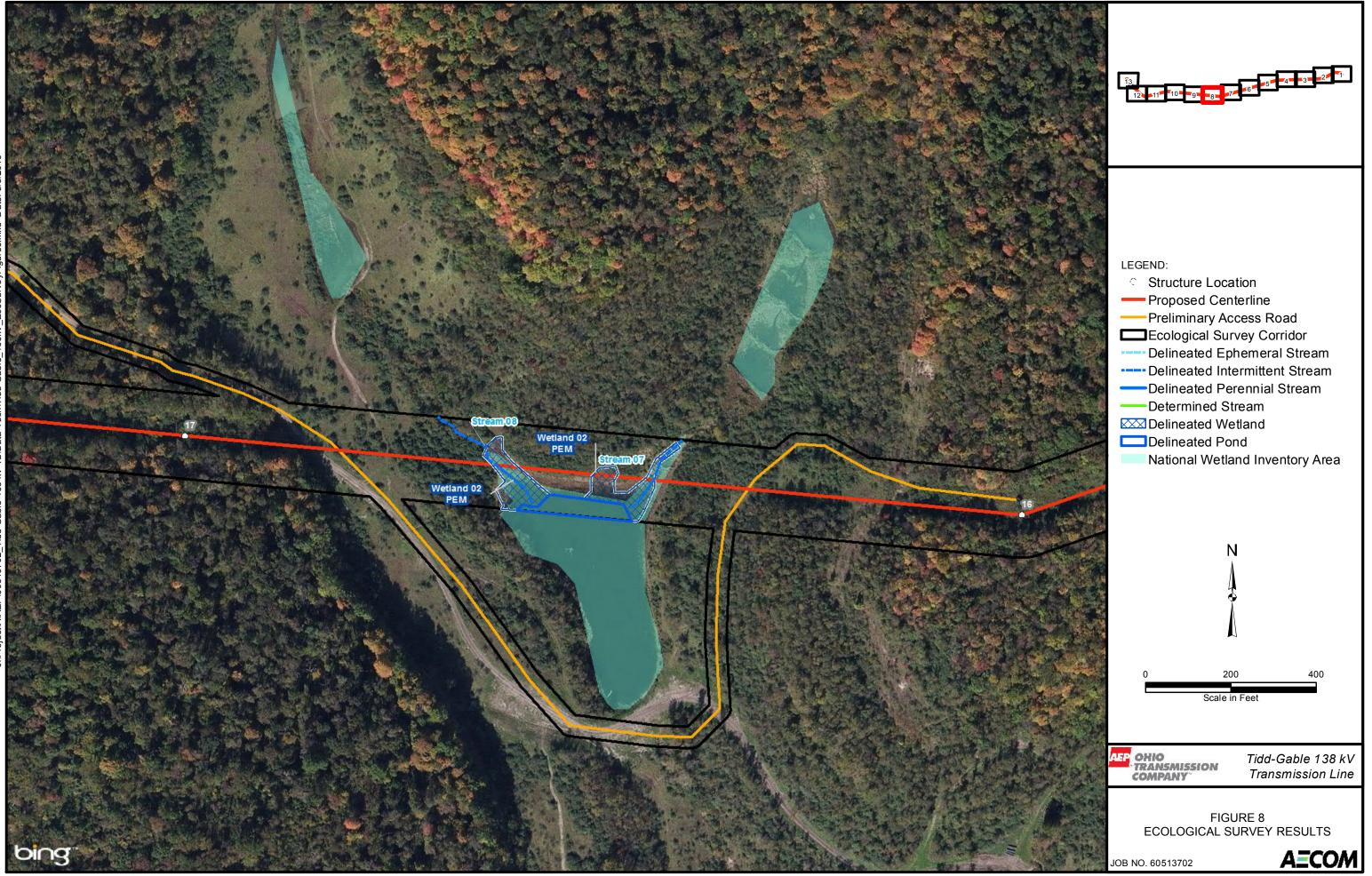














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