Legal Department

American Electric Power
1 Riverside Plaza
Columbus, OH 43215-2373
AEP.com

January 18, 2019

Chairman Asim Z. Haque
Ohio Power Siting Board
180 East Broad Street
Columbus, Ohio 43215

Hector Garcia
Christen M. Blend
Senior Counsel –
Regulatory Services
(614) 716-3410 (P)
(614) 716-1915 (P)
hgarcia1@aep.com
cmblend@aep.com

Ohio Power Siting Board
Docketing Division
180 East Broad Street
Columbus, Ohio 43215

Re: Case No. 18-1855-EL-BTA
In the Matter of the Application for Amendment of AEP Ohio Transmission Company, Inc. for a Certificate of Environmental Compatibility and Public Need for Yager-Desert Road 138 kV Transmission Line Rebuild Project

Dear Chairman Haque,

Attached please find a copy of the Application for Amendment of AEP Ohio Transmission Company, Inc. for a Certificate of Environmental Compatibility and Public Need ("Application") for the above-referenced project. This filing is made pursuant to O.A.C. 4906-5-01, *et seq.* and 4906-2-01, *et seq.*

Filing of this Application is effected electronically pursuant to O.A.C. 4906-2-02(A) and (D). Five printed copies and ten additional electronic copies (CDs) of this filing will also be submitted to the Staff of the Ohio Power Siting Board for its use.

The following information is included pursuant to O.A.C. 4906-2-04(A)(3):

(a) Applicant:
AEP Ohio Transmission Company, Inc.
c/o American Electric Power
Energy Transmission
700 Morrison Road
Gahanna, Ohio 43220

(b) Facilities to be Certified:
Yager-Desert 138 kV Transmission Line Rebuild Project

(c) Applicant's Authorized Representative with respect to this Application:
Todd Sides
Project Manager
700 Morrison Road
Gahanna, Ohio 43220

If you have any questions, please do not hesitate to contact me.

/s/ Hector Garcia
Christen M. Blend (0086881), Counsel of Record
Hector Garcia (0084517)

Counsel for AEP Ohio Transmission Company, Inc.

cc: Executive Director and Counsel, c/o Jon Pawley, OPSB Staff

AMENDMENT TO THE APPLICATION TO THE OHIO POWER SITING BOARD FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

OPSB CASE NO.
18-1855-EL-BTA

Yager – Desert Road 138 kV Transmission Line Rebuild Project

January 2019

American Electric Power
Ohio Transmission Company

BEFORE THE OHIO POWER SITING BOARD

Application for Amendment to the Yager-Desert Road 138kV Transmission Line Rebuild Project

Table of Contents

Revised Tables

Revised Figures

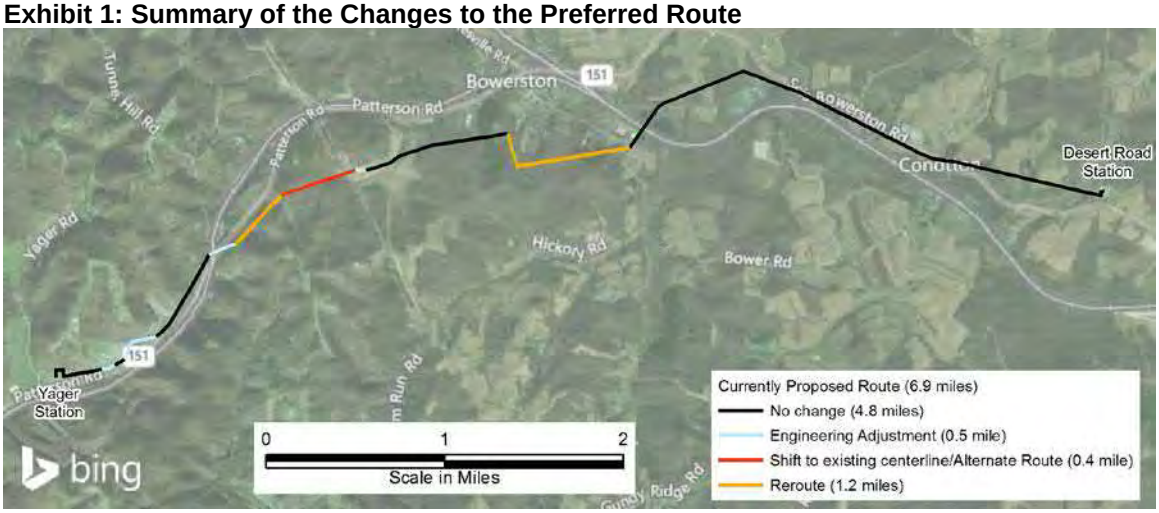
Revised Appendices

AMENDMENT CHANGE SUMMARY

AEP Ohio Transmission Company, Inc. ("AEP Ohio Transco") submitted a Certificate Application to the Ohio Power Siting Board (OPSB) on July 22, 2016 for the Yager-Desert Road 138 kV Transmission Line Rebuild Project ("Project") in Case No. 16-0535-EL-BTX. A Supplement to the Application for a small route change was docketed on February 6, 2017. On May 4, 2017, the OPSB issued its Certificate of Environmental Compatibility and Public Need for the Preferred Route.

Detailed engineering and property owner negotiations resulted in seven areas of change to the Preferred Route. These changes comprise three categorizes:(1) engineering adjustments, (2) a shift to rebuild on existing centerline rather than offset within the existing right-of-way (ROW), and (3) reroutes that deviate from the existing or initially proposed ROW.

Exhibit 1: Summary of the Changes to the Preferred Route

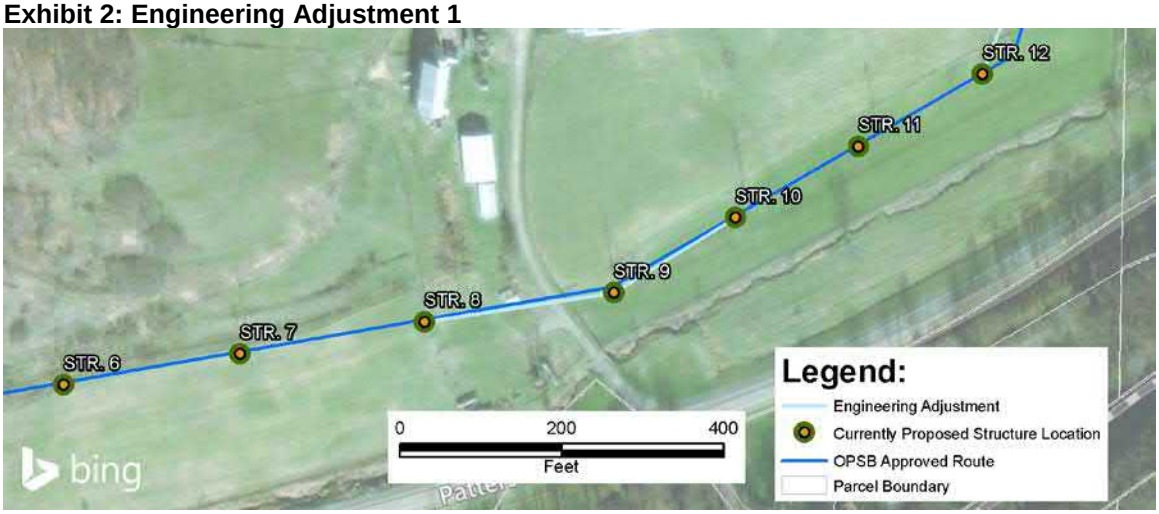


ENGINEERING ADJUSTMENTS

Four engineering adjustments totaling 0.5 miles were necessary along the OPSB-approved Preferred Route. These adjustments are the result of detailed structure placement and engineering through review and modeling of terrain, surveyed property lines and road ROW, and structure and conductor clearances. Proposed structure locations are between four and 20 feet from the OPSB-approved centerline. These engineering adjustments are described below from west to east.

Engineering Adjustment 1 occurs at Structure 9. Detailed engineering resulted in a shift of a single structure approximately eight feet south of the OPSB-approved centerline. The total length of the shift that differs from the OPSB-approved centerline is less than 0.1 mile. The change is provided in Exhibit 2 below This adjustment did not result in any additional or adjoining tracts being impacted or added as this was a minor shift on the existing parcel where the line currently exists.

Exhibit 2: Engineering Adjustment 1



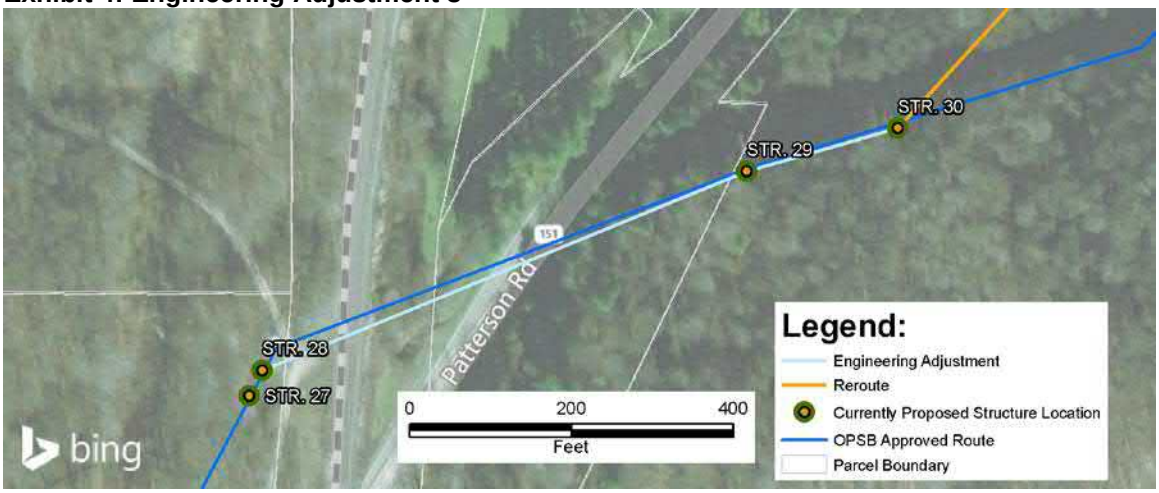
Engineering Adjustment 2 occurs between Structure 12 and Structure 17. Generally, this shift from the existing ROW was included in the February 8, 2017 supplemental filing, but slight shifts to Structures 12 and 17 to improve pole locations resulted in additional changes between four and 19 feet from the OPSB-approved centerline. Exhibit 3 shows the overall change. This is a minor adjustment where no additional or adjoining tracts were impacted or added.

Exhibit 3: Engineering Adjustment 2

Engineering Adjustment 3 occurs between Structure 28 and Structure 30. The western pole shifted approximately 32 feet along the OPSB-approved centerline to improve the structure

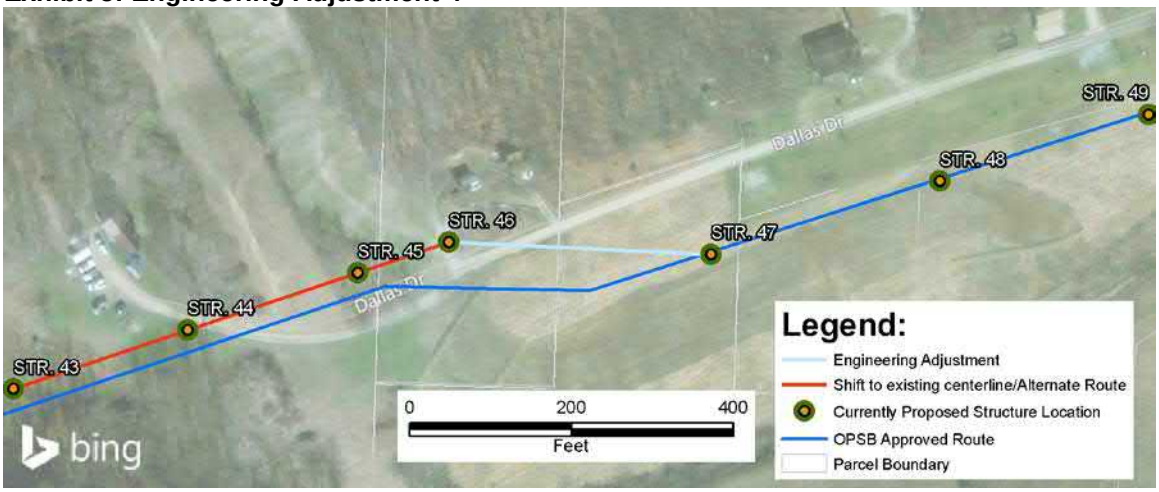
location relative to a driveway. The eastern structure shifted approximately seven feet off the OPSB-approved centerline. Exhibit 4 shows the overall change. This adjustment did not impact or add any additional or adjoining tracts.

Exhibit 4: Engineering Adjustment 3



Engineering Adjustment 4 occurs between Structure 46 and Structure 47. The change is a result of a shift to the existing centerline due to a property owner preference. Exhibit 5 shows the change. This adjustment did not impact or add any additional or adjoining tracts.

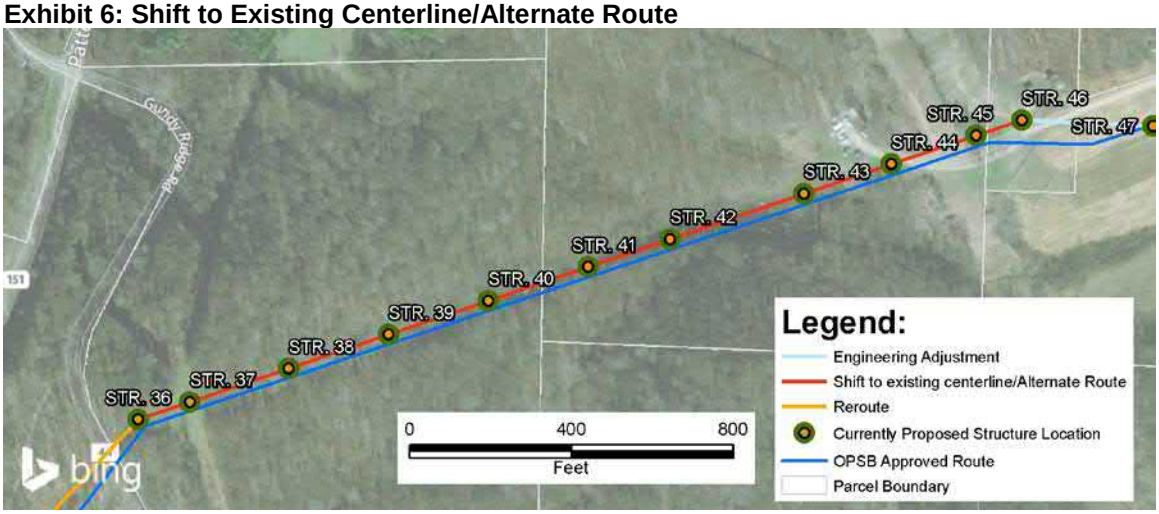
Exhibit 5: Engineering Adjustment 4



ADJUSTMENT BACK TO CENTERLINE

The Preferred Route was originally proposed to be approximately 25 feet offset from the existing centerline between Structure 36 and Structure 45. However, due to property owner preference, the current Preferred Route will be constructed on the existing centerline, as shown on Exhibit 6. This will result in a slight reduction in tree clearing. This adjustment back to centerline did not add or impact any additional tracts or landowners as the adjustment back to centerline occurred on the same parcels as proposed.

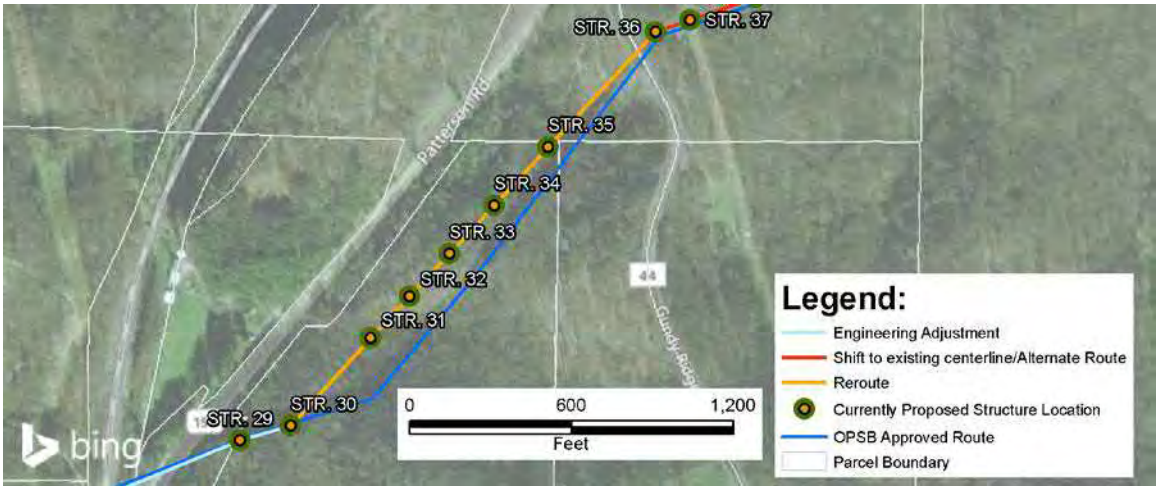
Exhibit 6: Shift to Existing Centerline/Alternate Route



REROUTES

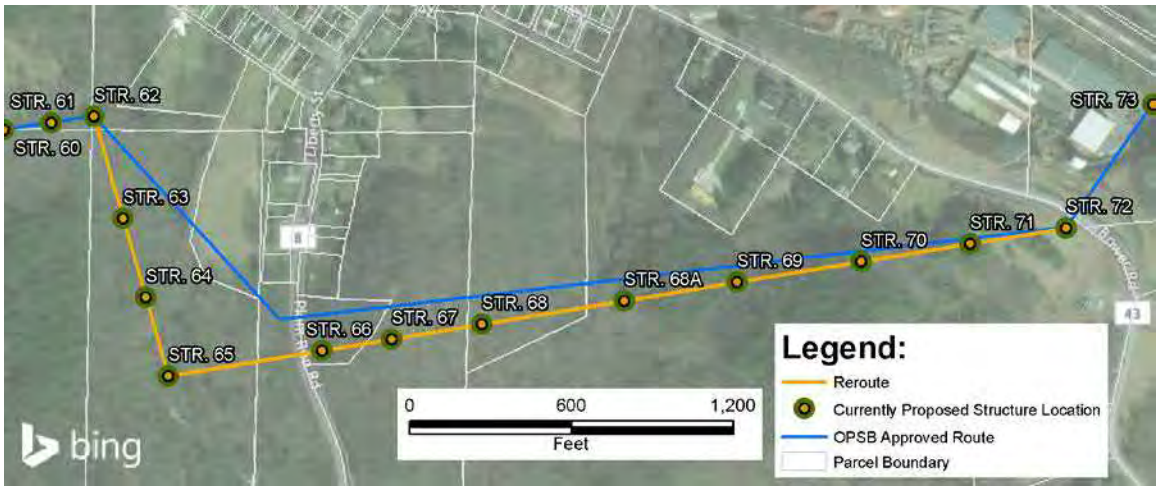
Reroute 1 is between Structure 30 and Structure 35. The location of the angle structure was shifted to avoid a natural gas line in conjunction with property owner negotiations. At its greatest difference, the reroute is approximately 150 feet from the OPSB-approved route. The total length of Reroute 1 is approximately 0.4 mile. Reroute 1 is shown on Exhibit 7. No additional tracts or landowners were impacted or added by this reroute. All property owners were agreeable and signed easements for the reroute.

Exhibit 7: Reroute 1



Reroute 2 is between Structure 62 and Structure 72. This 0.8-mile reroute is necessary due to a newly-identified structure in the woods. This created the need to go further south from Structure 62 than originally planned. The alignment was then further adjusted to Structure 72 as a result of terrain. Reroute 2 is shown on Exhibit 8. This reroute does not add or impact any additional tracts or landowners as compared to the OPSB approved route.

Exhibit 8: Reroute 2



4906-5-02 PROJECT SUMMARY AND APPLICANT INFORMATION

(A) PROJECT SUMMARY AND FACILITY OVERVIEW

Text provided in the July 22, 2016 Application filing remains unchanged.

(1) General Purpose of the Facility

Text provided in the July 22, 2016 Application filing remains unchanged.

(2) Facility Description

Text provided in the July 22, 2016 Application filing remains unchanged. A project overview is provided in **Revised Figure 02-1**.

(3) Suitability of the Preferred and Alternate Routes

As described above, the purpose of the Project is to rebuild the existing Yager-Desert Road portion of the Dennison-Desert Road line and in the process upgrade it to 138 kV design standards. To meet current 138 kV standards, however, the new line will require a wider 100 foot right-of-way ("ROW"), which may result in impacts to some areas due to adjacent development. AEP Ohio Transco's consultant sought to identify potential routing solutions that would have the least overall impacts to local land use and environmental and cultural resources, while avoiding non-standard design and construction requirements.

Two primary routes were considered for the Project. Both routes focus on rebuilding within the existing ROW, albeit to different extents. The first route, the Preferred Route, would be constructed primarily within the existing ROW offset by approximately 25 feet to allow for construction while the existing line remains in service. The Preferred Route also includes several deviations from the existing ROW to avoid houses and buildings that would otherwise fall within the newly expanded ROW. In contrast, the Alternate Route focuses exclusively on rebuilding the new line along the existing centerline. The Alternate Route maximizes the use of existing ROW, minimizes the need for additional ROW, but has greater impact on adjacent land uses. The Alternate Route would require a longer construction schedule due to the likely need for multiple phased construction outages to build the line without significant disruptions to the service area. Note, because the Preferred and Alternate Routes are both entirely within the existing transmission ROW for the majority of the length of the Project, the only portions of the Preferred Route considered for purposes of the 20% alternative threshold described in Ohio Administrative Code Section 4906-3-05 are those portions of the Preferred Route and the Alternate Route that are outside of the existing ROW.

The Preferred and Alternate Routes are equally suitable for the need of the Project, but differ with respect to their level of reuse of the existing ROW. As described above, the Preferred Route minimizes impacts to adjacent land use and allows for greater service reliability through

diversions and offset construction. The most prominent example of reduced potential impacts resulting from the selection of the Preferred Route over the Alternate Route is a reduction of buildings at risk of being demolished. ~~Four~~ Two small sheds were identified within a standard 100-foot ROW along the Preferred Route. Property owners will be compensated if these structures must be removed due to clearance requirements. By comparison, 13 buildings, including six residences, would fall within a standard 100-foot ROW along the Alternate Route. Similarly, fewer residences are in close proximity of the Preferred Route. ~~One residence is~~ No residences are identified within 100 feet of the Preferred Route and ~~82~~ 80 within 1,000-feet of the Preferred Route. This compares favorably to the nine residences within 100 feet and 115 within 1,000-feet of the Alternate Route. However, construction along the centerline would maximize the use of the existing already impacted ROW.

(i) Preferred Route

The Preferred Route parallels the existing Dennison-Desert Road 69 kV line for the majority of its 6.8 mile length. It will be offset by approximately 25 feet from the existing 69 kV line to ensure safer construction and reliability and to allow the existing line to remain in service. Wider offsets and deviations are proposed in specific locations to avoid buildings that would be within the ROW and other constraints. The Preferred Route deviates from the direct offset ~~five~~ four times for a total of approximately ~~1.4~~ 1.6 miles.

(ii) Alternate Route

Text provided in the July 22, 2016 Application filing remains unchanged.

(4) Project Schedule Summary

AEP Ohio Transco plans to start construction of the transmission line in ~~the spring of 2017~~ January 2019 in areas that have not changed, with an estimated in-service date of ~~spring 2018~~ November 2020. **Revised Figure 03-1** provides additional details regarding the proposed Project schedule.

(B) APPLICANT INFORMATION

Company History

Text provided in the July 22, 2016 Application filing remains unchanged.

Current Operations and Affiliate Relationships

Text provided in the July 22, 2016 Application filing remains unchanged.

G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 02-1_Overview.mxd

Desert Road Station

Yager Station

LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Existing Electric Line

0 2,000 4,000

Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

Harrison County

AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 02-1
PROJECT OVERVIEW

AECOM

JOB NO. 60482470

4906-5-03 REVIEW OF NEED AND SCHEDULE

(A) JUSTIFICATION OF NEED

Text provided in the July 22, 2016 Application filing remains unchanged.

(B) REGIONAL EXPANSION PLANS

Text provided in the July 22, 2016 Application filing remains unchanged.

(C) SYSTEM ECONOMY AND RELIABILITY

Text provided in the July 22, 2016 Application filing remains unchanged.

(D) OPTIONS TO ELIMINATE THE NEED FOR THE PROPOSED PROJECT

Text provided in the July 22, 2016 Application filing remains unchanged

(E) FACILITY SELECTION RATIONALE

Text provided in the July 22, 2016 Application filing remains unchanged

(F) FACILITY SCHEDULE

(1) Schedule Gantt Chart

The major scheduled activities associated with the Preferred and Alternate Routes are shown in bar chart form on **Revised Figure 03-1.**

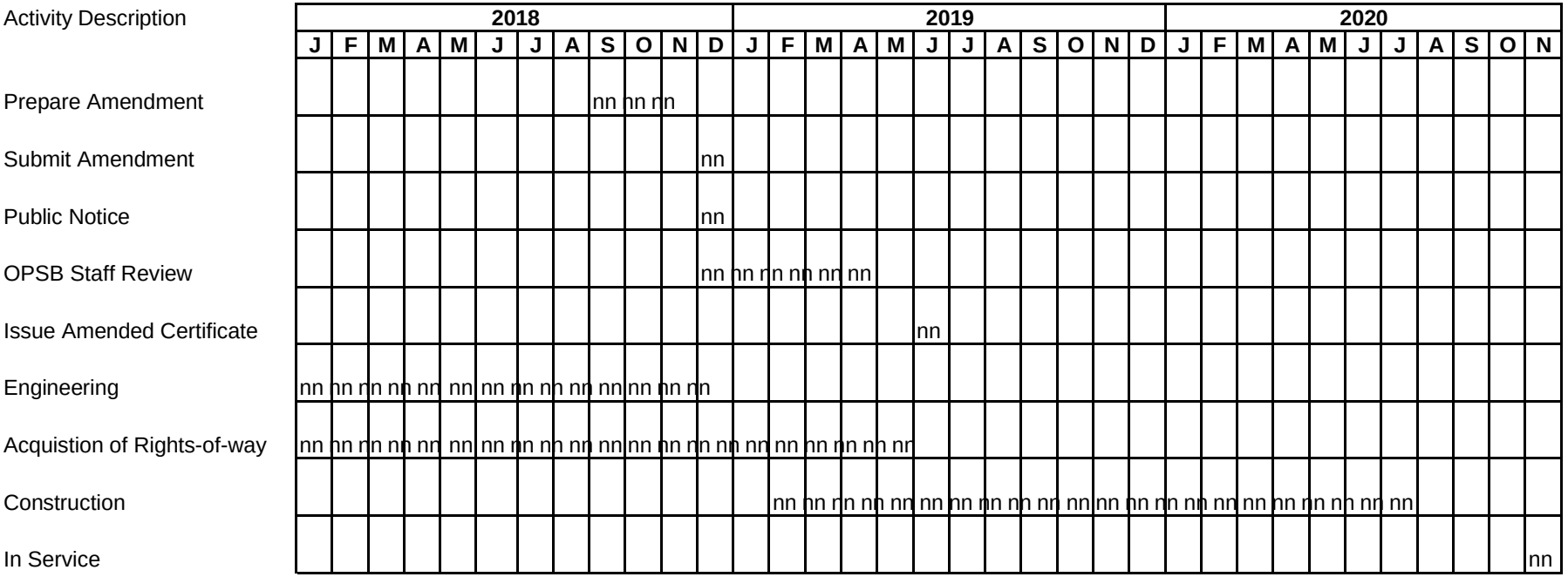
(2) Delays

AEP Ohio Transco and PJM initially identified a December 2015 need date for the project. Since then, the in-service date has been rescheduled to account for the time required to complete real estate purchases, ROW acquisition, siting, and other requirements. Although the current in-service date for the Project is ~~spring 2018~~ November 2018, AEP Ohio Transco requests prompt approval of the Project to avoid delays and mitigate the risk of thermal overloads and/or low voltage violations to the local area 69 kV system, and to facilitate coordination of construction activities, other area upgrades, and routine maintenance requiring outage windows in the area circuits. The limits on the existing 69 kV system has also constrained expansion plans for a customer (Access Midstream/Williams) near Leesville, Ohio.

Revised Figure 03-1

Amendment Project Schedule

Yager-Desert Road 138 kV Transmission Line Rebuild Project



4906-5-04 ROUTE ALTERNATIVES ANALYSIS

Text provided in the July 22, 2016 Application filing remains unchanged. **Revised Figures 04-1A through 04-1C** provide constraints maps of the current Preferred Route.

G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\A\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 04-1_Constraints.mxd

COSHOCTON-WESTMORELAND-BETHESDA (OH089)

WESTMORELAND-COSHOCTON-BERKS (OH111)

FITCHVILLE-SEBRING-MENTOR (OH174)

Yager Station

LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- 1,000-foot Buffer of Routes
- Existing Electric Line
- Incorporated Place Boundary (city, village, town)
- Residence
- Commercial
- Industrial
- Outbuilding
- School
- Church
- Cemetery
- Previously Surveyed Phase 1 Area
- Soil Association
- Slope Exceeds 12%
- Protected Species

0 1,000 2,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

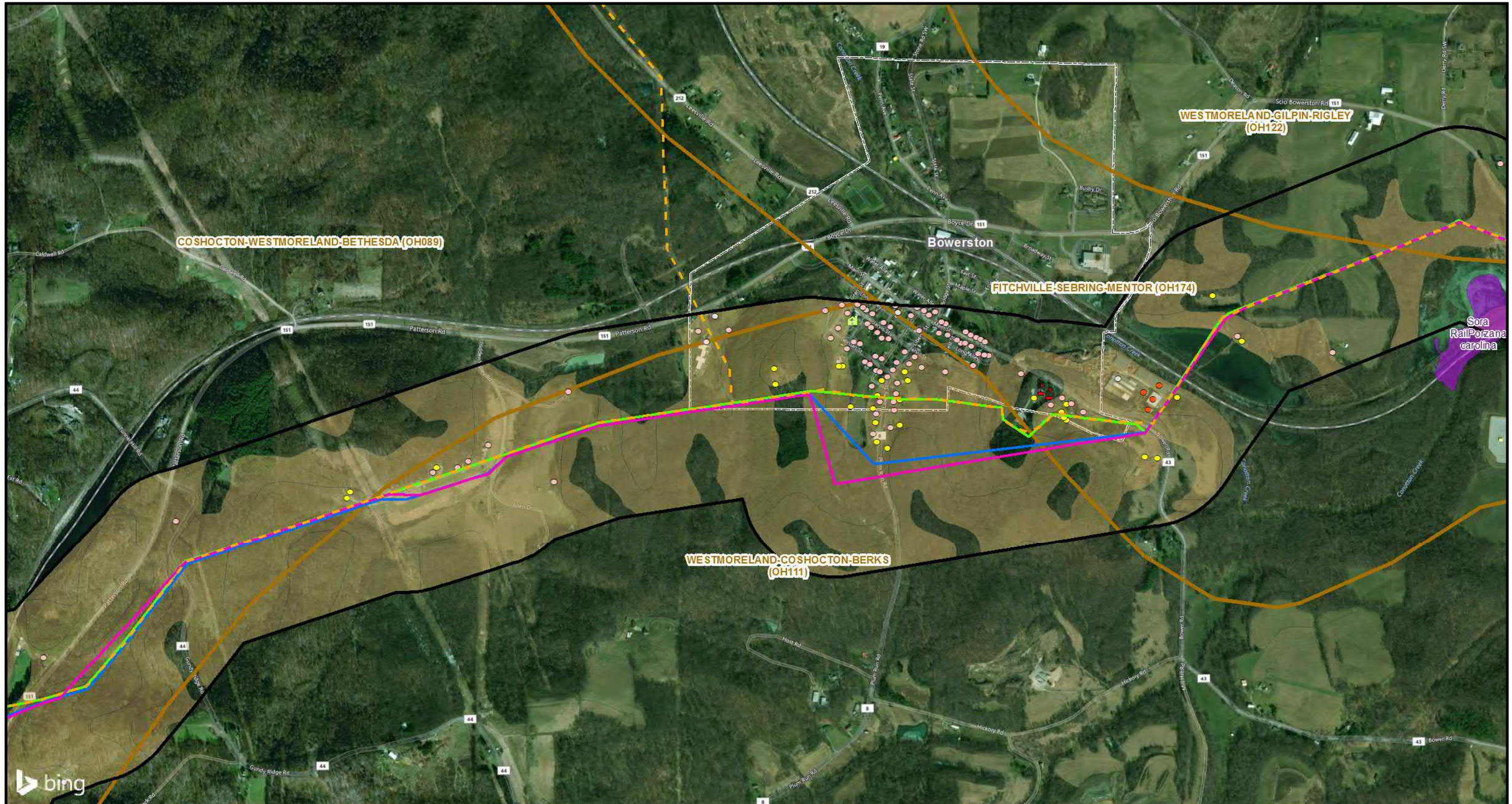
Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 04-1A
CONTRAINTS MAP

AECOM

JOB NO. 60482470

G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\AIAEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 04-1_Constraints.mxd



LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- 1,000-foot Buffer of Routes
- Existing Electric Line
- Incorporated Place Boundary (city, village, town)
- Residence
- Commercial
- Industrial
- Outbuilding
- School
- Church
- Cemetery
- Previously Surveyed Phase 1 Area
- Soil Association
- Slope Exceeds 12%
- Protected Species

0 1,000 2,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

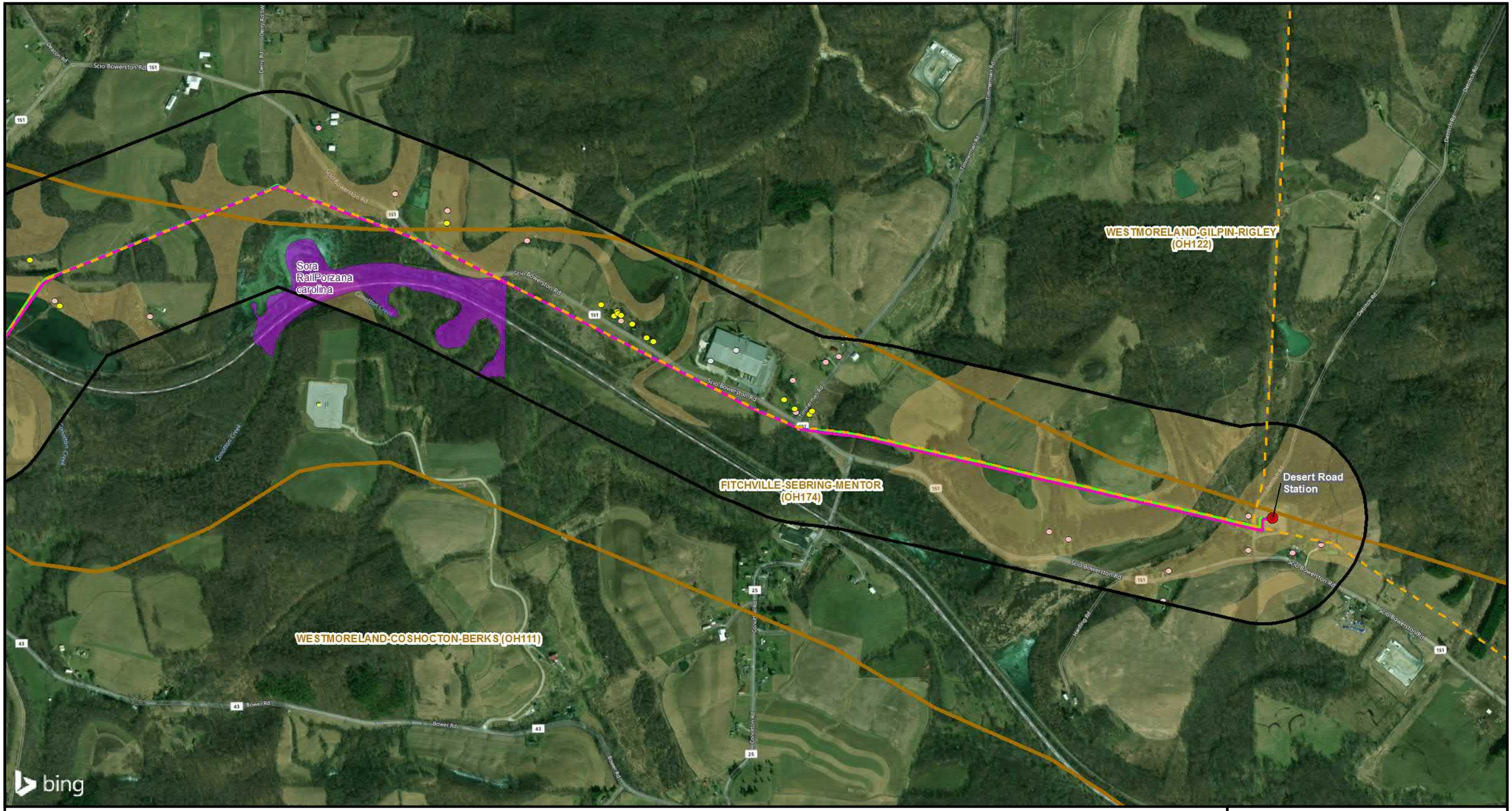
Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 04-1B
CONTRAINTS MAP

AECOM

JOB NO. 60482470

G:\CincinnatiDC\GIS\ArcMap_GeoDB_Projects\AEP\60482470 Yager-Desert Rd_OPSB_Fig 04-1_Constraints.mxd



LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- 1,000-foot Buffer of Routes
- Existing Electric Line
- Incorporated Place Boundary (city, village, town)
- Residence
- Commercial
- Industrial
- Outbuilding
- School
- Church
- Cemetery
- Previously Surveyed Phase 1 Area
- Soil Association
- Slope Exceeds 12%
- Protected Species

0 1,000 2,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 04-1C
CONTRAINTS MAP

AECOM

JOB NO. 60482470

4906-5-05 PROJECT DESCRIPTION

(A) DESCRIPTION OF PROJECT AREA

(1) Geography and Topography

Text provided in the July 22, 2016 Application filing remains unchanged. **Revised Figures 05-1A and 05-1B** provide maps at 1:24,000-scale showing the current Preferred Route.

(2) Transmission Acreage, Length, and Properties Crossed

The Preferred Route is approximately 6.8 miles in length and crosses approximately ~~56~~ 53 parcels. The Alternate Route is approximately 6.8 miles in length and crosses approximately 62 parcels.

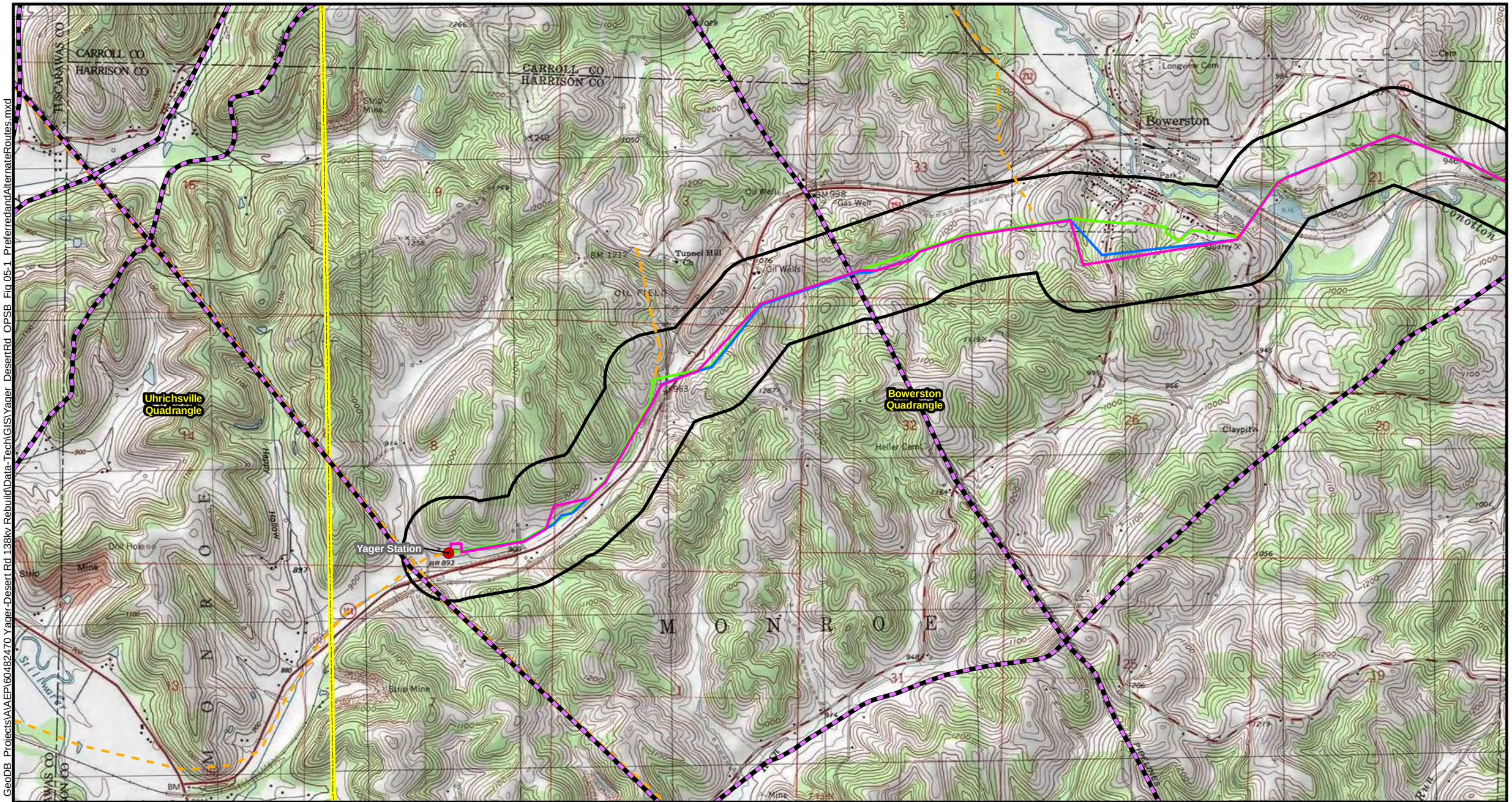
(B) LAYOUT AND CONSTRUCTION

Text provided in the July 22, 2016 Application filing remains unchanged.

(C) TRANSMISSION EQUIPMENT

Text provided in the July 22, 2016 Application filing remains unchanged.

G:\CincinnatiDCS\GIS\ArcMap GeoDB Projects\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager DesertRd OPSB Fig 05-1 PreferredandAlternateRoutes.mxd



LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- 1,000-foot Buffer of Routes
- Existing Electric Line
- Existing Natural Gas Pipeline

0 2,000 4,000
Feet

Base Map Source:
ArcGIS Online, USA Topo Map

N

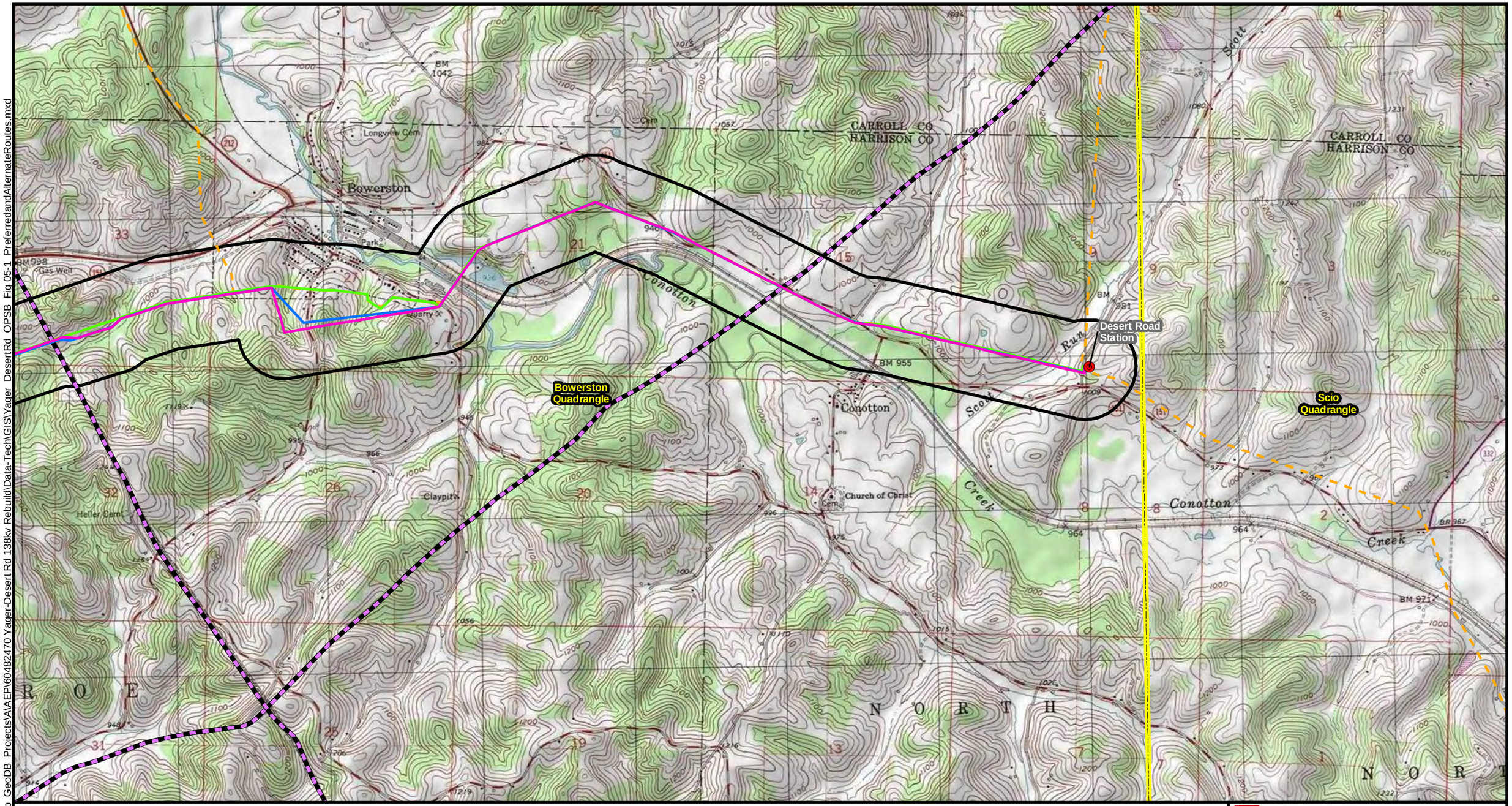
AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 05-1A
PREFERRED AND ALTERNATE
ROUTES PROJECT AREA

JOB NO. 60482470

AECOM



LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- 1,000-foot Buffer of Routes
- Existing Electric Line
- Existing Natural Gas Pipeline

0 2,000 4,000
Feet

Base Map Source:
ArcGIS Online, USA Topo Map

N

AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 05-1B
PREFERRED AND ALTERNATE
ROUTES PROJECT AREA

JOB NO. 60482470

AECOM

G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\AIA\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 05-1_PreferredandAlternateRoutes.mxd

4906-5-06 ECONOMIC IMPACT AND PUBLIC INTERACTION

Text provided in the July 22, 2016 Application filing remains unchanged.

4906-5-07 HEALTH AND SAFETY, LAND USE, AND REGIONAL DEVELOPMENT

(A) HEALTH AND SAFETY

Text provided in the July 22, 2016 Application filing remains unchanged.

(B) LAND USE

(1) Proposed Routing Alignments and Existing Land Uses

Maps at 1:12,000-scale, including the area 1,000 feet on either side of the current Preferred and Alternate Routes are presented as **Revised Figures 04-1A** through **04-1C**. These maps include proposed and existing substations, land uses, road names, structures, and incorporated areas and population centers. Identified land use features are described below. **Revised Table 07-6** provides the existing land uses identified within 100 and 1,000 feet of the Preferred and Alternate Routes.

Residential: Residences were estimated based on review of aerial photography and county parcel data.

Preferred Route: There are ~~82~~ 80 residences identified within 1,000 feet of the Preferred Route, ~~one~~ none of which are ~~is~~ within 100 feet.

Alternate Route: There are 115 residences identified within 1,000 feet of the Alternate Route, nine of which are within 100 feet.

Commercial: Text provided in the July 22, 2016 Application filing remains unchanged.

Industrial: Text provided in the July 22, 2016 Application filing remains unchanged.

Cultural: Data for known cultural resource landmarks were obtained from Ohio Historic Preservation Office's (OHPO) Online Mapping System.

Preferred Route: ~~Two Ohio Historic Inventory (OHI) structures were identified within 1,000 feet of the Preferred Route.~~ One cemetery was identified within 1,000 feet of the Preferred Route. No Ohio Historic Inventory (OHI) structures, National Register Boundaries, or Archaeological Sites were identified within 1,000 feet of the Preferred Route.

Alternate Route: Text provided in the July 22, 2016 Application filing remains unchanged.

Agricultural: Approximately ~~31~~ 29% of the Preferred Route and 27% of the Alternate Route cross agricultural fields. A discussion of Agricultural District Land is provided in Section (B)(7).

Recreational: Text provided in the July 22, 2016 Application filing remains unchanged.

Institutional: Text provided in the July 22, 2016 Application filing remains unchanged.

REVISED TABLE 07-6
SUMMARY OF LAND USE FACTORS OF THE
PREFERRED AND ALTERNATE ROUTES

Route Alternatives		
	Preferred	Alternate
Length (miles)	6.8	6.8
% of Length in or Adjacent to Existing Roads Rights-of-way	~~32~~ 39%	33%
% of Length in or Adjacent to Existing Transmission Line Rights-of-way	~~79~~ 71%	99%
	Features within 100 feet of Route Alternatives	
Threatened and Endangered Species	1	1
Previously Recorded Historic Structures (OHI)	0	0
Previously Recorded Archaeological Sites	0	0
National Register of Historic Places (NRHP) Sites	0	0
Residences	~~1~~ 0	9
Other sensitive land uses*	0	0
	Features within 1,000 feet of Route Alternatives	
Threatened and Endangered Species	1	1
Historic Structures (OHI)	0	0
Archaeological Sites	0	0
NRHP Sites	0	0
Residences	~~82~~ 80	115
Other sensitive land uses*	4	4

* Other sensitive land uses include airports, parks, State forests, golf courses, schools, hospitals or clinics, churches, and cemeteries.

(2) Impact of Construction

Text provided in the July 22, 2016 Application filing remains unchanged.

Residential: The closest residence to the Preferred Route is Parcel number ~~15-000083800~~ 120-0000137001 owned by ~~Katie Stojanovic and Katic Dusica~~ Richard L. and Amy L. Rice. The parcel is near ~~Yager~~ Desert Road Station and the residence is ~~between 50 and 55~~ approximately 110 feet from the Preferred Route centerline. No residences are expected to be removed due to construction of the Preferred Route, and no individuals are expected to be required to relocate. The closest residence on the Alternate Route is Parcel number 15-0000306003 owned by Albert S Calfo and Gina M Clafo. The residence is 23 feet from the Alternate Route Centerline. The Stojanovic/Dusica residence mentioned above and four other residences also appear to be within 50 feet of the Alternate Route centerline. These six residences would likely need to be removed if the Alternate Route is constructed.

It is expected that some incremental increase in noise will be audible during some portions of construction of the new transmission line. However, the current ambient noise levels associated with local roads and the distance to the residences are expected to mitigate overall noise impacts during construction. Duration of construction at any one location along the routes is also expected to be short.

Commercial: Text provided in the July 22, 2016 Application filing remains unchanged.

Industrial: Text provided in the July 22, 2016 Application filing remains unchanged.

Cultural: Text provided in the July 22, 2016 Application filing remains unchanged.

Agricultural: Text provided in the July 22, 2016 Application filing remains unchanged.

Recreational: Text provided in the July 22, 2016 Application filing remains unchanged.

Institutional: Text provided in the July 22, 2016 Application filing remains unchanged.

(3) Structures

Text provided in the July 22, 2016 Application filing remains unchanged.

(a) Structures within 200 feet of Proposed ROW:

Preferred Route: ~~Fifty~~ Thirty structures were identified within 200 feet of the proposed ROW of the Preferred Route between 0 and 200 feet away. These structures include ~~15~~ 9 single-family residences, ~~31~~ 18 outbuildings, and three industrial buildings (Bowerston Shale Company) ~~and one commercial building. Four~~ Two of the outbuildings, which appear to be small sheds, were identified within a standard 100-foot ROW along the Preferred Route.

Alternate Route: Sixty-nine structures were identified within 200 feet of the proposed ROW of the Alternate Route between 0 and 200 feet away. These structures include 26 single-family residences, 38 outbuildings, one institutional structure (Bowerston Elementary School), three industrial buildings (Bowerston Shale Company), and one commercial building. Thirteen of the

buildings, including six residences, would fall within a standard 100-foot ROW along the Alternate Route. These structures would likely need to be removed if the Alternate Route is selected.

(b) Structures to be destroyed, acquired, or removed and owner compensation: ~~Four~~ Two outbuildings, which appear to be small sheds, were identified within a standard 100-foot ROW along the Preferred Route. Property owners will be compensated if these structures must be removed due to clearance requirements. Encroaching development along the Alternate Route is likely to result in greater impacts to existing structures. If the full 100-foot standard ROW is purchased along the Alternate Route and no exemptions are granted, approximately 13 structures would be removed. Reduction of ROW, exemptions, and removal of structures will be fully evaluated if the Alternate Route is selected.

(c) Mitigation Procedures to minimize impact to structures near the facility: Text provided in the July 22, 2016 Application filing remains unchanged.

(C) AGRICULTURAL LAND USE AND DISTRICTS

Text provided in the July 22, 2016 Application filing remains unchanged. **Revised Figures 07-1A** through **07-1C** show agricultural land along the current Preferred Route.

(D) REGIONAL LAND USE PLANS

Text provided in the July 22, 2016 Application filing remains unchanged.

(E) CULTURAL IMPACTS OF THE PROPOSED PROJECT

Text provided in the July 22, 2016 Application filing remains unchanged.

LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Existing Electric Line
- 1,000-foot Buffer of Routes
- Pasture/Hayfield

0 1,000 2,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild

REVISED FIGURE 07-1A
AGRICULTURAL LAND USE
IN PROJECT AREA

JOB NO. 60482470

AECOM

G:\Cincinnati\DCS\GIS\ArcMap GeoDB Projects\A\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 07-1_AgLandUse.mxd

G:\Cincinnati\DC5\GIS\ArcMap_GeoDB_Projects\AEP\60482470_Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 07-1_AgLandUse.mxd

LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Existing Electric Line
- 1,000-foot Buffer of Routes
- Pasture/Hayfield

0 1,000 2,000

Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

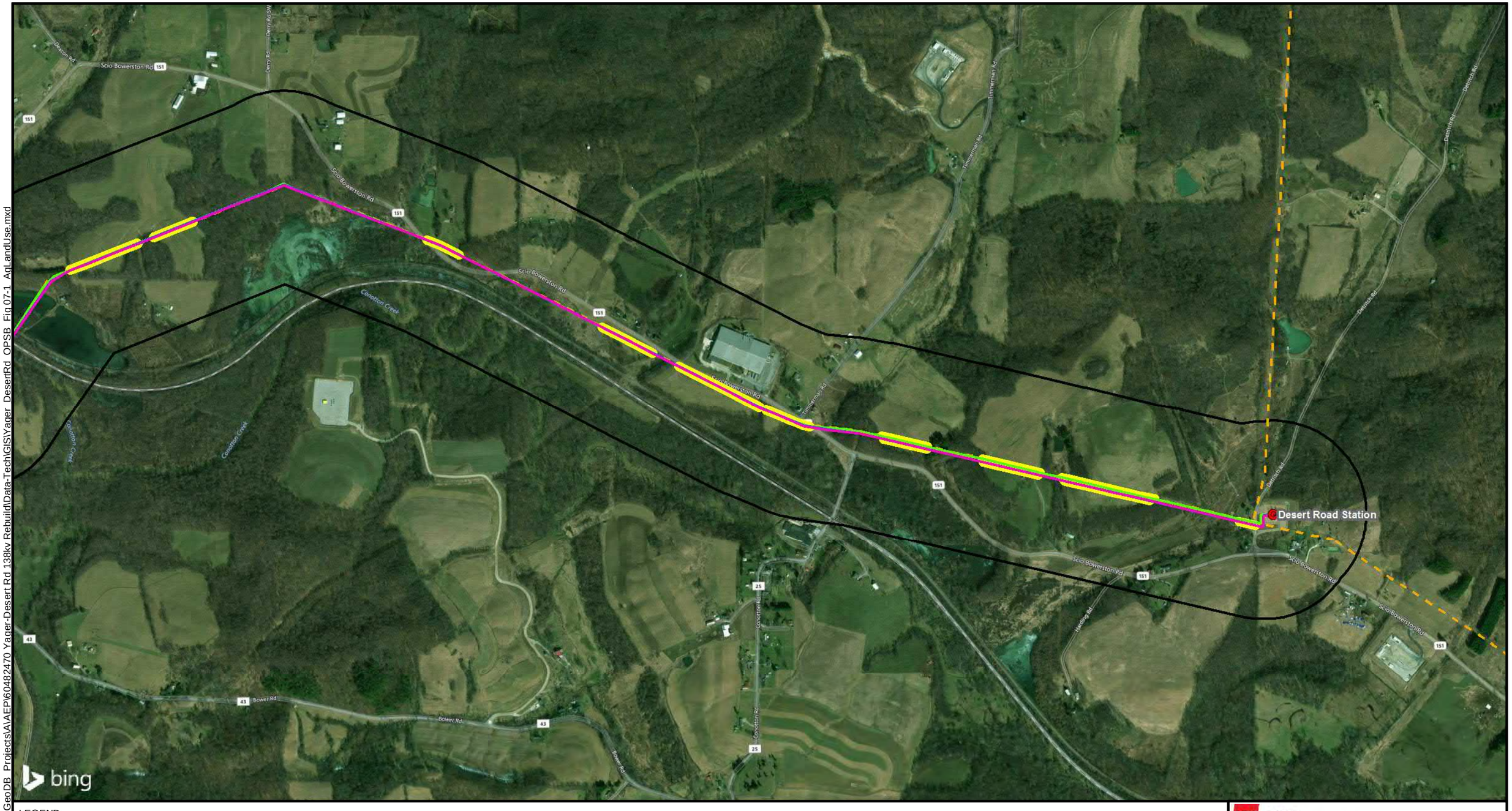
AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild

REVISED FIGURE 07-1B
AGRICULTURAL LAND USE
IN PROJECT AREA

JOB NO. 60482470

AECOM



LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Existing Electric Line
- 1,000-foot Buffer of Routes
- Pasture/Hayfield

0 1,000 2,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild

REVISED FIGURE 07-1C
AGRICULTURAL LAND USE
IN PROJECT AREA

JOB NO. 60482470

AECOM

G:\Cincinnati\DC5\GIS\ArcMap GeoDB Projects\A\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 07-1_AgLandUse.mxd

4906-5-08 ECOLOGICAL INFORMATION AND COMPLIANCE WITH PERMITTING REQUIREMENTS

(A) ECOLOGICAL MAP

A map at a scale of 1:24,000 illustrating areas within 1,000 feet of the current Preferred and Alternate Routes is presented as **Revised Figures 05-1A and 05-1B**. The proposed route alignments, including proposed turning points, are presented for the current Preferred and Alternate Routes in **Revised Figures 05-1A and 05-1B**.

More detailed maps at 1:12,000-scale depicting delineated features, survey corridor, lakes, ponds, reservoirs, highly erodible soils, slopes of 12 percent or greater, wildlife areas, nature preserves, conservations areas, and proposed ROW are provided as **Revised Figure 08-1A** through **08-1G** for the current Preferred Route.

(B) FIELD SURVEY REPORT FOR VEGETATION AND SURFACE WATERS

The ecological survey of both the Preferred and Alternate Routes, including the 300-foot Field Survey Area, was conducted in the spring of 2016 by AEP Ohio Transco's consultant. A field survey to capture changes to the Preferred Route was completed in March 2018. The purpose of the field survey was to assess whether wetlands and other "waters of the U.S." exist within the project survey corridors. 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.

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.

(1) Vegetative Communities, Wetlands, and Streams in Study Area

(a) Woody and Herbaceous Vegetation Land: Woody and herbaceous vegetation were identified along the proposed routes during the field reconnaissance. The Preferred and Alternate Routes are bordered for portions of their lengths by old field, pasture, scrub-shrub, agricultural land, young to mature woodland forests, residential landscaped areas, stream/wetland areas, and urban areas. A variety of woody and herbaceous lands, as described below, are present within the proposed ROW of the Preferred and Alternate Routes. Habitat descriptions, applicable to both the Preferred and Alternate Routes, and details on the expected impacts of construction are provided below. Vegetated land cover can be seen visually from aerial photography provided on **Revised Figures 04-1A** through **04-1C**.

Old Field: Herbaceous cover exists alongside roads, field borders, and abandoned fields within the survey corridor of the Project in the form of successional old-field communities. These

communities are the earliest stages of recolonization by plants following disturbance. This community type is typically short-lived, giving way progressively to shrub and forest communities unless periodically re-disturbed, in which case they remain as old fields. The old-field areas within the study corridors and adjacent areas are infrequently mowed areas of grasses, forbs, and occasional shrubs. Approximately ~~10.5~~ 11.1 acres (13%) of the Preferred Route and 12.0 acres (15%) of the Alternate Route contain old fields.

Pasture: Pasture for cattle and hay fields were observed in various portions of the study area. Pasture areas within the study corridors and adjacent areas are frequently mowed and grazed areas of grasses and forbs. Approximately ~~23.0~~ 21.6 acres (~~28~~ 26%) of the Preferred Route and 21.6 acres (26%) of the Alternate Route contain pasture and hayfields.

Scrub-Shrub: Scrub/shrub habitats represent the successional stage between old-field and second growth forest, and often emerge in recently harvested forests responding to the lightness of the removed canopy. Dominant species consist of herbaceous communities similar to that of old field habitat with a few woody species, to a community dominated by forest herbs and woody species. Portions of the existing ROW are dominated by scrub/shrub habitat. Approximately ~~10.8~~ 8.8 acres (~~13~~ 10%) of the Preferred Route and 11.8 acres (14%) of the Alternate Route contains scrub-shrub habitat.

Agricultural land: Text provided in the July 22, 2016 Application filing remains unchanged.

Oak-Hickory and Successional Hardwood Woodlands: Oak-Hickory and successional mixed hardwood woodlands are present along the Preferred and Alternate Routes. Woody species dominating these areas included red oak (*Quercus rubra*), white oak (*Quercus alba*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), box elder (*Acer negundo*), American Beech *(Fagus grandfolia),* shagbark hickory (*Carya ovata*), and black walnut (*Juglans nigra*). The dominant shrub-layer species included spicebush *(Lindera benzoin),* poison ivy (*Toxicodendron radicans*), honeysuckle (*Lonicera japonica*), and blackberry (*Rubus occidentalis*). Approximately ~~24.8~~ 29.0 acres (~~30~~ 34%) of woodland forest are present along the Preferred Route. Approximately 18.6 acres (23%) of woodland forest are present along the Alternate Route. Based on the proposed 100-foot ROW for the Project, the acreages of forested areas listed above would be cleared during construction of the Preferred or Alternate Route.

Landscaped Areas: Landscaped areas, including residential properties and commercial properties, were observed within the Project vicinity. These landscaped areas within the study corridor and adjacent areas are frequently mowed of grasses and forbs. Approximately ~~3.0~~ 2.5 acres (~~4~~ 3%) and 8.2 acres (10%) of landscaped areas are located along both the Preferred and Alternate Routes, respectively.

Streams and Wetlands: Text provided in the July 22, 2016 Application filing remains unchanged.

Urban: Text provided in the July 22, 2016 Application filing remains unchanged.

(b) Wetlands: Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation (hydrophytic) typically adapted for life in saturated (hydric) soil conditions.

To identify whether wetlands exist along the Preferred and Alternate Routes, wetland criteria, as established by United States Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual (1987 Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (*Regional Supplement*) were evaluated. A desktop study of available resources was reviewed prior to the field wetland delineation of the Project area. USFWS NWI maps and NRCS soil surveys and hydric soil lists for Harrison County, Ohio were reviewed for areas within 1,000 feet of the Preferred and Alternate Routes. NWI areas are shown on **Figures 08-1A** through **08-1N**.

The Ohio Rapid Assessment Method (ORAM) was developed to determine the relative ecological quality and level of disturbance of a particular wetland. 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 v5.0, 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).

~~Twenty-two~~ Twenty-one wetlands were identified within the 300-foot survey corridor along the Preferred Route, with a total of ~~16.47~~ 16.63 acres within the survey corridor and 5.77 acres within the proposed ROW. ~~Thirteen~~ Twelve of these wetlands are crossed by the Preferred Route centerline, for a total length of ~~2,594~~ 2,587 linear feet. Twenty-one wetlands were identified within the 300-foot survey corridor along the Alternate Route, with a total of 16.37 acres within the survey corridor and 5.71 acres within the proposed ROW. Eleven of these wetlands are crossed by the Alternate Route centerline for a total length of 2,587 linear feet. Five wetlands were identified within the 200-foot corridor of proposed access roads that extend beyond the Preferred and Alternate route survey areas, with a total of 0.6-acre. Two of these wetlands will be crossed by an access road using construction matting or other Best Management Practices (BMPs), which is further discussed in Section 4906-5-08(B)(3)(c). Representative photographs of additional wetlands identified during the 2018 field reconnaissance are included in **Appendix 08-1**. Corresponding USACE and ORAM forms completed during the 2018 wetland delineation are included in **Appendix 08-2**. Field delineated wetlands within the survey corridor are mapped on **Revised Figures 08-1A** through **08-1G** and are summarized in **Revised Table 08-1.**

REVISED TABLE 08-1
DELINEATED WETLANDS WITHIN THE
PREFERRED ROUTE 300-FOOT SURVEY CORRIDOR

Wetland Name	Route	Figure	Cowardin Wetland Type[a]	ORAM Score	ORAM Category	Length Crossed by Centerline (feet)[b]	Acreage within 300-foot Survey Corridor	Acreage within Proposed Maintained Right-of-way[c]
Wetland 01	Preferred	08-1A	PEM	26.5	Category 1	NC	0.01	~~0.01~~ 0
Wetland 02	Preferred	08-1A	PEM	26.5	Category 1	NC	<0.01	0
Wetland 03	Preferred	08-1A	PEM	26	Category 1	~~14~~ 13	0.01	0.01
Wetland 04	Preferred	08-1A/B	PEM	22.5	Category 1	NC	0.03	0
Wetland 05	Preferred	08-1B	PEM	23.5	Category 1	NC	0.01	~~0~~ <0.01
Wetland 06	Preferred	08-1B/C	PEM	23.5	Category 1	NC	~~0.06~~ 0.03	0
Wetland 07	Preferred	08-1C	PEM	30	Category 2	56	0.13	0.09
Wetland 08	Preferred	08-1C	PEM	45	Category 2	18	0.24	0.07
Wetland 10	Preferred	08-1C	PEM	30	Category 2	~~26~~ 17	0.01	0.01
~~Wetland 11a~~	~~Preferred~~	~~08-1C/D~~	~~PEM~~	~~39~~	~~Category 2~~	~~NC~~	~~0.01~~	~~0~~
~~Wetland 11b~~	~~Preferred~~	~~08-1C/D~~	~~PEM~~	~~39~~	~~Category 2~~	~~3~~	~~0.02~~	~~0.01~~
Wetland 14	Preferred	08-1D/E	PEM	36	Category 2	NC	0.03	~~0.03~~ 0.01
Wetland 15	Preferred	08-1D/E	PSS	29	Category 1	68	0.37	0.14
Wetland 18	Preferred	08-1D/E	POW/PSS	57	Category 2	476	~~2.97~~ 2.95	1.09
Wetland 19a	Preferred	08-1E/F	PSS	55.5	Category 2	~~463~~ 467	~~2.81~~ 2.85	~~1.06~~ 1.08
Wetland 19b	Preferred	08-1E	PEM	55.5	Category 2	~~136~~137	~~1.00~~1.02	~~0.37~~ 0.38
Wetland 20	Preferred	08-1E/F	PEM/PSS	40.5	Category 2	~~1188~~ 1,196	~~7.05~~ 7.14	~~2.51~~ 2.53
Wetland 21	Preferred	08-1F	PFO/PSS	53.5	Category 2	NC	~~0.38~~ 0.42	0
Wetland 22	Preferred	08-1F	PEM	34.5	Category 2	~~75~~ 66	~~0.42~~ 0.41	~~0.17~~ 0.15
Wetland 23	Preferred	08-1F/G	PEM	22	Category 1	NC	~~0.06~~ 0.05	0
Wetland 24	Preferred	08-1F/G	PEM	22.5	Category 1	33	~~0.32~~ 0.33	0.07
Wetland 25	Preferred	08-1F/G	PEM	22	Category 1	~~39~~ 40	~~0.53~~ 0.55	~~0.12~~ 0.13
Wetland 26	Preferred	08-1C/D	PEM	41	Category 2	NC	0.03	<0.01

Cowardin Wetland Type[a]: PEM = palustrine emergent, PSS = palustrine scrub/shrub, PFO = palustrine forested

Linear Feet Crossed by Centerline (feet)[b]: NC = Not Crossed by proposed centerline

Acreage within Proposed Maintained ROW[c]: "0" indicates the wetland is not within proposed ROW

(c) Streams and Drainage Channels: Stream evaluations were conducted for the survey corridor of the Preferred Route, Alternate Route, and access roads. Representative photographs collected during the 2018 survey are provided in **Appendix 08-1**. Streams that drain areas greater than one square mile were assessed using the Ohio EPA's Qualitative Habitat Evaluation Index (QHEI) method. Within the QHEI scoring convention, streams are classified based on their drainage area. QHEI streams that drain an area greater than 20 square miles are classified as "large streams", and streams that drain an area less than 20 square miles are classified as

"headwater streams." QHEI-classified streams then receive a narrative rating based upon their score. The narrative rating gives a general indication of aquatic assemblages that may be found at any given site. Five narrative ratings scale the 100 point scoring system. Very poor streams have a QHEI score less than 30. Poor streams have a QHEI score between 30 and 42. Fair streams have a QHEI score between 43 and 54. Good streams have a QHEI score between 55 and 69. Streams that have a QHEI score greater than or equal to 70 are classified as excellent.

QHEI evaluations were conducted on six streams in the survey corridor, with all six streams crossing ~~both~~ the ~~Preferred Route and~~ Alternate Route. Four of the six QHEI classified streams cross the Preferred Route. The evaluations were conducted at or near the proposed transmission line crossing of each stream. These streams were identified using USGS topographic maps, aerial photography, and field reconnaissance.

Streams with a drainage basin less than one square mile were evaluated using the Ohio EPA's Headwater Habitat Evaluation Index (HHEI) method. The 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. Headwater streams are typically considered to be first- and second-order streams, meaning streams that have no upstream tributaries (or "branches") and those that have only first-order tributaries, respectively. Headwater streams are scored on the basis of channel substrate composition, bankfull width, and maximum pool depth. Assessed areas 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". There is flexibility and some "gray areas" in the scoring system; a stream can score relatively high, but actually belong in a lower class, and vice-versa. Evidence of anthropogenic alterations to the natural channel will result in a "Modified" qualifier for the stream.

HHEI evaluations were conducted on a total of 40 streams in the survey corridors, with ~~41~~ 40 along the Preferred Route corridor and 40 along the Alternate Route corridor. The evaluations were conducted at or near the proposed transmission line crossing of each stream.

Delineated streams are for the amended Preferred Route are shown on **Figures 08-1A** through **08-1G**. Copies of the ~~QHEI and~~ HHEI evaluation forms for the new streams assessed within 100 feet of the routes during the 2018 field survey are included in **Appendix 08-3**. **Revised Table 08-4** lists the attributes of each delineated stream within the Proposed Route~~, Alternate Route, and access roads~~, including QHEI or HHEI score where appropriate, flow regime, bankfull width, stream length within the survey corridor, and stream length within the proposed maintained ROW, respectively.

~~Forty-one~~ Forty streams were identified within the ~~200~~ 300-foot survey corridor along the Preferred Route, with a total of ~~16,271~~ 11,956 linear feet within the survey corridor and ~~4,431~~ 4,292 linear feet within the proposed maintained ROW. ~~Sixteen~~ Twenty-eight of these streams are crossed by the Preferred Route centerline.

Forty streams were identified within the ~~200~~ 300-foot survey corridor of the Alternate Route with a total of 14,968 linear feet within the survey corridor and 4,222 linear feet within the proposed maintained ROW. ~~Sixteen~~ Twenty-four of these streams are crossed by the Alternate Route centerline.

Sixteen streams were identified within the 200-foot corridor along currently proposed access roads that extend beyond the Preferred and Alternate route survey areas, for a total of 2,934 linear feet. Two of these streams will be crossed using existing culverts, construction matting or other BMPs, which is further discussed in Section 4906-5-08(B)(3)(b).

TABLE 08-4
STREAMS WITHIN 150 FEET OF THE PREFERRED ROUTE

Stream Report Name	Route	Figure	Flow Regime	Bankfull Width (feet)	Maximum Pool Depth (in)	Form[a]	Score	Class/ Narrative Rating	Crossed by Centerline[b]	Length (feet) within 300-foot Survey Corridor	Length (feet) within Proposed Maintained Right-of-way (100 feet)[c]
Stream 01	Preferred	08-1A	Intermittent	1	1	HHEI	22.0	Modified Class 1	Yes	260	~~107~~ 108
Stream 02	Preferred	08-1A&B	Perennial	3.5	20	QHEI	43.0	Fair Warmwater	~~Yes~~ No	~~3,217~~ 2,448	0
Stream 03	Preferred	08-1A	Ephemeral	1	2	HHEI	24.0	Modified Class 1	~~NC~~ Yes	~~428~~ 398	~~243~~ 157
Stream 04	Preferred	08-1A	Intermittent	2	4	HHEI	34.0	Modified Class 2	Yes	~~347~~ 341	~~139~~ 135
Stream 05	Preferred	08-1A	Ephemeral	2	1	HHEI	24.0	Modified Class 1	NC	~~197~~ 199	~~56~~ 63
Stream 06	Preferred	08-1A	Intermittent	1.5	1	HHEI	24.0	Modified Class 1	NC	~~133~~ 137	~~28~~ 31
Stream 07	Preferred	08-1A	Ephemeral	1.5	1	HHEI	24.0	Modified Class 1	Yes	150	~~118~~ 115
Stream 08	Preferred	08-1A&B	Intermittent	3	7	HHEI	43.0	Modified Class 2	Yes	480	~~189~~ 190
Stream 09	Preferred	08-1B	Intermittent	2.5	3	HHEI	34.0	Modified Class 2	~~NC~~ Yes	~~301~~ 282	~~158~~ 132
Stream 10	Preferred	08-1B	Intermittent	5	16	HHEI	67.0	Modified Class 2	~~NC~~ Yes	~~357~~ 342	~~144~~ 151
Stream 11	Preferred	08-1B	Ephemeral	1	2	HHEI	24.0	Modified Class 1	Yes	~~305~~ 403	~~42~~ 199
Stream 12	Preferred	08-1B	Ephemeral	1.5	2	HHEI	24.0	Modified Class 1	Yes	~~101~~ 236	~~0~~ 103
Stream 13	Preferred	08-1B	Intermittent	1.5	2	HHEI	25.0	Modified Class 1	Yes	~~476~~ 373	~~140~~ 183
Stream 14	Preferred	08-1B	Ephemeral	1	2	HHEI	19.0	Modified Class 1	Yes	~~332~~ 398	~~162~~ 135
Stream 15	Preferred	08-1B	Intermittent	4	3	HHEI	43.0	Modified Class 2	NC	130	~~0~~ 27
Stream 16	Preferred	08-1B&C	Intermittent	3.5	3	HHEI	44.0	Modified Class 2	NC	~~375~~ 282	0
Stream 17	Preferred	08-1B&C	Intermittent	4.5	11	HHEI	58.0	Modified Class 2	Yes	~~885~~ 904	~~109~~ 132
Stream 18	Preferred	08-1C	Intermittent	1	3	HHEI	40.0	Modified Class 2	~~NC~~ Yes	~~342~~ 343	~~114~~ 115
Stream 19	Preferred	08-1C	Ephemeral	1.5	1	HHEI	24.0	Modified Class 1	~~NC~~ Yes	274	~~179~~ 183
Stream 21	Preferred	08-1C&D	Intermittent	2.5	3	HHEI	40.0	Modified Class 2	~~NC~~ Yes	~~418~~ 420	~~186~~ 189
Stream 22	Preferred	08-1C&D	Intermittent	3	3	HHEI	34.0	Modified Class 2	Yes	~~547~~ 425	~~111~~ 136
Stream 23	Preferred	08-1C&D	Ephemeral	1.5	0	HHEI	18.0	Class 1	~~NC~~ Yes	~~179~~ 370	~~20~~ 159
Stream 25	Preferred	08-1C&D	Intermittent	4	8	HHEI	60.0	Class 3	Yes	~~337~~ 364	~~106~~ 119
Stream 26	Preferred	08-1C&D	Intermittent	2	3	HHEI	41.0	Class 2	~~Yes~~ NC	~~365~~ 162	~~110~~ 33
Stream 27	Preferred	08-1D	Ephemeral	1.5	1	HHEI	24.0	Modified Class 1	NC	243	~~16~~ 70
Stream 28	Preferred	08-1D	Perennial	25	72	QHEI	43.0	Poor Warmwater	~~NC~~ Yes	300	100
Stream 32	Preferred	08-1D	Ephemeral	2	1.5	HHEI	22.0	Modified Class 1	~~NC~~ Yes	~~404~~ 407	252
Stream 33	Preferred	08-1D	Ephemeral	2	1.5	HHEI	24.0	Modified Class 1	~~NC~~ Yes	459	~~148~~ 149
Stream 34	Preferred	08-1D	Intermittent	3	12	HHEI	43.0	Class 2	~~NC~~ Yes	259	109
Stream 35	Preferred	08-1E	Intermittent	2	8	HHEI	51.0	Modified Class 2	NC	~~152~~ 151	~~36~~ 33
Stream 36	Preferred	08-1E&F	Perennial	7	24	QHEI	53.0	Fair Warmwater	Yes	~~357~~ 358	~~108~~ 109
Stream 37	Preferred	08-1E&F	Ephemeral	1.5	1	HHEI	25.0	Modified Class 1	~~NC~~ Yes	120	~~97~~ 100

TABLE 08-4
STREAMS WITHIN 150 FEET OF THE PREFERRED ROUTE

Stream Report Name	Route	Figure	Flow Regime	Bankfull Width (feet)	Maximum Pool Depth (in)	Form[a]	Score	Class/ Narrative Rating	Crossed by Centerline[b]	Length (feet) within 300-foot Survey Corridor	Length (feet) within Proposed Maintained Right-of-way (100 feet)[c]
Stream 38	Preferred	08-1E&F	Intermittent	3.5	20	HHEI	48.0	Modified Class 2	~~NC~~ Yes	~~577~~ 572	~~137~~ 138
Stream 39	Preferred	08-1E&F	Intermittent	2.5	2	HHEI	21.0	Modified Class 1	NC	~~62~~ 60	0
Stream 40	Preferred	08-1F	Ephemeral	3	2	HHEI	21.0	Modified Class 1	~~NC~~ Yes	~~229~~ 225	~~114~~ 111
Stream 41	Preferred	08-1F	Perennial	5	22	QHEI	45.5	Fair Warmwater	~~NC~~ Yes	365	~~119~~ 115
Stream 42	Preferred	08-1F&G	Ephemeral	1	2	HHEI	21.0	Modified Class 1	Yes	~~387~~ 389	122
Stream 43	Preferred	08-1F&G	Ephemeral	1	1	HHEI	23.0	Modified Class 1	~~NC~~ Yes	~~308~~ 311	~~147~~ 154
Stream 44	Preferred	08-1F&G	Ephemeral	1.5	2	HHEI	24.0	Modified Class 1	Yes	~~256~~ 259	~~102~~ 103
Stream 45	Preferred	08-1G	Intermittent	2	3	HHEI	32.0	Modified Class 2	NC	~~404~~ 430	~~80~~ 85
Stream 46	Preferred	08-1G	Perennial	8	30	QHEI	39.0	Poor Warmwater	~~NC~~ Yes	~~451~~ 452	~~131~~ 129
Stream 47	Preferred	08-1C&D	Ephemeral	1	1	HHEI	20.0	Modified Class 1	NC	139	33
Stream 48	Preferred	08-1C&D	Ephemeral	1.5	1	HHEI	19.0	Class 1	Yes	174	110
Stream 49	Preferred	08-1C&D	Ephemeral	1.5	1	HHEI	26.0	Class 1	NC	85	0

Form Used[a] : QHEI = Qualitative Habitat Evaluation Index, HHEI = Headwater Habitat Evaluation Index

Linear Feet Crossed by Centerline (feet)[b] : NC = Not Crossed by proposed centerline

Linear Feet within Proposed Maintained ROW[c] : "0" indicates the stream is not within proposed ROW

(d) ***Lakes, Ponds, and Reservoirs:*** No major lakes or reservoirs were observed along the survey corridor of the Preferred or Alternate Routes. Aerial photography suggests that 4 ponds are located within 1,000 feet of the routes. ~~One~~ Two of these ponds (Pond 1 and Pond 2) ~~was~~ were confirmed within 100 feet of the Preferred and Alternate Routes during the field reconnaissance. Both the Preferred and Alternate Routes cross approximately 241 feet of Pond 1. Locations of ponds within 1,000 feet ~~of the routes~~ and delineated ponds within 100 feet of the current Preferred Route are identified on **Revised Figures 08-1A** through **08-1G**.

Impacts to ponds and lakes are not anticipated by the construction, operation or maintenance of the proposed transmission line. Best Management Practices, including utilization of silt fencing, will be used as appropriate during construction to minimize runoff siltation.

(2) Delineation Result Mapping

Field delineated streams and wetlands within the survey corridor and proposed ROW of the current Preferred Route are mapped on **Revised Figures 08-1A** through **08-1G** and are summarized in **Revised Tables 08-1** and **08-4**, as discussed in Section 4906-5-08(B)(1).

(3) Probable Impact of Construction on Vegetation, Surface Waters, and Wetlands

(a) ***Vegetation:*** The potential impacts on woody and herbaceous vegetation along the Preferred and Alternate Routes will be limited to clearing within the proposed transmission line ROW and potentially along access roads. However where required, trees adjacent to the proposed transmission line ROW that are dead, dying, diseased, leaning, significantly encroaching or prone to failure, may require clearing to allow for safe operation of the transmission line. Construction impacts to agricultural land within the existing transmission ROW is expected to be temporary in nature and limited to vehicle access and temporary lay down activities.

Approximately 50 feet of clearing on either side of the centerline will be required to be maintained along either the Preferred or Alternate Route. Open areas were crossed when possible in the design of the facility. However, some forested areas will also need to be cleared. The Preferred Route will require approximately ~~24.8~~ 29.0 acres of forest clearing, and the Alternate Route will require approximately 18.6 acres of forest clearing.

Clearing of potential Indiana bat roost trees, if any, will be restricted to occur only within the period from October 1st through March 31st to avoid any potential impact to summer tree-roosting bats. All vegetative waste (such as tree limbs and trunks) which is generated during the construction phase will be wind-rowed or chipped and disposed of appropriately.

(b) ***Streams:*** Text provided in the July 22, 2016 Application filing remains unchanged.

(c) ***Wetlands:*** Text provided in the July 22, 2016 Application filing remains unchanged.

(4) Probable Impact of Operation and Maintenance on Vegetation, Surface Waters, and Wetlands

Text provided in the July 22, 2016 Application filing remains unchanged.

(5) Mitigation Procedures

Text provided in the July 22, 2016 Application filing remains unchanged.

(C) LITERATURE SURVEY OF THE PLANT AND ANIMAL LIFE POTENTIALLY AFFECTED BY THE FACILITY

Text provided in the July 22, 2016 Application filing remains unchanged.

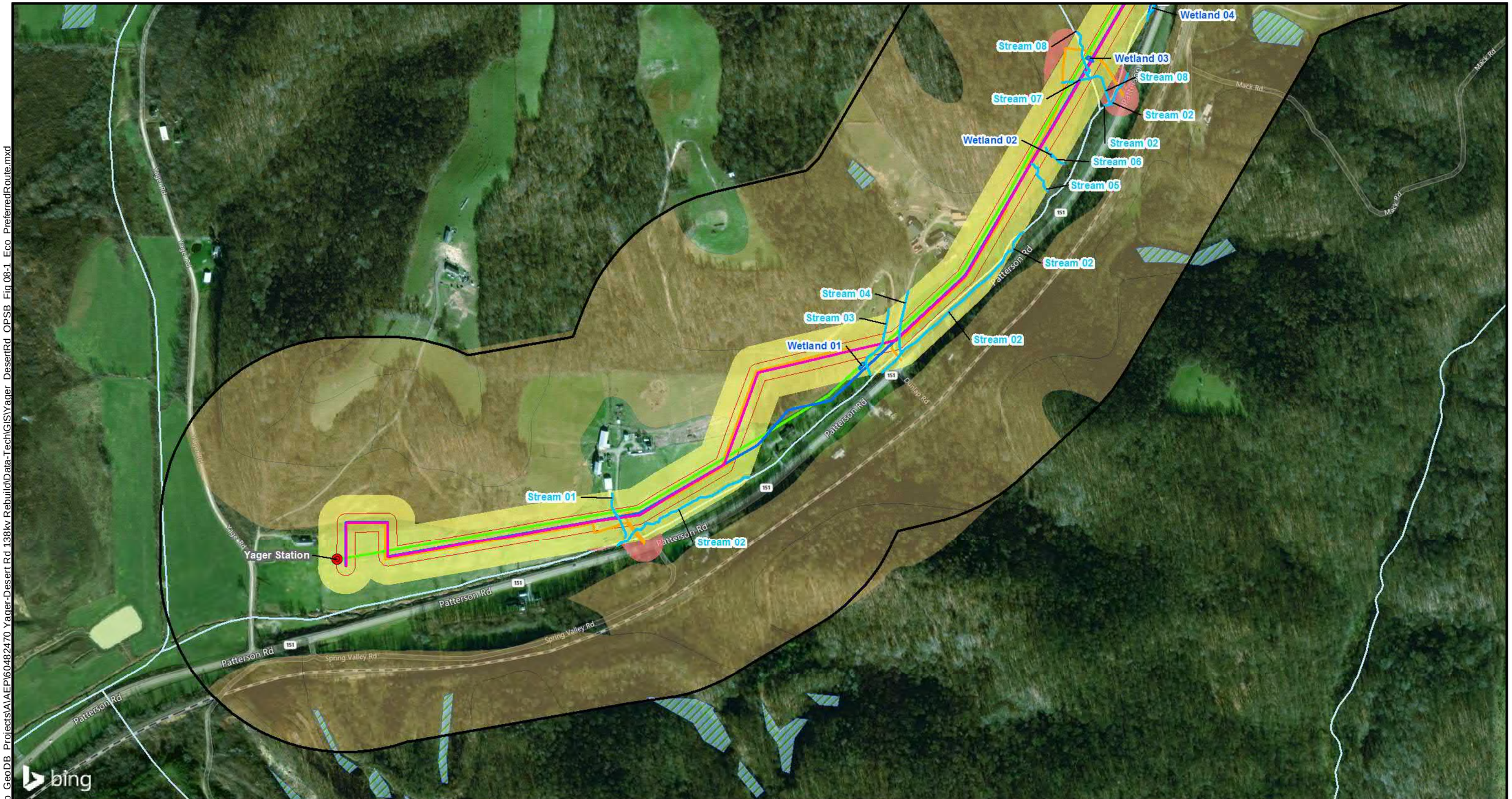
(D) SITE GEOLOGY

Text provided in the July 22, 2016 Application filing remains unchanged.

(E) ENVIRONMENTAL AND AVIATION COMPLIANCE INFORMATION

Text provided in the July 22, 2016 Application filing remains unchanged.

G:\Cincinnati\DCS\GIS\ArcMap GeoDB Projects\A\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 08-1_Eco_PreferredRoute.mxd



LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Access Road
- Amended Preferred Route 100-foot ROW
- Amended Preferred Route 300-foot Survey Corridor
- Access Road 200-foot Survey Corridor
- Amended Preferred Route 1,000-foot Buffer
- Delineated Stream
- Delineated Wetland
- NHD Stream
- Pond/Lake
- NWI Wetland
- Slope Exceeds 12%

0 500 1,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

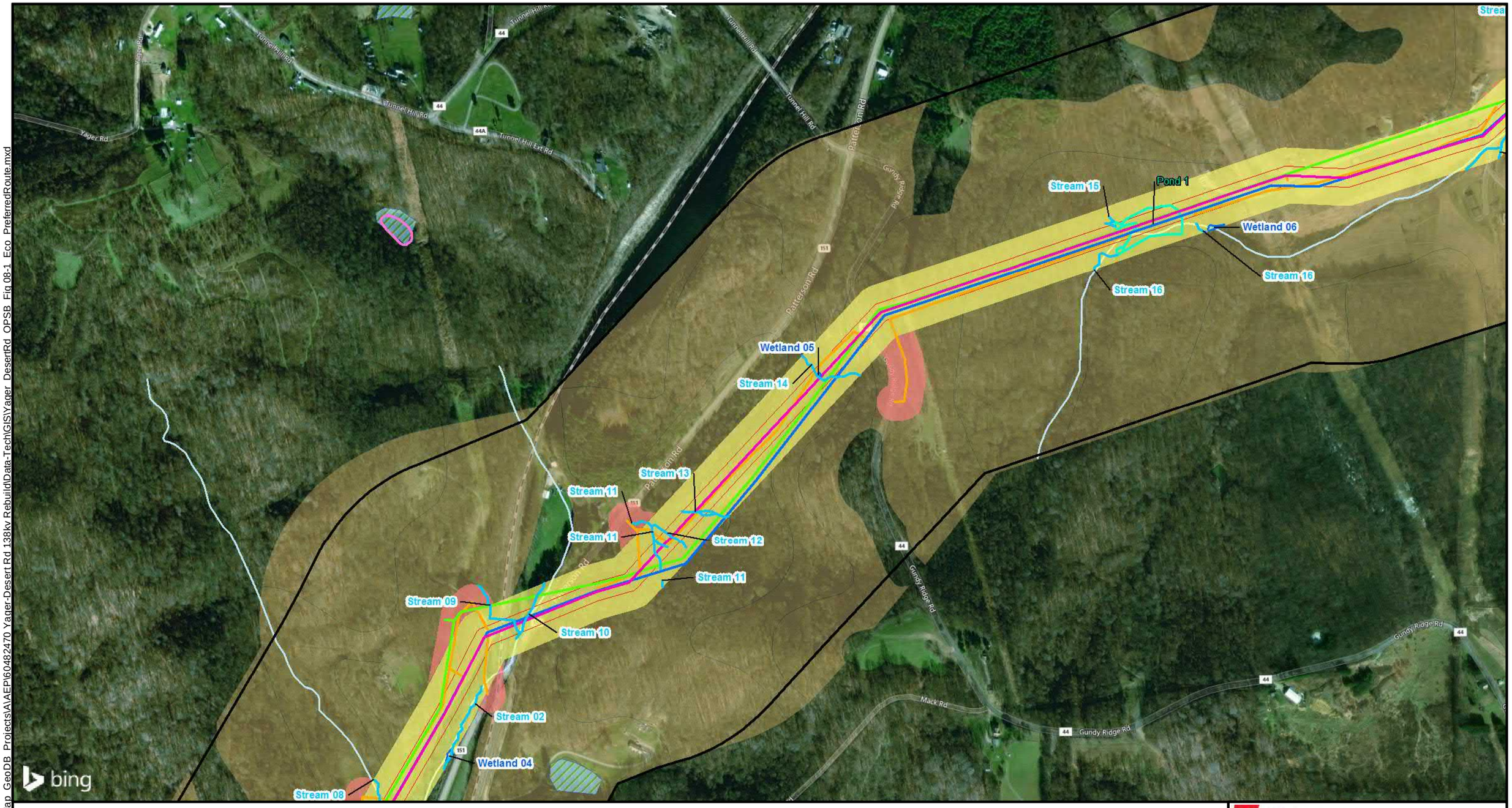
Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 08-1A
ECOLOGICAL FEATURES
PREFERRED ROUTE
ROW & SURVEY CORRIDOR

JOB NO. 60482470

AECOM

G:\Cincinnati\DC5\GIS\ArcMap_GeoDB_Projects\A\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 08-1_Eco_PreferredRoute.mxd



LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Access Road
- Amended Preferred Route 100-foot ROW
- Amended Preferred Route 300-foot Survey Corridor
- Access Road 200-foot Survey Corridor
- Amended Preferred Route 1,000-foot Buffer
- Delineated Stream
- Delineated Pond
- Delineated Wetland
- NHD Stream
- Pond/Lake
- NWI Wetland
- Slope Exceeds 12%

0 500 1,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

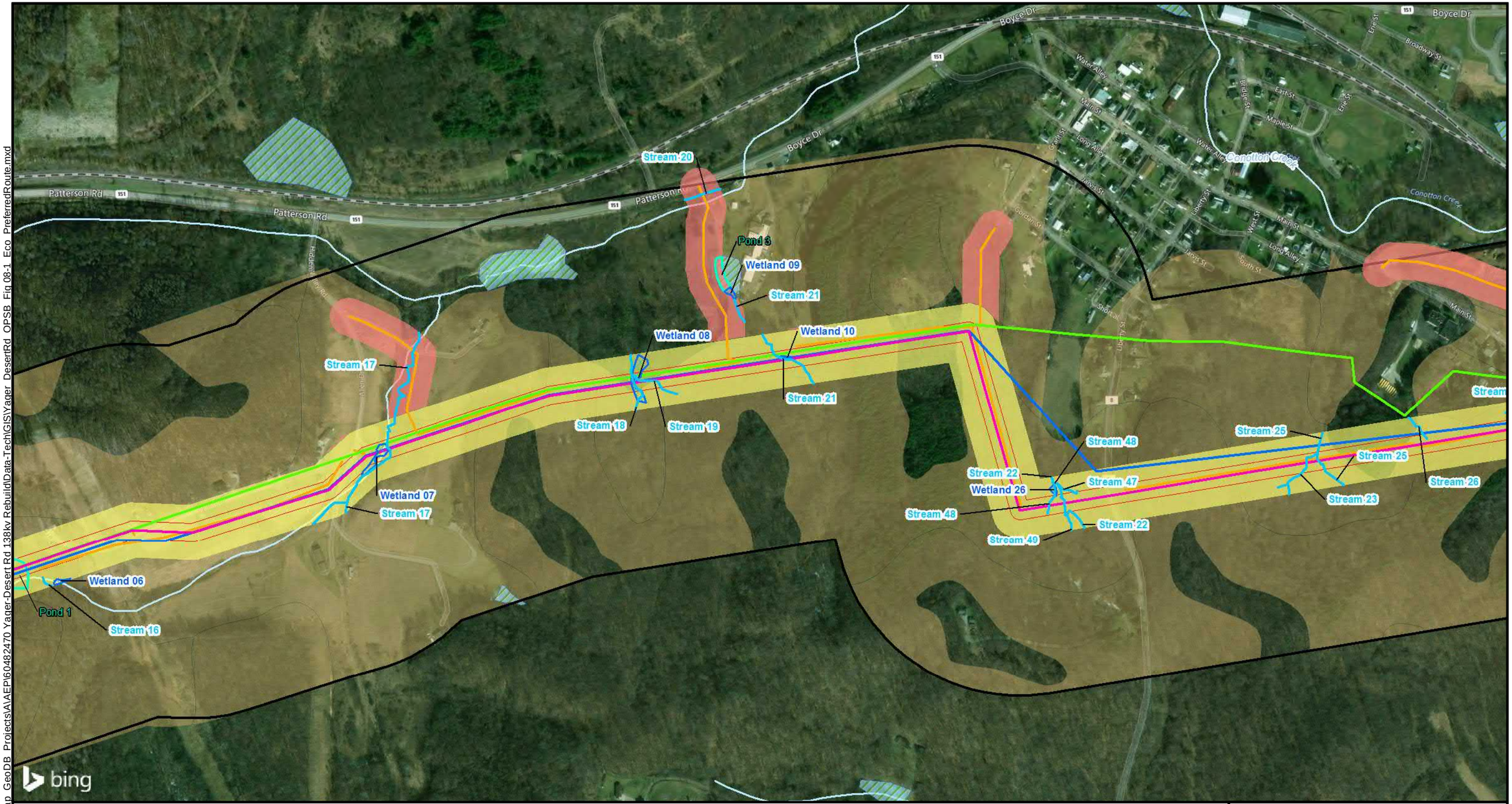
Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 08-1B
ECOLOGICAL FEATURES
PREFERRED ROUTE
ROW & SURVEY CORRIDOR

JOB NO. 60482470

AECOM

G:\CincinnatiDC\GIS\ArcMap GeoDB Projects\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 08-1_Eco_PreferredRoute.mxd



LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Access Road
- Amended Preferred Route 100-foot ROW
- Amended Preferred Route 300-foot Survey Corridor
- Access Road 200-foot Survey Corridor
- Amended Preferred Route 1,000-foot Buffer
- Delineated Stream
- Delineated Pond
- Delineated Wetland
- NHD Stream
- Pond/Lake
- NWI Wetland
- Slope Exceeds 12%

0 500 1,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 08-1C
ECOLOGICAL FEATURES
PREFERRED ROUTE
ROW & SURVEY CORRIDOR

JOB NO. 60482470

AECOM

G:\Cincinnati\DC5\GIS\ArcMap_GeoDB_Projects\AI\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 08-1_Eco_PreferredRoute.mxd

Boyce Dr
Leesville Rd
Scio Bowerston Rd
Bowers Rd
Broadway St
Water Alley
Main St
East St
Maple St
Bridge St
Erie St
Grant St
Long Alley
Jarvis St
Liberty St
West St
South St
Shorkey St
Conotton Creek

Stream 29
Stream 34
Stream 31
Wetland 17b
Wetland 17a
Stream 33
Stream 32
Wetland 18
Pond 2
Wetland 15
Stream 28
Stream 27
Stream 25
Stream 26
Stream 23
Stream 48
Stream 22
Wetland 26
Stream 47
Stream 49
Wetland 09
Stream 21
Wetland 10
Sora
Rail
Porzana
carolina

bing

LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Access Road
- Amended Preferred Route 100-foot ROW
- Amended Preferred Route 300-foot Survey Corridor
- Access Road 200-foot Survey Corridor
- Amended Preferred Route 1,000-foot Buffer
- Delineated Stream
- Delineated Pond
- Delineated Wetland
- Protected Species
- NHD Stream
- Pond/Lake
- NWI Wetland
- Slope Exceeds 12%

0 500 1,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

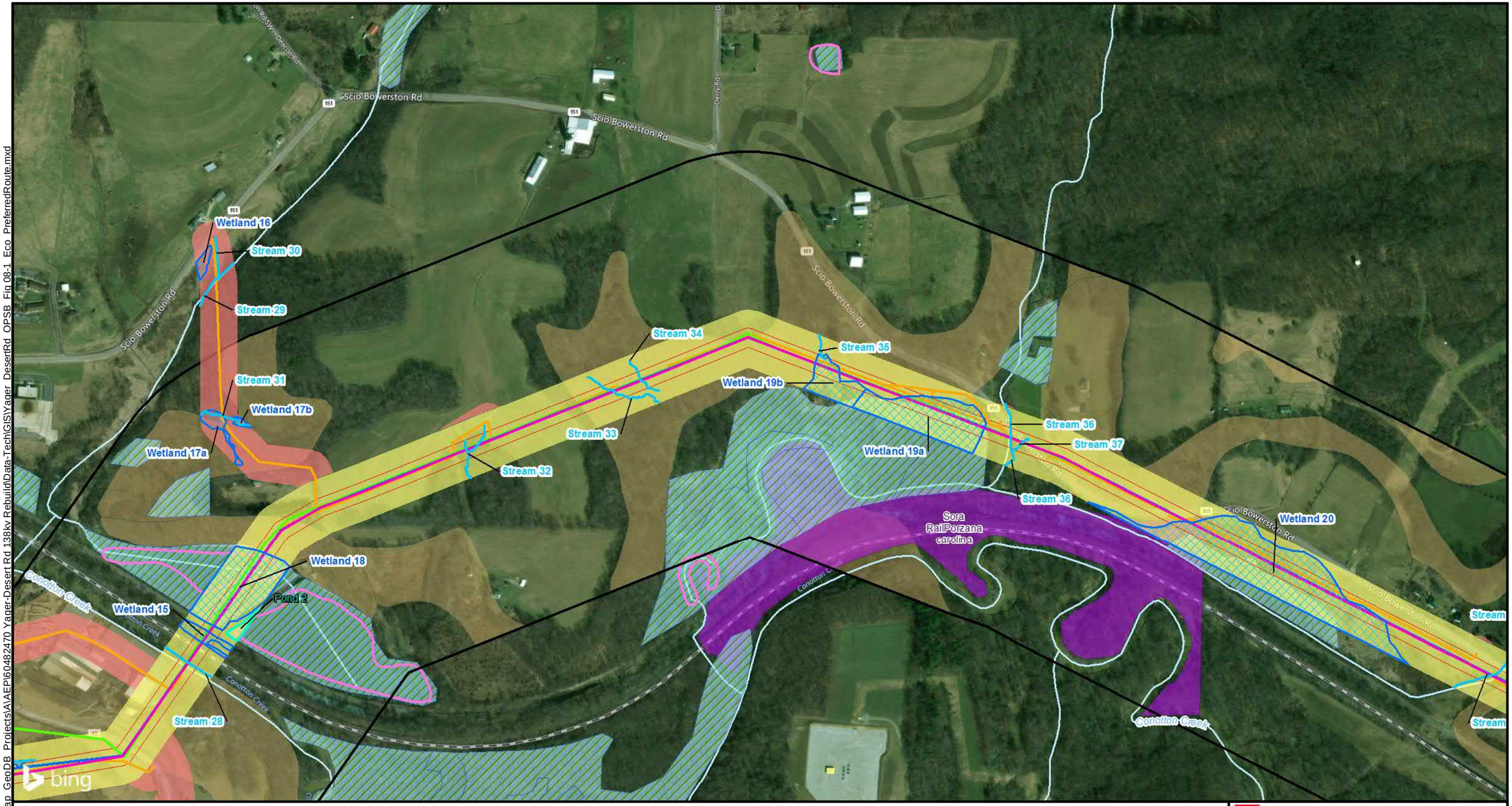
Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 08-1D
ECOLOGICAL FEATURES
PREFERRED ROUTE
ROW & SURVEY CORRIDOR

JOB NO. 60482470

AECOM

G:\CincinnatiDC\SGIS\ArcMap GeoDB Projects\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager DesertRd OPSB Fig 08-1 Eco PreferredRoute.mxd



LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Access Road
- Amended Preferred Route 100-foot ROW
- Amended Preferred Route 300-foot Survey Corridor
- Access Road 200-foot Survey Corridor
- Amended Preferred Route 1,000-foot Buffer
- Delineated Stream
- Delineated Pond
- Delineated Wetland
- Protected Species
- NHD Stream
- Pond/Lake
- NWI Wetland
- Slope Exceeds 12%

0 500 1,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 08-1E
ECOLOGICAL FEATURES
PREFERRED ROUTE
ROW & SURVEY CORRIDOR

JOB NO. 60482470

AECOM

LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Access Road
- Amended Preferred Route 100-foot ROW
- Amended Preferred Route 300-foot Survey Corridor
- Access Road 200-foot Survey Corridor
- Amended Preferred Route 1,000-foot Buffer
- Delineated Stream
- Delineated Wetland
- Protected Species
- NHD Stream
- Pond/Lake
- NWI Wetland
- Slope Exceeds 12%

0 500 1,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild Project

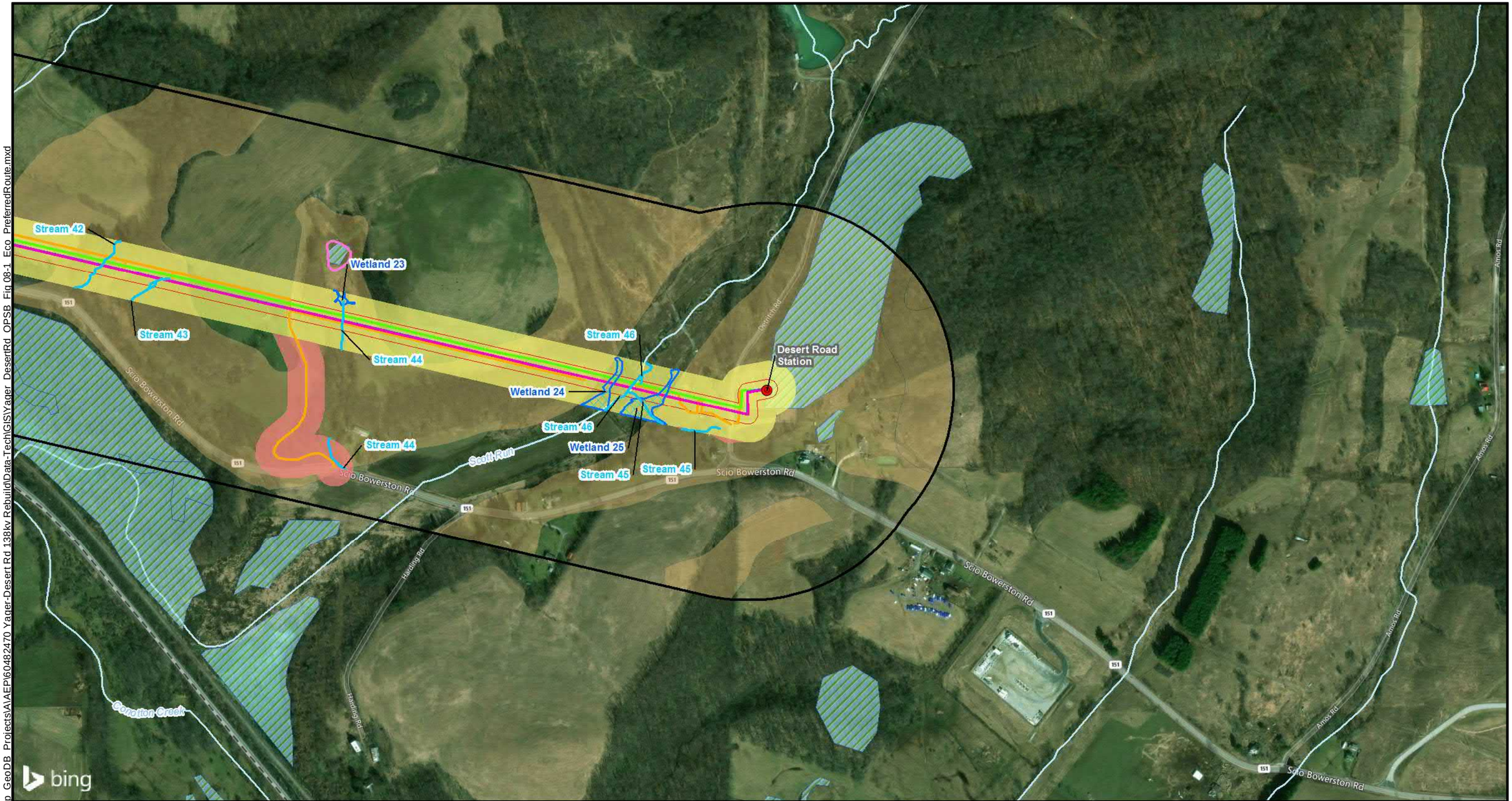
REVISED FIGURE 08-1F
ECOLOGICAL FEATURES
PREFERRED ROUTE
ROW & SURVEY CORRIDOR

JOB NO. 60482470

AECOM

G:\Cincinnati\DC5\GIS\ArcMap GeoDB Projects\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 08-1_Eco_PreferredRoute.mxd

G:\Cincinnati\DC5\GIS\ArcMap_GeoDB_Projects\A\AEP\60482470 Yager-Desert Rd 138kv Rebuild\Data-Tech\GIS\Yager_DesertRd_OPSB_Fig 08-1_Eco_PreferredRoute.mxd



LEGEND:

- Substation
- Yager-Desert Rd Amended Preferred Route
- Yager-Desert Rd Approved Route
- Yager-Desert Rd Alternate Route
- Access Road
- Amended Preferred Route 100-foot ROW
- Amended Preferred Route 300-foot Survey Corridor
- Access Road 200-foot Survey Corridor
- Amended Preferred Route 1,000-foot Buffer
- Delineated Stream
- Delineated Wetland
- NHD Stream
- Pond/Lake
- NWI Wetland
- Slope Exceeds 12%

0 500 1,000
Feet

Base Map Source:
ArcGIS Online, Bing Map Hybrid

N

AEP OHIO TRANSMISSION COMPANY

Yager-Desert Road
138 kV Line Rebuild Project

REVISED FIGURE 08-1G
ECOLOGICAL FEATURES
PREFERRED ROUTE
ROW & SURVEY CORRIDOR

JOB NO. 60482470

AECOM

APPENDIX 08-1

REPRESENTATIVE PHOTOGRAPHS OF ECOLOGICAL FEATURES

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Yager-Desert 138kV Transmission Line Project	60482470

Date:

April 2, 2018

Description:

Wetland 26

PEM Wetland

Category 2

Facing North

Facing West

Soil Pit

PHOTOGRAPHIC RECORD
STREAMS

Client Name:	Site Location:	Project No.
AEP	Yager-Desert Road 138 kV Transmission Line Project	60482470

Date:

April 2, 2018

Description:

Stream 47

Ephemeral

Modified Class 1

Facing Upstream

Facing Downstream

PHOTOGRAPHIC RECORD
STREAMS

Client Name:	Site Location:	Project No.
AEP	Yager-Desert Road 138 kV Transmission Line Project	60482470

Date:

April 2, 2018

Description:

Stream 48

Ephemeral

Class 1

Facing Upstream

Facing Downstream

PHOTOGRAPHIC RECORD
STREAMS

Client Name:	Site Location:	Project No.
AEP	Yager-Desert Road 138 kV Transmission Line Project	60482470

Date:

April 2, 2018

Description:

Stream 49

Ephemeral

Class 1

Facing Upstream

Facing Downstream

APPENDIX 08-2

WETLAND DATA FORMS

Wetland 26

Site: AEP Yager-Desert Road Tline	Rater(s): J. Lubbers; J. Tucker	Date: 4/2/2018

Field Id:

w-jbl-040218-01

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)

0.03 acres

13 | 13 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.

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

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

x	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)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

10.0 | 23.0 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)
x	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)
x	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	x	dredging
	stormwater input		Other:

12 | 35 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)
	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)
x	Fair (3)
	Poor to fair (2)
	Poor (1)

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

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

Check all disturbances observed

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

35

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland 26

Site: AEP Yager-Desert Road Tline	Rater(s): J. Lubbers; J. Tucker	Date: 4/2/2018

Field Id:
w-jbl-040218-01

	35
	subtotal this page
0	**35**
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)

6	**41**
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
0	Shrub
	Forest
	Mudflats
	Open water
	Other_____

6b. horizontal (plan view) Interspersion.

Select only one.

	High (5)
	Moderately high(4)
	Moderate (3)
x	Moderately low (2)
	Low (1)
	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)
	Sparse 5-25% cover (-1)
x	Nearly absent <5% cover (0)
	Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

Low 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 2

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

Wetland 26

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Yager-Deser Road **City/County:** Harrison County **Sampling Date:** 02-Apr-18

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-jbl-040218-01**

Investigator(s): jbl, jtt **Section, Township, Range:** **S** 27 **T** 13N **R** 6W

Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** concave **Slope:** 0.0% / 0.0 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.420855 **Long.:** -81.190701 **Datum:** NAD 83

Soil Map Unit Name: BkE **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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

hh02 empties into pem,pss wetland

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

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

Water Table Present? Yes ◉ No ○ Depth (inches): 1

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:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-ibl-040218-01

	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%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size:)				
1. Salix nigra	40	☑	100.0%	OBL
2.		☐	0.0%	
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%	
	40	= Total Cover		
Shrub Stratum (Plot size:)				
1.		☐	0.0%	
2.		☐	0.0%	
3.		☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size:)				
1. Impatiens capensis	30	☑	37.5%	FACW
2. Persicaria pensylvanica	25	☑	31.3%	FACW
3. Poa palustris	20	☑	25.0%	FACW
4. Leersia virginica	5	☐	6.3%	FACW
5.		☐	0.0%	
6.		☐	0.0%	
7.		☐	0.0%	
8.		☐	0.0%	
9.		☐	0.0%	
10.		☐	0.0%	
11.		☐	0.0%	
12.	0	☐	0.0%	
	80	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40	
FACW species	80	x 2 =	160	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	120	(A)	200	(B)

Prevalence Index = B/A = 1.667

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is > 50%
- ☑ Prevalence Index is ≤3.0 [1]
- ☐ 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.

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

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-jbl-040218-01

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]	Loc²	Texture	Remarks
0-14	10YR	4/1	90	10YR	4/4	10	C	M	Sandy Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ 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:

APPENDIX 08-3

STREAM DATA FORMS

Stream 47

Modified Class 1

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 20

SITE NAME/LOCATION: AEP Yager Desert Road

hh-jbl-040218-01 SITE NUMBER: _____ RIVER BASIN: _____ DRAINAGE AREA (mi^2): _____

LENGTH OF STREAM REACH (ft): 200 LAT.: 40.42064 LONG.: -81.19080 RIVER CODE: _____ RIVER MILE: _____

DATE: 04/02/18 SCORER: jbl,jtt COMMENTS: Ephemeral

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

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

old road at top

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☑	LEAF PACK/WOODY DEBRIS [3 pts]	40%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	5%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	5%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% **(A)** Substrate Percentage Check **(B)**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40

10

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH** (Inches): 1.00

Pool Depth Max = 30

5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS _____ **AVERAGE BANKFULL WIDTH** (Feet): 1.50

Bankfull Width Max=30

5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

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

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS: snow today

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

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Harrison Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 04/02/18 Quantity: 0.50

Photograph Information: 2 photos, upstream and downsteam

Elevated Turbidity? (Y/N): N Canopy (% open): 5%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

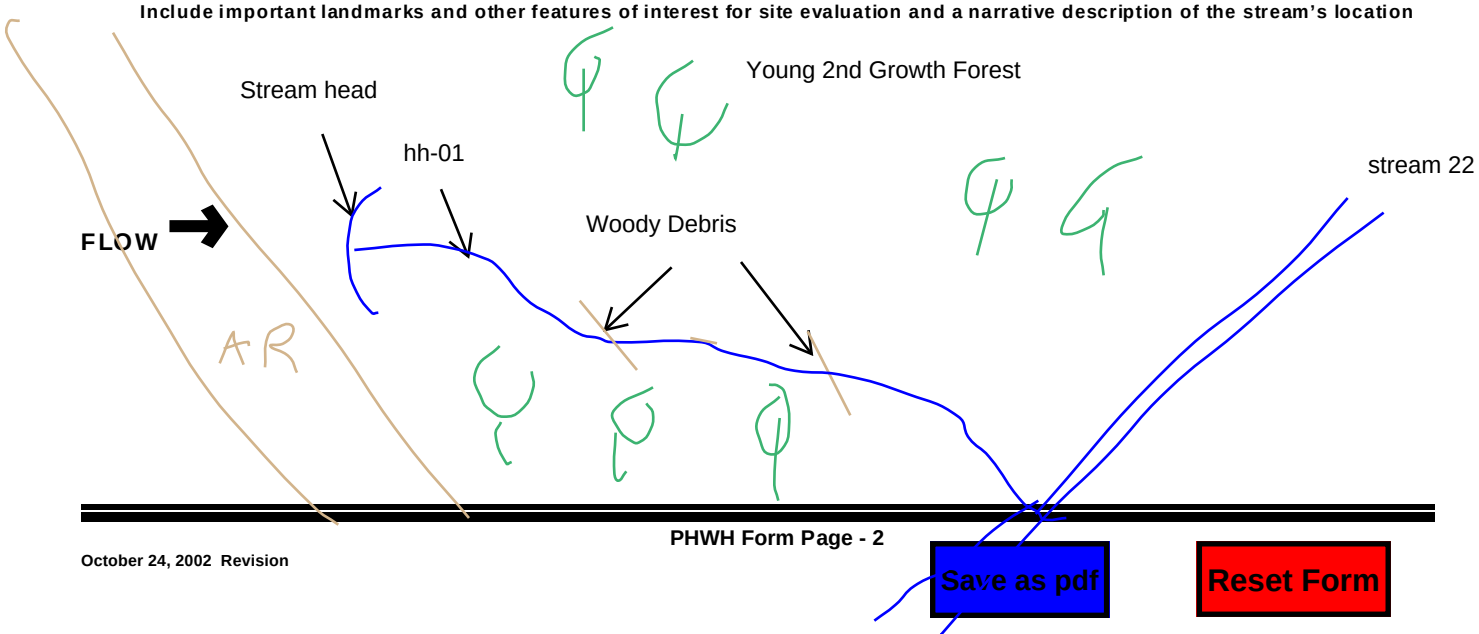
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



Save as pdf Reset Form

Stream 48 | Class 1

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 19

SITE NAME/LOCATION: AEP Yager Desert Road
hh-jbl-040218-02 | SITE NUMBER: | RIVER BASIN: | DRAINAGE AREA (mi²):
LENGTH OF STREAM REACH (ft): 200 | LAT.: 40.42074 | LONG.: -81.19074 | RIVER CODE: | RIVER MILE:
DATE: 04/02/18 | SCORER: jbl,jtt | COMMENTS: Ephemeral

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	☐ BLDR SLABS [16 pts]	0%	☐	☑ SILT [3 pt]	50%
☐	☐ BOULDER (>256 mm) [16 pts]	0%	☑	☐ LEAF PACK/WOODY DEBRIS [3 pts]	35%
☐	☐ BEDROCK [16 pt]	0%	☐	☐ FINE DETRITUS [3 pts]	0%
☐	☐ COBBLE (65-256 mm) [12 pts]	0%	☐	☐ CLAY or HARDPAN [0 pt]	0%
☐	☐ GRAVEL (2-64 mm) [9 pts]	0%	☐	☐ MUCK [0 pts]	0%
☐	☐ SAND (<2 mm) [6 pts]	15%	☐	☐ ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% **(A)** | Substrate Percentage Check **(B)**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 | **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40: 9

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☑ < 5 cm [5 pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH** (Inches): 1.00

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (<=3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS: | **AVERAGE BANKFULL WIDTH** (Feet): 1.50

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)		
L R		L R		L R	
☑ ☑	Wide >10m	☑ ☑	Mature Forest, Wetland	☐ ☐	Conservation Tillage
☐ ☐	Moderate 5-10m	☐ ☐	Immature Forest, Shrub or Old Field	☐ ☐	Urban or Industrial
☐ ☐	Narrow <5m	☐ ☐	Residential, Park, New Field	☐ ☐	Open Pasture, Row Crop
☐ ☐	None	☐ ☐	Fenced Pasture	☐ ☐	Mining or Construction

COMMENTS:

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

☑ Stream Flowing	☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial)	☐ Dry channel, no water (Ephemeral)

COMMENTS: snow/rain todäu

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

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Harrison Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 04/02/18 Quantity: 0.50

Photograph Information: 2 photos, upstream and downsteam

Elevated Turbidity? (Y/N): N Canopy (% open): 5%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

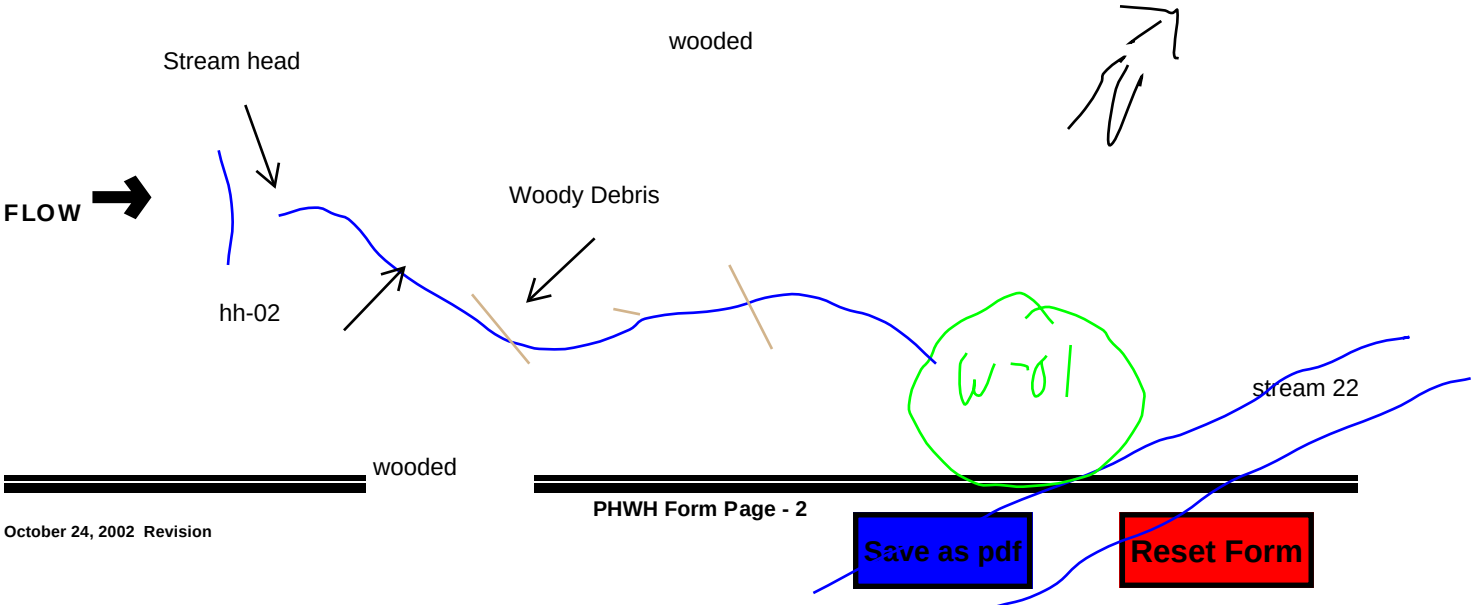
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



Save as pdf Reset Form

Stream 49 Class 1

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 26

SITE NAME/LOCATION: AEP Yager-Desert

hh-jbl-040218-03 SITE NUMBER: 03 RIVER BASIN: DRAINAGE AREA (mi²):

LENGTH OF STREAM REACH (ft): 200 LAT.: 40.42038 LONG.: -81.19042 RIVER CODE: RIVER MILE:

DATE: 04/03/18 SCORER: jtt, jbl COMMENTS: ephemeral

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	25%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	20%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% **(A)** Substrate Percentage Check **(B)**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40

16

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH** (Inches): 1.00

Pool Depth Max = 30

5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS **AVERAGE BANKFULL WIDTH** (Feet): 1.50

Bankfull Width Max=30

5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

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

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (Intermittent)
☐	Subsurface flow with isolated pools (Interstitial)	☐	Dry channel, no water (Ephemeral)

COMMENTS: recent rain and snowmelt

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

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☐ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: _____

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

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

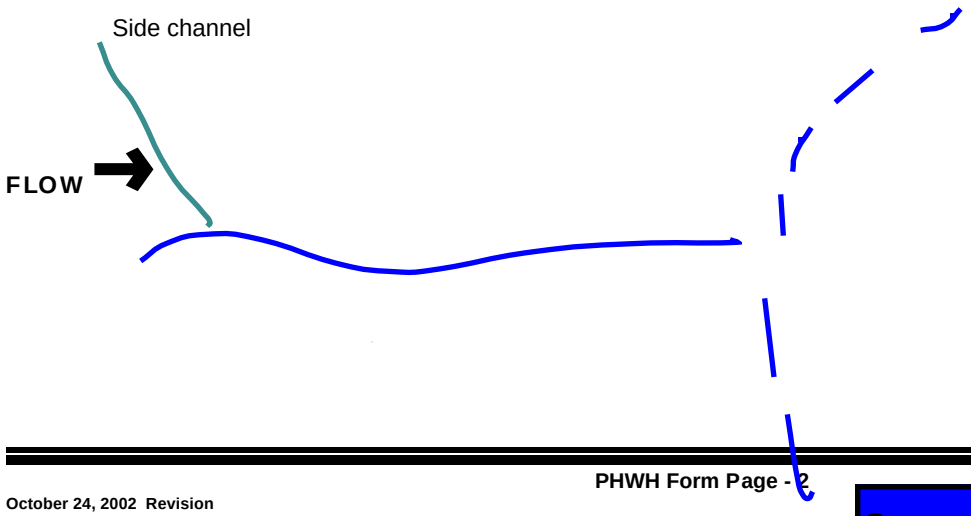
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



Save as pdf Reset Form

Summary: Application electronically filed by Mr. Hector Garcia on behalf of AEP Ohio Transmission Company