

**BEFORE
THE OHIO POWER SITING BOARD**

In the Matter of American Transmission	)	
Systems, Incorporated’s Application for	)	Case No. 22-0494-EL-BTA
Amendment of the Beaver-Wellington 138 kV	)	
Transmission Line Project Certificate of	)	
Environmental Compatibility and Public Need	)	

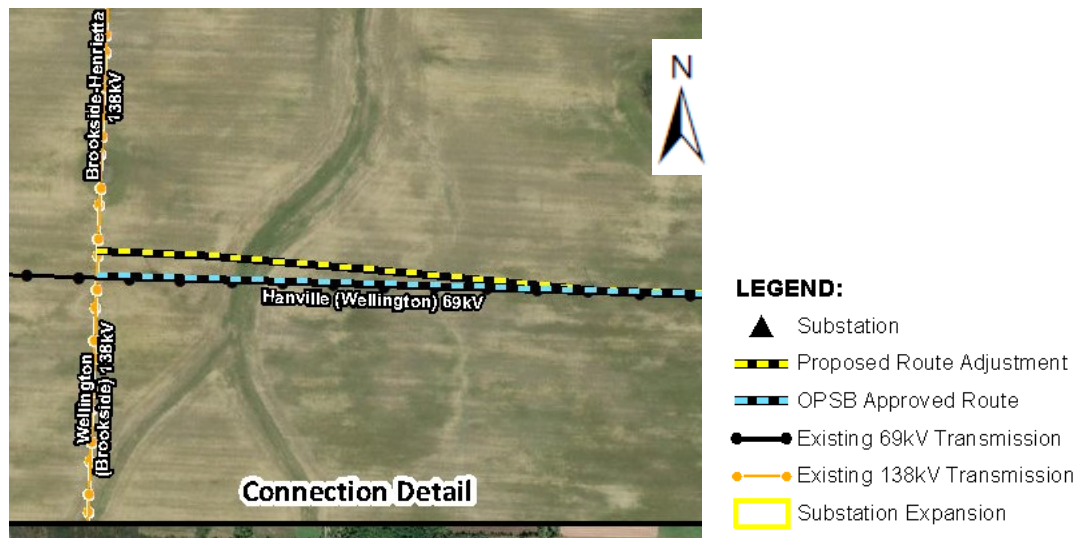
**SUPPLEMENT TO AMENDMENT APPLICATION:
WELLINGTON SECTION ROUTE ADJUSTMENTS**

American Transmission Systems, Incorporated (“ATSI”) supplements the above-captioned Application for Amendment of the Beaver-Wellington 138 kV Transmission Line Project Certificate of Environmental Compatibility and Public Need with two, additional shifts to the approved centerline. These reroutes will have a combined length of less than .2 miles and both occur along the southern segment—referred to as the Wellington Section—of the Project approved by the Ohio Power Siting Board in Case No. 20-0004-EL-BTX (“OPSB-Approved Route”).

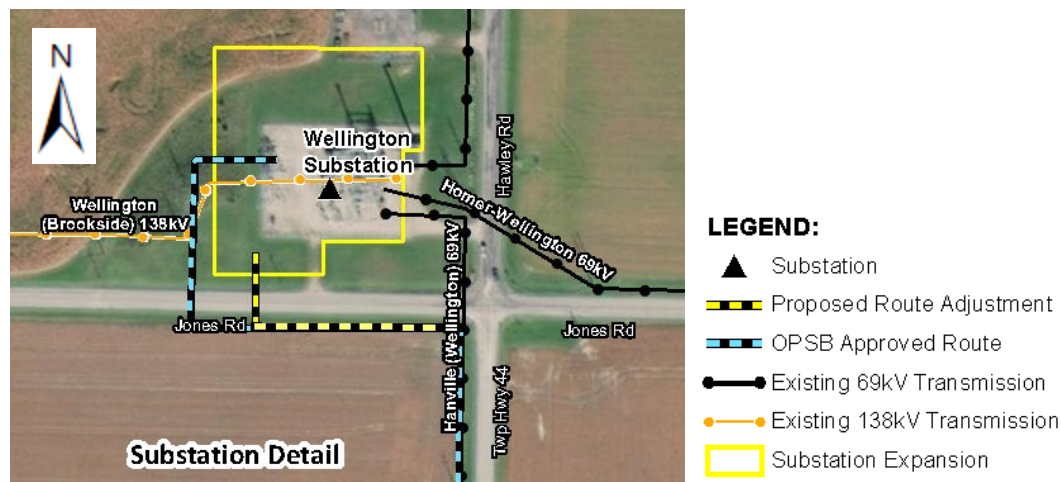
The first centerline adjustment starts at the western extent of the Wellington Section, from where the OPSB-Approved Route intersects the existing north-south Brookside-Henrietta/Wellington-Brookside 138 kV transmission line corridor, and extends 790 feet to the east to rejoin the OPSB-Approved Route. This centerline adjustment is necessary to maintain clearances between the rebuilt Hanville-Wellington 69 kV Transmission Line as it crosses perpendicularly under the Brookside-Henrietta/Wellington-Brookside 138 kV Transmission Lines.

Though the certificated Beaver-Wellington 138 kV Transmission Line shares structures with the Hanville-Wellington 69 kV Transmission Line as well as with the Brookside-Henrietta/Wellington-Brookside 138 kV Transmission Lines, the Wellington Section’s takeoff structure (93B) from Brookside-Henrietta/Wellington-Brookside must be located north of the point where the Hanville-Wellington 69 kV Transmission Line crosses under the Brookside-Henrietta/Wellington-Brookside 138 kV Transmission Lines for required clearances. Therefore, the Wellington Section splits off from Brookside-Henrietta for three, non-shared structures (91B, 92B, 93B) to the tie-in point with Brookside-Henrietta/Wellington-Brookside.¹ For that Wellington Section segment, which remains within the original survey corridor and is shown on the below drawing, the OPSB-Approved Route would be shifted approximately 30 feet to the north.

¹ ATSI’s Project Management team understood this segment of the engineering consultant’s detailed line design to have been approved by the Board in Case No. 20-0004-EL-BTX. Therefore, Structures 91B, 92B, and 93B were installed and conductor was strung as of mid-November. ATSI discovered, while preparing this Supplement, that such segment of the Wellington Section had been unintentionally constructed prior to receiving a Certificate. ATSI then promptly self-reported the circumstances to Board Staff. To prevent recurrence, ATSI has undertaken internal process changes and implemented new compliance measures, including the addition of a new layer in the KMZ that is provided to the Project Management team to indicate the certificated centerline.



The second centerline adjustment is located at the eastern extent of the Wellington Section, where the OPSB-Approved Route enters the Wellington Substation. To avoid interference with the existing Wellington-Brookside 138 kV Transmission Line, ATSI is proposing to change the terminus of the route from the western side (as currently certificated) to the southern side of the Wellington Substation. Additionally, the centerline alignment parallel to Jones Road must be shifted approximately four feet south to avoid an existing underground utility line, which ATSI discovered as a field condition. These adjustments likewise remain within the original survey corridor and are shown on the below drawing.



Exhibits 12 and 13 of ATSI's Amendment Application encompass the cultural survey, impact studies, and wetland delineation that are relevant to the centerline shifts outlined herein. The Wellington Section route adjustments will not materially increase social or ecological impacts of the Project certificated in Case No. 20-0004-EL-BTX ("Original Application").

LAND USE

The Wellington Section route adjustments are located within existing right-of-way ("ROW"), though construction may require new temporary access rights. Reroutes presented in this Supplement reduce acreage within the Wellington Section ROW: from 50.5 acres to 49.8 acres. These reroutes also result in

one fewer property crossed. Properties affected by the centerline shifts outlined in this Supplement are listed below and a Land Use Map is provided as **Supplement Figure 7-2**.

Parcel Number	Easement Status
1800013000001	Easement obtained
2005004000002	Will be supplemented

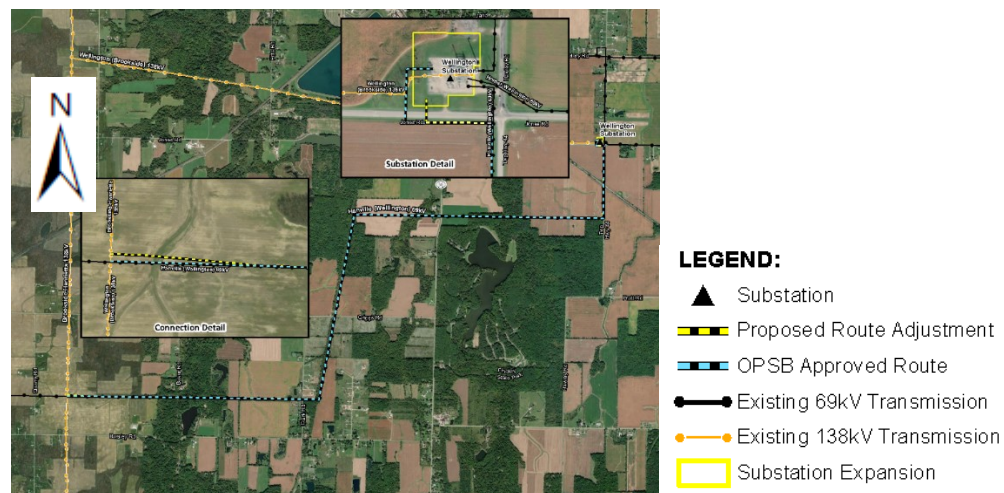
WETLANDS

The Wellington Section route adjustments reduce total wetland impacts from 4.94 acres to 4.85 acres² and does not entail any new pole placement within wetlands. A wetland and waterbody map is provided as **Supplement Figure 8-5 A**.

ATSI will implement construction BMPs as stated in the Original Application and Amendment Application; ATSI will perform all construction work in accordance with the conditions and requirements of regulatory permits obtained for the Project.

STREAMS

The Wellington Section route adjustments result in 11 fewer linear feet of streams crossed and no additional impacts or other changes. (See **Supplement Figure 8-5 A**)



PROTECTED SPECIES

Wellington Section

Due to the proposed centerline shifts as well as the interim expiration of agency consultations, a follow up letter for the Wellington Section was submitted to the USFWS on May 26, 2022 to request any relevant

² A total of 36 wetlands/wetland complexes were delineated for the OPSB-Approved Route ROW of the Wellington Section and a Wetland and Waterbody Delineation Report Addendum for the Wellington Section is attached hereto.

updates to their initial response. USFWS provided a response on June 1, 2022, concluding that, with proposed tree clearing dates, no impact to any federally endangered, threatened, proposed, or candidate species is anticipated. (See **Supplement Appendix 7-1.**)

In addition, a follow up letter for the Wellington Section was submitted to the ODNR-DOW on March 1, 2022 with additional habitat details. ODNR provided a response dated March 8, 2022 reaffirming the sufficiency of minimization measures as stated in prior correspondence dated April 27, 2020. Based on the proposed avoidance of construction within grassland habitat between from April 1st through July 31st and tree clearing activities being conducted between October 1st and March 31st, the Project will not impact any state-listed species. (See **Supplement Appendix 7-1.**)

CONCLUSION

ATSI requests that the Board consider the information in this Supplement as part of its Certificate Amendment Application in Case No. 22-0494-EL-BTX and approve the route adjustments requested herein.

Respectfully submitted,

/s/ Devan K. Flahive

Devan K. Flahive (0097457)

Counsel of Record

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Columbus, OH 43215

(614) 227-1989 / (614) 227-2100 (fax)

dflahive@porterwright.com

Anne M. Rericha (0079637)

FirstEnergyService Company

76 South Main Street

Akron, Ohio 44308

Email: arericha@firstenergygroup.com

*Attorneys for American Transmission Systems,
Incorporated*

CERTIFICATE OF SERVICE

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced on the service list of the docket card who have electronically subscribed to the case. In addition, the undersigned hereby certifies that a copy of the foregoing document is also being served via electronic mail on the 15th day of December, 2022, upon the persons listed below.

Staff of the Ohio Power Siting Board

john.jones@ohioAGO.gov

christopher.zoeller@puco.ohio.gov

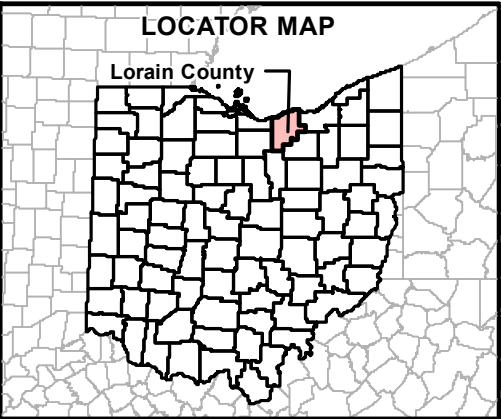
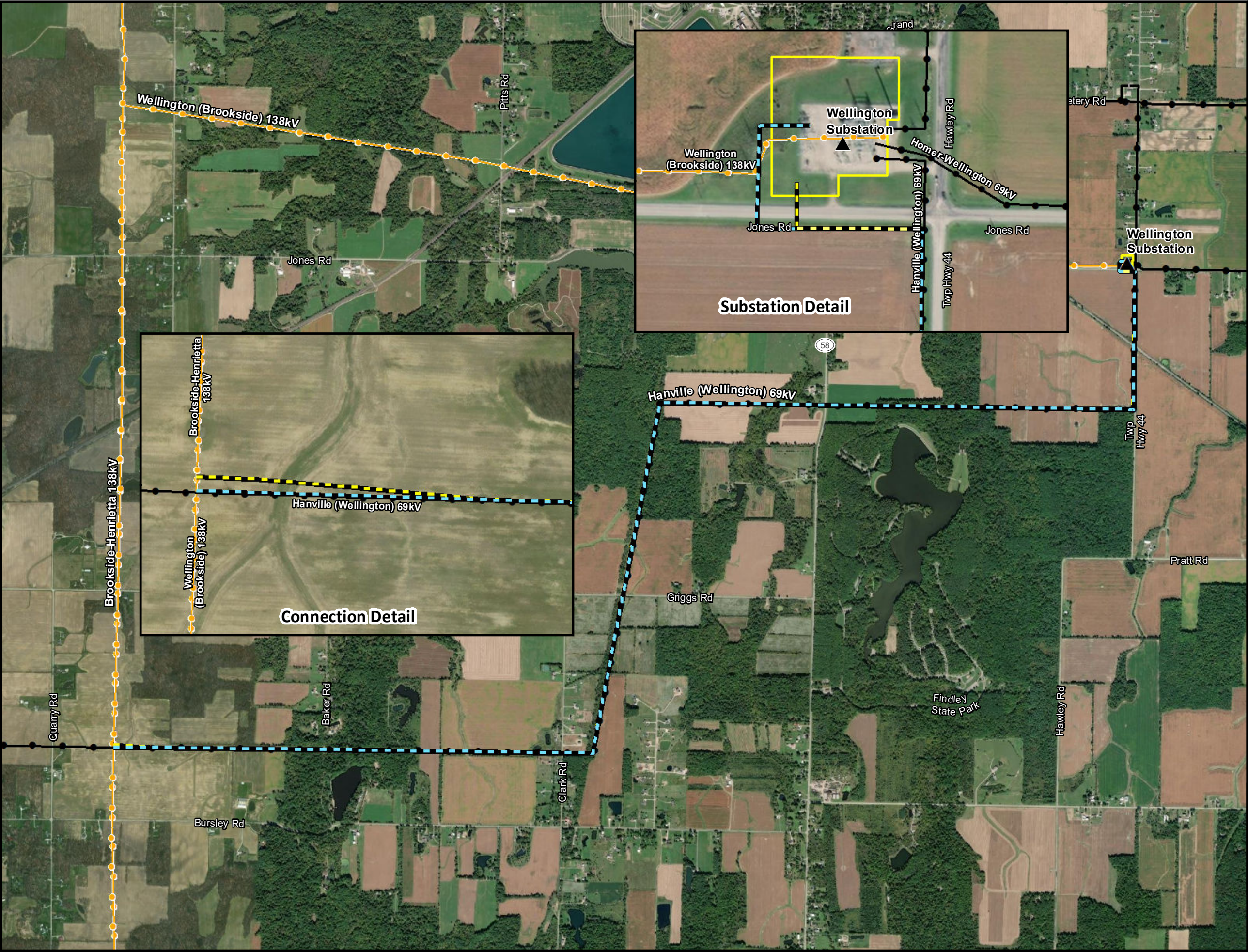
/s/ Devan K. Flahive

Devan K. Flahive

Attorney for

**AMERICAN TRANSMISSION SYSTEMS,
INCORPORATED**

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- LEGEND:**
- ▲ Substation
 - Proposed Route Adjustment
 - OPSB Approved Route
 - Existing 69kV Transmission
 - Existing 138kV Transmission
 - Substation Expansion

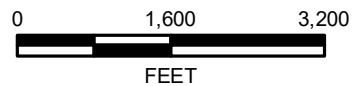


BASE MAP SOURCE:
Esri World Imagery
Coordinate System: State Plane
Ohio North FIPS 3401 Feet
Datum: NAD 1983
Scale: 1:24,000
12/7/2022



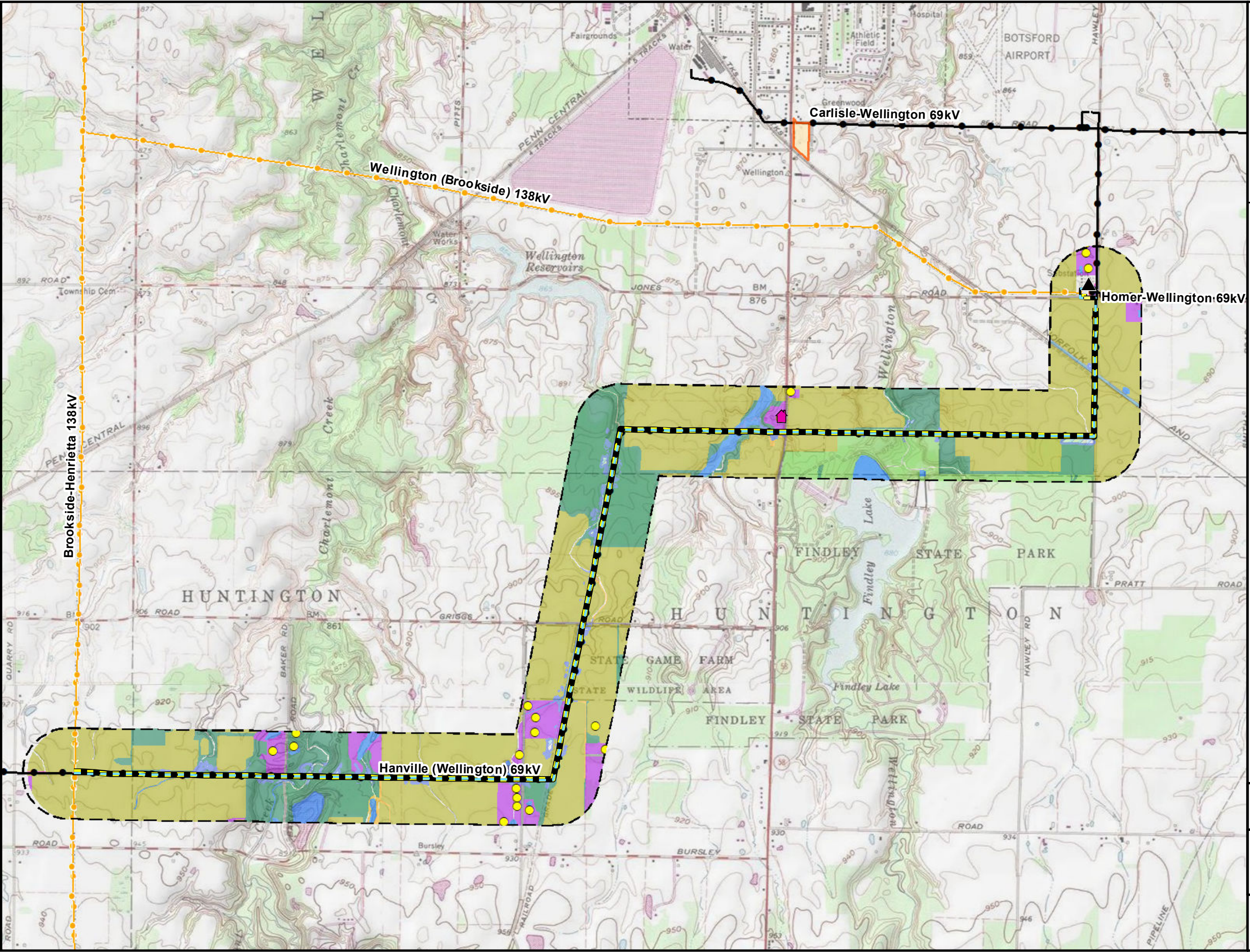
Beaver-Wellington
138 kV Transmission Line
Project (Wellington Section)

FIGURE 2-3
PROJECT OVERVIEW AND
AREA FEATURES
REVISION 1



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LOCATOR MAP

LEGEND:

- ▲ Substation
- OPSB Approved
- Proposed Route Adjustment
- 1,000-Foot Buffer

Structures

- Commercial
- Residential
- 🏠 OHI Structure
- NRHP District Boundary

Existing Transmission Lines

- 69kV
- 138kV

OPSB_SubAlign...

Land Use Type (Legend)

- Agriculture
- Commerical Land
- Utility ROW
- Delineated Pond
- Delineated Stream
- Delineated Wetlands
- Water Resources
- Herbaceous
- Railroad
- Recreation
- Residential Land
- Pavement
- Industrial
- Woodlots

BASE MAP SOURCE:
Esri USA Topo Map
USGS 7.5 Minute
Topograch Quadrangles:
Wellington, Nova, Brighton, Sullivan
Coordinate System: State Plane
Ohio North FIPS 3401 Feet
Datum: NAD 1983
Scale: 1:24,000
12/7/2022

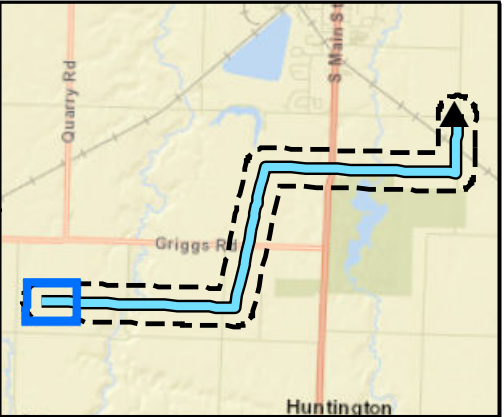
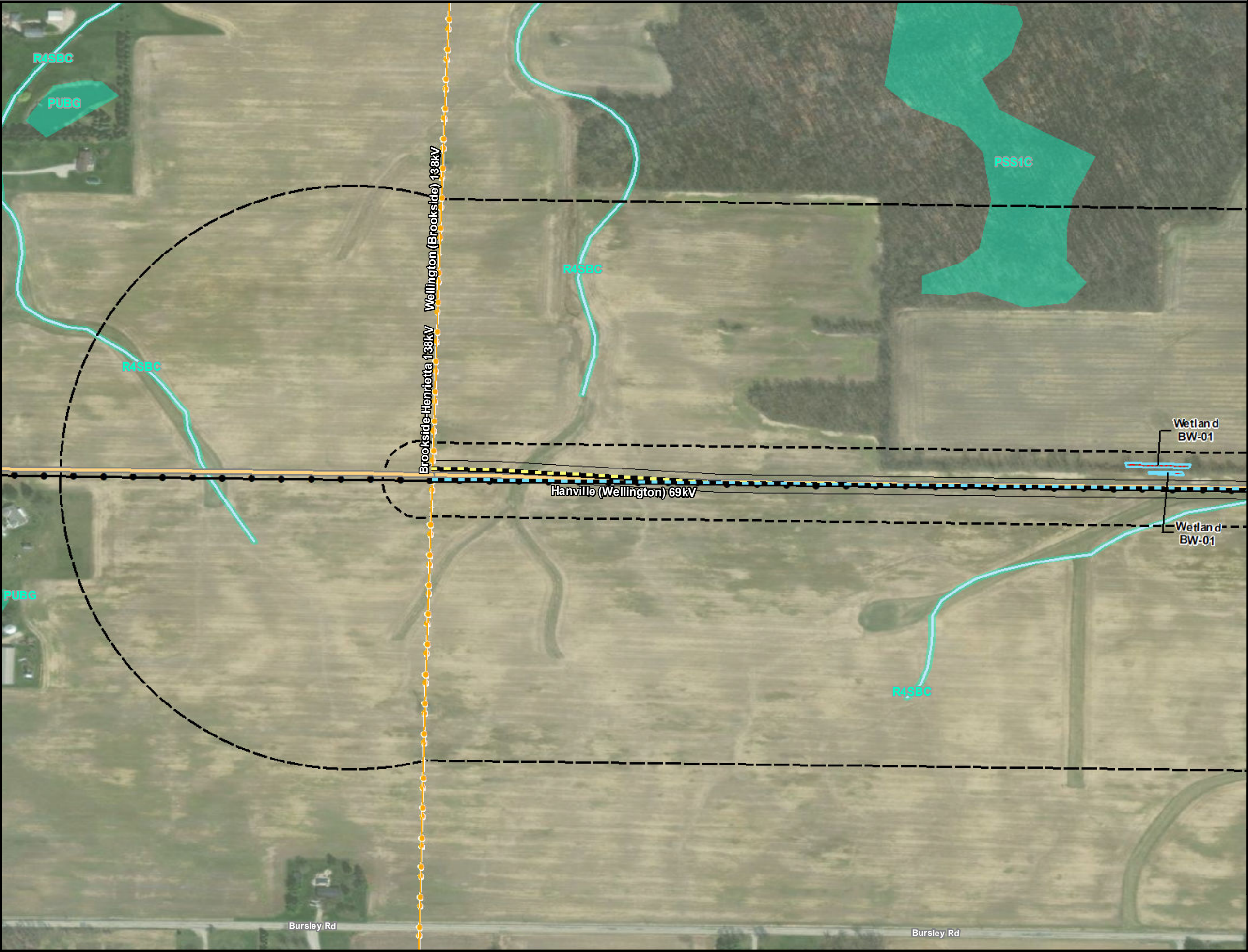
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.

**Beaver-Wellington
138 kV Transmission Line
Project (Wellington Section)**

**FIGURE 7-2
LAND USE MAP
REVISION 1**

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LEGEND:

- ▲ Substation
- OPSB Approved Route
- - - Proposed Route Adjustment
- Access Road
- Existing 69kV Transmission
- Existing 138kV Transmission
- 1,000 ft. Buffer
- Stream (NHD)
- Wetland (NWI)
- Soil Unit Exceeding 12 percent slope
- ▨ Delineated PEM Wetland
- ▨ Delineated PFO Wetland
- ▨ Delineated POW Wetland
- ▨ Delineated PSS Wetland
- ▨ Delineated Pond
- ▨ Delineated Stream
- Substation Expansion

BASE MAP SOURCE:
Esri World Imagery
Coordinate System:
State Plane Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale: 1:3,600

12/7/2022

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

Beaver-Wellington
138 kV Transmission Line
Project (Wellington Section)

FIGURE 8-5 A
APPROVED ROUTE DELINEATED
WETLAND AND WATERBODIES MAP

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Appendix 7-1

Agency Consultation

United States Fish and Wildlife



Jacobs
2 Crowne Point Court
Cincinnati, Ohio 45241
O +1 (513) 595-7500
F +1 (513) 595-7860
www.jacobs.com

May 26, 2022

Attention: Patrice Ashfield
Ohio Ecological Services Office
U.S. Fish and Wildlife Service
4625 Morse Road, Suite 104
Columbus, Ohio 43230

VIA EMAIL

**Subject: Federal-Listed Threatened and Endangered Species Consultation
ATSI Beaver-Wellington 138 kV Transmission Line Project, Lorain County, Ohio
TAILS# 03E15000-2019-TA-1962**

Dear Ms. Ashfield:

On behalf of American Transmission Systems Inc. (ATSI), a subsidiary of FirstEnergy Service Company (FirstEnergy), Jacobs Engineering Group Inc. (Jacobs) is requesting an update to the previous comments from U.S. Fish and Wildlife Service (USFWS) regarding the proposed Beaver-Wellington 138 kV Transmission Line Project (Project) in Lorain County, Ohio, received on March 20, 2020 (TAILS# 03E15000-2019-TA-1962).

As stated in our initial consultation letter, the Project consists of rebuilding approximately 6 miles of new double circuit 138 kilovolt (kV) line within an existing 69kV right-of-way (ROW). The Project consists of a 65-foot ROW and 100-foot ROW along turn angles. The Project begins near the intersection of Quarry Road and Bursley Road and extends east and north to the Wellington Substation at the intersection of Jones Road and Hawley Road, south of Wellington, Ohio. The Project area is within the Nova, Sullivan, and Wellington U.S. Geological Survey 7.5" topographical quadrangles in Ohio. The Project area is shown on the attached Overview Figure (Attachment 1).

The Project area is primarily rural which includes agricultural land use and wooded areas. The Project construction will consist of work pad areas around the structure locations, pull pads, access roads, and a construction laydown yard. The Project will occur primarily within the existing 69kV transmission line ROW; however, portions may be wider to accommodate the proposed 65-foot-wide ROW. Based on the expanded ROW, minor tree clearing will likely be necessary for portions of the Project. Tree clearing will be conducted for this Project between October 1st and March 31st to minimize direct impacts to the Indiana bat (*Myotis sodalis*) and Northern long-eared bat (*Myotis septentrionalis*).

Efforts will be made before, during, and post-construction to minimize the extent and duration of the Project-related disturbances to wetlands, streams and other sensitive habitats. Additionally,

ATSI will utilize best management practices to avoid any indirect impact to streams and wetlands through its use of erosion and sediment controls. Wetlands will be traversed using low ground pressure equipment and/or matted through. Due to the lack of potential habitat and by using best management practices, ATSI and Jacobs believe that the proposed Project will not adversely impact federally protected species that could exist within the Project ROW.

In addition to coordinating with USFWS, Jacobs on behalf of ATSI is also soliciting Ohio Department of Natural Resources for comments regarding the Project's potential to impact protected state species.

Please review the Project details provided above, the attached Overview Figure, and ArcGIS shapefile of the Project centerline. Jacobs requests concurrence from the USFWS that the Project, as proposed with the avoidance and minimization measures, will not likely adversely affect state-listed species.

If you have any questions or require additional information, please contact Benjamin Otto at (513) 377-6458 or ben.otto@jacobs.com.

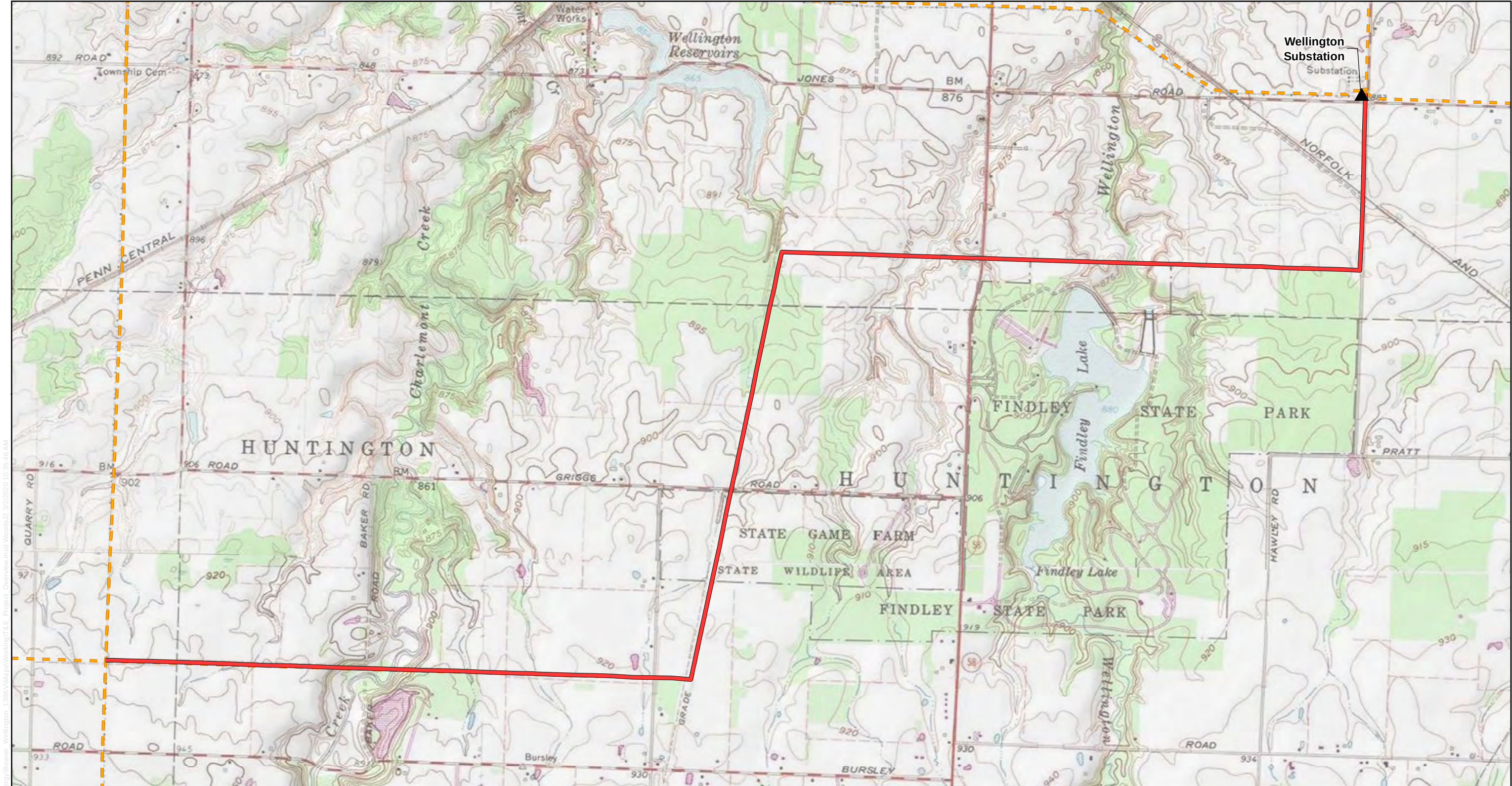
Regards,
Jacobs Engineering Group, Inc.

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Benjamin Otto
Project Manager

Attachments:

Attachment 1: Overview Map



LEGEND:

- ▲ Substation
- Proposed Beaver-Wellington 138kV
- - - Existing Transmission Line
- County

MI LOCATOR MAP

BASE MAP SOURCE:
Esri USA Topo Map
USGS 7.5 Minute
Topographic Quadrangles:
Sullivan, Nova, Wellington & Brighton

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FEET

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

Beaver - Wellington 138kV
Transmission Line Project

Overview Map

PN: D3263600	Date: 3/2/2020
CREATED BY: JLW	JACOBS
REVIEWED BY: BAO	

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Otto, Ben/CIN

From: Ohio, FW3 <ohio@fws.gov>
Sent: Wednesday, June 1, 2022 10:02 AM
To: Lubbers, Jake
Cc: Otto, Ben/CIN
Subject: [EXTERNAL] Beaver-Wellington 138 kV Transmission Line Project, Lorain County, Ohio
(Original TAILS# 03E15000-2019-TA-1962)



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



Project Code # 2022-0046948

Dear Mr. Lubbers,

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

Federally Threatened and Endangered Species: Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥ 3 inches diameter at breast height between October 1 and March 31) to avoid impacts to the endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*), we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, coordination with the Service should be initiated to assess any potential impacts.

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

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

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

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrice Ashfield". The signature is fluid and cursive, with a large initial "P" and "A".

Patrice Ashfield
Field Office Supervisor

Ohio Department of Natural Resources



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www.jacobs.com

March 1, 2022

Attention: Mike Pettegrew
Environmental Services Administrator
Ohio Department of Natural Resources
2045 Morse Road
Columbus, Ohio 43229

VIA EMAIL

**Subject: 20-287; Beaver-Wellington 138 kV Transmission Line Project,
Lorain County, Ohio**

Dear Mr. Pettegrew:

On behalf of American Transmission Systems Inc. (ATSI), a subsidiary of FirstEnergy Service Company (FirstEnergy), Jacobs Engineering Group, Inc. (Jacobs) is submitting this follow up letter report to the Ohio Department of Natural Resources (ODNR) in response to comments provided by ODNR on April 27, 2020 regarding the proposed Beaver-Wellington 138 kV Transmission Line Project (Project) in Lorain County, Ohio.

As stated in our initial consultation letter, the Project consists of rebuilding approximately 6 miles of new double circuit 138 kilovolt (kV) line within an existing 69kV right-of-way (ROW). An ecological survey consisting of habitat, wetland and waterbody assessments was conducted within the Project area on August-October 2019 and January-June 2020. The Project consists of a 65-foot ROW and 100-foot ROW along turn angles. Jacobs' ecologists walked the entire length of the Project area to classify the general vegetative communities crossed. The general habitat observations from this survey are identified within the Land Use Maps provided in Attachment 1. The Project area is primarily rural which includes agricultural land use and wooded areas.

The Project construction will consist of work pad areas around the structure locations, pull pads, access roads, and a construction laydown yard. Tree clearing for the Project will occur within the recommended clearing period of October 1st to March 31st. The Project will also require the placement of a temporary culvert crossing within an intermittent stream. The temporary crossing will be installed for access of construction equipment and require the installation of two 48-inch culverts. After construction, the temporary culverts will be removed in their entirety and the stream will be returned to pre-construction elevations. Efforts will be made before, during, and post-construction to minimize the extent and duration of the Project-related disturbances to wetlands, streams and other sensitive habitats. ATSI has notified the U.S. Army Corp of Engineers regarding the temporary culvert and its compliance under Nationwide Permit 57.

Within the original response letter, ODNR Division of Wildlife (DOW) identified that the Project was within the range of the Ohio lamprey (*Ichthyomyzon bdellium*), lake sturgeon (*Acipenser fulvescens*), channel darter (*Percina copelandi*), American eel (*Anguilla rostrata*) and bigmouth shiner (*Notropis*

dorsalis). ODNR DOW stated that these species are unlikely to be affected by the Project due to no in-water work is proposed in perennial streams. The Project is still proposing no in-water work within perennial streams.

The ODNR DOW also identified the Project is within range of the state-threatened spotted turtle (*Clemmys guttata*) and Blanding's turtles (*Emydoidea blandingii*). Based on location, the type of habitat along the project route and the type of work proposed, ODNR indicated that the Project is not likely to impact these species.

ODNR noted that the Project lies within the range of the federally endangered Indiana bat (*Myotis sodalis*). ODNR recommended that if potential suitable habitat occurs within the Project area, the trees should be conserved wherever possible. If tree clearing cannot be avoided, ODNR recommended that tree removal occur between October 1st and March 31st to avoid adverse effects to Indiana bats and other bats during the brood-rearing months. To address any potential bat roosting habitat impacts, construction of the Project will begin with tree and vegetation clearing occurring between October 1st and March 31st to minimize direct impacts to the Indiana bat and other bat species.

At the request of the Ohio Power Siting Board (OPSB), Jacobs conducted a desktop habitat assessment to determine if there are potential hibernaculum(a) present within 0.25-mile the Project area. Jacobs followed the current USFWS "Range-wide Indiana Bat Survey Guidelines" when conducting this assessment and utilized data obtained from the ODNR Mines of Ohio Viewer, ODNR geologic maps, topographic maps, and aerial photographs. During the desktop analysis, no potential karst features were identified within the Project area. The bedrock geologies in the area consist mainly of shale, siltstone, and sandstone (ODNR DGS, 1997). Overlaying soils are generally loams, with varying amounts of glacial till or deposits. During the field survey of the Project, no evidence of potential hibernaculum consisting of caves, rock outcrops, mines, cliffs, or karst features were observed. In addition to the field survey, coordination with ODNR did not identify any known bat hibernaculum or records of federal or state listed bats within a one-mile radius of the Project. Based on the desktop habitat review and the results of the field survey, it does not appear likely that potential hibernaculum exist within 0.25-mile of the Project area.

The remaining three species identified within the ODNR response letter were state-endangered birds that all appear to prefer grassland and wetland habitats. The specific habitat preferences identified by the ODNR are as follows:

- **Upland sandpiper:** Upland sandpipers prefer to nest in dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If grassland habitat will be impacted, ODNR requests construction should be avoided in this habitat during the upland sandpiper nesting period of April 15th to July 31st.
- **Sandhill Cranes:** Sandhill cranes are primarily a wetland-dependent species. On their wintering grounds, they will utilize agricultural fields; however, they roost in shallow, standing

water or moist bottomlands. On breeding grounds, they require a rather large tract of wet meadow, shallow marsh, or bog for nesting. If grassland, prairie, or wetland habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1st to September 1st.

- **Northern harrier:** The northern harrier is a common migrant species that are rare nesters in Ohio but occasionally breed in large marshes and grasslands. If grassland habitat will be impacted, ODNR requests construction should be avoided in this habitat during the northern harrier nesting period of May 15th to August 1st.

During the field survey, no large tracts of wet meadow, shallow marshes, or bogs with shallow standing water were identified which would be potentially suitable nesting habitat for the sandhill crane. Due to the lack of potentially suitable nesting habitat, impacts to the sandhill crane are not likely to occur.

At the time of the field surveys, one area of grassland/old field habitat was identified which exhibited grasses sufficient to provide potential nesting habitat for the upland sandpiper and the northern harrier. This potentially suitable nesting habitat for the upland sandpiper and northern harrier was identified between Structures 52 and 56 and is shown on the attached Habitat Land Use Maps. Based on prior conversations with ODNR, other small grassland areas along the Project were not found to be suitable habitat due to proximity near residential houses and the location of narrow grassland strips surrounded by forested areas.

FirstEnergy has indicated that the installation of the access roads and work pads within the identified grassland habitat area will take place outside of the seasonal nesting restrictions of April 1st through September 1st. If construction would be needed within the seasonal restricted months, FirstEnergy has indicated that timber matting would be installed along these areas prior to April 1st to avoid impacts to these potential nesting bird species. The installation of the access roads prior to April 1st will inhibit any potential bird species from nesting within the work areas of the Project.

Through FirstEnergy's installation of access roads outside of the restricted nesting period in grassland areas and tree clearing activities being conducted between October 1st and March 31st, FirstEnergy and Jacobs believe that the proposed Project will not adversely impact any state-listed species. Please review the Project details provided above and the attached figures. Jacobs requests concurrence from the ODNR that the Project, as proposed with the avoidance and minimization measures, will not likely adversely affect state-listed bird and bat species.

Ohio Department of Natural Resources
Page 4
March 1, 2022

If you have any questions or require additional information, please contact Benjamin Otto at (513) 595-7808 or ben.otto@jacobs.com.

Sincerely,

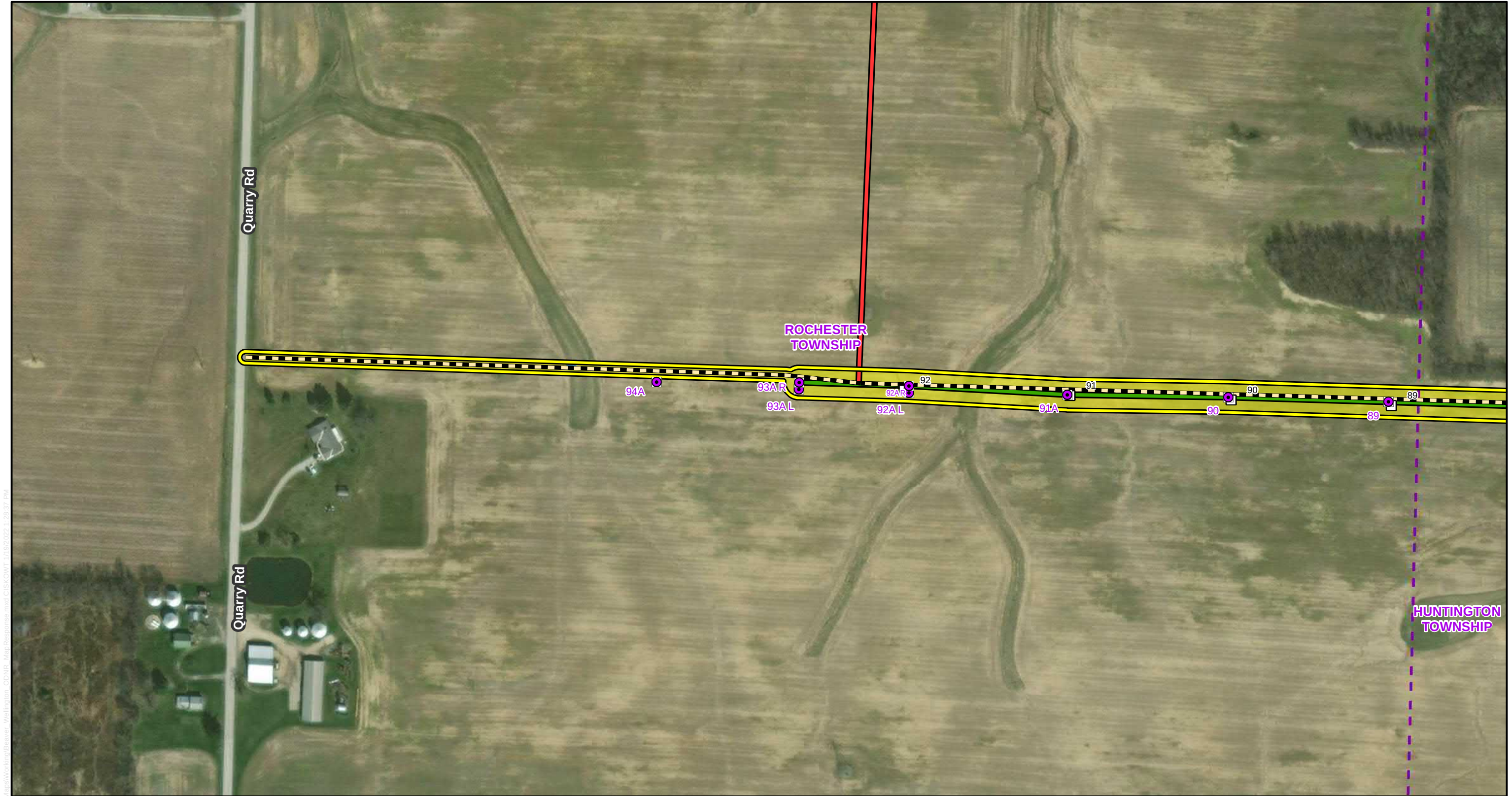
A handwritten signature in black ink, appearing to read "Benjamin Otto", with a long horizontal flourish extending to the right.

Benjamin Otto
Senior Ecologist/Project Manager

cc: Auggie Ruggiero, FirstEnergy

Attachments:

Attachment 1: Habitat Land Use Maps



LEGEND:

Proposed Structures	Land Use/Habitat	Delineated Stream	Railroad
Existing 69kV Structure	Agriculture	Delineated Wetlands	Recreation
Access Road	Commerical Land	Water Resources	Residential Land
Preferred Route	Landscaped/Grass	Industrial	Pavement
Existing Beaver-Wellington 138kV	Delineated Pond	Maintained ROW-Grassland/Old Field	Woodlots
Stream			
Township			
Construction Work Area			

BASE MAP SOURCE:
ESRI World Imagery, 2016

Page 1 of 15

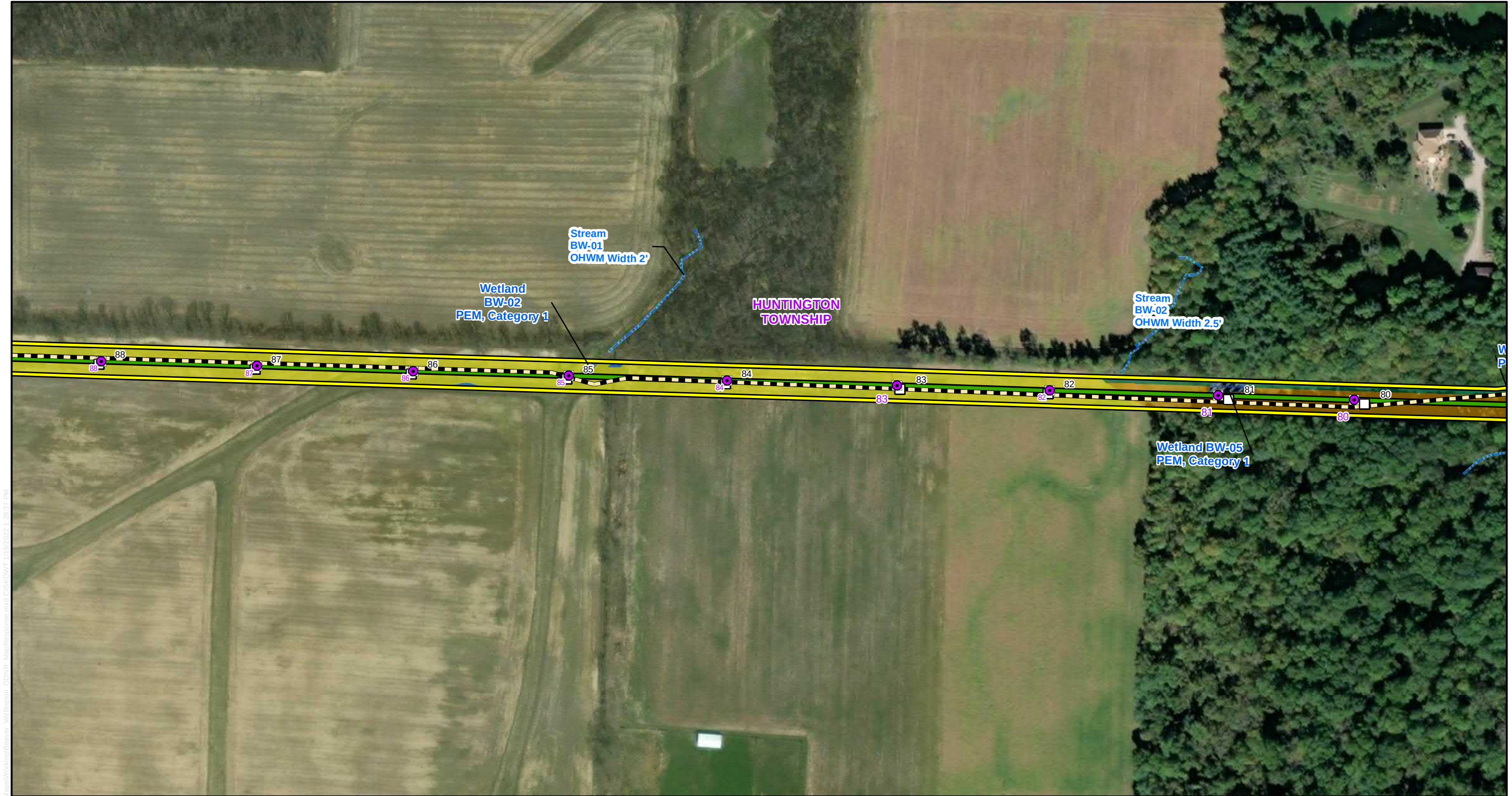
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Beaver - Wellington 138kV Transmission Line Project

Figure 1
Land Use Map

PN:	Date: 1/19/2022
CREATED BY: TCC	
REVIEWED BY: SS	

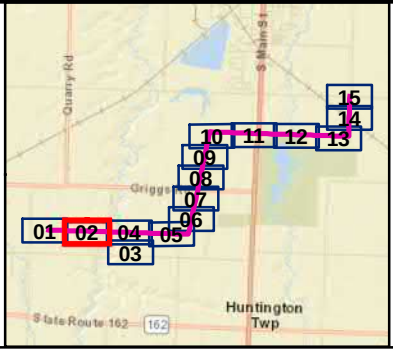
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LEGEND:

	Proposed Structures	Land Use/Habitat		Delineated Stream		Railroad
	Existing 69kV Structure			Delineated Wetlands		Recreation
	Access Road			Water Resources		Residential Land
	Preferred Route			Industrial		Pavement
	Stream			Maintained ROW-Grassland/Old Field		Woodlots
	Township		Agriculture		Delineated Pond	
	Construction Work Area		Commerical Land			
			Landscaped/Grass			



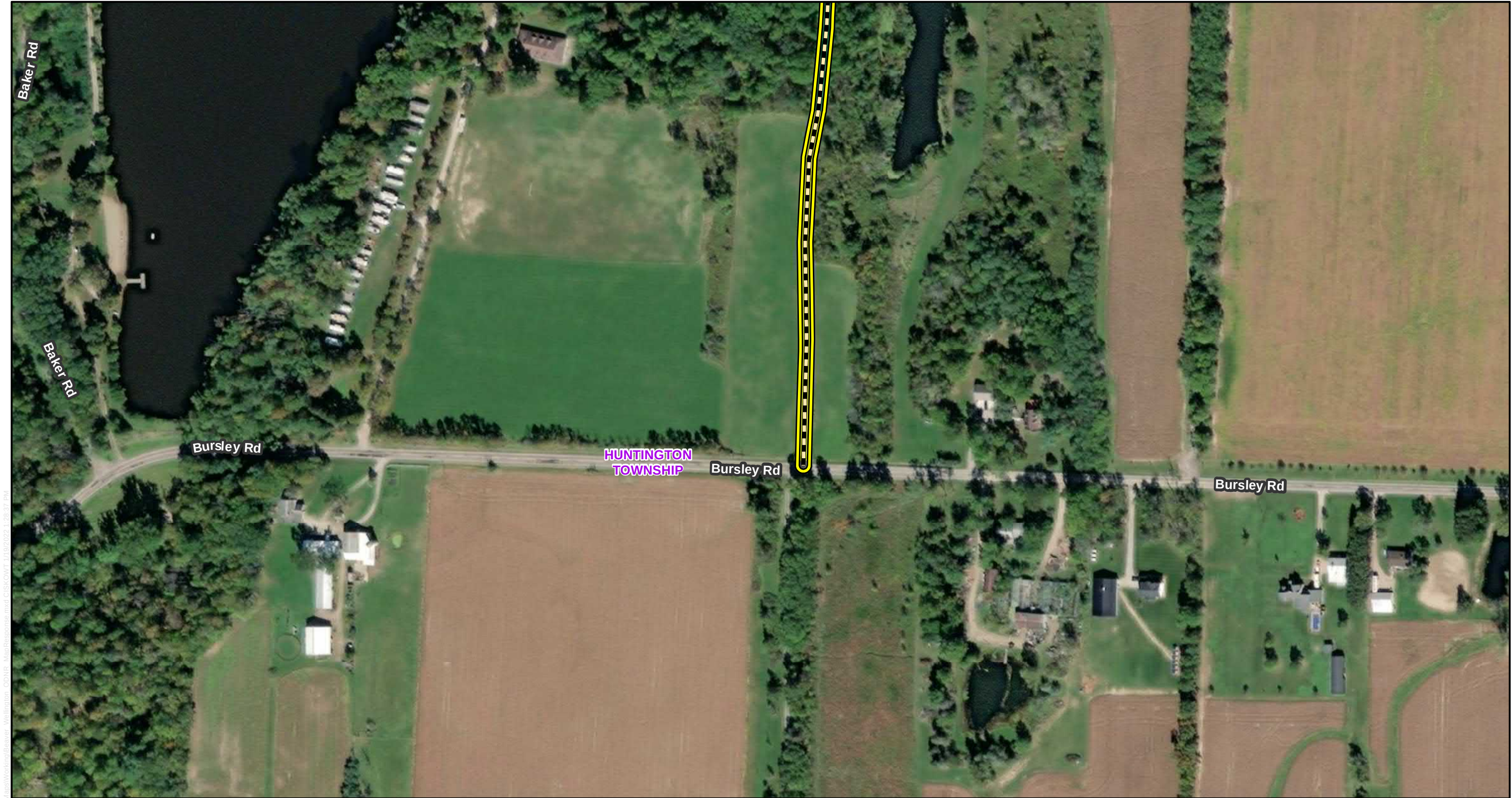
BASE MAP SOURCE:
ESRI World Imagery, 2016

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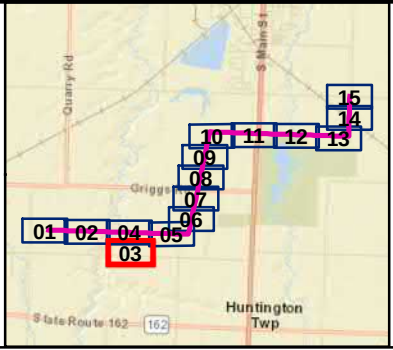
	Beaver - Wellington 138kV Transmission Line Project
Figure 2 Land Use Map	
PN:	Date: 1/19/2022
CREATED BY: TCC	
REVIEWED BY: SS	



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|--|--|--|--|
|  Access Road | Land Use/Habitat |  Delineated Stream |  Railroad |
|  Stream |  Agriculture |  Delineated Wetlands |  Recreation |
|  Township |  Commerical Land |  Water Resources |  Residential Land |
|  Construction Work Area |  Landscaped/Grass |  Industrial |  Pavement |
| |  Delineated Pond |  Maintained ROW-Grassland/Old Field |  Woodlots |



BASE MAP SOURCE:
ESRI World Imagery, 2016

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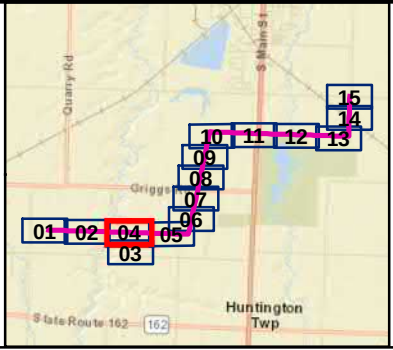
		Beaver - Wellington 138kV Transmission Line Project	
Figure 3 Land Use Map			
PN:		Date: 1/19/2022	
CREATED BY: TCC			
REVIEWED BY: SS			



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LEGEND:

- | | | | |
|-------------------------|-------------------------|------------------------------------|------------------|
| Proposed Structures | Land Use/Habitat | Delineated Stream | Railroad |
| Existing 69kV Structure | Agriculture | Delineated Wetlands | Recreation |
| Access Road | Commerical Land | Water Resources | Residential Land |
| Preferred Route | Landscaped/Grass | Industrial | Pavement |
| Stream | Delineated Pond | Maintained ROW-Grassland/Old Field | Woodlots |
| Township | | | |
| Construction Work Area | | | |

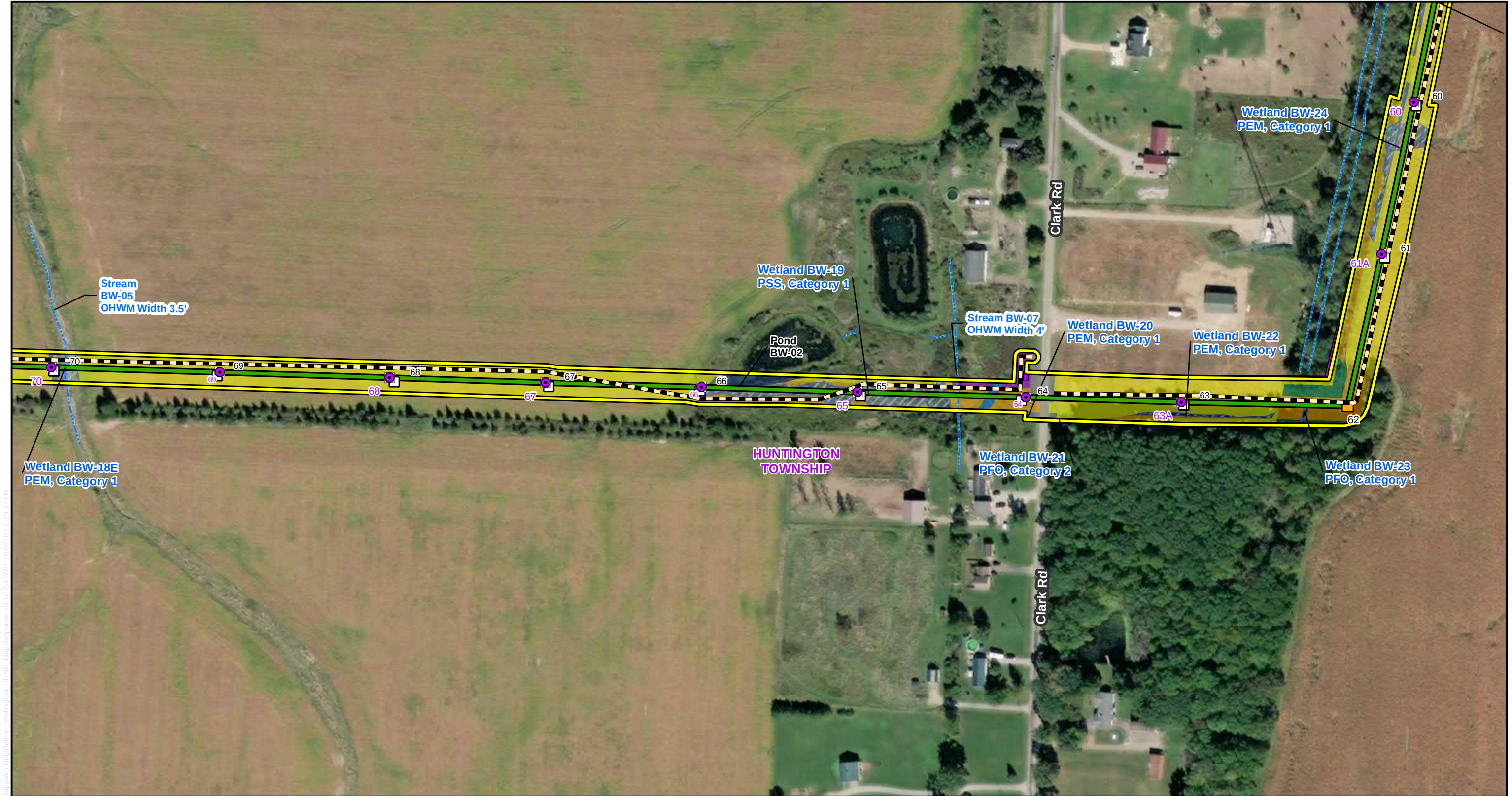


BASE MAP SOURCE:
ESRI World Imagery, 2016

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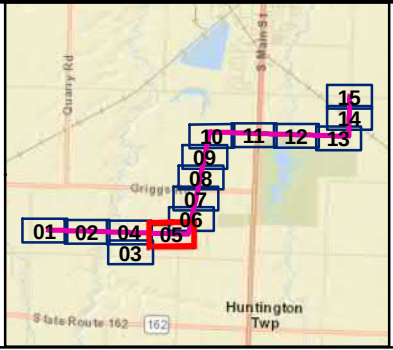
		Beaver - Wellington 138kV Transmission Line Project	
Figure 4 Land Use Map			
PN:		Date: 1/19/2022	
CREATED BY: TCC			
REVIEWED BY: SS			



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LEGEND:

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|---|-------------------------|------------------------------------|------------------|
| Proposed Structures | Land Use/Habitat | Delineated Stream | Railroad |
| Existing 69kV Structure | Agriculture | Delineated Wetlands | Recreation |
| Proposed Structure- Concrete Foundation | Commerical Land | Water Resources | Residential Land |
| Access Road | Landscaped/Grass | Industrial | Pavement |
| Preferred Route | Delineated Pond | Maintained ROW-Grassland/Old Field | Woodlots |
| Map Only- Alignment_100ft_Section | | | |
| Stream | | | |
| Township | | | |
| Construction Work Area | | | |



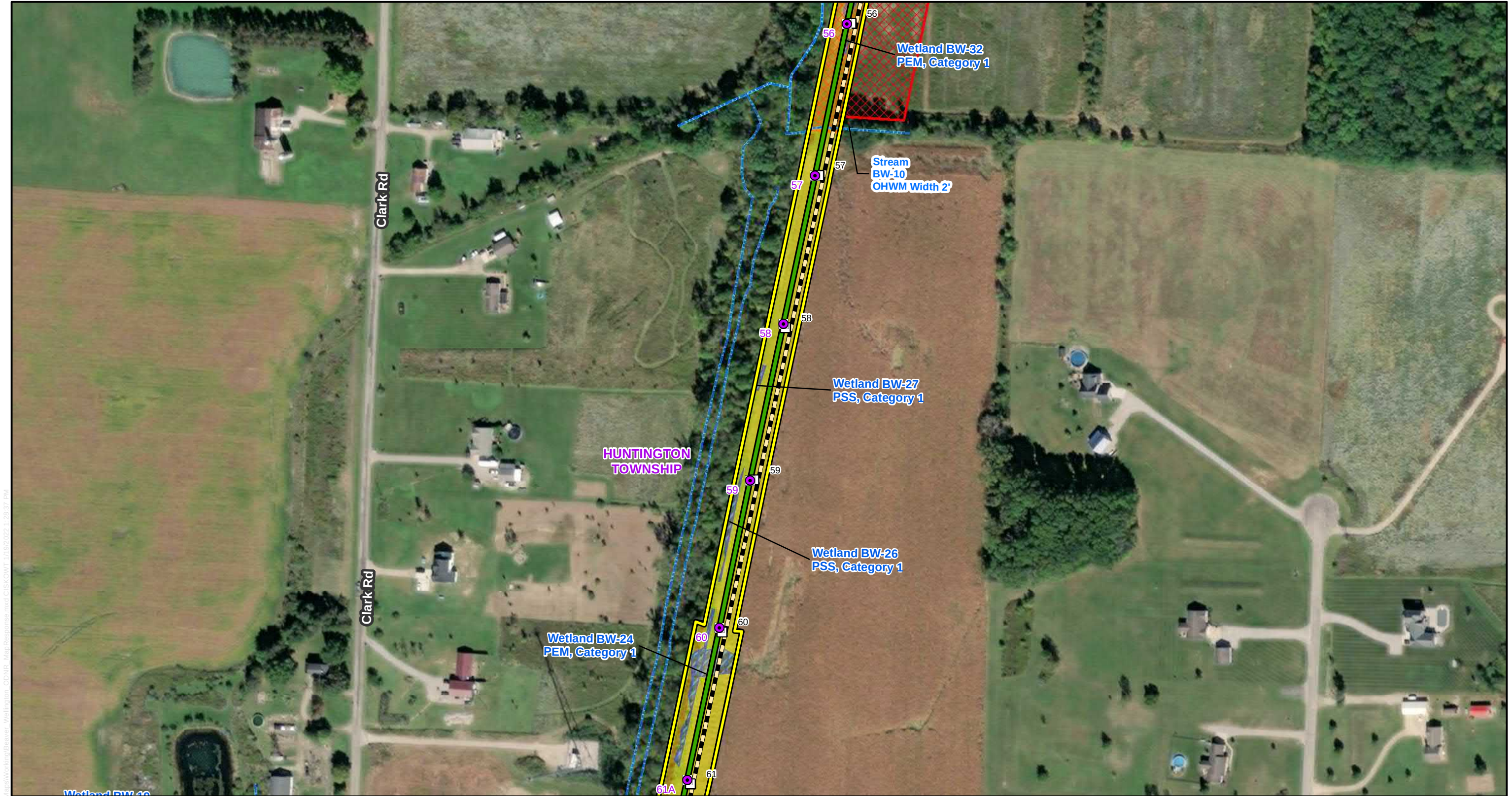
BASE MAP SOURCE:
ESRI World Imagery, 2016

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		Beaver - Wellington 138kV Transmission Line Project	
Figure 5 Land Use Map			
PN:		Date: 1/19/2022	
CREATED BY: TCC			
REVIEWED BY: SS			



LEGEND:

	Proposed Structures		Agriculture		Delineated Stream		Railroad
	Existing 69kV Structure		Commercial Land		Delineated Wetlands		Recreation
	Access Road		Landscaped/Grass		Water Resources		Residential Land
	Preferred Route		Delineated Pond		Industrial		Pavement
	Map Only- Alignment_100ft_Section				Maintained ROW-Grassland/Old Field		Woodlots
	Stream						
	Potential Upland Sandpiper/Norther Harrier Habitat						
	Township						
	Construction Work Area						

BASE MAP SOURCE:
ESRI World Imagery, 2016

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0 100 200 400
FEET

Beaver - Wellington 138kV
Transmission Line Project

Figure 6

Land Use Map

PN:

CREATED BY: TCC

REVIEWED BY: SS

Date: 1/19/2022

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LEGEND:

Proposed Structures	Land Use/Habitat	Delineated Stream	Railroad
Existing 69kV Structure	Agriculture	Delineated Wetlands	Recreation
Access Road	Commerical Land	Water Resources	Residential Land
Preferred Route	Landscaped/Grass	Industrial	Pavement
Stream	Delineated Pond	Maintained ROW-Grassland/Old Field	Woodlots
Potential Upland Sandpiper/Norther Harrier Habitat			
Township			
Construction Work Area			

BASE MAP SOURCE:
ESRI World Imagery, 2016

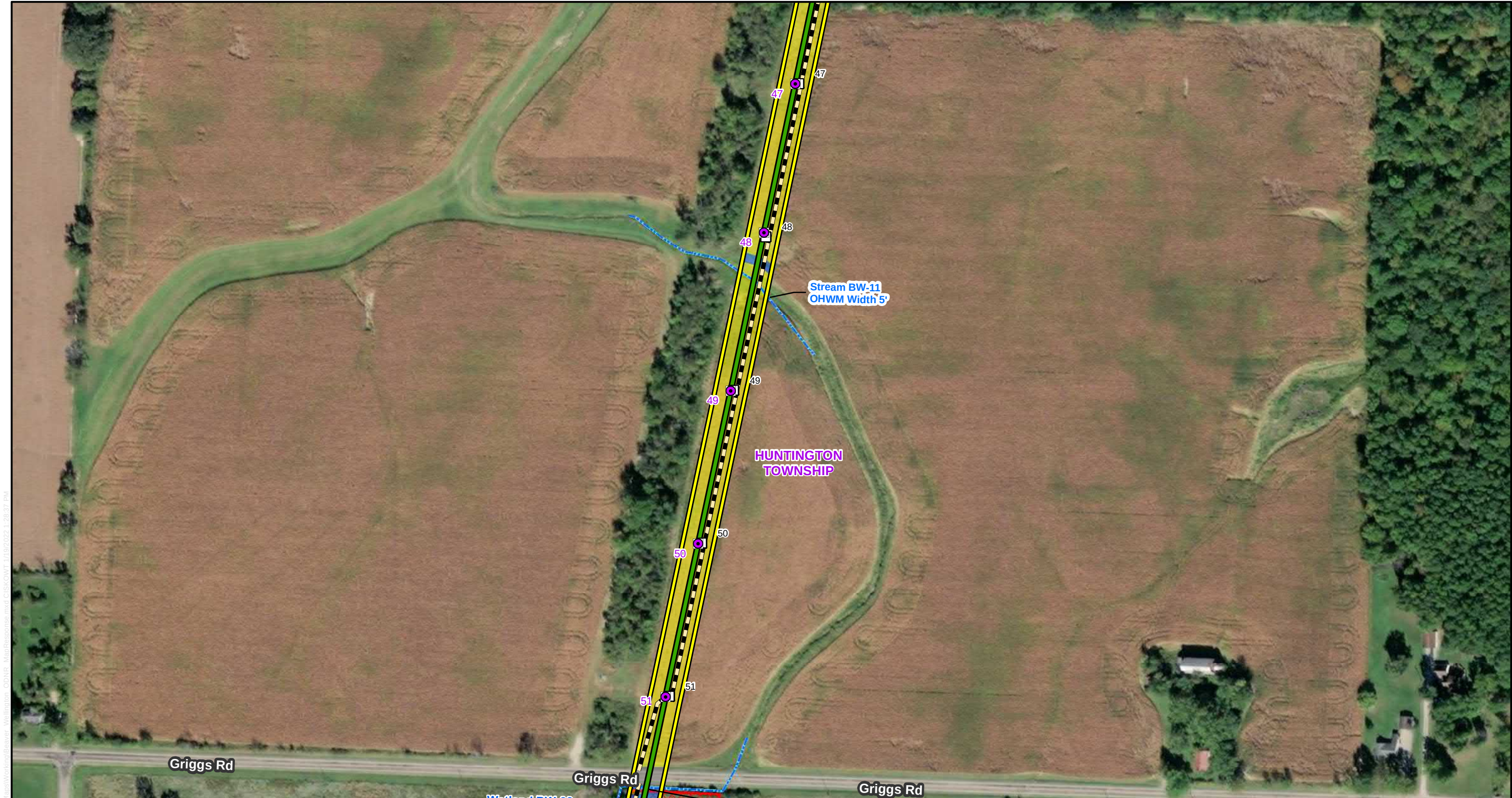
Page 7 of 15

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FEET

FirstEnergy Beaver - Wellington 138kV Transmission Line Project

Figure 7
Land Use Map

PN:	Date: 1/19/2022
CREATED BY: TCC	Jacobs
REVIEWED BY: SS	



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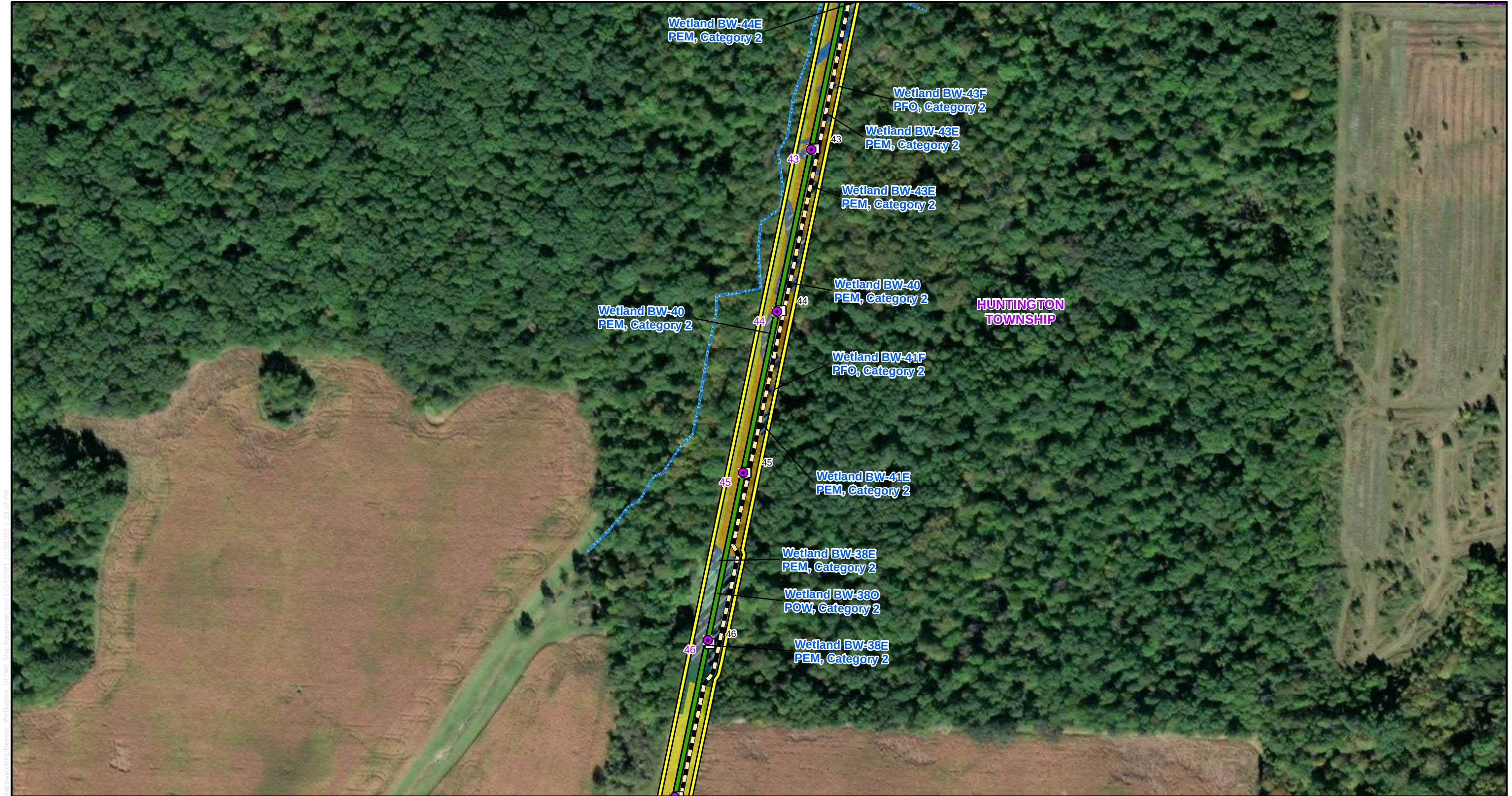
Proposed Structures	Land Use/Habitat	Delineated Stream	Railroad
Existing 69kV Structure	Agriculture	Delineated Wetlands	Recreation
Access Road	Commerical Land	Water Resources	Residential Land
Preferred Route	Landscaped/Grass	Industrial	Pavement
Stream	Delineated Pond	Maintained ROW-Grassland/Old Field	Woodlots
Potential Upland Sandpiper/Norther Harrier Habitat			
Township			
Construction Work Area			

BASE MAP SOURCE:
ESRI World Imagery, 2016

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FEET

	Beaver - Wellington 138kV Transmission Line Project
Figure 8 Land Use Map	
PN:	Date: 1/19/2022
CREATED BY: TCC	
REVIEWED BY: SS	



LEGEND:

	Proposed Structures	Land Use/Habitat		Delineated Stream		Railroad	
	Existing 69kV Structure		Agriculture		Delineated Wetlands		Recreation
	Access Road		Commerical Land		Water Resources		Residential Land
	Preferred Route		Landscaped/Grass		Industrial		Pavement
	Stream		Delineated Pond		Maintained ROW-Grassland/Old Field		Woodlots
	Township						
	Construction Work Area						

BASE MAP SOURCE:
ESRI World Imagery, 2016

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FirstEnergy Beaver - Wellington 138kV Transmission Line Project

Figure 9
Land Use Map

PN:	Date: 1/19/2022
CREATED BY: TCC	Jacobs
REVIEWED BY: SS	

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LEGEND:

Proposed Structures	Land Use/Habitat	Delineated Stream	Railroad
Existing 69kV Structure	Agriculture	Delineated Wetlands	Recreation
Proposed Structure- Concrete Foundation	Commerical Land	Water Resources	Residential Land
Access Road	Landscaped/Grass	Industrial	Pavement
Preferred Route	Delineated Pond	Maintained ROW-Grassland/Old Field	Woodlots
Map Only- Alignment_100ft_Section			
Stream			
Township			
Construction Work Area			

BASE MAP SOURCE:
ESRI World Imagery, 2016

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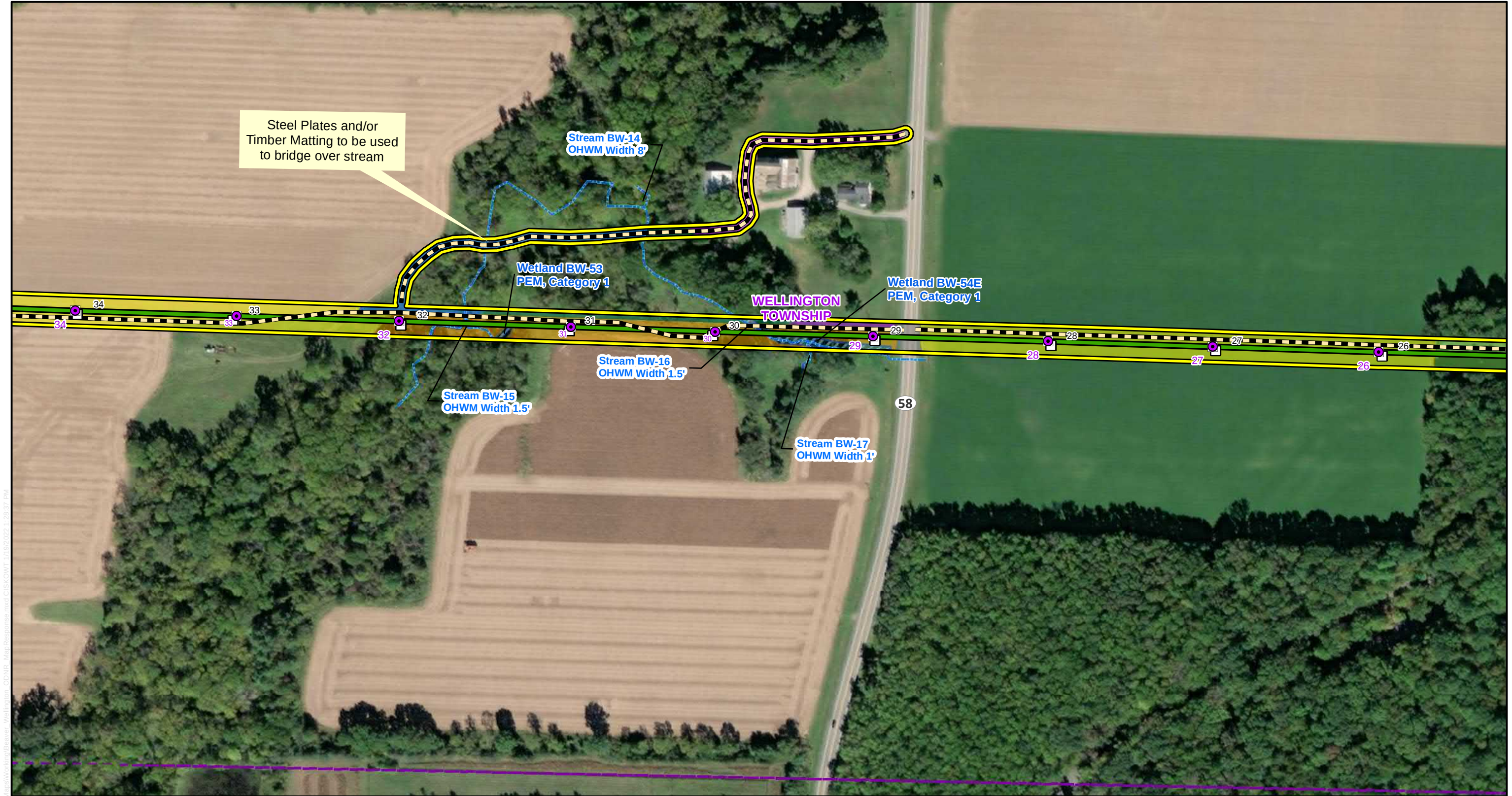
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FirstEnergy Beaver - Wellington 138kV Transmission Line Project

Figure 10
Land Use Map

PN:	Date: 1/19/2022
CREATED BY: TCC	Jacobs
REVIEWED BY: SS	

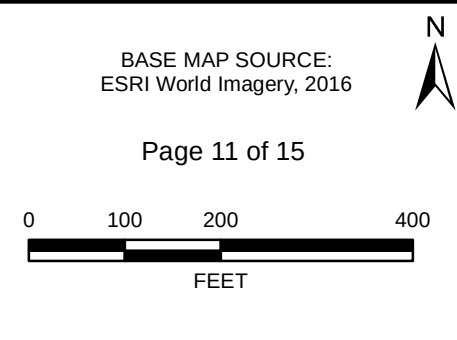
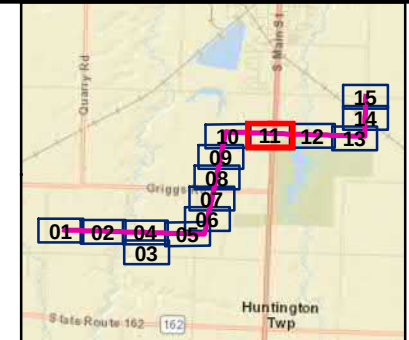
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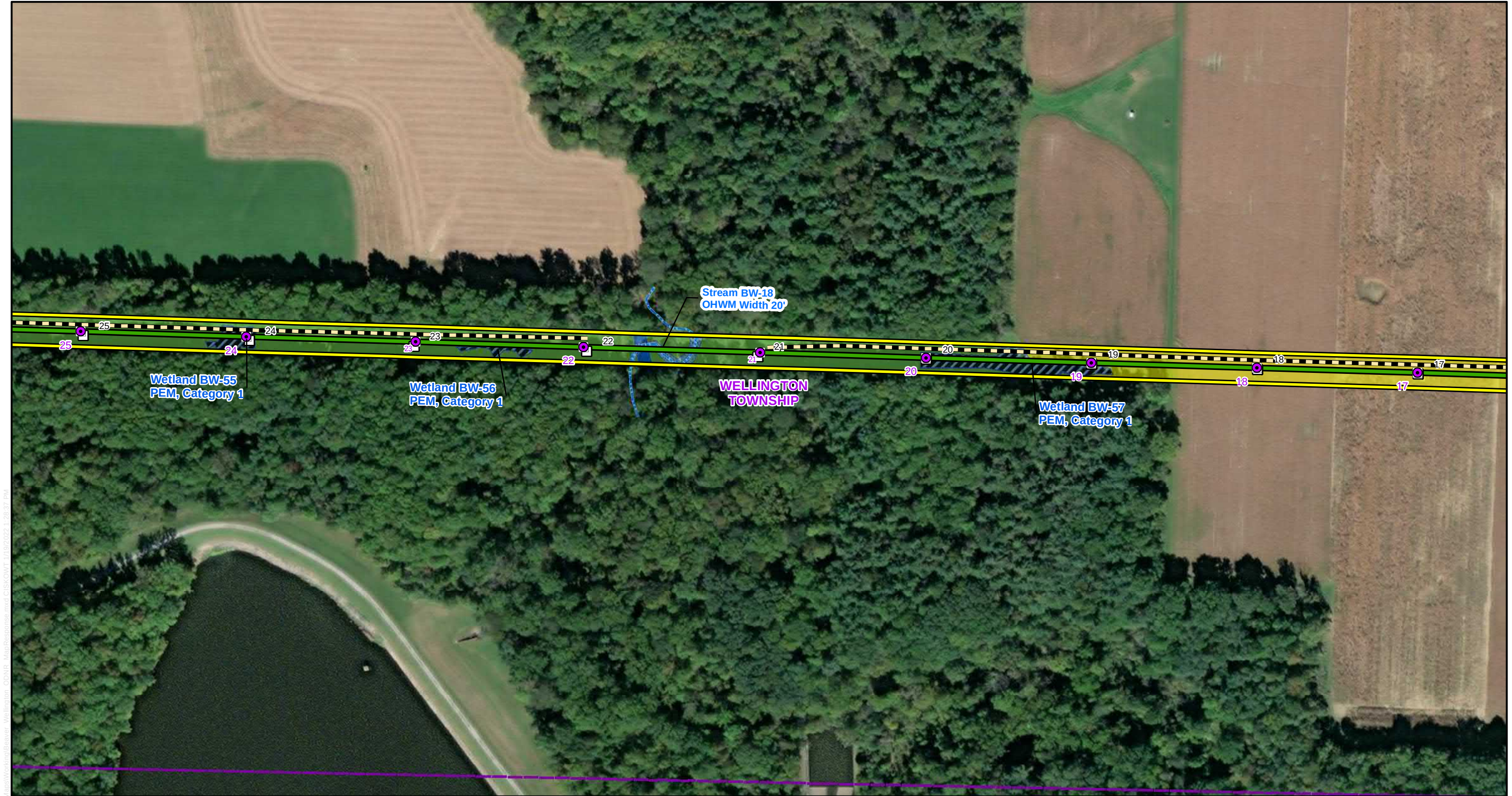
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LEGEND:

	Proposed Structures	Land Use/Habitat		Delineated Stream		Railroad
	Existing 69kV Structure			Delineated Wetlands		Recreation
	Access Road			Water Resources		Residential Land
	Preferred Route			Industrial		Pavement
	Stream		Landscaped/Grass			Woodlots
	Township		Delineated Pond			
	Construction Work Area					



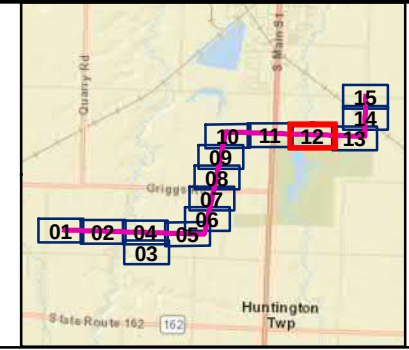
	Beaver - Wellington 138kV Transmission Line Project
Figure 11 Land Use Map	
PN:	Date: 1/19/2022
CREATED BY: TCC	
REVIEWED BY: SS	



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LEGEND:

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|-------------------------|-------------------------|------------------------------------|------------------|
| Proposed Structures | Land Use/Habitat | Delineated Stream | Railroad |
| Existing 69kV Structure | Agriculture | Delineated Wetlands | Recreation |
| Access Road | Commerical Land | Water Resources | Residential Land |
| Preferred Route | Landscaped/Grass | Industrial | Pavement |
| Stream | Delineated Pond | Maintained ROW-Grassland/Old Field | Woodlots |
| Township | | | |
| Construction Work Area | | | |

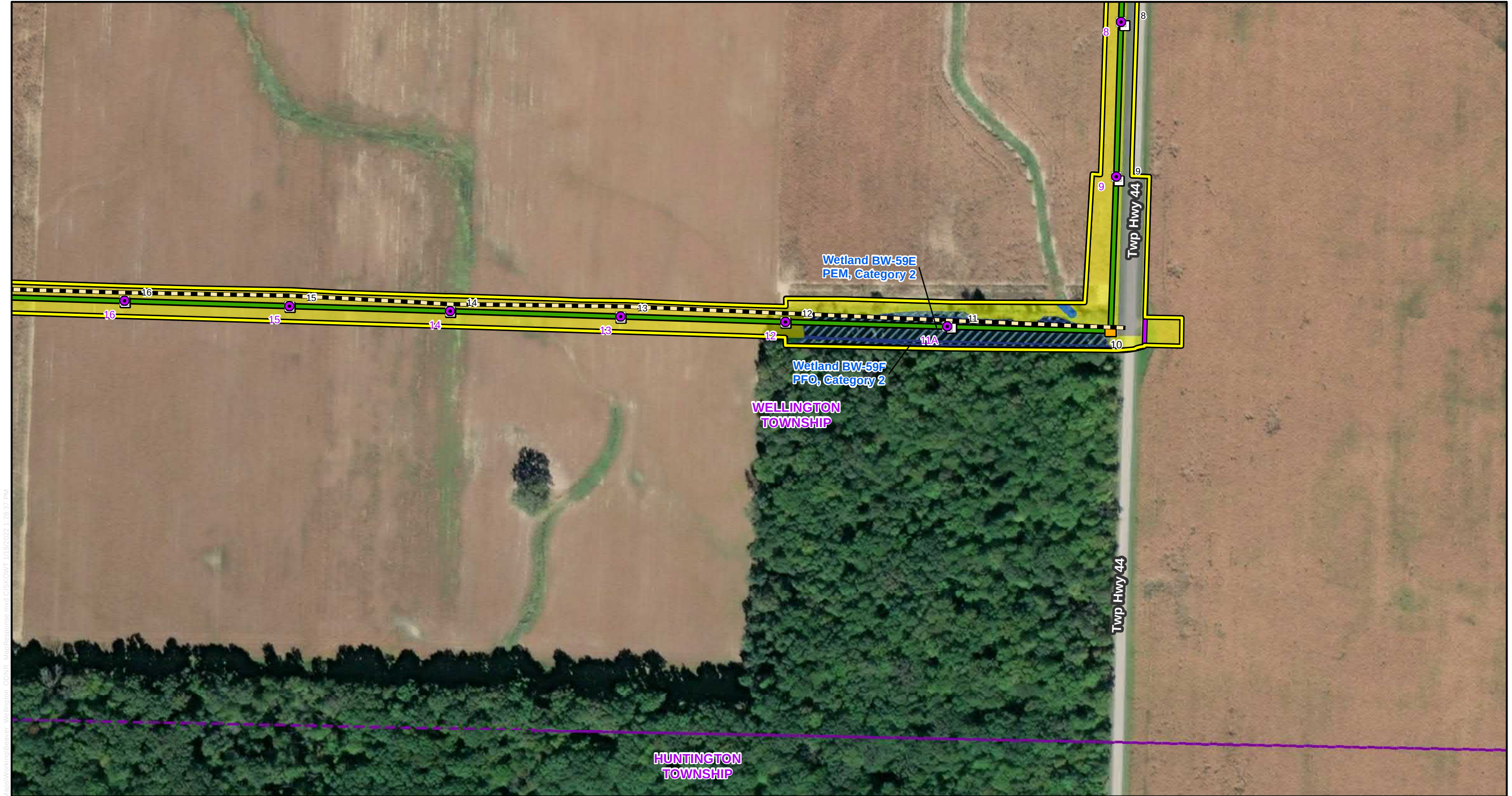


BASE MAP SOURCE:
ESRI World Imagery, 2016

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		Beaver - Wellington 138kV Transmission Line Project	
Figure 12 Land Use Map			
PN:		Date: 1/19/2022	
CREATED BY: TCC			
REVIEWED BY: SS			



LEGEND:

Proposed Structures	Land Use/Habitat	Delineated Stream	Railroad
Existing 69kV Structure	Agriculture	Delineated Wetlands	Recreation
Proposed Structure- Concrete Foundation	Commerical Land	Water Resources	Residential Land
Access Road	Landscaped/Grass	Industrial	Pavement
Preferred Route	Delineated Pond	Maintained ROW-Grassland/Old Field	Woodlots
Map Only- Alignment_100ft_Section			
Stream			
Township			
Construction Work Area			

BASE MAP SOURCE:
ESRI World Imagery, 2016

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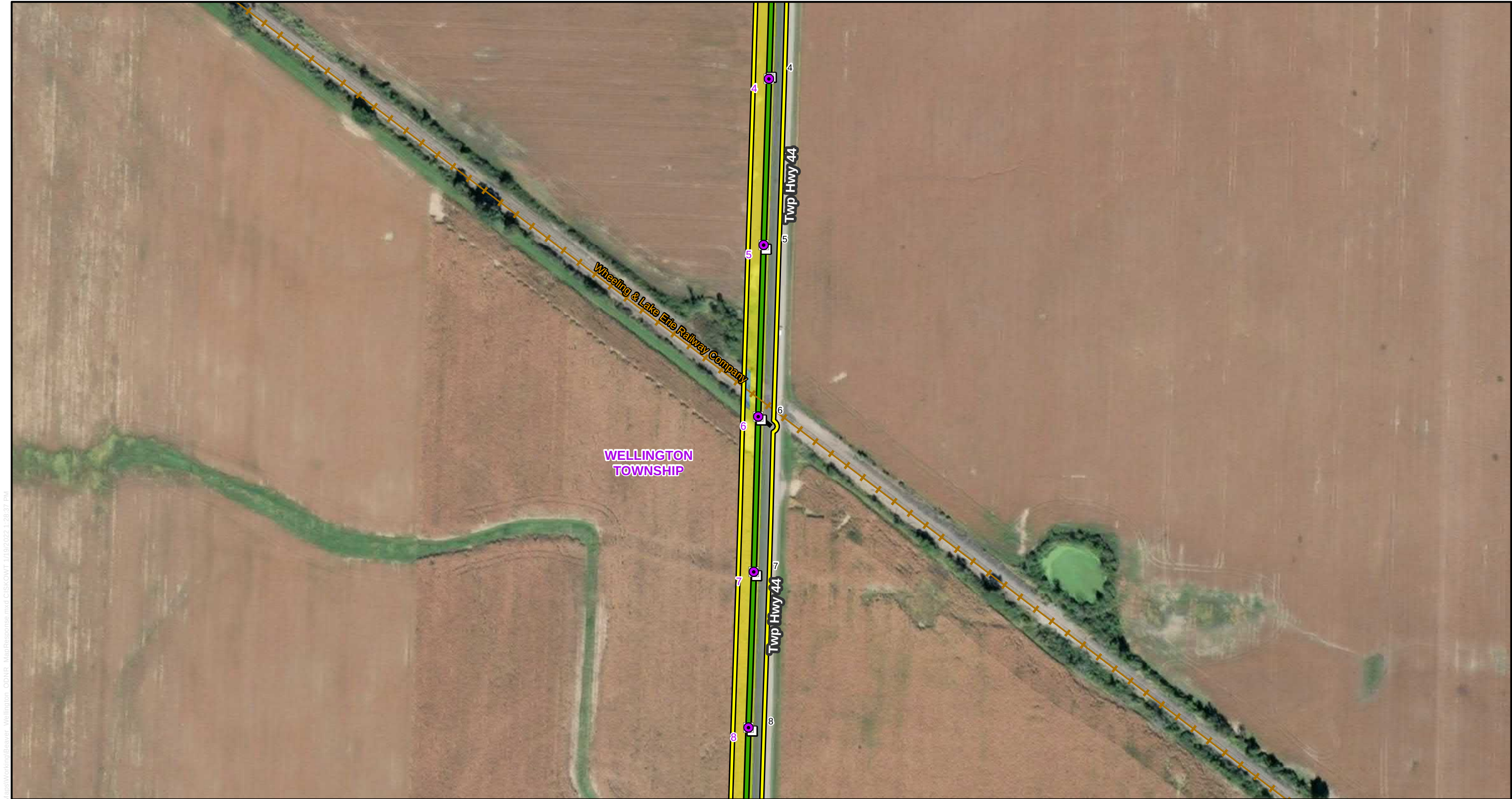
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FirstEnergy Beaver - Wellington 138kV Transmission Line Project

Figure 13
Land Use Map

PN:	Date: 1/19/2022
CREATED BY: TCC	Jacobs
REVIEWED BY: SS	

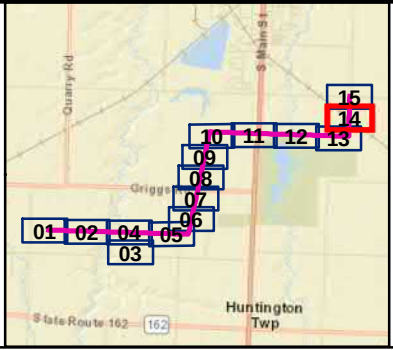
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|-------------------------|-------------------------|------------------------------------|------------------|
| Proposed Structures | Land Use/Habitat | Delineated Stream | Railroad |
| Existing 69kV Structure | Agriculture | Delineated Wetlands | Recreation |
| Access Road | Commerical Land | Water Resources | Residential Land |
| Railroad | Landscaped/Grass | Industrial | Pavement |
| Preferred Route | Delineated Pond | Maintained ROW-Grassland/Old Field | Woodlots |
| Stream | | | |
| Township | | | |
| Construction Work Area | | | |

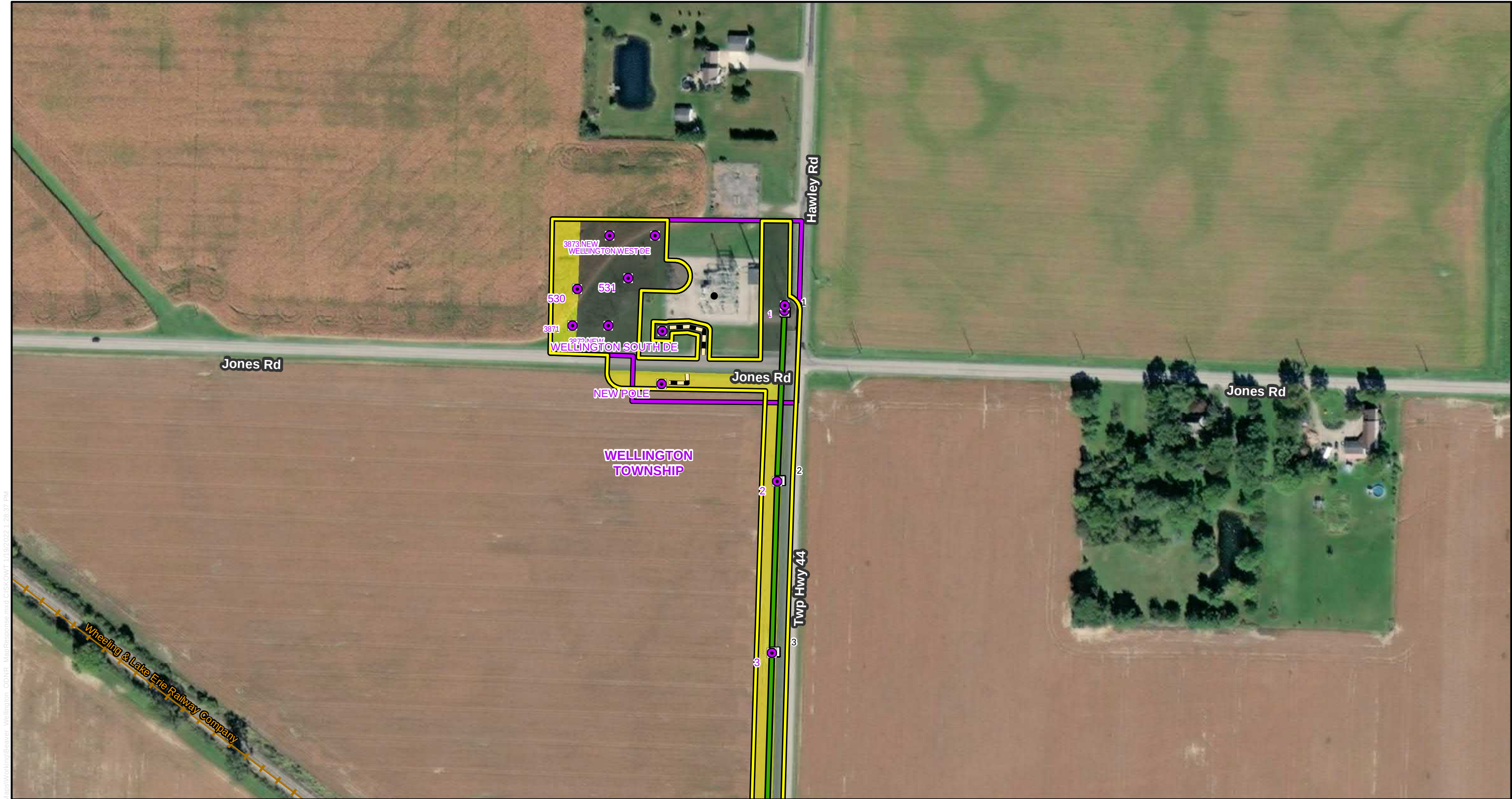


BASE MAP SOURCE:
ESRI World Imagery, 2016

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		Beaver - Wellington 138kV Transmission Line Project	
Figure 14 Land Use Map			
PN:		Date: 1/19/2022	
CREATED BY: TCC			
REVIEWED BY: SS			



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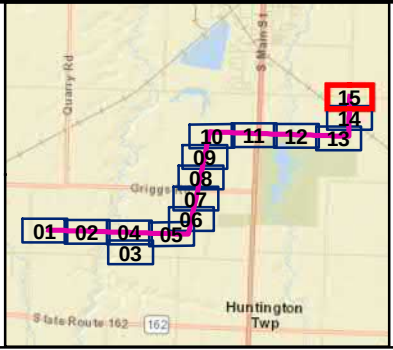
- Proposed Structures
- Existing 69kV Structure
- Access Road
- Substation
- Railroad
- Preferred Route
- Map Only- Alignment_100ft_Section
- Stream
- Township
- Construction Work Area

Land Use/Habitat

- Agriculture
- Commerical Land
- Landscaped/Grass
- Delineated Pond

- Delineated Stream
- Delineated Wetlands
- Water Resources
- Industrial
- Maintained ROW-Grassland/Old Field

- Railroad
- Recreation
- Residential Land
- Pavement
- Woodlots



BASE MAP SOURCE:
ESRI World Imagery, 2016

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Beaver - Wellington 138kV
Transmission Line Project

Figure 15

Land Use Map

PN:

Date: 1/19/2022

CREATED BY: TCC

REVIEWED BY: SS

Fashingbauer, Karin/CHC

From: Nathan.Reardon@dnr.ohio.gov
Sent: Tuesday, March 8, 2022 7:25 AM
To: Lubbers, Jake
Cc: Otto, Ben/CIN; Ruggiero, Augustine (Jirousek, Michael J.); Bagato, Steven; Mike.Pettegrew@dnr.ohio.gov
Subject: [EXTERNAL] RE: 20-287; Beaver-Wellington 138 kV Transmission Line Project Follow-Up

Hello Jake,

The DOW concurs that the minimization measures outlined in the ODNR Follow-up letter are sufficient in avoiding/minimizing impacts to state listed species. If you have any questions, please let me know.

Thank you,
Nathan



Nathan Reardon
Compliance Coordinator
ODNR Division of Wildlife
2045 Morse Road
Columbus, OH 43229
Phone: 614-265-6741
Email: nathan.reardon@dnr.ohio.gov

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Please consider the environment before printing this email.

From: Lubbers, Jake <Jake.Lubbers@jacobs.com>
Sent: Tuesday, March 1, 2022 5:03 PM
To: Pettegrew, Mike <Mike.Pettegrew@dnr.ohio.gov>
Cc: Tebbe, Sarah <sarah.tebbe@dnr.ohio.gov>; Otto, Ben/CIN <Ben.Otto@jacobs.com>; Ruggiero, Augustine (Jirousek, Michael J.) <Aruggiero@firstenergycorp.com>; Bagato, Steven <sbagato@burnsmcd.com>
Subject: 20-287; Beaver-Wellington 138 kV Transmission Line Project Follow-Up

Dear Mr. Pettegrew,

On behalf of American Transmission Systems Inc. (ATSI), a subsidiary of FirstEnergy Service Company (FirstEnergy), Jacobs Engineering Group, Inc. (Jacobs) is submitting this follow up letter report to the ODNR in response to comments provided by ODNR on April 27, 2020 regarding the proposed Beaver-Wellington 138 kV Transmission Line Project (Project) in Lorain County, Ohio. Please find the attached letter report requesting concurrence from the ODNR that the

Project, as proposed with the avoidance and minimization measures, will not likely adversely affect state-listed bird and bat species.

Please let us know if you have any questions or need any additional information for your review.

Thank you,

Jake Lubbers | [Jacobs](#) | Environmental Permitting Scientist

859-652-2160 | jake.lubbers@jacobs.com

2 Crowne Point Court, Suite 100 | Cincinnati, OH 45241 | United States

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Ohio Historic Preservation Office



In reply refer to:
2020-LOR-47668

October 27, 2021

Karin S. Fashingbauer, Project Manager
Jacobs Engineering Group, Inc.
2 Crowne Point Court, Suite 100
Cincinnati, Ohio 45241
Email: karin.fashingbauer@jacobs.com

RE: Section 106 Review-Beaver-Wellington 138kV Transmission Line Project, Lorain County, Ohio.

Dear Ms. Fashingbauer:

This letter is in response to the correspondence received on October 7, 2021 regarding the proposed 6.02-mile long Beaver-Wellington 138kV Transmission Line Project in Lorain County, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code (O.R.C.) and the Ohio Power Siting Board rules for siting this project (OAC 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The proposed undertaking involves the installation of a new 138kV transmission line within a proposed 65- to 100-ft. wide by 6.02-mile right-of-way (ROW) corridor, including access roads, which is defined as the direct Area of Potential Effect (APE). The following review and comments pertain only to the *Phase I Archaeological Reconnaissance for the Beaver-Wellington, 138 kV Transmission Line Project in Lorain County, Ohio* by Jacobs Engineering Group, Inc. (Jacobs 2021). The architectural component has been submitted in a stand-alone report, and therefore the review will be under a separate cover.

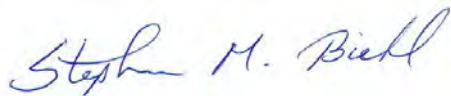
The archaeological survey involved a literature review, shovel test unit excavations, surface collection, and visual inspection of the entire APE, as defined above. A total of 204 shovel test units were excavated within the APE. Two previously unrecorded archaeological sites were identified within the APE and were assigned Ohio Archaeological Inventory (OAI) numbers 33LN400 and 33LN402. Site 33LN400 is a low-density (n=3), lithic scatter consisting of non-diagnostic flakes (n=2) and a flake tool. Site 33LN402 represents an isolated find consisting of a non-diagnostic lithic flake. After careful review of the archaeological report, our office concurs with Jacobs that sites 33LN400 and 33LN402 are not considered eligible for the National Register of Historic Places (Criterion D). Therefore, as proposed, the project will have no effect on significant archaeological resources. Furthermore, the SHPO also concurs that, as proposed, no further archaeological investigations are warranted for the 6.02-mile APE. No further coordination in regards to archaeology are required for this project unless the scope of work changes or new/additional archaeological remains are discovered during the course of the project. In such a situation, this office should be contacted as required by O.R.C. and by 36 CFR § 800.13. If you have any questions concerning this review, please contact me via email at sbiehl@ohiohistory.org. Thank you for your cooperation.

2020-LOR-47668

October 27, 2021

Page 2

Sincerely,



Stephen M. Biehl, Project Reviews Coordinator (archaeology)
Resource Protection and Review
State Historic Preservation Office

RPR Serial No. 1090379

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



In reply refer to:
2020-LOR-47668

December 13, 2021

Karin S. Fashingbauer, Project Manager
Jacobs Engineering Group, Inc.
2 Crowne Point Court, Suite 100
Cincinnati, Ohio 45241
Email: karin.fashingbauer@jacobs.com

RE: Section 106 Review-Addendum to Beaver-Wellington 138kV Transmission Line Project, Lorain County, Ohio.

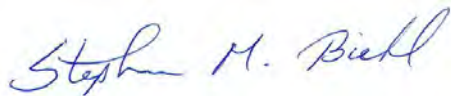
Dear Ms. Fashingbauer:

This letter is in response to the correspondence received on November 30, 2021 regarding the addendum Phase I archaeological reconnaissance survey to the Beaver-Wellington 138kV Transmission Line Project in Lorain County, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code (O.R.C.) and the Ohio Power Siting Board rules for siting this project (OAC 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The current addendum project involves the addition of new access roads, work areas, and a laydown yard totaling approximately 5.14-acres, which was considered to be the direct Area of Potential Effect (APE) for the project. The access roads were considered 25-ft in total width along the entire length. The archaeological survey involved an updated literature review, shovel test unit excavations, surface collection, and visual inspection of the entire APE, as defined above. One previously documented archaeological site, 33LN400, was relocated during this project. Site 33LN400 was originally documented during the original Phase I archaeological survey for the Beaver-Wellington 138kV transmission line project. It was documented as a low-density pre-contact lithic scatter consisting of non-diagnostic flakes (n=2) and a flake tool. After review of the original Phase I survey, our office concurred that site 33LN400 was not considered eligible for the National Register of Historic Places (NRHP) under Criterion D. The current addendum survey identified two additional artifacts during shovel testing for the substation expansion area. These artifacts include a non-diagnostic biface fragment and a chert flake. The identification of these additional artifacts has expanded the original site boundary. After careful review of the archaeological addendum report, our office continues to concur with Jacobs that site 33LN400 is not considered eligible for the NRHP under Criterion D. Therefore, as proposed, the addendum project will have no effect on historic properties. Furthermore, the SHPO also concurs that, as proposed, no further archaeological investigations are warranted for the project unless the scope of work changes or new/additional archaeological remains are discovered during the course of the project. In such a situation, this office should be contacted as required by O.R.C. and by 36 CFR § 800.13. If you have any questions concerning this review, please contact me via email at sbiehl@ohiohistory.org. Thank you for your cooperation.

2020-LOR-47668
December 13, 2021
Page 2

Sincerely,



Stephen M. Biehl, Project Reviews Coordinator (archaeology)
Resource Protection and Review
State Historic Preservation Office

RPR Serial No. 1091022

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



GEOTECHNICAL ENGINEERING REPORT

BROOKSIDE-WELLINGTON 138KV LINE REBUILD Lorain County, OH

Prepared For:
FirstEnergy

GPD Project No. 2022821.59
October 19, 2022



Delbert J. Channels
10/19/2022

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SECTION 1

1.0 Introduction

GPD Group is pleased to submit this Geotechnical Report for the aforementioned project. The purpose of this study was to obtain information on the subsurface conditions at the proposed project site and based on this information, to provide geotechnical recommendations regarding the design and construction of foundations for the transmission line structures associated with the Brookside-Wellington 138kV Line Rebuild. A total of two (2) borings extending to depths of approximately 50 feet below the existing ground surface were drilled at the project site. Individual boring logs and a Boring Location Plan are attached.

1.1 Project Description

We understand the project will consist of a rebuilding the existing 138kV transmission line between the existing Wellington substation and the existing Brookside Substation located in Lorain County, Ohio. The subsurface investigation is to evaluate the subsurface conditions at two structure locations.

1.2 Purpose and Scope

The purposes of this report were to investigate subsurface conditions along the proposed transmission Line and to provide geotechnical engineering recommendations for earthwork and foundation design. Specifically, the scope of work included the following:

- ❖ Conducting a field exploration program consisting of site reconnaissance and drilling sample borings at selected locations along the transmission line to explore subsurface conditions and collect soil samples.
- ❖ Conducting geotechnical engineering laboratory test on sampled soils to assist with soil classifications and estimation of engineering properties.
- ❖ Develop geotechnical engineering recommendations for the design and construction of foundations, retaining structures and earthwork for site grading.

SECTION 2

2.0 Site Conditions

The transmission line rebuild will be along the existing Wellington-Brookside 138kV line located in Lorain County. In general, the boring locations were advanced in agricultural fields.

2.1 Subsurface Exploration Program

The subsurface exploration consisted of drilling and sampling two (2) borings at the site to a depth of 50.0 feet below existing grade. The boring locations were laid out by GPD personnel using coordinates provided in the RFP. The locations of the borings should be considered accurate only to the degree implied by the means and methods used to define them. Borings were offset to maintain clearance to energized lines.

The borings were drilled with a track-mounted rotary drill rig using hollow-stem augers and safety hammer and cat head to advance the boreholes. Representative soil samples were obtained by the split-barrel and Shelby tube sampling procedure in general accordance with the appropriate ASTM standards. In the split-barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler the last 12 inches of the typical total 18-inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance value (N-Value). This value is used to estimate the in-situ relative density of cohesion-less soils and the consistency of cohesive soils. In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge is pushed hydraulically into the soil to obtain a relatively undisturbed sample of cohesive or moderately cohesive soil. The sampling depths and penetration distance, plus the standard penetration resistance values, are shown on the boring logs. The samples were sealed and returned to the laboratory for testing and classification.

Field logs of each boring were prepared by a GPD Geologist. These logs included visual classifications of the materials encountered during drilling as well as the geologist's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent an interpretation of the field logs and include modifications based on observations made by a senior Geotechnical Engineer and the results of laboratory testing.

2.2 Laboratory Testing

The samples were classified in the laboratory based on visual observation, texture and plasticity. The descriptions of the soils indicated on the boring logs are in accordance with the enclosed General Notes and the Unified Soil Classification System. A brief description of this classification system is attached to this report.

The laboratory testing program consisted of performing the following tests:

- ❖ Natural water content tests (ASTM D-2216)
- ❖ Atterberg Limits (ASTM D-4318)
- ❖ Unconfined Compressive Strength (ASTM D-2166)
- ❖ Unit Weight (ASTM D-7263)
- ❖ Chemical Suite (Various)

Information from these tests was used in conjunction with field penetration test data to evaluate soil strength in-situ, volume change potential, and soil classification. Results of these tests are attached and provided on the boring logs.



Per the technical guidelines two (2) grab samples were obtained from each boring for environmental testing. The samples were sent to the FirstEnergy Beta lab for testing of polychlorinated biphenyls and total petroleum hydrocarbons.

2.3 Subsurface Conditions

All borings were drilled in brush or agricultural fields with topsoil thickness on the order of about 7 to 12 inches. The surface was generally underlain by varying combinations and sequences of silt and clay with lesser sand extending to boring termination depths of 50.0 feet. Where sampled the soils were damp to moist and medium dense, where granular and medium stiff to hard where cohesive.

2.3.1 Groundwater Conditions

The borings were monitored while drilling and immediately after completion for the presence and level of groundwater. Water levels observed in the borings are noted on the boring logs. At these times, groundwater was observed at a depth of 24 and 24.5 feet below the ground surface. These water level observations provide an approximate indication of the groundwater conditions existing on the site at the time the borings were drilled.

It should be recognized that fluctuations of the groundwater table may occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

SECTION 3

3.0 Engineering Recommendations

The following engineering recommendations are based on information provided to GPD Group regarding the design of the proposed project, the field and laboratory testing performed on the soil encountered at this site, and other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, GPD should be immediately notified so that further evaluation and supplemental recommendations can be provided.

3.1 Geotechnical Considerations

Based on the information obtained during the course of this study, the following geotechnical considerations should be taken into account during the planning, design and construction phases of the project. These geotechnical considerations are provided as a summary of the primary issues we believe are associated with this site. This report must be read in its entirety for a full description of our geotechnical recommendations:

- ❖ Contingent upon proper site preparation and thorough evaluation of the foundation excavations, it is our opinion that the proposed structures can be supported on drilled piers.

The following report sections provide detailed recommendations regarding the geotechnical considerations presented above. In the event changes in the project design occur, GPD Group must review this report to determine if modifications to our recommendations are warranted.

3.2 Fill Material

Any fill or backfill required should be select material, as approved by a qualified geotechnical engineer. For all filling operations, the following should be observed:

- ❖ Prior to use, the approved fill material should be tested as outlined in ASTM D-698 to determine the maximum dry density and optimum moisture content for silty or cohesive soils, or ASTM D-4253 and D-4254 for clean granular soils. For each change in borrow material, additional tests will be required.
- ❖ For all fill or backfill used, the fill material should be placed on the approved subgrade in controlled lifts, with each lift compacted to a stable condition, and to a minimum of 98% maximum dry density per ASTM D-698 at a moisture content within 1.5% of optimum for cohesive or silty borrow. Controlled lifts of granular material should be compacted to 80% relative density per ASTM D-4254.
- ❖ All filling operations should be observed by a qualified soils technician with field density tests made, to assure compaction to specification.

Backfill may consist of mixes of natural soil or crushed aggregate meeting one of the following USCS Classifications: GW, GP, GM, GC, SW, SP, SM, SC, CL, ML, any dual symbol combinations of the preceding. Backfill material should contain a maximum organic content of 1 percent, and a maximum particle size of 3-inches. Generally, excavated site soils are considered acceptable.

Proper moisture control of fine grained silty soils is critical in attaining the required compaction. It should be noted that both in-situ soils and new fill composed of fine grained soils are susceptible to disturbance by construction equipment traffic when wet. Thus, construction operations should be planned to prevent such disturbance and the resulting weakening of the subgrade soils. Such precautions would include, but not be limited to grading the site to prevent ponding of water, sealing the subgrade soils at the end of operations each day, and allowing wet subgrades to dry before operating heavy equipment on the soil.

Compaction equipment and techniques will be dependent on the type of material being used as fill. A sheepsfoot roller should provide adequate compaction for cohesive (clayey) soils. A vibratory type compactor such as a drum roller will be required for non-cohesive (sandy) soils.

3.3 Foundation Systems

It is our understanding that drilled piers will be used to support the proposed structures.

3.3.1 Drilled Concrete Piers/Direct Embed Poles

Straight shaft drilled piers or direct embed poles may be used to support the planned structures. The piers/poles may bear at any practical depth below frost depth which provides the required resistance, and can be sized to support compression and resist uplift using the following estimated properties:

Table 1: Soil Design Parameters (B-1)

Layer Number	Layer Type	Depth to Bottom of Layer (ft)	Total Unit Weight (pcf)	Deformation Modulus (ksi)	Friction Angle (ϕ)	Undrained Shear Strength or Rock Cohesion (psf)	Rock / Concrete Bond Strength (ksf)	End Bearing Strength of Bottom Layer (psf)
1 ¹	CL	3	115	---	---	1,250	---	---
2 ¹	CL	6	110	0.50	---	750	--	3,750
3	CL-ML	8	139	4.00	---	5,365	---	9,000
4	CL-ML	13	125	1.70	---	2,750	---	13,750
5	CL-ML	16	130	2.20	---	3,500	---	17,500
6	CL-ML	22	125	1.40	---	2,000	---	18,000
7	CL	27	130	0.80	---	1,500	---	13,500
8	CL	32	135	1.40	---	2,000	---	18,000
9	CL	37	130	0.80	---	1,500	---	13,500
10	CL	42	135	1.60	---	2,500	---	22,500
11	CL	47	140	2.35	---	3,750	---	30,000
12	CL	50	140	2.20	---	3,500	---	30,000

¹ The upper 42 inches of soil should be ignored due to potential effects of frost action as well as construction disturbance.

Table 2: Soil Design Parameters (B-2)

Layer Number	Layer Type	Depth to Bottom of Layer (ft)	Total Unit Weight (pcf)	Deformation Modulus (ksi)	Friction Angle (ϕ)	Undrained Shear Strength or Rock Cohesion (psf)	Rock / Concrete Bond Strength (ksf)	End Bearing Strength of Bottom Layer (psf)
1 ¹	ML	3	115	---	33	---	---	---
2 ¹	CL-ML	6	125	1.40	---	2,000	--	10,000
3	CL-ML	11	125	1.70	---	2,750	---	13,750
4	CL	13	130	1.60	---	2,500	---	12,500
5	CL	17	125	1.10	---	1,750	---	8,750
6	CL	22	125	0.70	---	1,000	---	9,000
7	CL-ML	32	130	0.80	---	1,500	---	13,500
8	CL-ML	37	135	1.40	---	2,000	---	18,000
9	CL-ML	42	135	1.80	---	3,000	---	27,000
10	CL-ML	47	140	1.60	---	2,500	---	22,500
11	ML	50	140	1.10	33	---	---	24,000

¹ The upper 42 inches of soil should be ignored due to potential effects of frost action as well as construction disturbance

We recommend that a factor of safety of 3 be applied to the ultimate bearing capacity and a factory of safety of 2 be applied to the ultimate side shear. The pressure meter modulus and certain other parameters were based on correlations with standard penetration test N-count, laboratory test results, and soil/rock type as shown in the User Guide of MFAD version 5.0. A strength factor of 0.63 is recommended for use with MFAD 5.0. **Where lower capacity zones exist below and within 1 pier diameter of higher capacity zones, the lower bearing pressure should be used.**

During construction, the pier bottom should be clean and inspected by a qualified geotechnical engineer prior to placing concrete. Concrete should be placed as soon after drilling as possible, with the exposed bearing surface kept as dry as practical. If any delay occurs, the bottom of the pier excavation should be re-augered to remove any softened soil. Any water accumulating in the shaft should be removed before placing concrete. Alternately, the concrete may be placed by a tremie method to preclude segregation of the mix. Casing and/or drilling mud should be used as necessary for water control and/or sidewall stability.

If temporary casing is used, while withdrawing casing, care should be exercised to maintain concrete inside the casing at a sufficient level to resist earth and hydrostatic pressures acting on the casing exterior. Arching of the concrete, loss of seal and other problem can occur during casing removal and result in contamination of the drilled shaft. These conditions should be considered during the design and construction phases. Placement of soil backfill should not be permitted around the casing prior to removal.

If permanent casing is used, the casing must be advanced ahead of the excavation via driving, vibro-hammer, or twisting. The casing must be installed in such a way to provide good load transfer through side resistance, under no circumstances should the hole be over drilled and casing placed into the excavation. The provided side shear values should be reduced by a factor of 0.60 for cohesionless soils and 0.50 for cohesive soil.

A reduction factor is recommended where the center to center spacing of piers is between 2.5 and 4 times the pier diameter. A reduction factor of 0.65 would apply when the center to center spacing is reduced to 2.5, the minimum pier spacing. A linear correlation would apply for spacings between 2.5 and 4. Alternatively, an industry standard for pier spacing may be used as designed by others.



3.4 Excavations

Trench walls shall be sloped or shored per the requirements of OSHA regulations. Based on the borings performed at this site, we recommend that the excavations be designed using an OSHA Type “C” soil classification. The soil type should be confirmed by a competent person at the time of construction, who would determine if steeper slopes associated with type B soils could be considered. Groundwater seeps are not anticipated during shallow excavations. Excavations that extend greater than 20 feet shall be designed and approved by a professional engineer.

SECTION 4

4.0 Additional Design and Construction Considerations

4.1 Seismic Considerations

Based on the subsurface profile found in the test boring, a Seismic Site Classification "D" should be used for design of the structures according to the "International Building Code and Related Codes, Section 1613.5.2 Site Class Definitions.

4.2 Surface Drainage

Adequate drainage should be provided at the site to minimize any increase in moisture content of the foundation materials. All areas should be sloped away from the structures to prevent ponding of water. Surface directed away from any slopes to limit potential erosion.

4.3 Subsurface Drainage

At the time of this investigation, groundwater was observed about 16 to 24 feet below the ground surface. Any water encountered during shallow excavations of this project would be the result of water bearing pervious seams, and/or a perched water table condition. Conventional dewatering methods, such as pumping from sumps, should be adequate for temporary removal of any groundwater encountered during excavation at the site. If springs or other significant groundwater is exposed during the excavation process, it may be necessary to install permanent trench drains to remove this water away from future structures.

4.4 Special Conditions

The clay soils have low swell potential and collapsing conditions would not be expected. No mines are identified at the test locations on the ODNr mine map.

4.5 Corrosion Potential of soil

Chemical testing was performed on combined samples from Borings B-1 and B-2 from 1.0 to 5.0 feet below the ground surface.

The chemical testing is not complete at this time. An addendum letter or updated report with the results and recommendations will be provided when the testing is completed.

4.6 General Comments

GPD Group should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. GPD should also be retained to provide testing and observation during site preparation and fill placement operations as well as during the foundation, floor slab and pavement construction phases of the project.

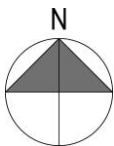


The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, GPD should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken.

This report has been prepared for the exclusive use of **FirstEnergy Corporation** for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless GPD Group reviews the changes and either verifies or modifies the conclusions of this report in writing.

LOCATION PLAN



Legend

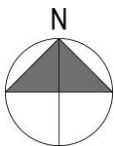
Soil Boring:

PROJECT: FirstEnergy – Wellington-Brookside 138kV Line Rebuild
PROJECT NUMBER: 2022821.59 **DATE:** 10-14-2022
LOCATION: Hawley Rd., Wellington, Ohio



520 S Main St, Suite 2531 Akron, Ohio 44311

LOCATION PLAN



Legend

Soil Boring: 

PROJECT: FirstEnergy – Wellington-Brookside 138kV Line Rebuild
PROJECT NUMBER: 2022821.59 **DATE:** 10-14-2022
LOCATION: Quarry Rd., Wellington, Ohio



520 S Main St, Suite 2531 Akron, Ohio 44311

Boring Number: B-1

CLIENT FirstEnergy **PROJECT NAME** Wellington-Brookside Line
PROJECT NUMBER 2022821.59 **PROJECT LOCATION** Lorain County, Ohio
DATE STARTED September 23, 2022 **COMPLETED** September 23, 2022 **GROUND ELEVATION** _____ **HOLE SIZE** _____
DRILLING CONTRACTOR GPD Geotechnical Services, Inc. **GROUND WATER LEVELS:**
DRILLING METHOD Hollow Stem Auger with Manual SPT Hammer **▽ AT TIME OF DRILLING** 24.50 ft
LOGGED BY Nick Burgess **CHECKED BY** Jason Arney **▼ AT END OF DRILLING** 16.30 ft
NOTES Simco 2400;

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0											
		Moist, stiff to medium stiff, brown & gray, silty CLAY, trace of sand.	SS 1	100	5-5-6 (11)	2.0					
5			SS 2	78	3-3-3 (6)	0.75					
		Damp, stiff to hard, gray, clayey SILT, little sand, trace of gravel.	ST 3	67	q _u =10,730 psf		15	30	15	15	
10			SS 4	89	6-11-12 (23)	4.0+	13				
			SS 5	89	7-10-12 (22)	4.0+	13				
15			SS 6	83	9-12-15 (27)	4.0+	11				
20			SS 7	89	5-7-8 (15)	4.0+	13	28	13	15	
		Moist, very stiff to stiff, gray, silty CLAY, trace of sand & gravel.									
25		Wet, gray fine to coarse SAND seam noted at 24.5'	SS 8	100	3-5-6 (11)	1.5	16				
30			SS 9	83	5-7-10 (17)	2.0	16	28	14	14	
35			SS 10	100	3-5-7 (12)	1.5	15				

(Continued Next Page)

Boring Number: B-1

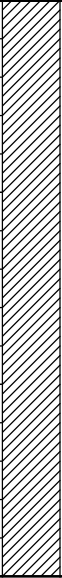
CLIENT FirstEnergy

PROJECT NAME Wellington-Brookside Line

PROJECT NUMBER 2022821.59

PROJECT LOCATION Lorain County, Ohio

CENTER TERMINATION NOTE - GINT STD US LAB.GDT - 10/19/22 07:57 - F:\GPD GILCHRIST\JOBS\2022\2022821\821.59 - FIRSTENERGY - WELLINGTON - BROOKSIDE - 138KV REBUILD\B-1 BLANK.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
35		Moist, very stiff to stiff, gray, silty CLAY, trace of sand & gravel. (continued)									
40			 SS 11	100	6-8-12 (20)	4.0	14				
45			 SS 12	94	9-13-17 (30)	3.75	17				
50			 SS 13	83	10-12-16 (28)	4.0+	14				

Boring terminated at 50.0 feet



520 South Main Street, Suite 2531
Akron, Ohio 44311

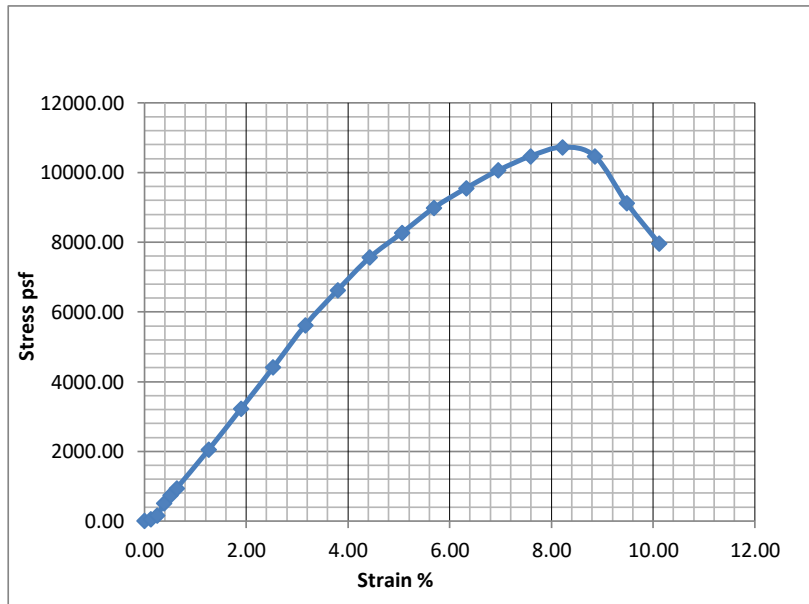
Phone 330.572.2100
www.gpdgroup.com

Unconfined Compression Test (ASTM D-2166)

Job Name: FirstEnergy Wellington-Brookside Line
Date: 10/6/22
Sample: B-1 S-3
Depth: 6.0'-8.0'
Strain Rate: 1% per minute
Soil: Damp, very stiff, brown, clayey SILT, trace of sand & gravel.
Technician: N.C.

GPD Project Number: 2022821.59
Lab Number: 22178
Moisture Content (%): 14.5
Dry Unit Weight (pcf): 121.7
Compressive Strength (psf): 10730
Strain at Failure (%): 8.2
Shear Strength (psf): 5365
Average Length (in): 3.953
Average Diameter (in): 1.889
Length to Dia. Ratio: 2.09
Remarks:

Strain (%)	Stress (psf)
0.00	0.00
0.13	51.32
0.25	153.75
0.38	511.87
0.51	741.26
0.63	944.55
1.26	2054.63
1.90	3226.03
2.53	4407.20
3.16	5622.52
3.79	6623.87
4.43	7562.47
5.06	8268.55
5.69	8988.78
6.32	9554.22
6.96	10063.40
7.59	10469.82
8.22	10728.27
8.85	10467.01
9.49	9115.43
10.12	7966.46



Boring Number: B-2

CLIENT FirstEnergy **PROJECT NAME** Wellington-Brookside Line
PROJECT NUMBER 2022821.59 **PROJECT LOCATION** Lorain County, Ohio
DATE STARTED September 21, 2022 **COMPLETED** September 21, 2022 **GROUND ELEVATION** _____ **HOLE SIZE** _____
DRILLING CONTRACTOR GPD Geotechnical Services, Inc. **GROUND WATER LEVELS:**
DRILLING METHOD Hollow Stem Auger with Manual SPT Hammer ☒ **AT TIME OF DRILLING** 24.00 ft
LOGGED BY Nick Burgess **CHECKED BY** Jason Arney **AT END OF DRILLING** ---
NOTES Simco 2400;

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		7" Topsoil									
		Damp, medium dense, brown SILT, little sand,	SS 1	94	7-8-10 (18)						
		Damp, very stiff, brown, clayey SILT, trace of sand & gravel.	SS 2	100	6-8-9 (17)	4.0+					
5			SS 3	100	6-9-14 (23)	4.0+	14				
			SS 4	100	5-9-13 (22)	4.0+	14				
10		Damp to moist, medium stiff to very stiff, gray, silty CLAY, trace of sand & gravel.	SS 5	100	6-9-10 (19)	3.5	13	28	13	15	
			SS 6	100	5-7-7 (14)	3.0	12				
15											
			SS 7	100	3-3-5 (8)	2.0	15	28	13	15	
20											
			SS 8	56	4-6-7 (13)	2.0	18				
25		Wet, gray SILT seam noted at 24.5'									
		Damp, stiff to very stiff, gray clayey SILT, little sand, trace of gravel.	SS 9	83	6-6-7 (13)	4.0+	12	26	12	14	
30											
			SS 10	78	5-8-9 (17)	4.0+	15				
35											

(Continued Next Page)

CENTER TERMINATION NOTE - GINT STD US LAB.GDT - 10/19/22 07:58 - F:\GPD GILCHRIST\JOBS\2022\2022821.59 - FIRSTENERGY - WELLINGTON - BROOKSIDE - 138KV REBUILD\B-1 BLANK.GPJ

Boring Number: B-2

CLIENT FirstEnergy

PROJECT NAME Wellington-Brookside Line

PROJECT NUMBER 2022821.59

PROJECT LOCATION Lorain County, Ohio

CENTER TERMINATION NOTE - GINT STD US LAB.GDT - 10/19/22 07:58 - F:\GPD GILCHRIST\JOBS\2022\2022821\821.59 - FIRSTENERGY - WELLINGTON - BROOKSIDE - 138KV REBUILD\B-1 BLANK.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
35											
40		Damp, stiff to very stiff, gray clayey SILT, little sand, trace of gravel. <i>(continued)</i>	 SS 11	89	6-11-13 (24)						
		Damp, very stiff, gray, interbedded CLAY & SILT.					13				
45			 SS 12	100	7-9-11 (20)		12				
50		Damp, medium dense, gray SILT, little clay & sand.	 SS 13	89	7-10-10 (20)		19				

Boring terminated at 50.0 feet

GENERAL NOTES

SAMPLE IDENTIFICATION

The Unified Soil Classification System (USCS), AASHTO 1988 and ASTM designations D2487 and D-2488 are used to identify the encountered materials unless otherwise noted. Coarse-grained soils are defined as having more than 50% of their dry weight retained on a #200 sieve (0.075mm); they are described as: boulders, cobbles, gravel or sand. Fine-grained soils have less than 50% of their dry weight retained on a #200 sieve; they are defined as silts or clay depending on their Atterberg Limit attributes. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size.

DRILLING AND SAMPLING SYMBOLS

SFA: Solid Flight Auger - typically 4" diameter flights, except where noted.	SS: Split-Spoon - 1 3/8" I.D., 2" O.D., except where noted.
HSA: Hollow Stem Auger - typically 3 1/4" or 4 1/4" I.D. openings, except where noted.	ST: Shelby Tube - 3" O.D., except where noted.
M.R.: Mud Rotary - Uses a rotary head with Bentonite or Polymer Slurry	BS: Bulk Sample
R.C.: Diamond Bit Core Sampler	PM: Pressuremeter
H.A.: Hand Auger	CPT-U: Cone Penetrometer Testing with Pore-Pressure Readings
P.A.: Power Auger - Handheld motorized auger	

SOIL PROPERTY SYMBOLS

N: Standard "N" penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch O.D. Split-Spoon.
N ₆₀ : A "N" penetration value corrected to an equivalent 60% hammer energy transfer efficiency (ETR)
Q _u : Unconfined compressive strength, TSF
Q _p : Pocket penetrometer value, unconfined compressive strength, TSF
w%: Moisture/water content, %
LL: Liquid Limit, %
PL: Plastic Limit, %
PI: Plasticity Index = (LL-PL), %
DD: Dry unit weight, pcf
▼, ▼, ▼: Apparent groundwater level at time noted

RELATIVE DENSITY OF COARSE-GRAINED SOILS

<u>Relative Density</u>	<u>N - Blows/foot</u>
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 - 80
Extremely Dense	80+

ANGULARITY OF COARSE-GRAINED PARTICLES

<u>Description</u>	<u>Criteria</u>
Angular:	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular:	Particles are similar to angular description, but have rounded edges
Subrounded:	Particles have nearly plane sides, but have well-rounded corners and edges
Rounded:	Particles have smoothly curved sides and no edges

GRAIN-SIZE TERMINOLOGY

<u>Component</u>	<u>Size Range</u>
Boulders:	Over 300 mm (>12 in.)
Cobbles:	75 mm to 300 mm (3 in. to 12 in.)
Coarse-Grained Gravel:	19 mm to 75 mm (3/4 in. to 3 in.)
Fine-Grained Gravel:	4.75 mm to 19 mm (No.4 to 3/4 in.)
Coarse-Grained Sand:	2 mm to 4.75 mm (No.10 to No.4)
Medium-Grained Sand:	0.42 mm to 2 mm (No.40 to No.10)
Fine-Grained Sand:	0.075 mm to 0.42 mm (No. 200 to No.40)
Silt:	0.005 mm to 0.075 mm
Clay:	<0.005 mm

PARTICLE SHAPE

<u>Description</u>	<u>Criteria</u>
Flat:	Particles with width/thickness ratio > 3
Elongated:	Particles with length/width ratio > 3
Flat & Elongated:	Particles meet criteria for both flat and elongated

RELATIVE PROPORTIONS OF FINES

<u>Descriptive Term</u>	<u>% Dry Weight</u>
Trace:	< 5%
With:	5% to 12%
Modifier:	>12%

GENERAL NOTES

(Continued)

CONSISTENCY OF FINE-GRAINED SOILS

<u>Q_u - TSF</u>	<u>N - Blows/foot</u>	<u>Consistency</u>
0 - 0.25	0 - 2	Very Soft
0.25 - 0.50	2 - 4	Soft
0.50 - 1.00	4 - 8	Firm (Medium Stiff)
1.00 - 2.00	8 - 15	Stiff
2.00 - 4.00	15 - 30	Very Stiff
4.00 - 8.00	30 - 50	Hard
8.00+	50+	Very Hard

MOISTURE CONDITION DESCRIPTION

<u>Description</u>	<u>Criteria</u>
Dry:	Absence of moisture, dusty, dry to the touch
Moist:	Damp but no visible water
Wet:	Visible free water, usually soil is below water table

RELATIVE PROPORTIONS OF SAND AND GRAVEL

<u>Descriptive Term</u>	<u>% Dry Weight</u>
Trace:	< 15%
With:	15% to 30%
Modifier:	>30%

STRUCTURE DESCRIPTION

<u>Description</u>	<u>Criteria</u>	<u>Description</u>	<u>Criteria</u>
Stratified:	Alternating layers of varying material or color with layers at least ¼-inch (6 mm) thick	Blocky:	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Laminated:	Alternating layers of varying material or color with layers less than ¼-inch (6 mm) thick	Lensed:	Inclusion of small pockets of different soils
Fissured:	Breaks along definite planes of fracture with little resistance to fracturing	Layer:	Inclusion greater than 3 inches thick (75 mm)
Slickensided:	Fracture planes appear polished or glossy, sometimes striated	Seam:	Inclusion 1/8-inch to 3 inches (3 to 75 mm) thick extending through the sample
		Parting:	Inclusion less than 1/8-inch (3 mm) thick

SCALE OF RELATIVE ROCK HARDNESS

<u>Q_u - TSF</u>	<u>Consistency</u>
2.5 - 10	Extremely Soft
10 - 50	Very Soft
50 - 250	Soft
250 - 525	Medium Hard
525 - 1,050	Moderately Hard
1,050 - 2,600	Hard
>2,600	Very Hard

ROCK BEDDING THICKNESSES

<u>Description</u>	<u>Criteria</u>
Very Thick Bedded	Greater than 3-foot (>1.0 m)
Thick Bedded	1-foot to 3-foot (0.3 m to 1.0 m)
Medium Bedded	4-inch to 1-foot (0.1 m to 0.3 m)
Thin Bedded	1¼-inch to 4-inch (30 mm to 100 mm)
Very Thin Bedded	½-inch to 1¼-inch (10 mm to 30 mm)
Thickly Laminated	1/8-inch to ½-inch (3 mm to 10 mm)
Thinly Laminated	1/8-inch or less "paper thin" (<3 mm)

ROCK VOIDS

<u>Voids</u>	<u>Void Diameter</u>
Pit	<6 mm (<0.25 in)
Vug	6 mm to 50 mm (0.25 in to 2 in)
Cavity	50 mm to 600 mm (2 in to 24 in)
Cave	>600 mm (>24 in)

GRAIN-SIZED TERMINOLOGY

<u>(Typically Sedimentary Rock)</u>	
<u>Component</u>	<u>Size Range</u>
Very Coarse Grained	>4.76 mm
Coarse Grained	2.0 mm - 4.76 mm
Medium Grained	0.42 mm - 2.0 mm
Fine Grained	0.075 mm - 0.42 mm
Very Fine Grained	<0.075 mm

ROCK QUALITY DESCRIPTION

<u>Rock Mass Description</u>	<u>RQD Value</u>
Excellent	90 -100
Good	75 - 90
Fair	50 - 75
Poor	25 -50
Very Poor	Less than 25

DEGREE OF WEATHERING

Slightly Weathered:	Rock generally fresh, joints stained and discoloration extends into rock up to 25 mm (1 in), open joints may contain clay, core rings under hammer impact.
Weathered:	Rock mass is decomposed 50% or less, significant portions of the rock show discoloration and weathering effects, cores cannot be broken by hand or scraped by knife.
Highly Weathered:	Rock mass is more than 50% decomposed, complete discoloration of rock fabric, core may be extremely broken and gives clunk sound when struck by hammer, may be shaved with a knife.

Unified Soil Classification System

Major Divisions			Letter	Symbol	Description
Coarse-grained Soils More than ½ retained on the No. 200 Sieve	Gravels More than ½ coarse fraction retained on the No. 4 sieve	Clean Gravels	GW		Well-graded gravels and gravel-sand mixtures, little or no fines.
			GP		Poorly-graded gravels and gravel-sand mixtures, little or no fines.
		Gravels With Fines	GM		Silty gravels, gravel-sand-silt mixtures.
			GC		Clayey gravels, gravel-sand-clay mixtures.
	Sands More than ½ passing through the No. 200 sieve	Clean Sands	SW		Well-graded sands and gravelly sands, little or no fines.
			SP		Poorly-graded sands and gravelly sands, little or no fines.
		Sands With Fines	SM		Silty sands, sand-silt mixtures
			SC		Clayey sands, sandy-clay mixtures.
Fine-grained Soils More than ½ passing through the No. 200 Sieve	Silts and Clays Liquid Limit less than 50%		ML		Inorganic silts, very fine sands, rock flour, silty or clayey fine sands.
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL		Organic clays of medium to high plasticity.
	Silts and Clays Liquid Limit greater than 50%		MH		Inorganic silts, micaceous or diatomaceous fines sands or silts, elastic silts.
			CH		Inorganic clays of high plasticity, fat clays.
			OH		Organic clays of medium to high plasticity.
Highly Organic Soils		PT		Peat, muck, and other highly organic soils.	
Consistency Classification					
Granular Soils				Cohesive Soils	
Description - Blows Per Foot (Corrected)				Description - Blows Per Foot (Corrected)	
	<u>MCS</u>	<u>SPT</u>		<u>MCS</u>	<u>SPT</u>
Very loose	<5	<4	Very soft	<3	<2
Loose	5 - 15	4 - 10	Soft	3 - 5	2 - 4
Medium dense	16 - 40	11 - 30	Firm	6 - 10	5 - 8
Dense	41 - 65	31 - 50	Stiff	11 - 20	9 - 15
Very dense	>65	>50	Very Stiff	21 - 40	16 - 30
			Hard	>40	>30
MCS = Modified California Sampler			SPT = Standard Penetration Test Sampler		

Wetland and Waterbody Delineation Addendum Report

Beaver-Wellington 138 kV Transmission Line Project

Lorain County, Ohio

Prepared for



September 2022

Jacobs

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A	USACE Wetland Determination Field Datasheets
B	OEPA ORAM Datasheets
C	OEPA HHEI Datasheets

Acronyms and Abbreviations

ATSI	American Transmission Systems Incorporated
ESC	Environmental Survey Corridor
°F	Fahrenheit
GPS	Global Positioning System (GPS)
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
Jacobs	Jacobs Engineering Group Inc.
kV	Kilovolt
NHD	National Hydrography Dataset
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High-Water Mark
ORAM	Ohio Rapid Assessment MethodCWO
PEM	Palustrine emergent
Project	Beaver-Wellington 138 kV Transmission Line Project
QHEI	Qualitative Habitat Evaluation Index
ROW	Right-of-way
TNW	Traditionally navigable water
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1 Introduction

This Wetland and Waterbody Delineation Addendum Report (Addendum Report) summarizes the results of a follow up wetland and waterbody delineation survey conducted in October 2021 by Jacobs Engineering Group Inc. (Jacobs), for American Transmission Services Incorporated (ATSI), a FirstEnergy Services Company on the proposed Beaver-Wellington 138 kV Transmission Line (Project). ATSI plans to construct an approximately 23.2-mile 138-kilovolt (kV) transmission line that will extend from the existing Beaver Substation located in the City of Lorain, Ohio, to the existing Wellington Substation, located in Wellington Township, Lorain County, Ohio. The Project consists of three primary components;

- Expanding the existing Wellington Substation to facilitate installation of new equipment;
- Constructing an approximately 1-mile-long section (known as the Henrietta Section (included under separate cover)) and 6-mile long section (known as the Wellington Section) of new 138 kV transmission line; and
- Reconfiguring (un-six wire) an existing 138 kV transmission line (Outlier Structures) to create room for the new 138 kV transmission line.

Figure 1.1 to Figure 1.4 provides an overview map of the ESC overlain on ArcGIS Online USA topographic maps

This report is an addendum to the previously submitted *Wetland and Waterbody Delineation Report - Beaver-Wellington 138 kV Transmission Line Project – July 2020* (referred to as the July 2020 Report). Since the completion of the July 2020 Report, the Project has expanded to include construction areas and access roads located outside of the previously surveyed corridors. This Addendum Report includes the supplemental delineation which assessed an environmental survey corridor (Addendum ESC) consisting of a laydown yard, access roads, pull pads, adjusted alignment areas, and work areas for the Outlier Structures located outside of the previously surveyed corridors. Previously identified features, data forms, photographs, and supporting information of the former surveys of the Project are contained within the July 2020 Report and are not discussed in this addendum report. The results of the supplemental delineation are discussed herein.

2 Background Information

This section describes the Addendum ESC and methodology used during the wetland and waterbody delineation field surveys.

2.1 Project Area

Outlier Section

The Outlier Section of the Project consists of reconfiguring (un-six wire) an existing 138 kV transmission line to create room for the new 138 kV transmission line. The Outlier Structures are located in Lorain County, Ohio and begin along Quarry Road, north of Baumhart Road and extends north, ending south of Russia Road and east of Baumhart Road (41.3340 latitude, -82.2671 longitude) as shown in Figure 1.1 to Figure 1.3.

Review of the USGS 7.5-minute topographic maps indicates that the ESC is within two USGS 7.5-minute topographic quadrangles: Kipton and Vermilion East. Additional review of the USGS 7.5-minute topographic maps of the area indicates that ditches, streams, and rivers drain the ESC, including Beaver Creek and multiple unnamed tributaries of this waterway. Topographic relief is mostly flat, with a general decrease in elevation from south to north, ranging between 810 feet and 844 feet above sea level throughout the ESC (Figure 1.1 to Figure 1.3).

Land use and natural communities observed within the ESC include agricultural land, old field, upland scrub shrub, upland woodlot, residential, existing roadway, and wetland, in addition to the previously identified waterbodies.

Wellington Section

The Wellington Section of the Project consists of a preferred and alternate route which are located generally south of the Village of Wellington in Lorain County, Ohio. The approximately 6-mile preferred route begins from the Brookside-Henrietta 138 kV transmission line approximately 1,300 feet east of Quarry Road (41.1200 latitude, -82.2738 longitude) between Griggs Road and Bursley Road. From here the preferred route extends east until it crosses Clark Road, where it turns northeast. The route continues northeast until turning east along the northern border of Findley State Park prior to heading north connecting to the Wellington Substation. The approximately 4 -mile alternate route begins between OH-38 and Jones Road, from the existing Brookside-Henrietta 138 kV transmission line west of Quarry Road (41.1577 latitude, -82.2732 longitude). The alternate route begins heading east and continues southeast along the southern border of the Wellington Reservoir and then follows the Wheeling and Lake Erie railroad, prior to connecting to the Wellington Substation (41.1481 latitude, -82.1945 longitude). These routes are displayed in Figure 1.3 to Figure 1.4 (Overview Map). The ESC consists of an approximately 4-mile alternate route and an approximately 6 mile preferred route 65-ft ROW (buffered to 265 to 300-feet wide).

Review of the USGS 7.5-minute topographic maps indicates that the ESC of the preferred route is within two USGS 7.5-minute topographic quadrangles: Brighton and Wellington. The ESC of the alternate route is within Nova, Sullivan, and Wellington USGS 7.5-minute topographic quadrangles. Additional review of the USGS 7.5-minute topographic maps of the area indicates that ditches, streams, and rivers drain the ESC, including Charlemont Creek, Wellington Creek, and multiple unnamed tributaries of these waterways. Topographic relief is mostly flat with the steepest elevation changes associated with the larger creeks. Elevation ranges from 815 to 935 feet above sea level throughout the ESC (Figure 1.3 to Figure 1.4).

Land use and natural communities observed within the ESC include agricultural land, old field, upland scrub shrub, upland woodlot, residential, existing roadway, existing railroad, and wetland, in addition to the previously identified waterbodies.

2.1.1 Annual Precipitation

Recent rainfall data for Wellington, Ohio were reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. Wellington, Ohio was the nearest weather station with both historical and recent precipitation records. Rainfall recorded in Wellington, Ohio was approximately normal prior and during to the survey conducted October 2021 (Table 2-1; USDA, 2019), suggesting that climatic conditions were as expected for the region and time of year. This was taken into consideration during the delineation.

TABLE 2-1: Recent Precipitation Data

Beaver-Wellington 138kV Transmission Line Project (Addendum)

Precipitation Data	September 2021	October 2021
Wellington Monthly Sum ^{1, 3}	3.06	3.49
Wellington Normal Precipitation ^{2, 3}	2.10-3.88	1.77-2.86
Monthly climatic condition	Average	Above Average

¹Monthly weather summary from weather station Wellington 5.5 SW, 2019-2020 (Wellington, OH)

²USDA WETS Station Climate Data 1971-2000 (Fort Wayne, IN (USDA 2000)

³Displayed in inches

2.1.2 Drainage Basins

The Project spans the Huron-Vermilion (04100012) and the Black-Rocky (04110001) 8-digit Hydrologic Unit Codes (HUCs), and the ECS is within seven 12-digit HUCs, as outlined in Table 2-2 (USGS, 2020).

TABLE 2-2: 12-Digit Hydrologic Unit Codes Crossed by the Project

Beaver-Wellington 138 kV Transmission Line Project (Addendum)

HUC 12-Digit Code	HUC 12-Digit Name
41000120204	Town of Vermilion-Vermilion River
41100010501	Charlemont Creek
41100010502	Upper West Branch Black River
41100010503	Wellington Creek
41100010505	Plum Creek
41100010701	Upper Beaver Creek
41100010703	Quarry Creek-Frontal Lake Erie

Source: USGS 2020

2.1.3 Traditional Navigable Waters

The U.S. Environmental Protection Agency (EPA) and USACE assert jurisdiction over “all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce including all waters which are subject to the ebb and flow of the tide” (USACE and EPA, 2008). These waters are considered traditionally navigable waters (TNW). No TNW directly crosses the ESC, yet many of the streams will be considered tributaries to Lake Erie (USACE, 2009).

3 Wetland and Waterbody Delineation

3.1 Desktop Review

Prior to conducting the field investigations, Jacobs reviewed the following resources to identify the potential for wetlands within the Addendum ESC:

- Aerial photo-based maps (ArcGIS Online, World Imagery Map, 2020a)
- Topographic maps (ArcGIS Online, USA Topo Maps, 2020b)
- NRCS Web Soil Survey (USDA-NRCS, 2021)
- NWI shapefile (USFWS, 2020)
- National Hydrography Dataset (NHD) (USGS, 2020)

According to the NRCS soil survey of Lorain County (USDA-NRCS, 2021), the Addendum ESC consists of 18 soil map units (Table 3-1, follows text). Of these, 10 units are listed as non-hydric, four units are listed as predominately non-hydric, and four units are listed as hydric (Figures 2.1 to 2.15).

NWI data were obtained from the USFWS for review of potential wetlands that may occur within the ESC. The NWI data (USFWS, 2020) identify the type of wetland or open water present at a location using the USFWS classification system (Cowardin et al., 1979). The NWI data indicated that three wetland types are identified in the Addendum ESC within five mapped NWI features (Table 3-2; Figures 2.1 to 2.15; USFWS, 2019). These wetland types include freshwater emergent wetlands (PEM1A), freshwater ponds (PUBGx), and riverine wetlands (R4SBC). The presence of an NWI feature is not a definitive indicator that a wetland or waterbody is present. The information on NWI maps is obtained largely from aerial interpretation, may be outdated, and is only sporadically field-checked. Additional details regarding the mapped NWI wetlands within the Addendum ESC is provided in Table 3-2.

TABLE 3-2: Mapped National Wetland Inventory Features
Beaver-Wellington 138 kV Transmission Line Project (Addendum)

Wetland Type ¹	Mapped NWI Features	Acreage within Addendum ESC
PEM1A	1	0.28
PUBGx	1	0.94
R4SBC	3	0.03
Overall Total	5	1.25

¹Cowardin et al. 1979.

As shown on the FEMA floodplain panels (Figures 2.1 to 2.15), the floodplain of one waterway(Unnamed tributary of Wellington Creek) is within the Addendum ESC (FEMA, 2019).

3.2 Field Survey Methodology

A comprehensive methodology of the field surveys and data reviews completed for this report are included within the July 2020 Report. Therefore, a brief summary of the delineation and agency coordination methodology has been provided below.

The boundaries of each wetland and waterbody within the ESC were delineated and recorded using handheld global positioning system (GPS) units. For waterbodies identified within the Project area, the ordinary high-water mark (OHWM) was used as the jurisdictional boundary. Wetland data were recorded on USACE Northcentral and Northeast Regional Supplement wetland determination data forms; stream data were recorded on QHEI forms and HHEI forms. All other land use, habitat, and other supplemental data were collected in a field notebook during the environmental survey.

4 Field Survey Results

Jacobs biologists surveyed the Project in October 2021 by walking the Addendum ESC and evaluating for wetlands and other waters of the U.S. Select features previously delineated within the Addendum ESC were field verified during the October 2021 survey. A total of eight wetlands and four streams were delineated within the Addendum ESC. In addition, two streams were extended from the original 2020 survey corridor into the Addendum ESC. These features are displayed and identified on the Wetlands and Waterbodies Delineation Map (Figures 3.1 to 3.15). Detailed information for wetland and waterbody features within the Addendum ESC is provided in Tables 4-1 (follows text) and 4-2 (follows text), respectively.

4.1 Wetlands

Eight wetlands totaling approximately 0.37 acres, ranging in size from less than 0.01 to 0.17 acres, were delineated within the Addendum ESC. All eight the wetlands were identified as palustrine emergent (PEM) wetlands.

These wetlands are depicted in Figures 3.1 to 3.15. The reported wetland acreage only corresponds to areas delineated within the Addendum ESC, as some wetlands extended beyond the survey boundary. Completed USACE wetland and upland determination forms are provided in Appendix A; representative photographs were taken of each wetland during the field survey and are appended to each USACE wetland and upland form. Detailed information for each delineated wetland within the Addendum ESC is provided in Table 4-1 (follows text) and a summary of the delineated wetlands is provided in Table 4-3.

TABLE 4-3: Wetland Summary Table
Beaver-Wellington 138 kV Transmission Line Project (Addendum)

Wetland Type	ORAM Category			Number of Wetlands	Acreage within Addendum ESC
	Category 1	Category 2	Category 3		
PEM	6	2	0	8	0.37

4.1.1 Wetland ORAM Results

A total of six Category 1 wetlands and two Category 2 wetlands were identified within the Addendum ESC; no Category 3 wetlands were identified. Completed ORAM forms are included in Appendix B.

Six Category 1 wetlands, all of the PEM habitat type, were identified within the Addendum ESC. These wetlands were classified as Category 1 wetlands based on ORAM scores ranging from 12.5 to 29. Generally, the Category 1 wetlands scored low due to factors such as small size, intensity of surrounding land use, habitat alteration, poor habitat development, lack of horizontal interspersion, presence of invasive species, and lack of microtopography.

Two Category 2 PEM wetlands were identified within the Addendum ESC. These wetlands were classified as Category 2 wetlands based on ORAM scores ranging from 35 and 39.5. The Category 2 wetlands exhibited much of the same characteristics described above, yet with less habitat alteration, greater horizontal interspersion, less invasive species cover, and greater presence of microtopography than the Category 1 counterparts.

4.1.2 Wetland Extensions

No wetlands originally delineated within the original 2020 survey corridor were extended into the Addendum ESC. Streams

4.2 Streams

A total of four new streams, totaling approximately 69 linear feet, were identified within the Addendum ESC. Of the four streams, three were identified as ephemeral streams and one was an intermittent stream. The four streams were assessed using the HHEI methodology (drainage area less than one square mile).

All streams are shown in Figures 3.1 to 3.15. Completed HHEI forms are provided in Appendix C. Representative photographs were taken of each stream during the field survey and are appended to each HHEI stream form. Detailed information for each delineated stream within the Addendum ESC is provided in Table 4-2 (follows text).

4.2.1 HHEI Results

Four new headwater streams totaling approximately 69 linear feet within the Addendum ESC were evaluated using the HHEI methodology. Two of the streams were categorized as Modified Class 1 streams and two were categorized as Modified Class 2 streams. Of the four streams, three were ephemeral and one was intermittent. Completed HHEI forms are provided in Appendix C and Table 4-4 provides a summary of the HHEI results for streams identified within the Addendum ESC.

TABLE 4-4: HHEI Summary Table

Beaver-Wellington 138 kV Transmission Line Project (Addendum)

Flow Regime	HHEI Class					Number of Streams	Length (feet) within Addendum ESA ¹
	Class 1	Modified Class 1	Class 2	Modified Class 2	Class 3		
Ephemeral	0	2	0	1	0	3	40
Intermittent	0	0	0	1	0	1	29
Perennial	0	0	0	0	0	0	0
Total	0	2	0	2	0	4	69

¹This length only corresponds to the area delineated within the Addendum environmental survey area.

4.2.2 Stream Extensions

Two streams originally delineated within the original 2020 survey corridor were extended into the Addendum ESC. A summary of the updated stream lengths is shown in Table 4-5 and detailed information is included in Table 4-2 (follows text). Forms and representative photographs of these streams are provided in the July 2020 report.

Table 4-5. Stream Extensions Summary

Beaver-Wellington 138 kV Transmission Line Project (Addendum)

Stream ID	Flow Regime	Category/Rating/OAC Designation	Extension Length (feet) ^{1,2}	Original Length (feet) ^{1,2}	Updated Total Length (feet) ^{1,2}
Stream BW-14	Perennial	Fair Warmwater	25	360	386
Stream BW-16	Ephemeral	Modified Class 1	26	642	669
Totals 3			51	1,002	1,055

Table 4-5. Stream Extensions Summary
Beaver-Wellington 138 kV Transmission Line Project (Addendum)

Stream ID	Flow Regime	Category/Rating/OAC Designation	Extension Length (feet)^{1,2}	Original Length (feet)^{1,2}	Updated Total Length (feet)^{1,2}
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¹This length only corresponds to the length delineated within the environmental survey corridor.

²Numbers in this table have been rounded for presentation purposes. Thus, the totals may not reflect the exact sum of the addends in all cases.

OAC = Ohio Administrative Code

4.3 Ponds/Open Water

No ponds or open water features were identified within the Addendum ESC.

5 Conclusion

Jacobs conducted an environmental survey of the Addendum ESC of the Beaver-Wellington 138 kV Transmission Line Project in October 2021. Since the completion of the July 2020 Report, the Project has expanded to include construction areas located outside of the previously surveyed corridors.

A total of eight wetlands and four streams were delineated within the Addendum ESC. The eight newly delineated wetlands within the Addendum ESC, totaling approximately 0.37 acres, consisted of six Category 1 wetlands and two Category 2 wetlands; no Category 3 wetlands were identified. All newly delineated wetlands were identified as PEM habitat types.

A total of four new streams, totaling approximately 69 linear feet, were identified within the Addendum ESC. Of the four streams, three were identified as ephemeral streams and one was an intermittent stream. All four streams were assessed using the HHEI methodology (drainage area less than 1 mi²). In addition, two streams were extended from the original 2020 survey corridor into the Addendum ESC.

The results of the environmental resource survey described in this Report conducted by Jacobs are limited to the what was identified within the ESC, and depicted in Figure 3.1 to 3.15. The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance for construction; therefore, lengths and acreages listed in this Report may likely not constitute the actual impacts of the Project at the time of construction. If permits are determined to be necessary, actual impacted lengths and/or acreages will be submitted in subsequent permit applications.

The wetland and waterbodies field survey results presented within this Report apply to the site conditions at the time of our assessment. Changes within the environmental survey corridor that may occur with time due to natural processes or human impacts at the project site or on adjacent properties, could invalidate the findings of this Report, especially if Jacobs is unaware and has not had the opportunity to revisit the Project survey corridor. Additionally, changes in applicable standards and regulations may also occur due to legislation or the expansion of knowledge over time. Therefore, the findings of this wetland and waterbodies delineation report may be invalidated, wholly or in part, by changes that are beyond the control of Jacobs.

6 References

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Tables

TABLE 3-1: Mapped Soil Units

Beaver-Wellington 138 kV Transmission Line Project (Addendum)

Soil type	Soil type description	Hydric status	Acres (ac) within ESC
BtA	Bogart loam, 0 to 2 percent slopes	Nonhydric	0.08
CoC	Conotton gravelly loam, 6 to 12 percent slopes	Nonhydric	0.00
ELC2	Ellsworth silt loam, 6 to 12 percent slopes, eroded	Nonhydric	0.16
ELD2	Ellsworth silt loam, 12 to 18 percent slopes, eroded	Nonhydric	0.24
ELF2	Ellsworth silt loam, 18 to 50 percent slopes, eroded	Nonhydric	0.03
FdA	Fitchville silt loam, low terrace, 0 to 2 percent slopes	Nonhydric	0.00
Lb	Lobdell silt loam	Nonhydric	0.30
MgA	Mahoning silt loam, 0 to 2 percent slopes	Predominantly Nonhydric	3.80
MgB	Mahoning silt loam, 2 to 6 percent slopes	Predominantly Nonhydric	3.83
MkA	Mahoning-Tiro silt loams, 0 to 2 percent slopes	Predominantly Nonhydric	3.22
MkB	Mahoning-Tiro silt loams, 2 to 6 percent slopes	Predominantly Nonhydric	0.40
MnE	Mentor silt loam, 12 to 25 percent slopes	Nonhydric	0.30
Mr	Miner silty clay loam, 0 to 2 percent slopes	Hydric	0.37
MtA	Mitiwanga silt loam, 0 to 2 percent slopes	Nonhydric	1.11
MtB	Mitiwanga silt loam, 2 to 6 percent slopes	Nonhydric	0.49
Sb	Sebring silt loam, 0 to 2 percent slopes	Hydric	0.26
Sd	Sebring silt loam, sandstone substratum, 0 to 2 percent slopes	Hydric	0.28
TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Hydric	0.50

Table 4-1: Detailed Delineated Wetland Table
Beaver-Wellington 138 kV Transmission Line Project (Addendum)

Wetland ID	Location		Wetland Type ¹	Area (ac)	ORAM Score, Category
	Latitude	Longitude		within Addendum ESC	
Newly Delineated Wetlands					
Wetland OS-01	41.335629	-82.266783	PEM	<0.01	19, Category 1
Wetland OS-02	41.334041	-82.266832	PEM	0.02	24, Category 1
Wetland OS-03	41.320556	-82.267154	PEM	0.08	39.5, Category 2
Wetland OS-04	41.311855	-82.267664	PEM	<0.01	23.5, Category 1
Wetland OS-05	41.286073	-82.271079	PEM	0.17	23.5, Category 1
Wetland OS-06a,b	41.283444	-82.271201	PEM	0.04	29, Category 1
Wetland OS-07	41.281837	-82.270899	PEM	0.03	35, Category 2
Wetland OS-08	41.160337	-82.273152	PEM	0.02	12.5, Category 1
Newly Delineated Wetland Total				0.37	

¹Cowardin et al. 1979.

Cells shaded/* = Extension of previously delineated wetland; delineated acreage reflects the extension area only.
ID = identification

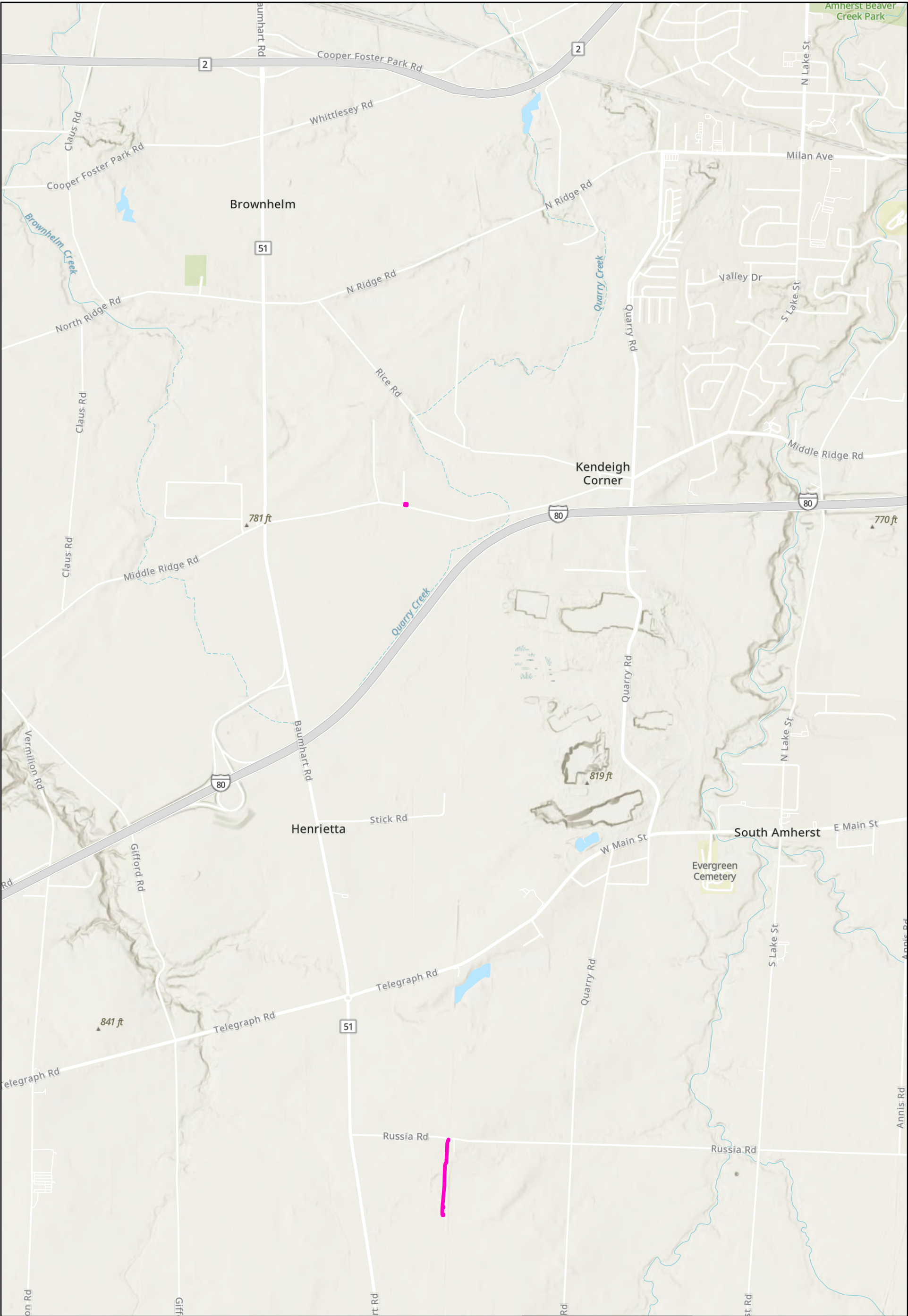
TABLE 4-2: Detailed Delineated Stream Table
Beaver-Wellington 138 kV Transmission Line Project (Addendum)

Stream ID	Location		Flow Regime ¹	Length (ft)	Average	Average TOB	HHEI/QHEI	Category/ Designation
	Latitude	Longitude		within	OHWM			
Extended Streams								
Stream BW-14	41.140332	-82.221533	Perennial	25	8	15	53.25	Fair Warmwater
Stream BW-16	41.140414	-82.220314	Ephemeral	26	15	3	26	Modified Class 1
Newly Delineated Sreams								
Stream BW-30	41.119026	-82.251106	Ephemeral	7	2	2.5	23	Modified Class 1
Stream OS-1	41.283591	-82.270953	Intermittent	29	2	2.5	36	Modified Class 2
Stream OS-2	41.277861	-82.271189	Ephemeral	25	3.5	6	36	Modified Class 2
Stream OS-3	41.157793	-82.270666	Ephemeral	8	1	2	19	Modified Class 1
Stream Extension Total				51				
Newly Delineated Stream Total				69				

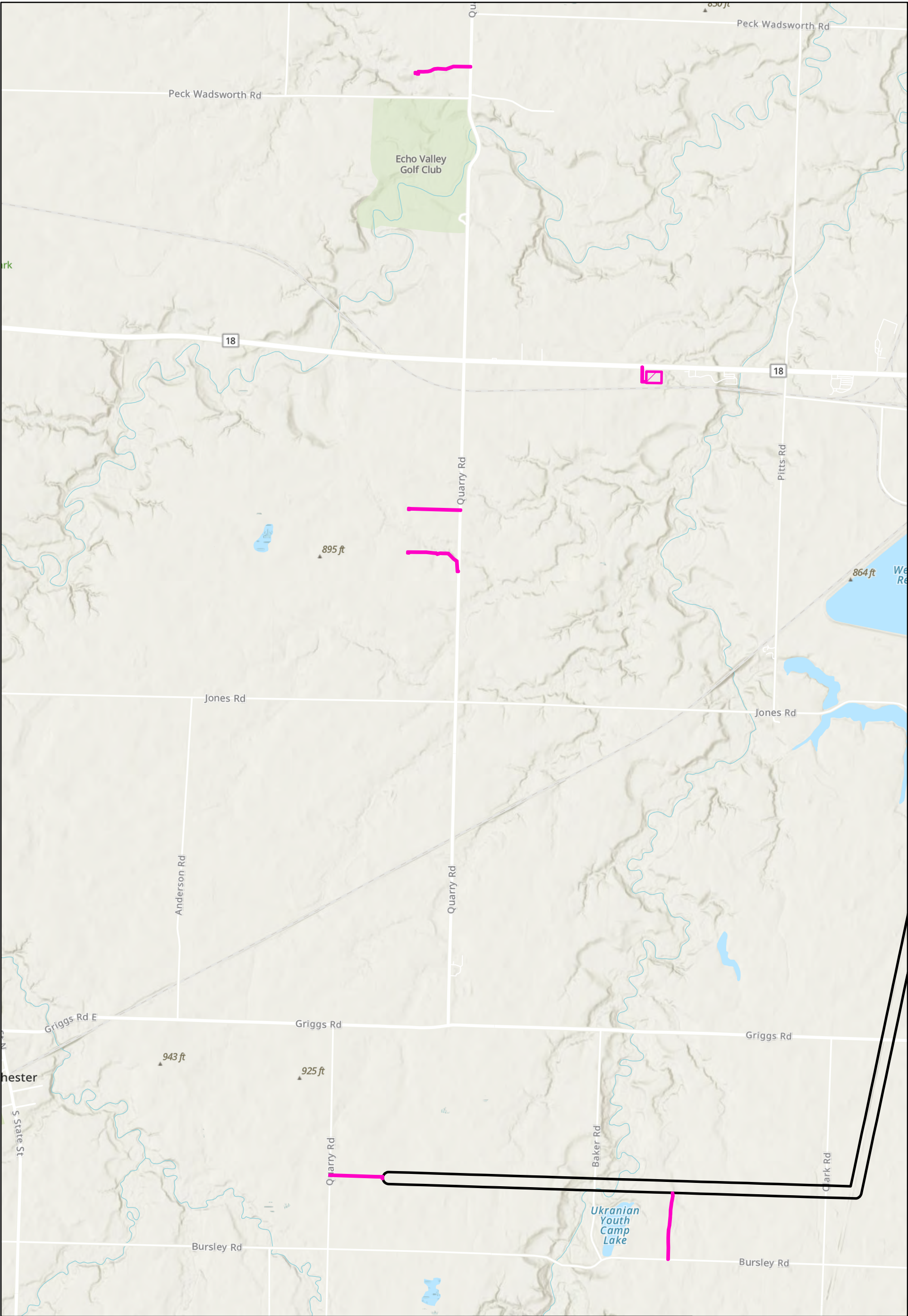
¹Flow regime estimated based on analysis of drainage area, gradient, and observations at the time of survey

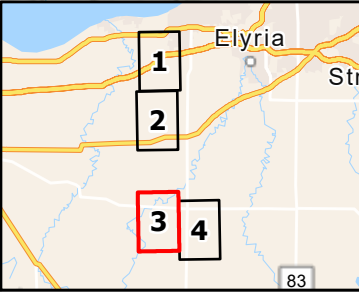
Cells shaded/* = Extension of previously delineated stream; delineated length reflects the extension segment only.

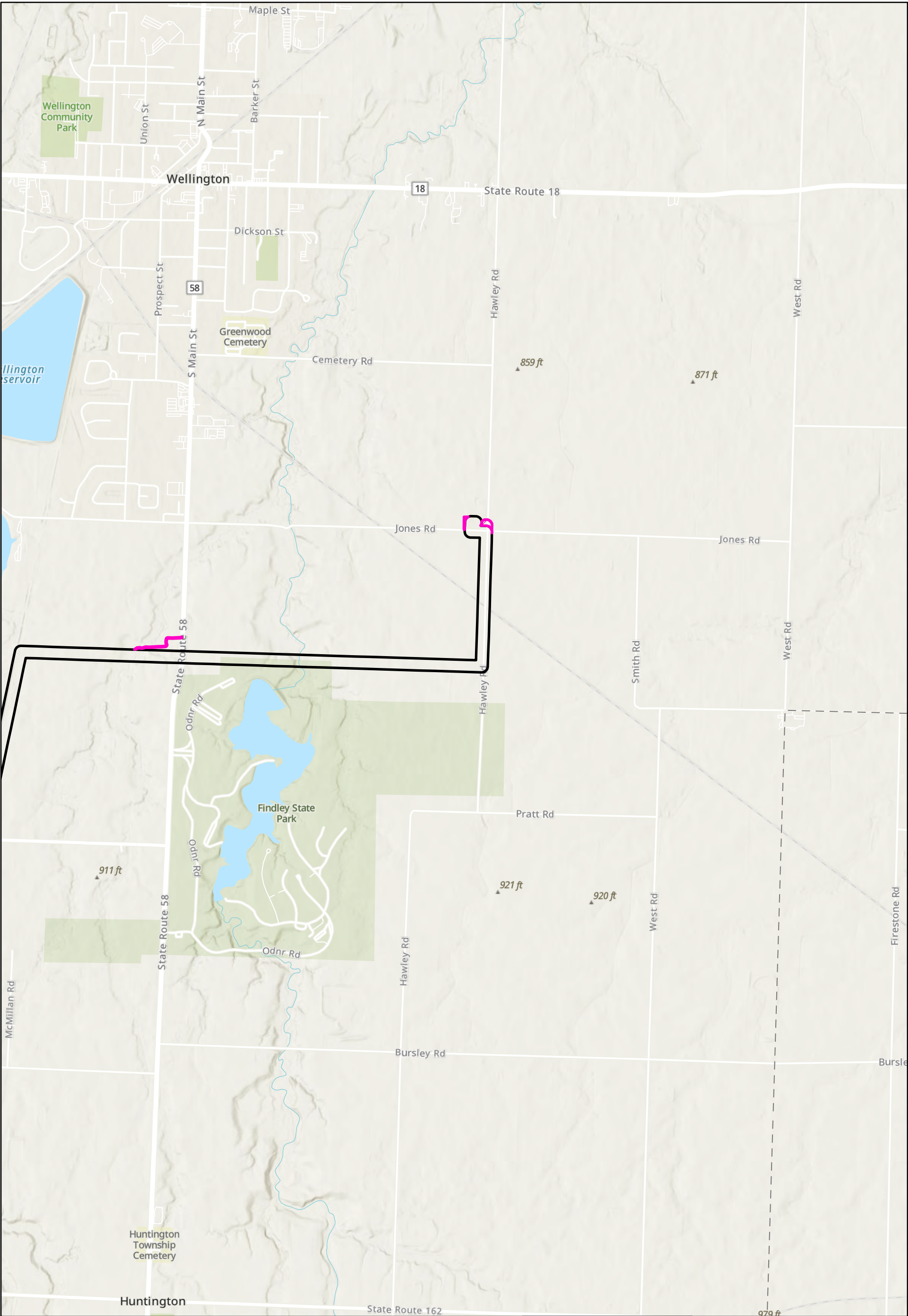
Figures



Original Environmental Survey Corridor Survey Addendum Area	Data Sources or Notes: Esri, USGS		Beaver - Wellington 138kV Transmission Line Project Addendum	
	State Plane Indiana East NAD 1983 (2011)			Figure 1.1 Overview Map Outlier Section
	September 24, 2022			0 250 500 750 1,000 Feet

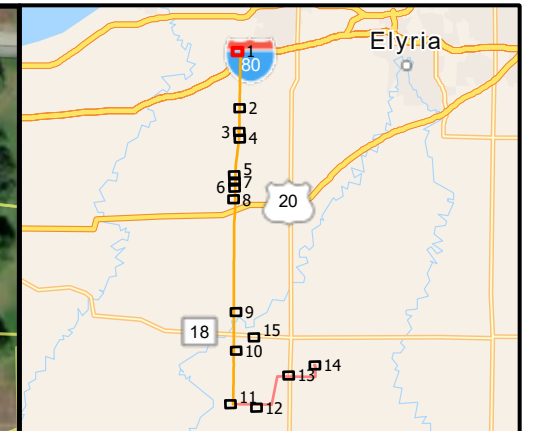
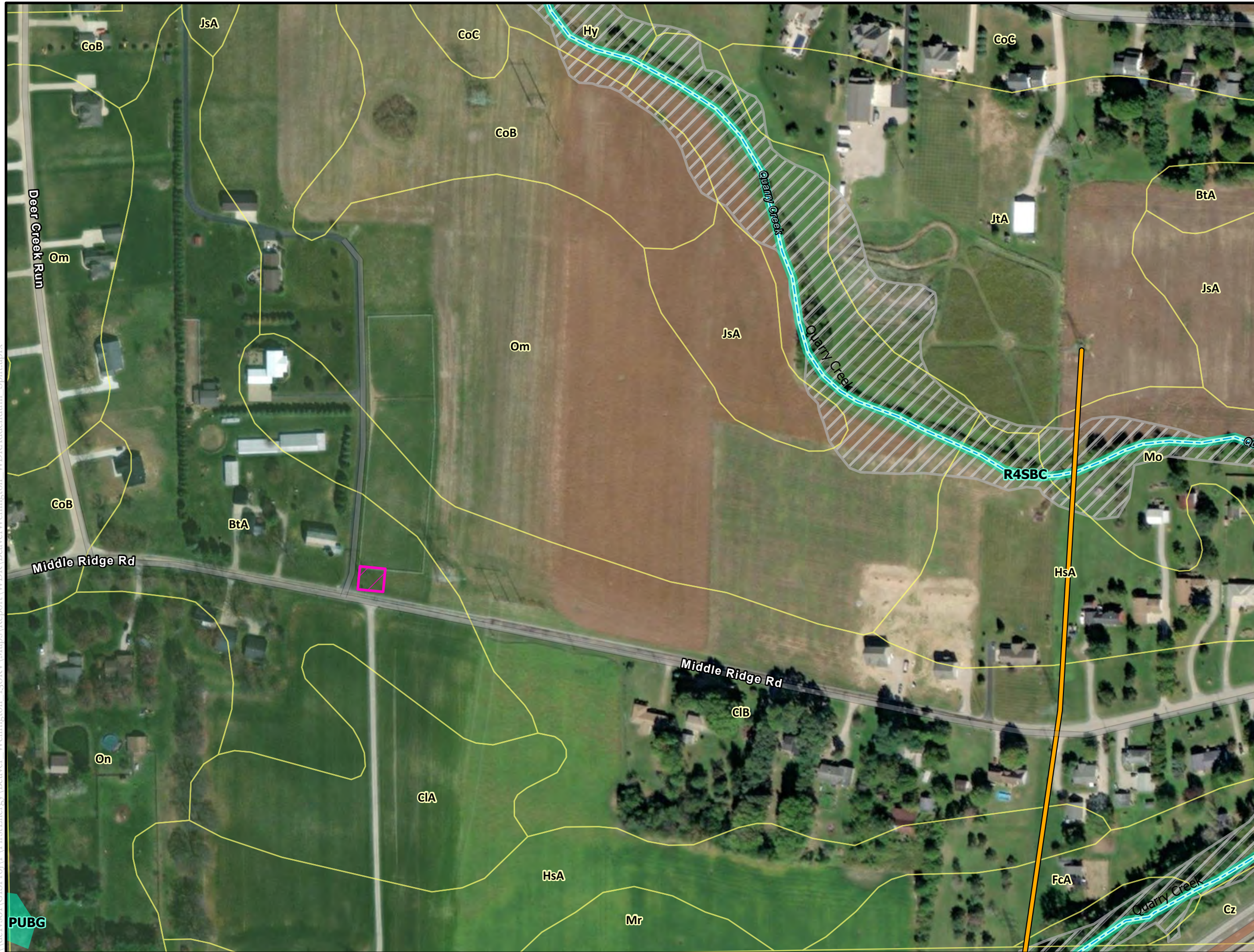


Original Environmental Survey Corridor Survey Addendum Area	Data Sources or Notes: Esri, USGS		ATSI American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp. Beaver - Wellington 138kV Transmission Line Project Addendum	
	State Plane Indiana East NAD 1983 (2011)			Figure 1.3 Overview Map Outlier & Wellington Sections
	September 24, 2022			0 250 500 750 1,000 Feet



Original Environmental Survey Corridor Survey Addendum Area	Data Sources or Notes: Esri, USGS			Beaver - Wellington 138kV Transmission Line Project Addendum
	State Plane Indiana East NAD 1983 (2011)		Figure 1.4 Overview Map Wellington Section	
	September 24, 2022		02505007501,000 Feet	

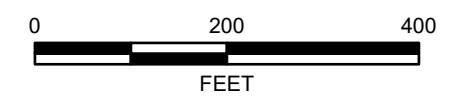
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- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain

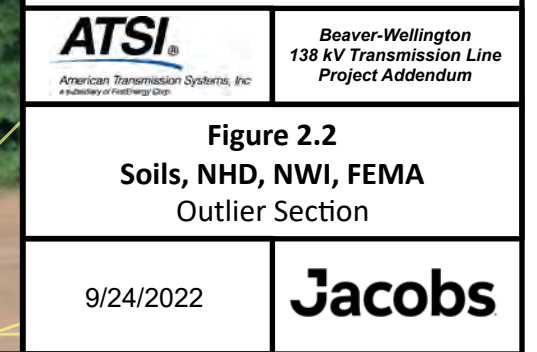
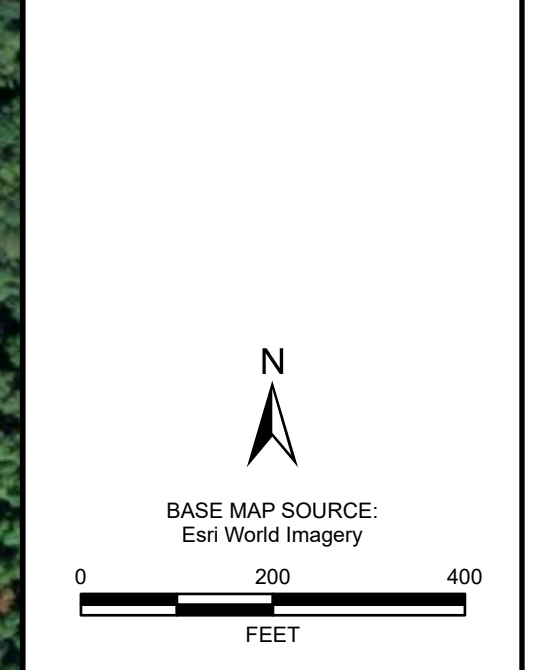
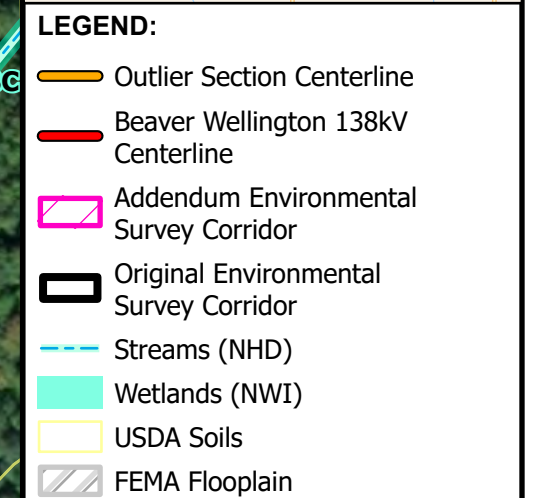
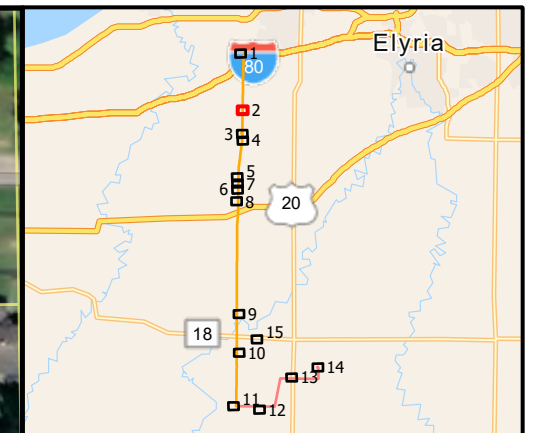
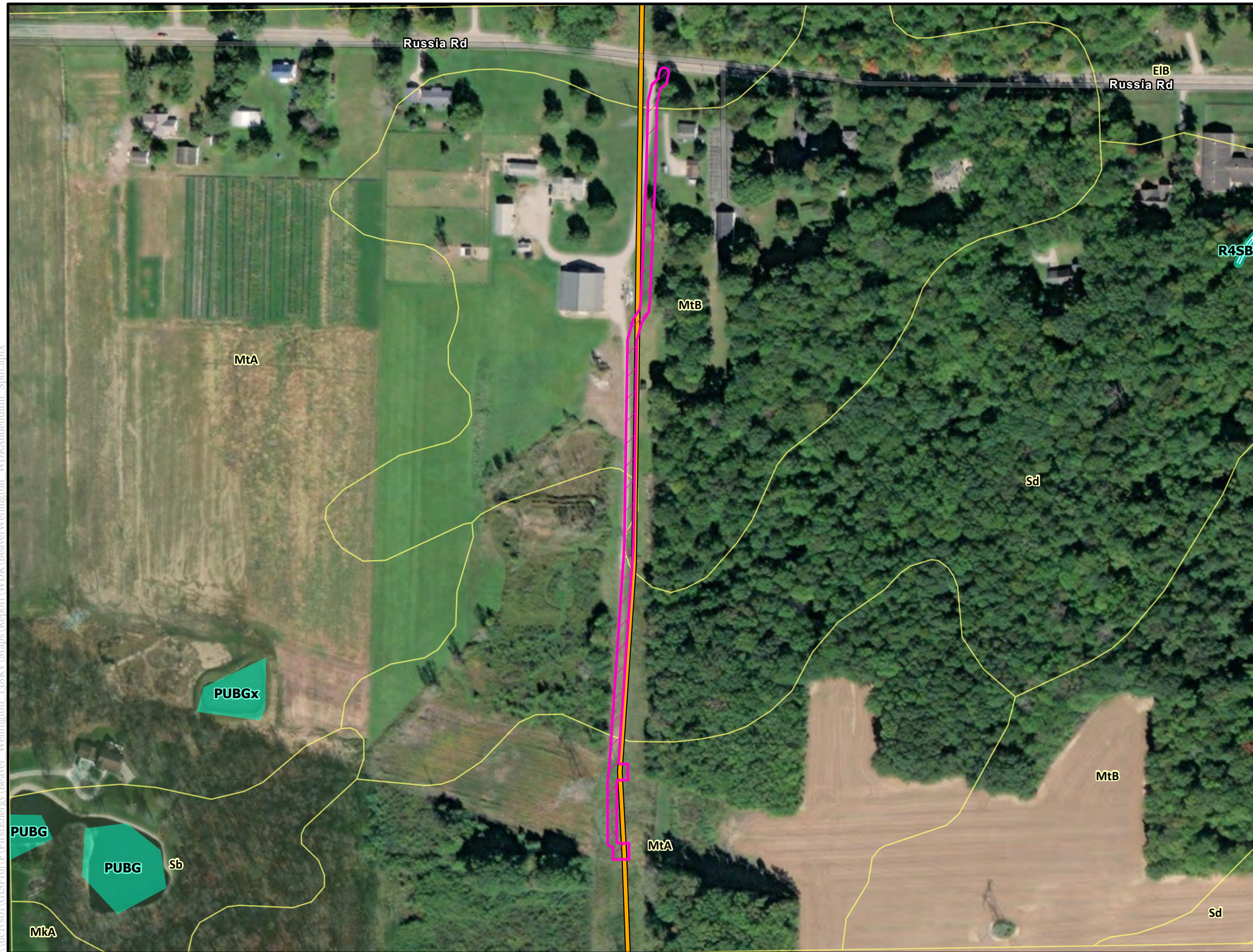


BASE MAP SOURCE:
Esri World Imagery

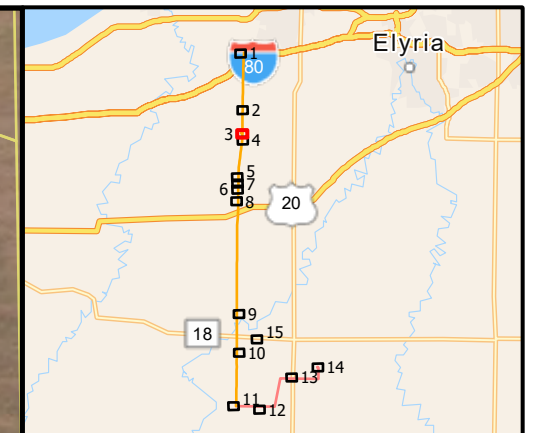
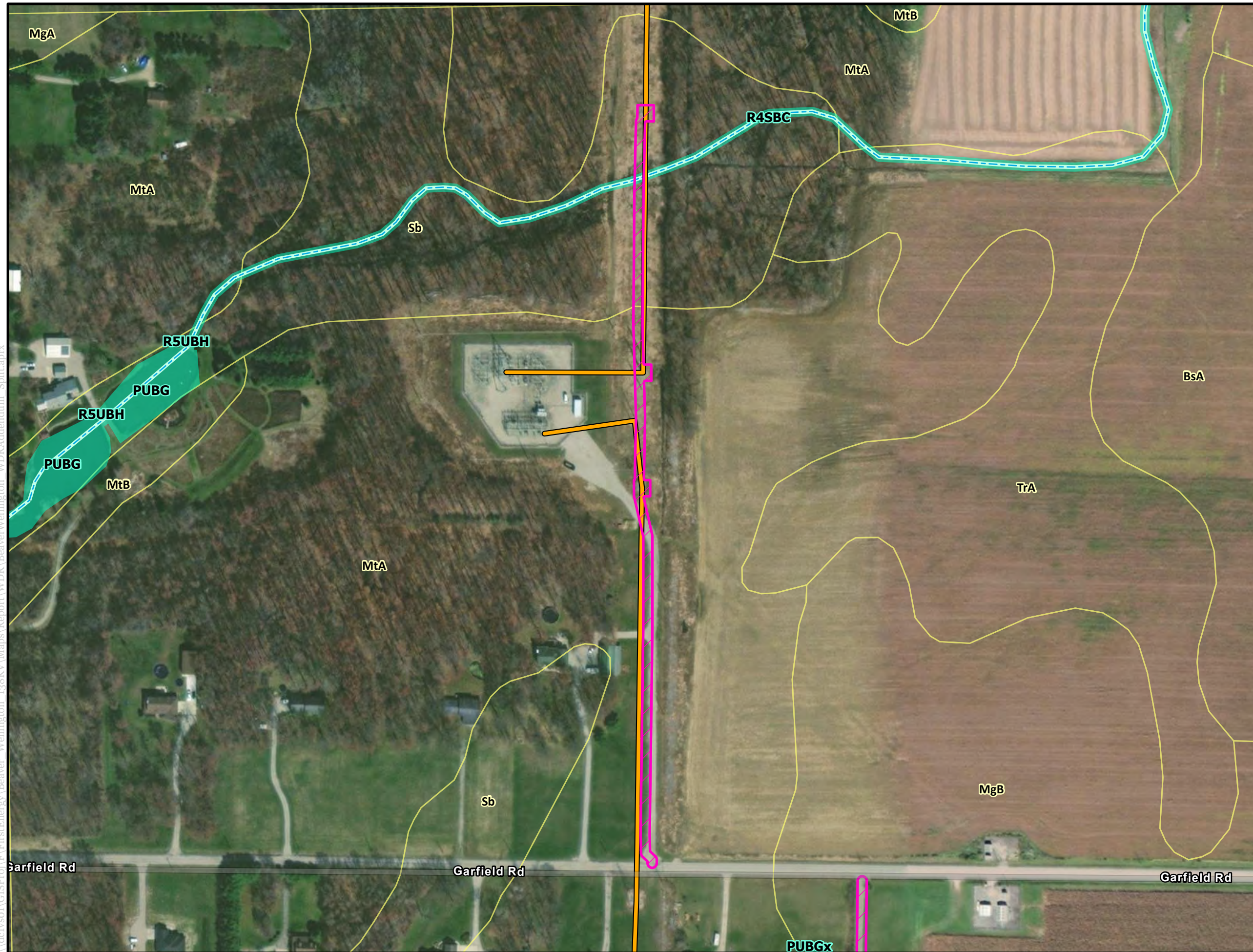


 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.1 Soils, NHD, NWI, FEMA Outlier Section	
9/24/2022	Jacobs

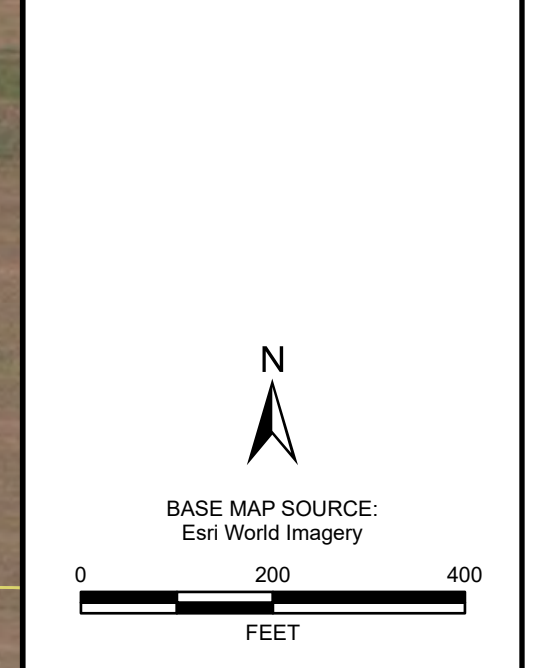
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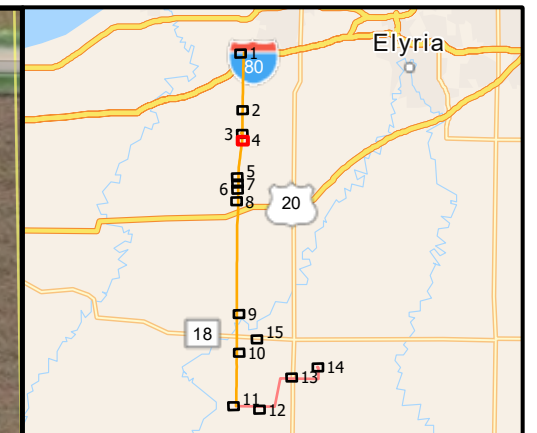
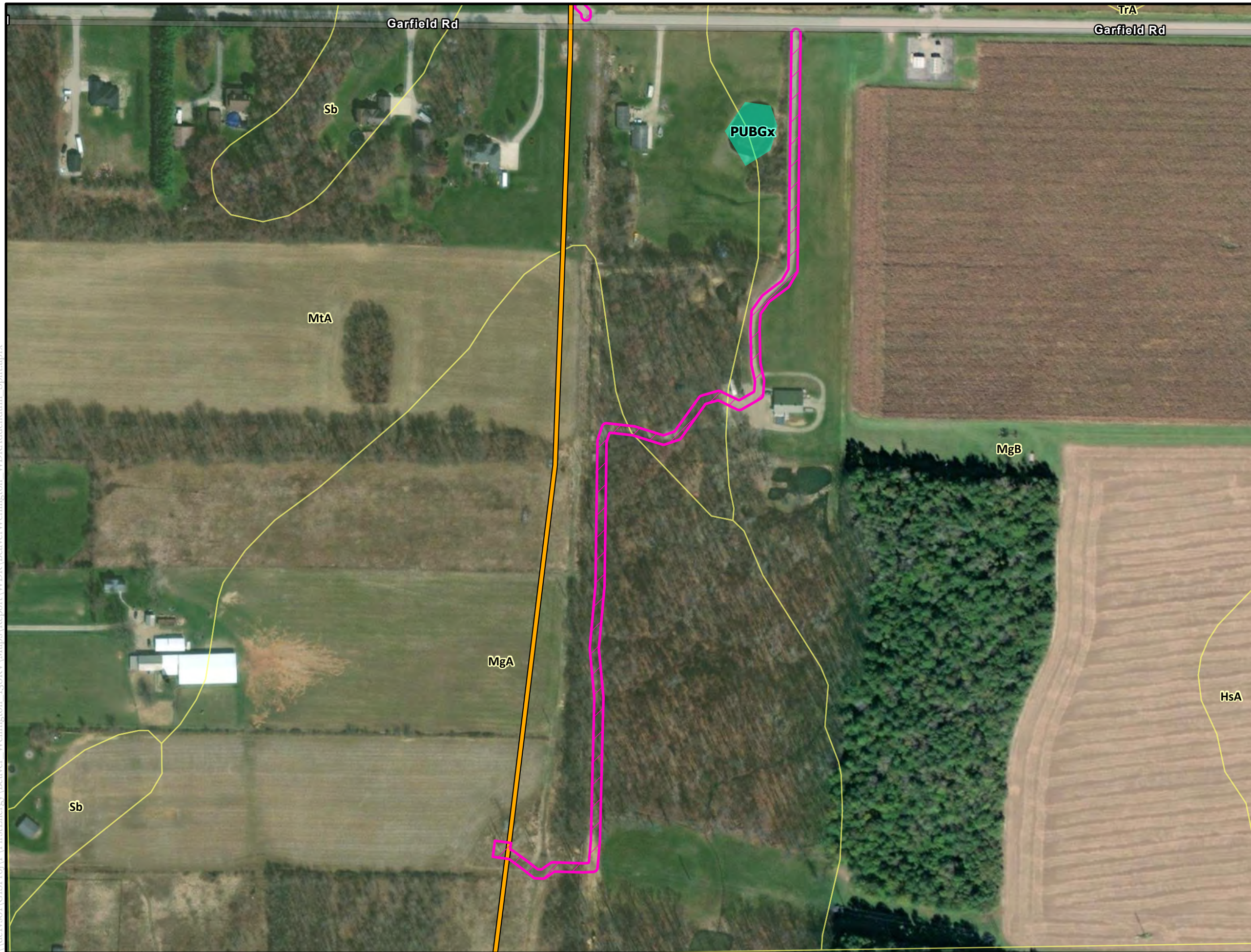


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain

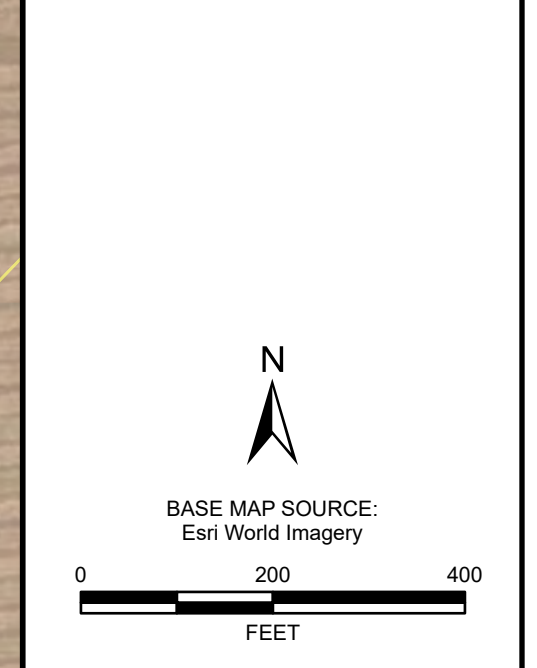


 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.3 Soils, NHD, NWI, FEMA Outlier Section	
9/24/2022	Jacobs

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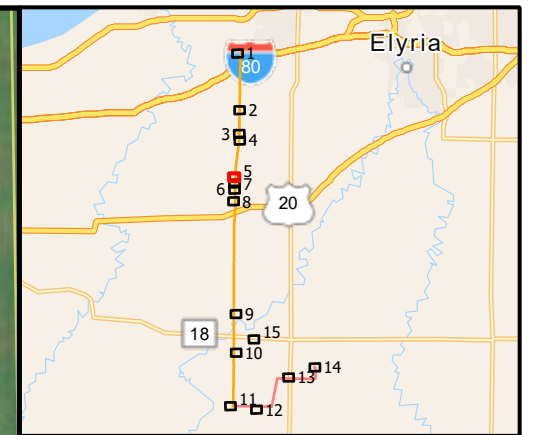
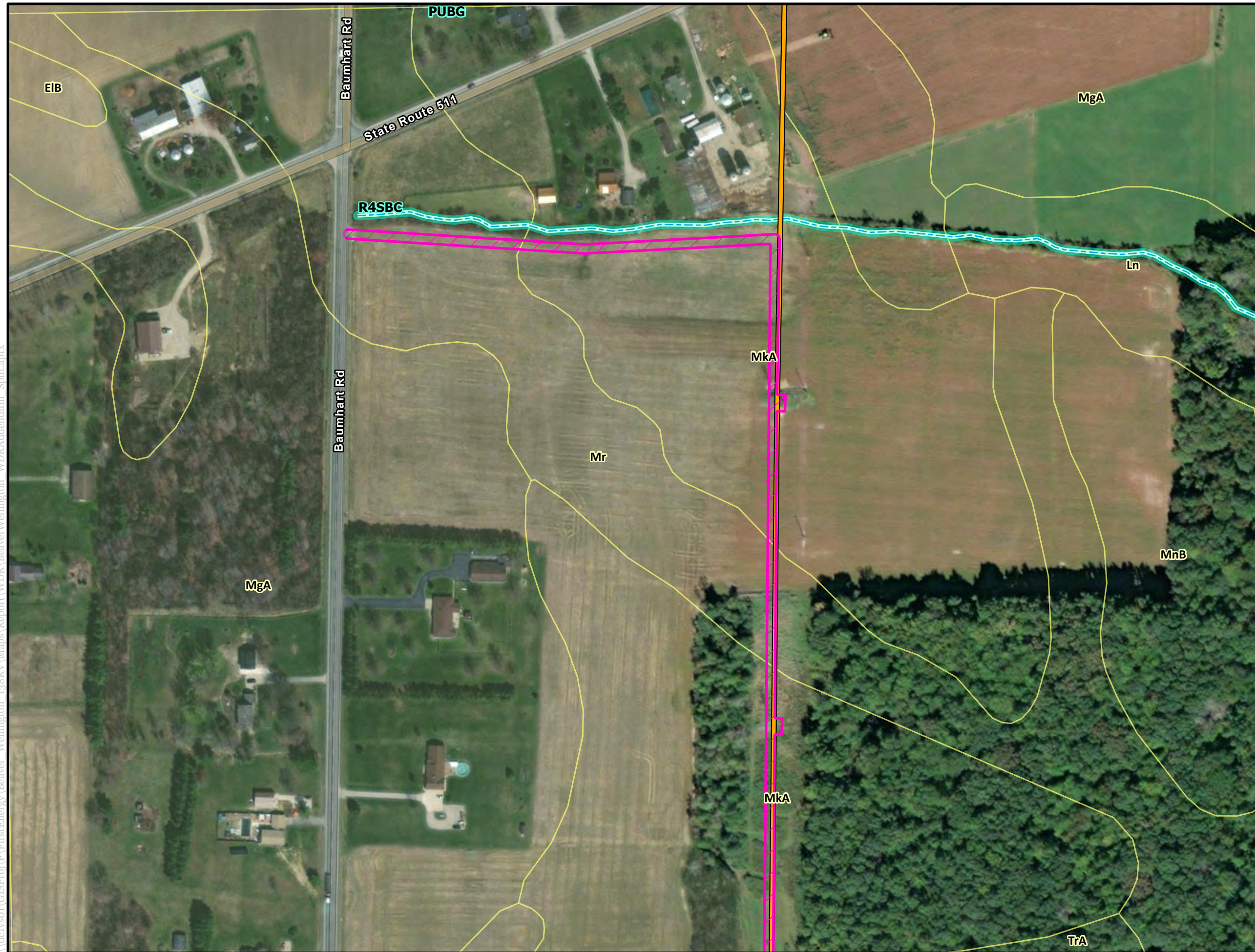


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain

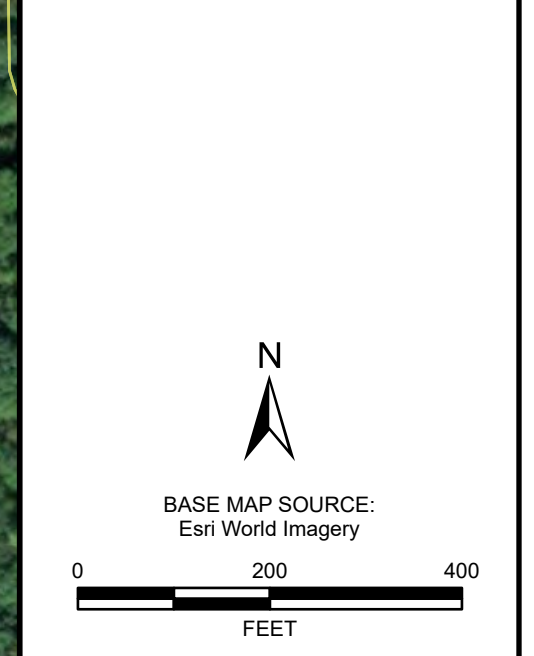


 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.4 Soils, NHD, NWI, FEMA Outlier Section	
9/24/2022	Jacobs

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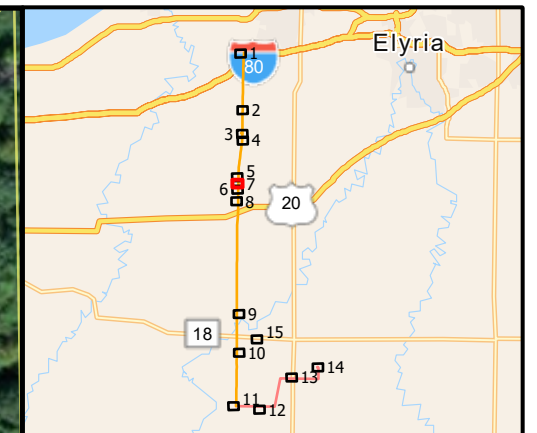
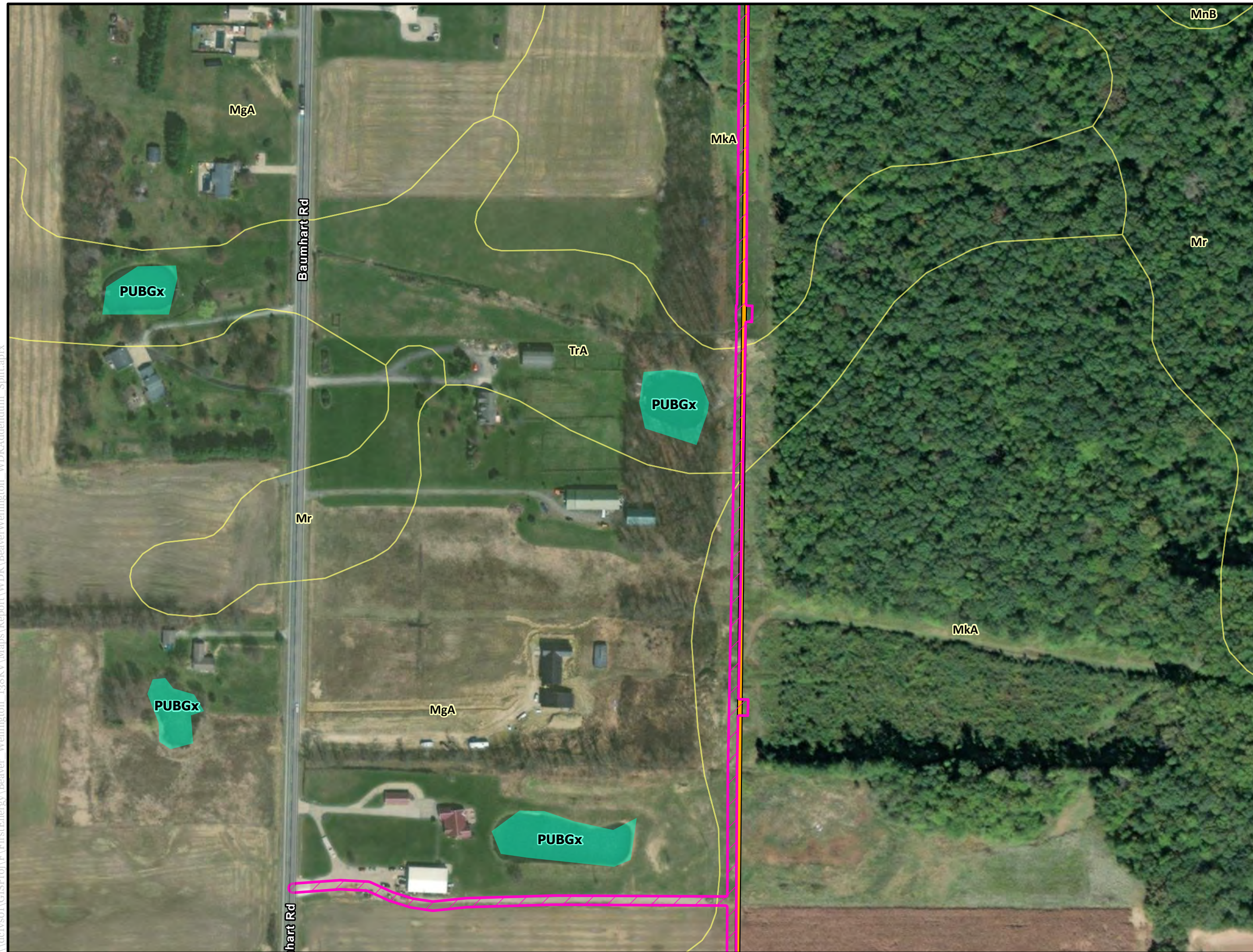


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
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 - Original Environmental Survey Corridor
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 - USDA Soils
 - FEMA Floodplain

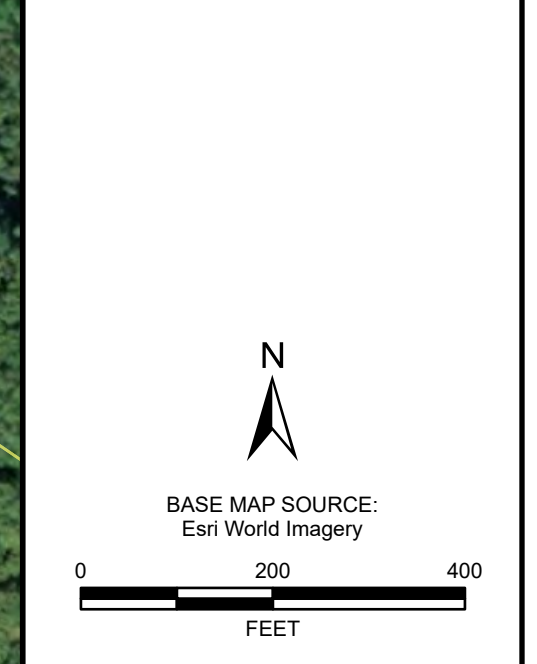


 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.5 Soils, NHD, NWI, FEMA Outlier Section	
9/24/2022	Jacobs

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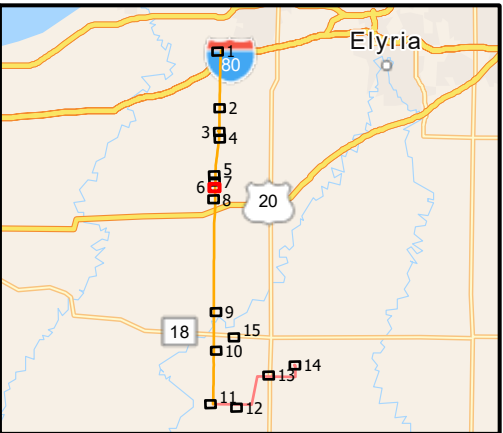


- LEGEND:**
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 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain

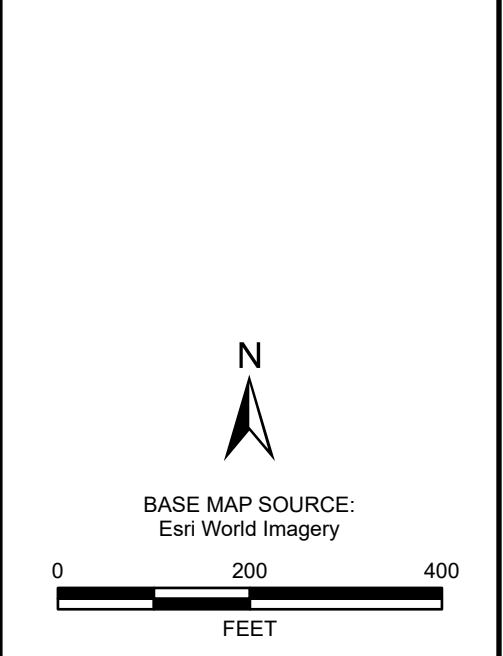


 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.6 Soils, NHD, NWI, FEMA Outlier Section	
9/24/2022	Jacobs

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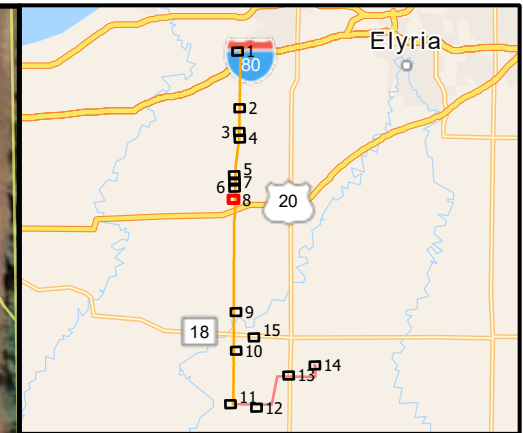


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain

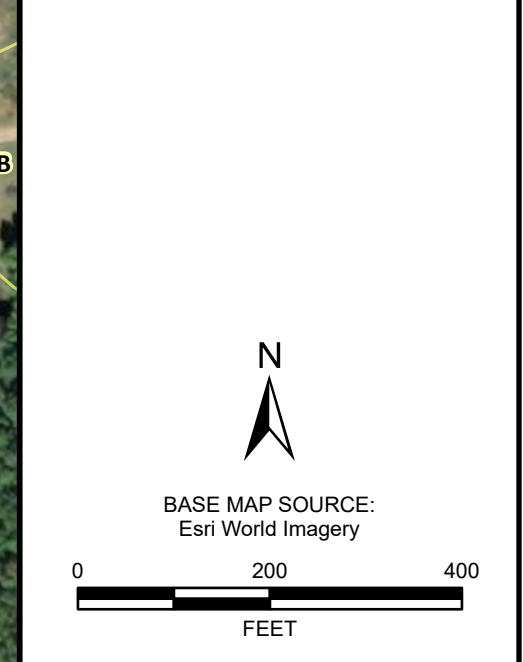


 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.7 Soils, NHD, NWI, FEMA Outlier Section	
9/24/2022	Jacobs

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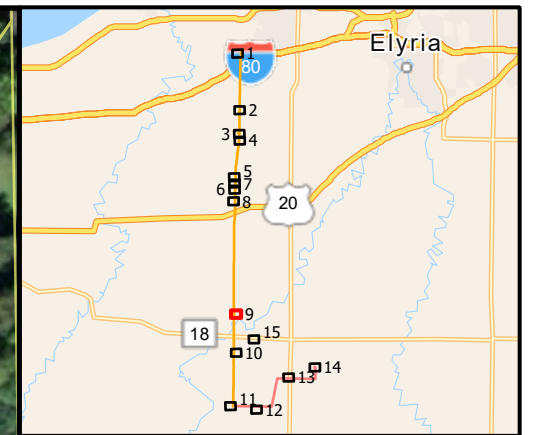
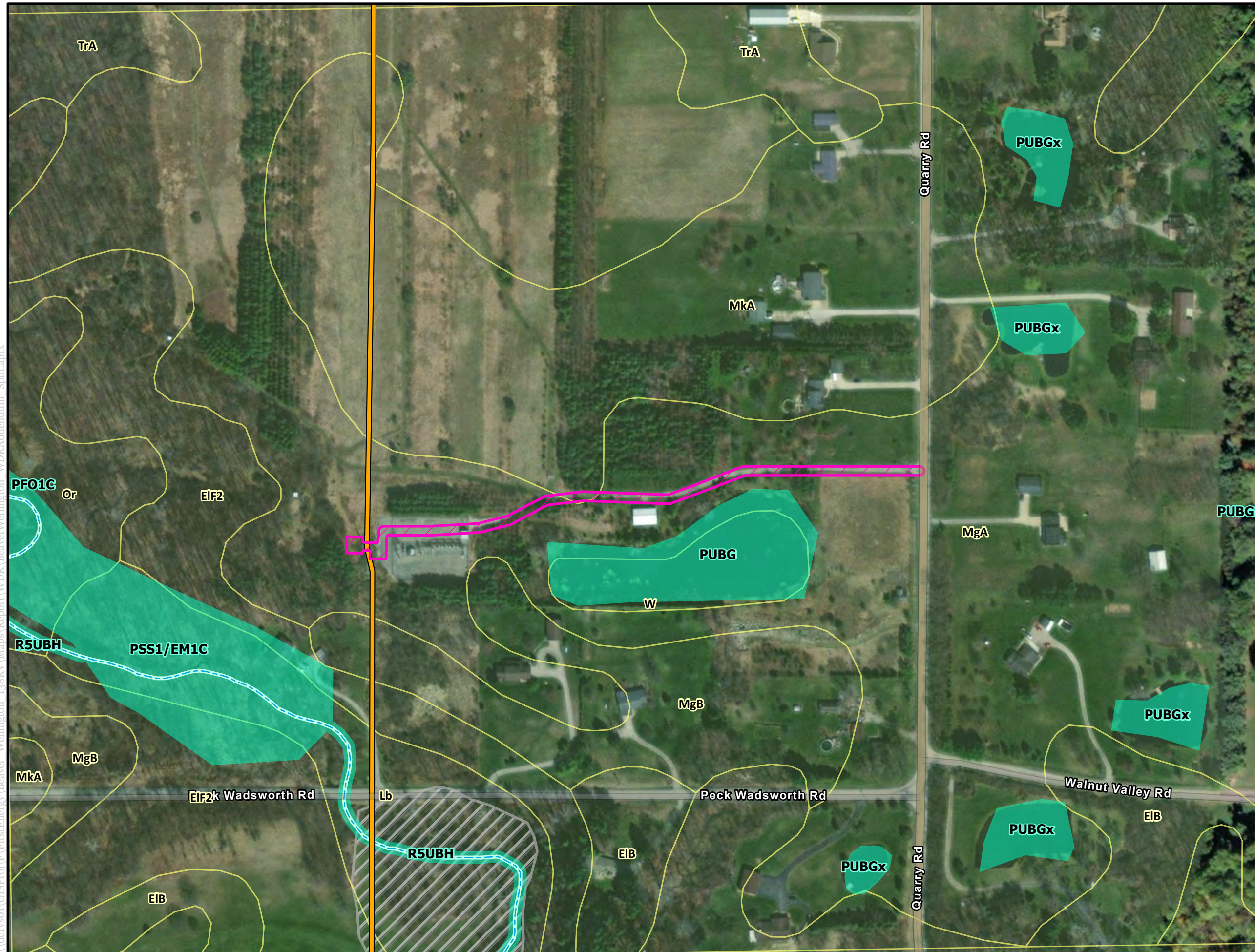


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain

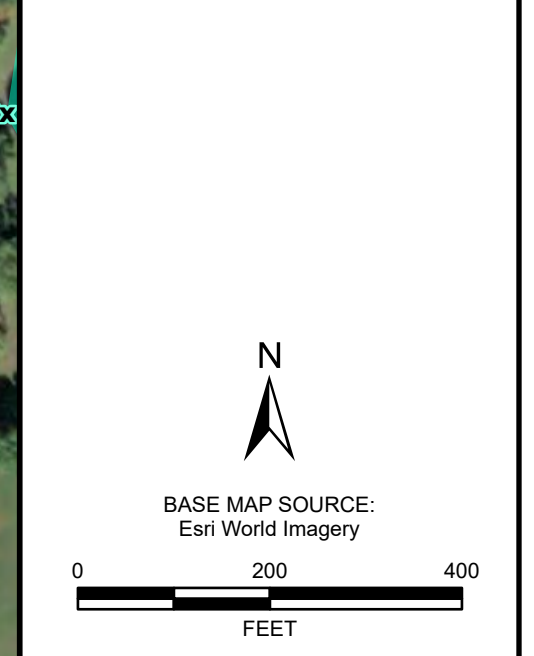


 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.8 Soils, NHD, NWI, FEMA Outlier Section	
9/24/2022	Jacobs

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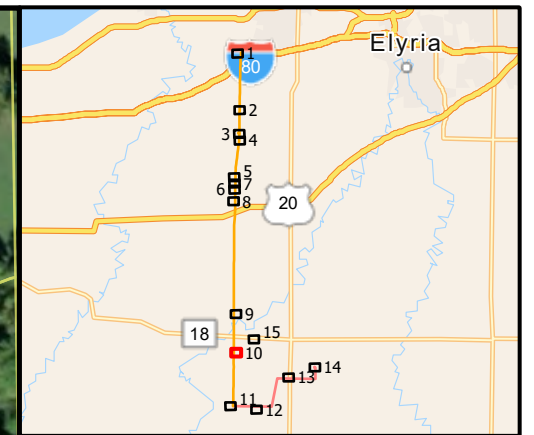
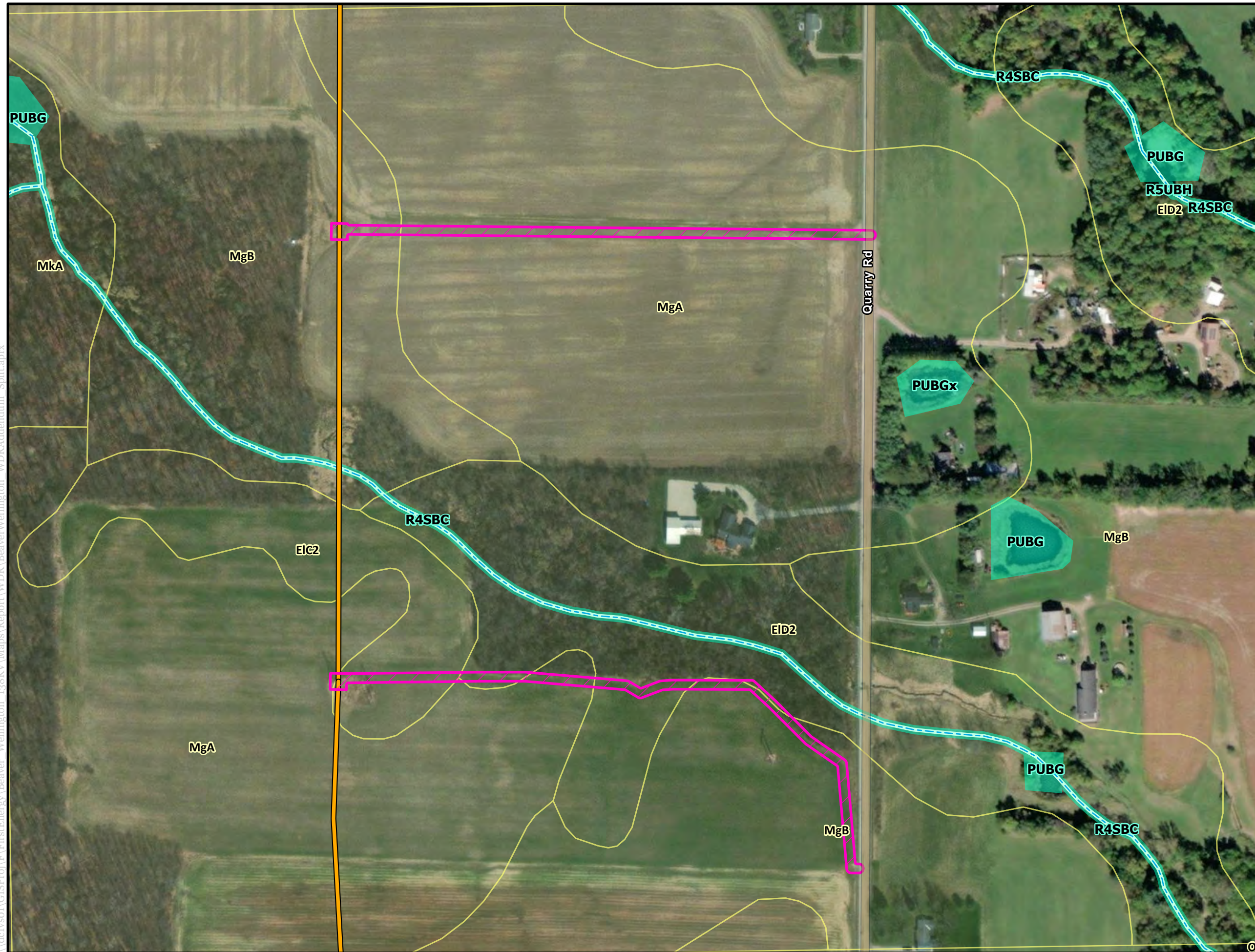


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain

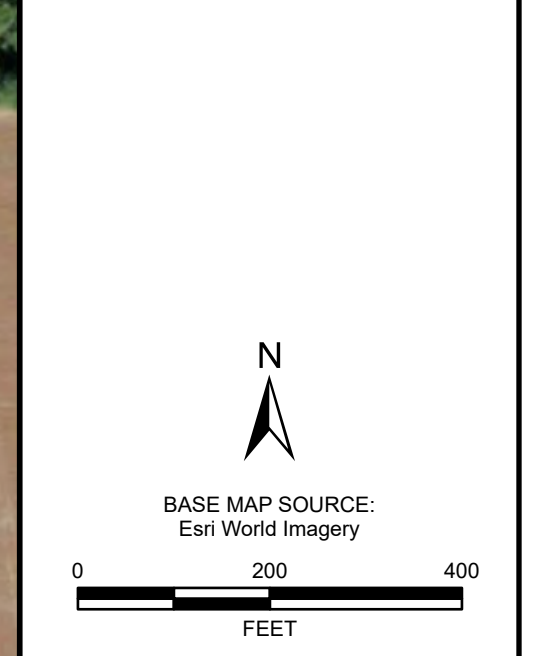


	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.9 Soils, NHD, NWI, FEMA Outlier Section	
9/24/2022	Jacobs

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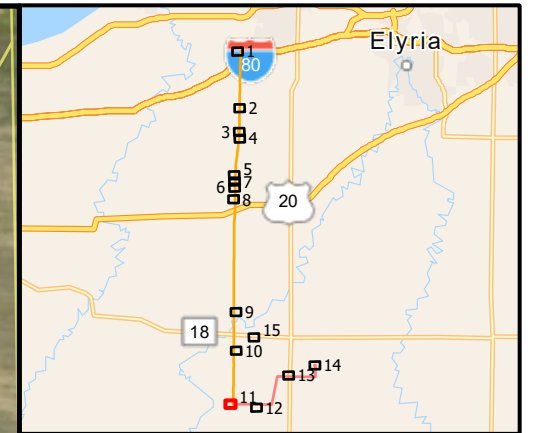
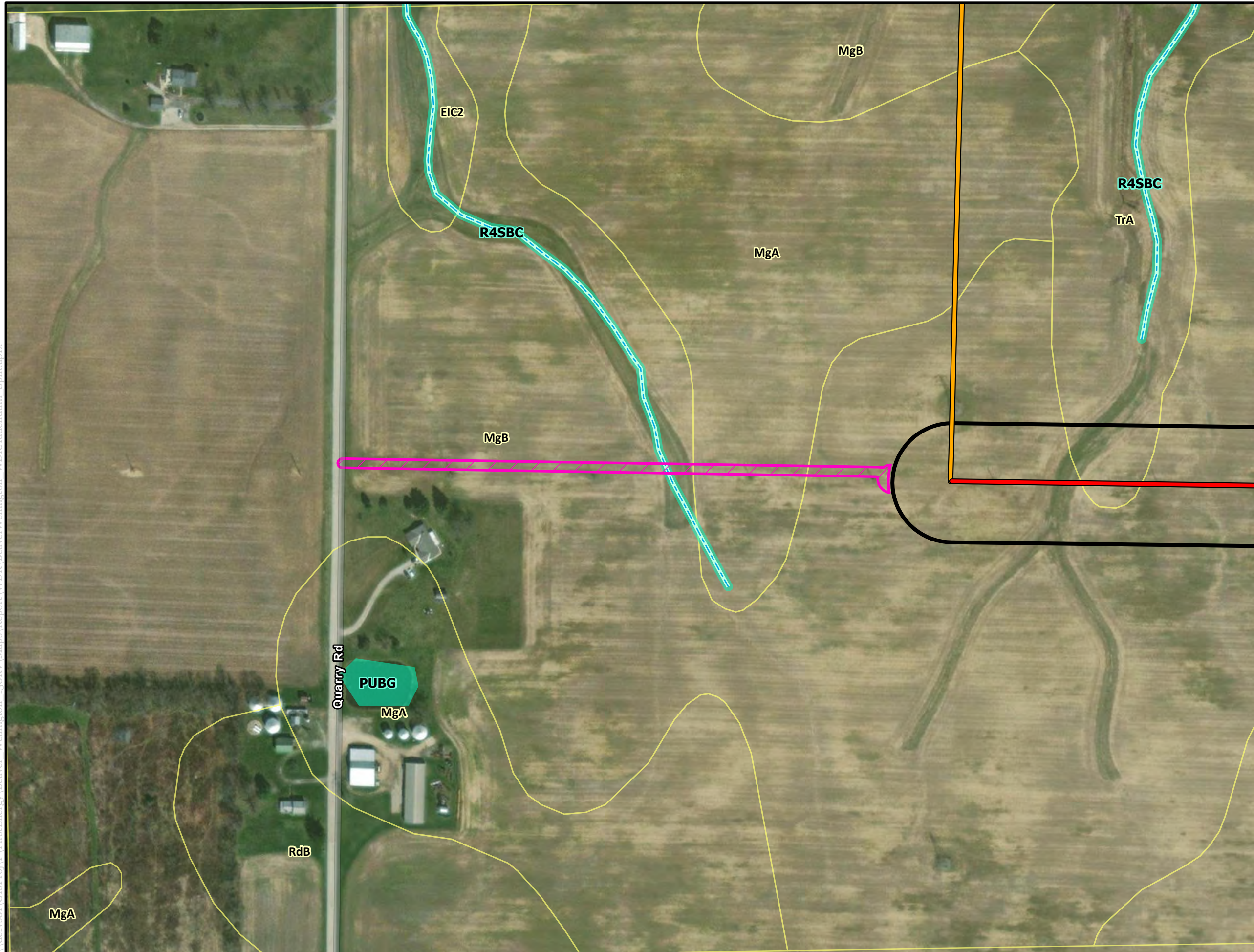


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain

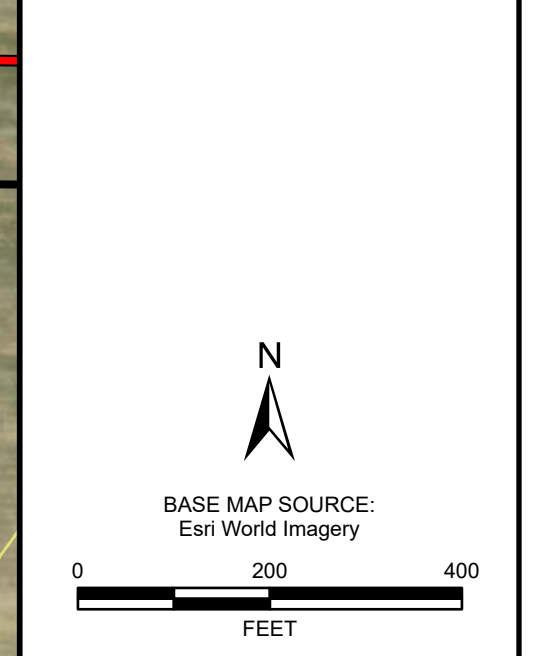


 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.10 Soils, NHD, NWI, FEMA Outlier Section	
9/24/2022	Jacobs

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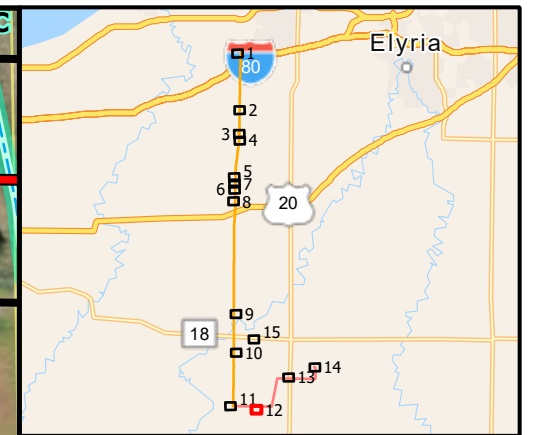
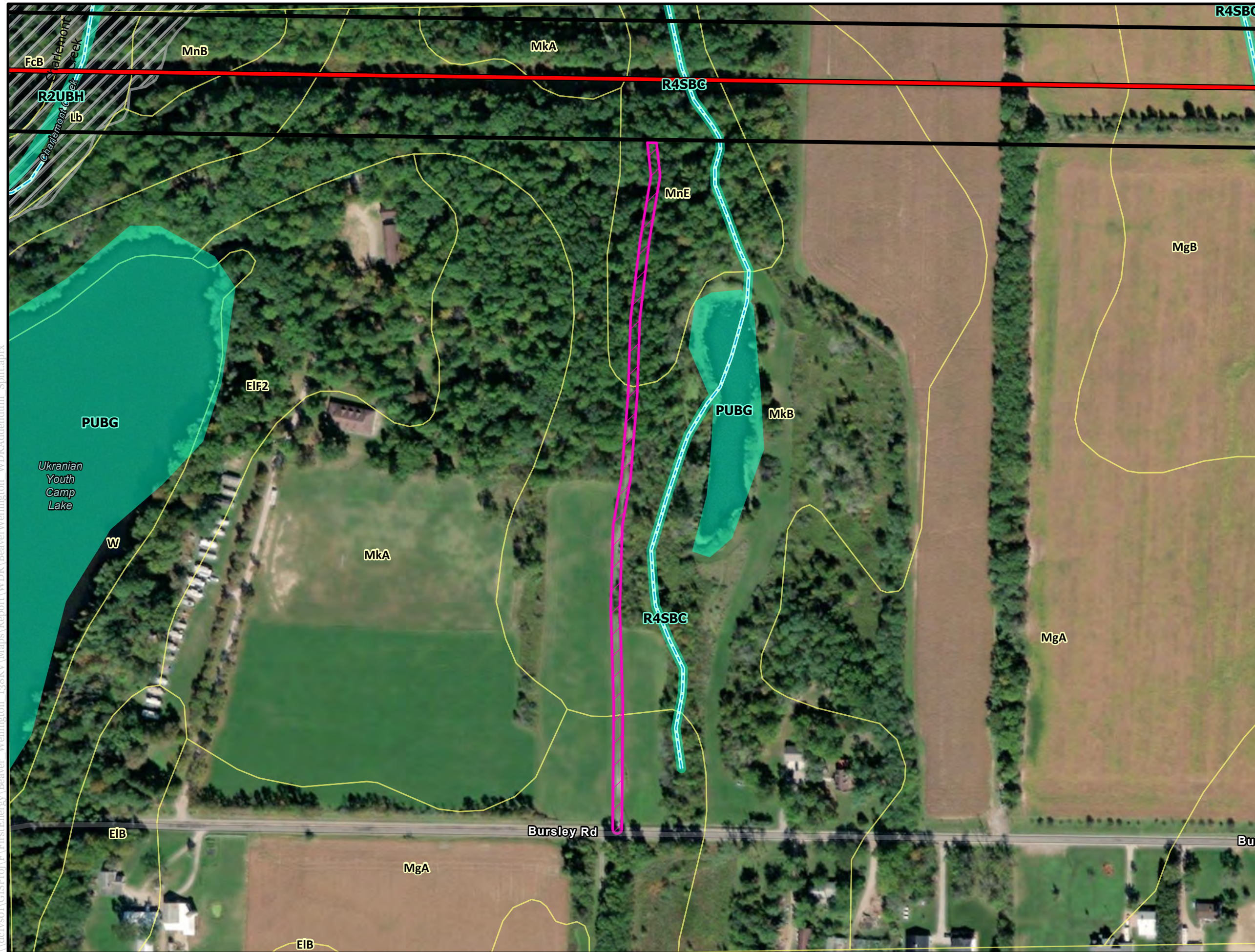


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain

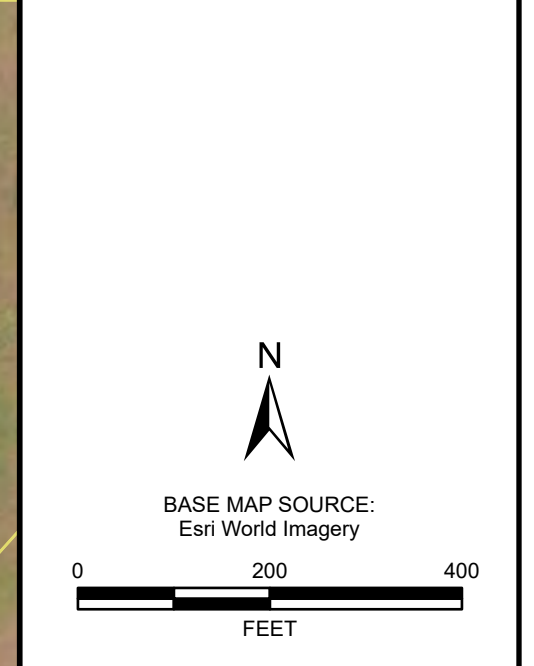


 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.11 Soils, NHD, NWI, FEMA Wellington Section	
9/24/2022	Jacobs

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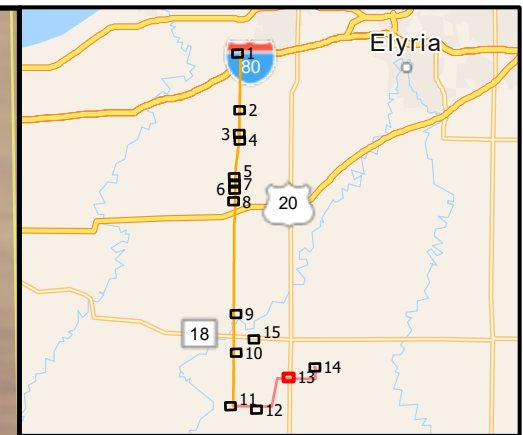
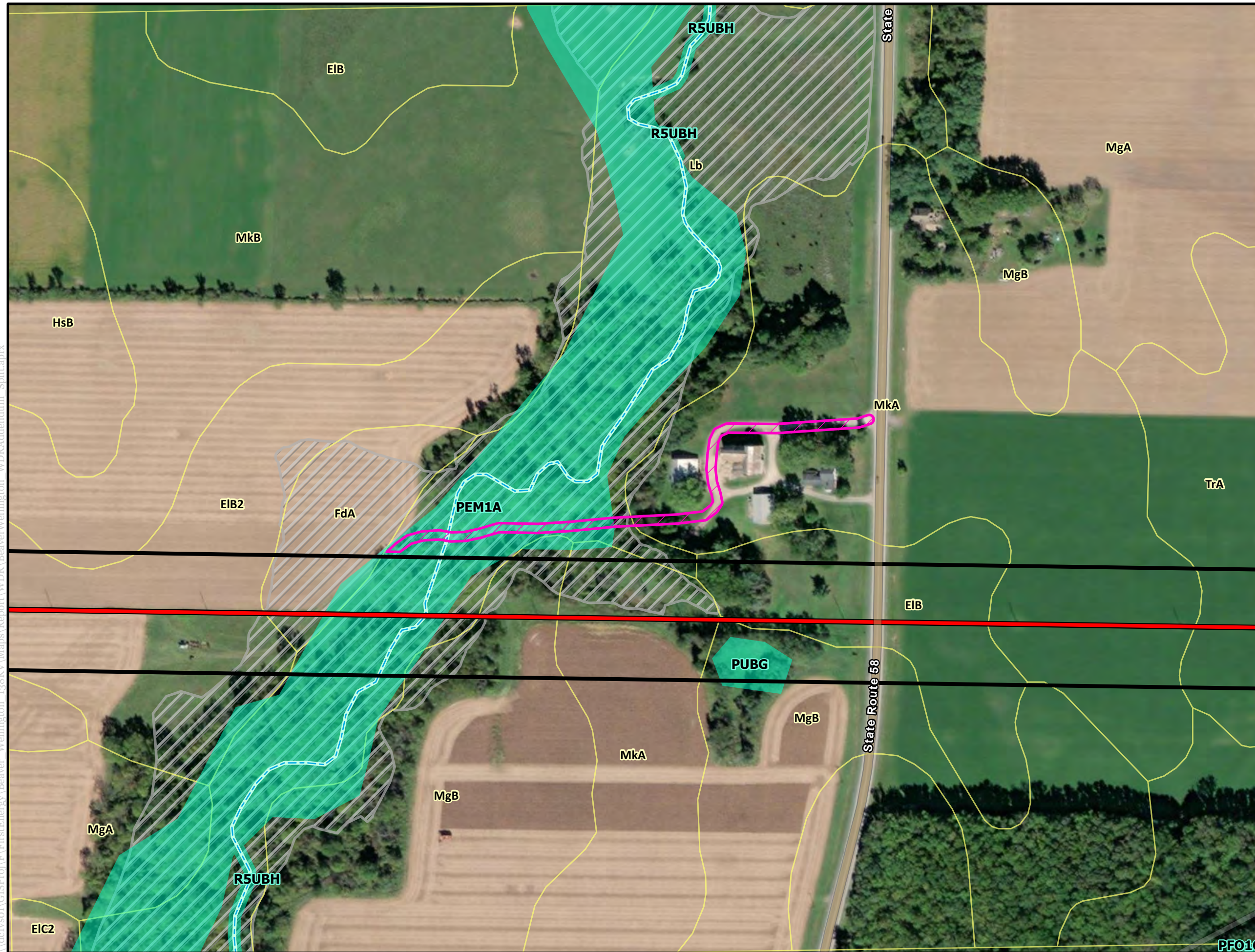


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain



 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.12 Soils, NHD, NWI, FEMA Wellington Section	
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LEGEND:

- Outlier Section Centerline
- Beaver Wellington 138kV Centerline
- Addendum Environmental Survey Corridor
- Original Environmental Survey Corridor
- Streams (NHD)
- Wetlands (NWI)
- USDA Soils
- FEMA Floodplain

BASE MAP SOURCE:
Esri World Imagery

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Beaver-Wellington
138 kV Transmission Line
Project Addendum

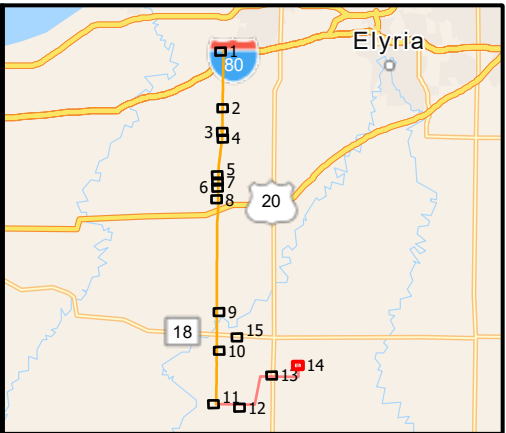
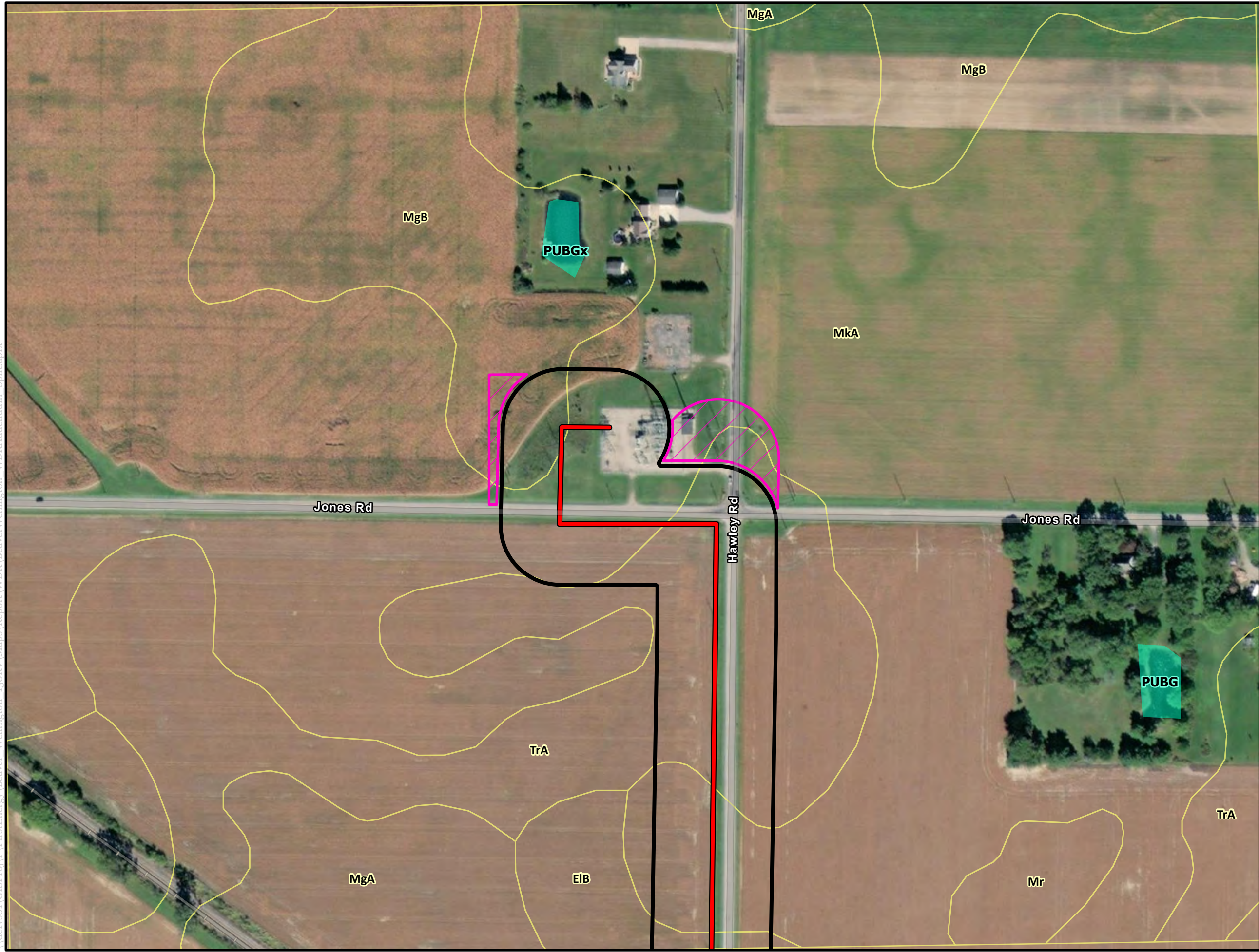
Figure 2.13
Soils, NHD, NWI, FEMA
Wellington Section

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- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain

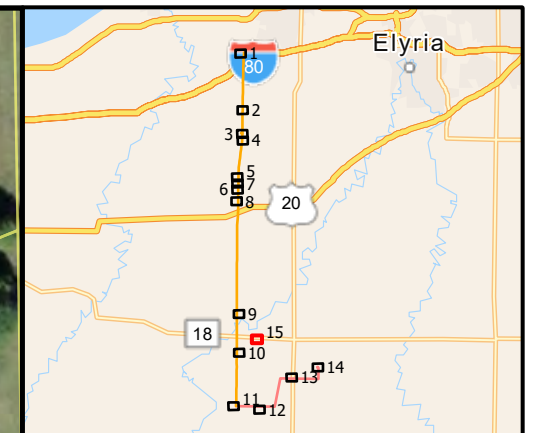
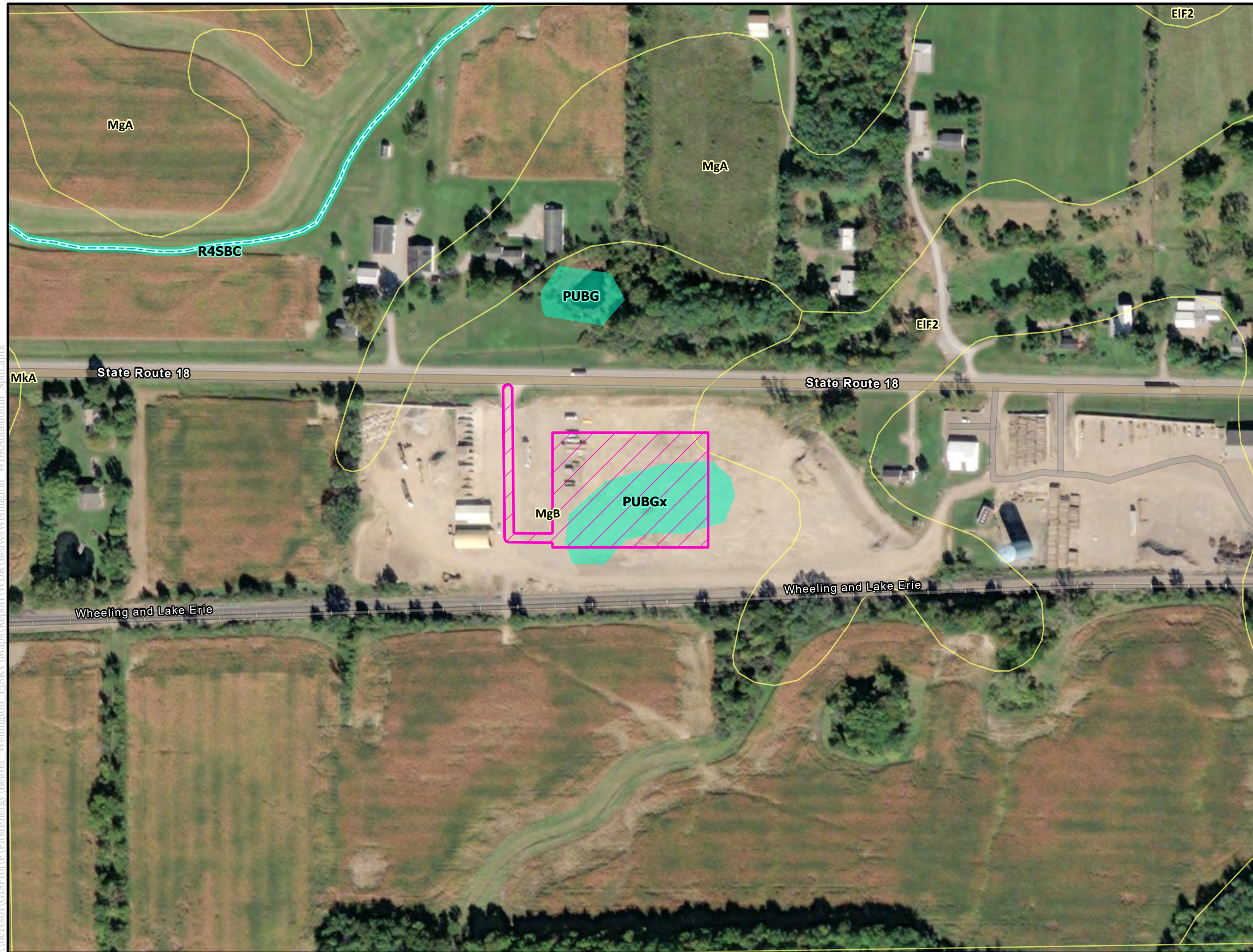


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 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 2.14 Soils, NHD, NWI, FEMA Wellington Section	
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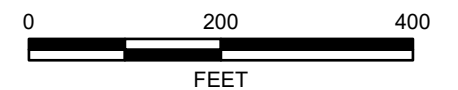
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- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Addendum Environmental Survey Corridor
 - Original Environmental Survey Corridor
 - Streams (NHD)
 - Wetlands (NWI)
 - USDA Soils
 - FEMA Floodplain



BASE MAP SOURCE:
Esri World Imagery



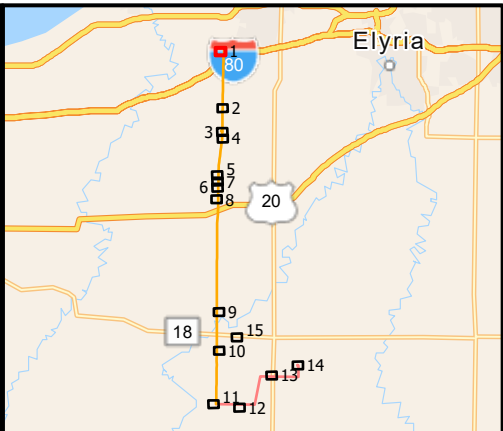
Beaver-Wellington
138 kV Transmission Line
Project Addendum

Figure 2.15
Soils, NHD, NWI, FEMA
Wellington Section

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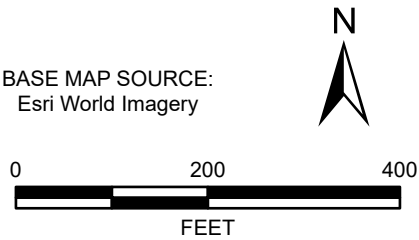
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- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Original Environmental Survey Corridor
 - Addendum Environmental Survey Corridor
 - Addendum Stream
 - Previously Delineated Stream

- Addendum Wetland**
- PEM
- Previously Delineated Wetland**
- PEM
 - PFO
 - POW
 - PSS



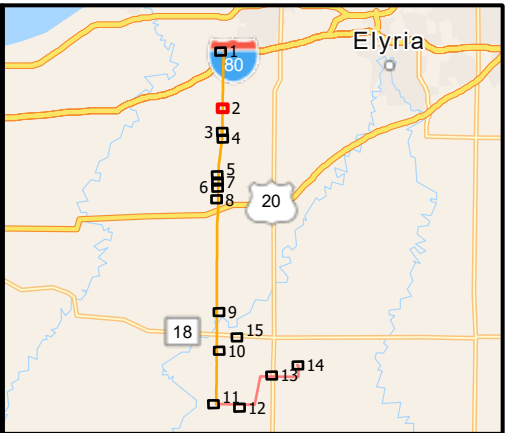
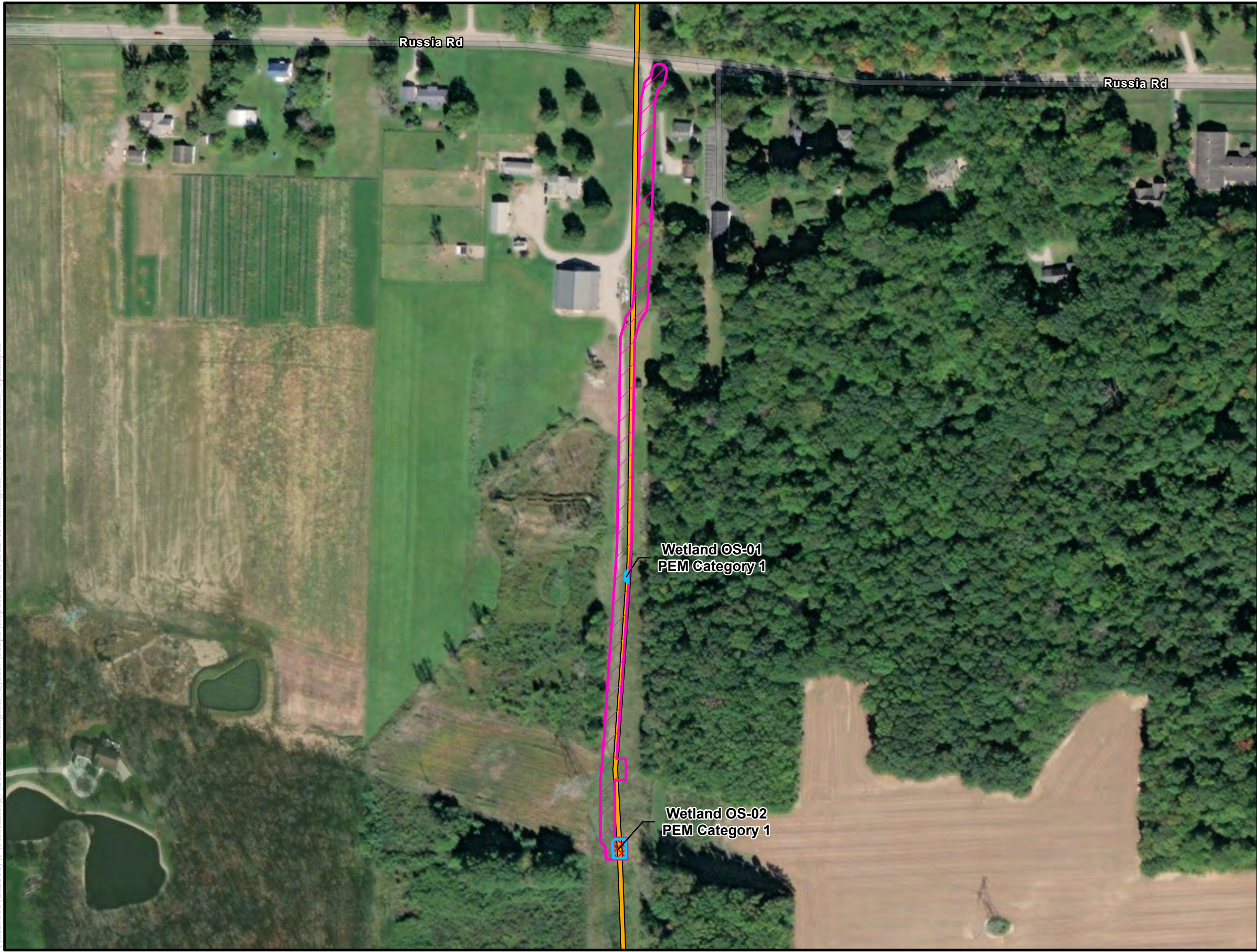
Beaver-Wellington
138 kV Transmission Line
Project Addendum

Figure 3.1
Delineated Features
Outlier Section

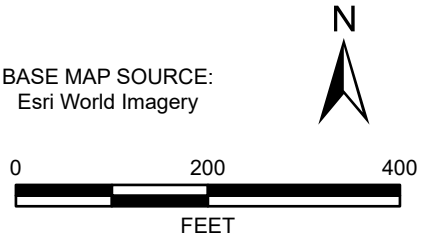
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- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Original Environmental Survey Corridor
 - Addendum Environmental Survey Corridor
 - Addendum Stream
 - Previously Delineated Stream
 - Addendum Wetland**
 - PEM
 - Previously Delineated Wetland**
 - PEM
 - PFO
 - POW
 - PSS



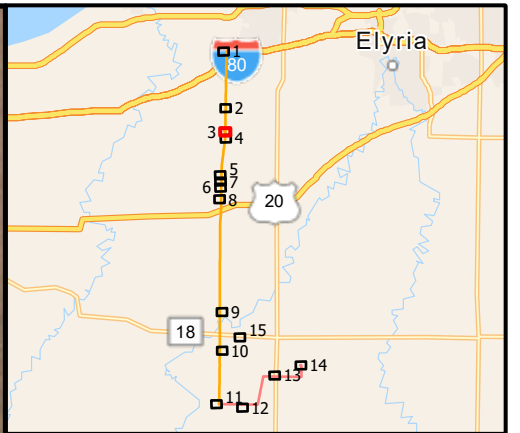
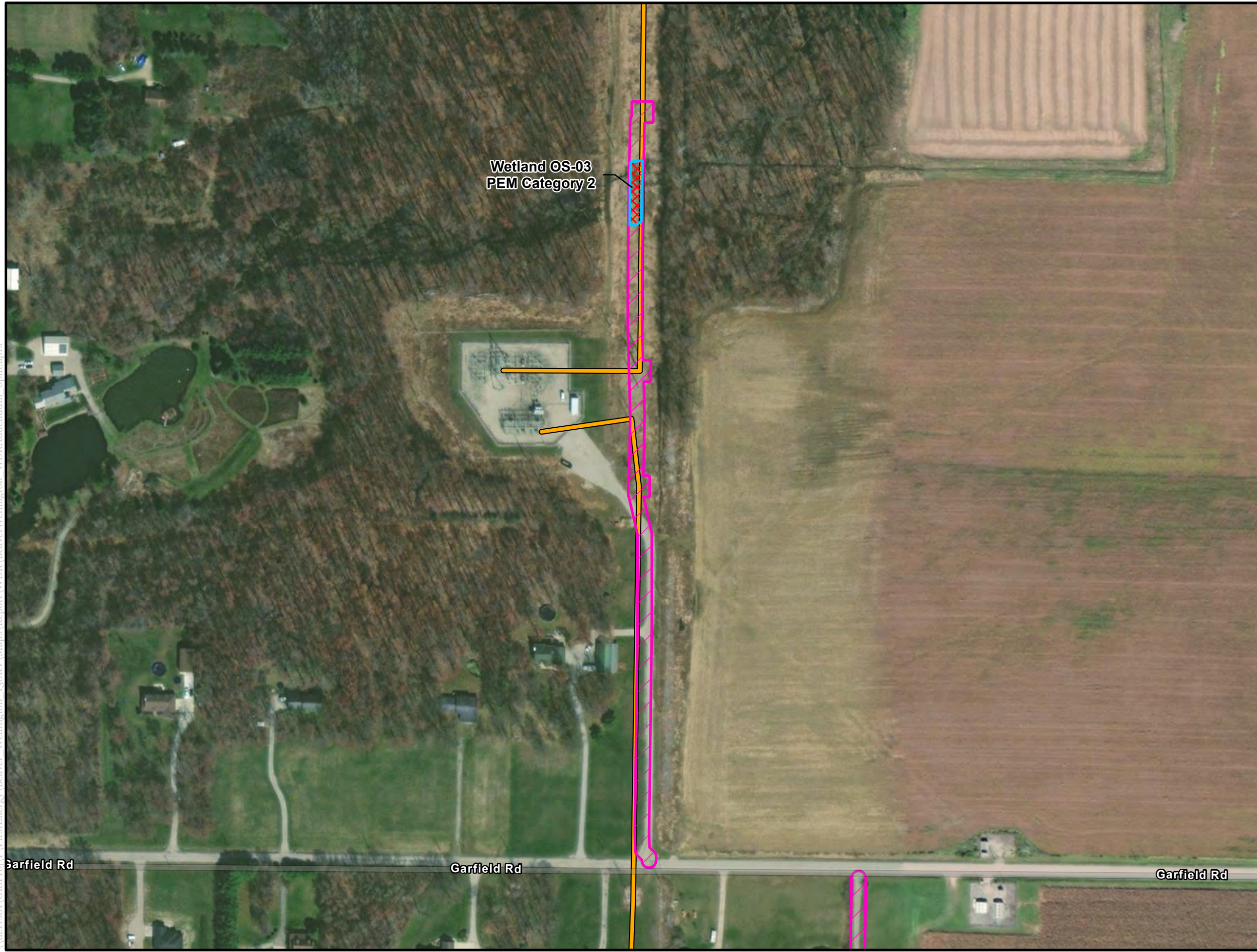
Beaver-Wellington
138 kV Transmission Line
Project Addendum

Figure 3.2
Delineated Features
Outlier Section

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LEGEND:

- Outlier Section Centerline
- Beaver Wellington 138kV Centerline
- Original Environmental Survey Corridor
- Addendum Environmental Survey Corridor
- Addendum Stream
- Previously Delineated Stream

Addendum Wetland

- PEM

Previously Delineated Wetland

- PEM
- PFO
- POW
- PSS

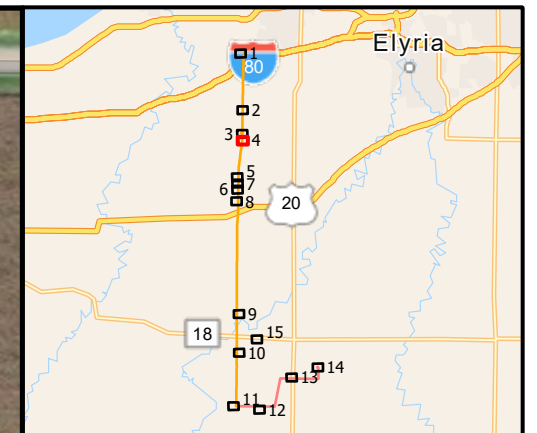
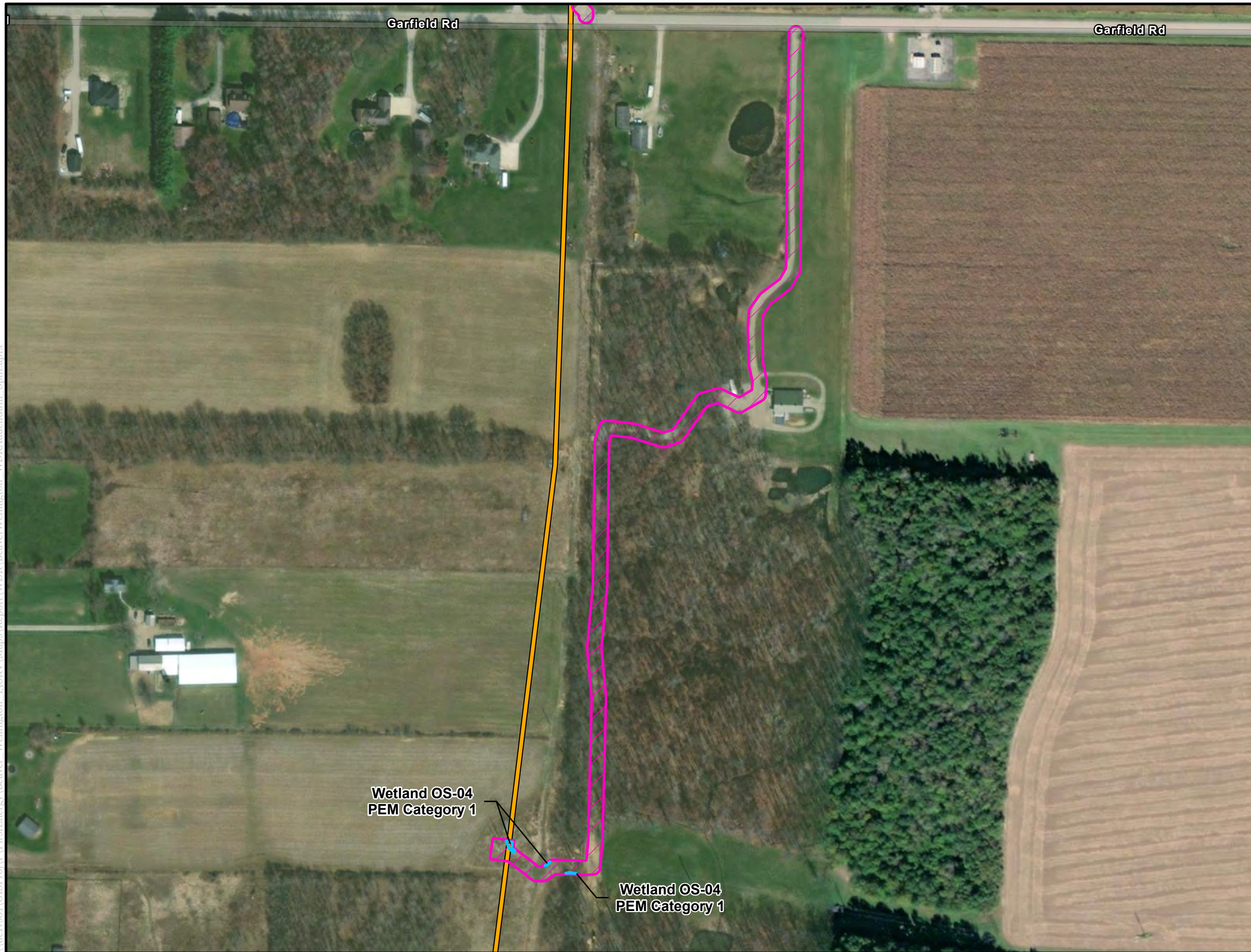
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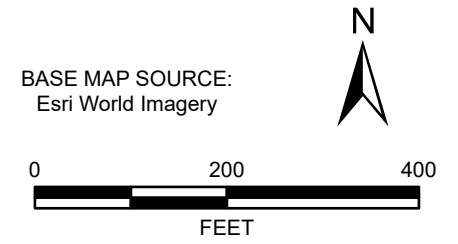
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 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 3.3 Delineated Features Outlier Section	
9/24/2022	Jacobs

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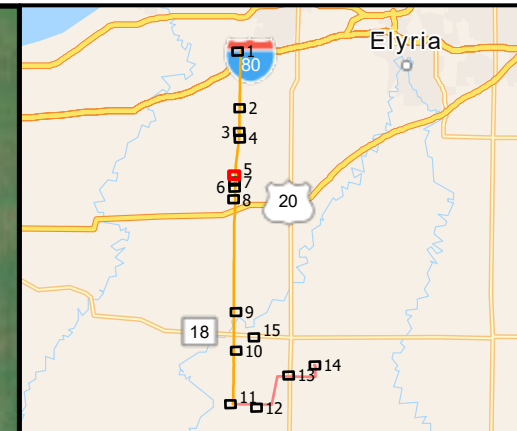
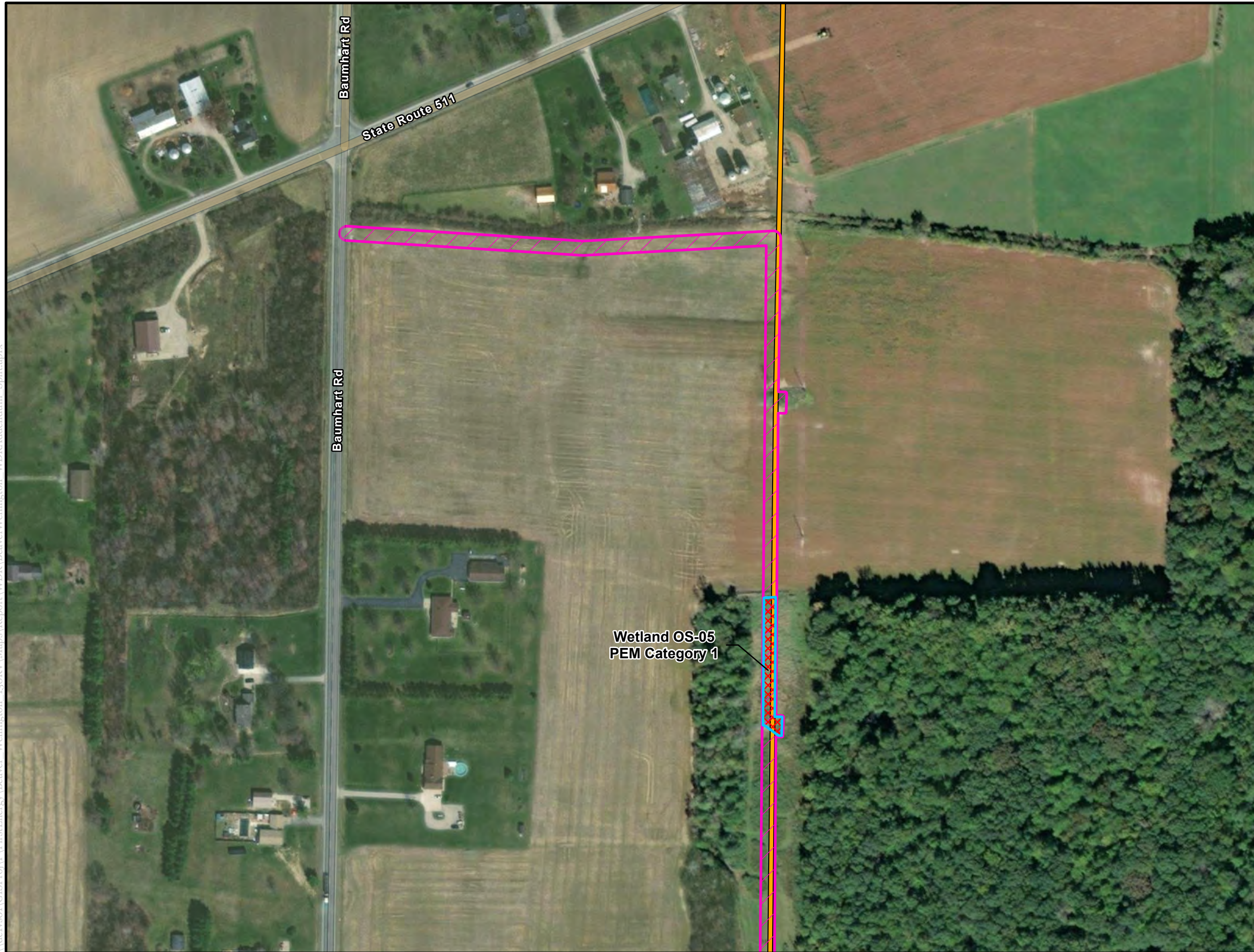


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Original Environmental Survey Corridor
 - Addendum Environmental Survey Corridor
 - Addendum Stream
 - Previously Delineated Stream
 - Addendum Wetland**
 - PEM
 - Previously Delineated Wetland**
 - PEM
 - PFO
 - POW
 - PSS



 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 3.4 Delineated Features Outlier Section	
9/24/2022	Jacobs

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LEGEND:

- Outlier Section Centerline
- Beaver Wellington 138kV Centerline
- Original Environmental Survey Corridor
- Addendum Environmental Survey Corridor
- Addendum Stream
- Previously Delineated Stream

Addendum Wetland

- PEM

Previously Delineated Wetland

- PEM
- PFO
- POW
- PSS

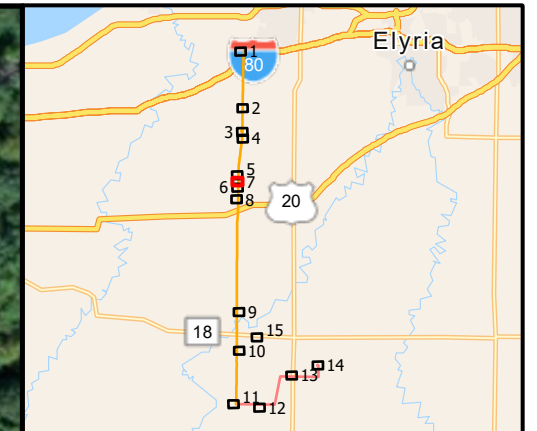
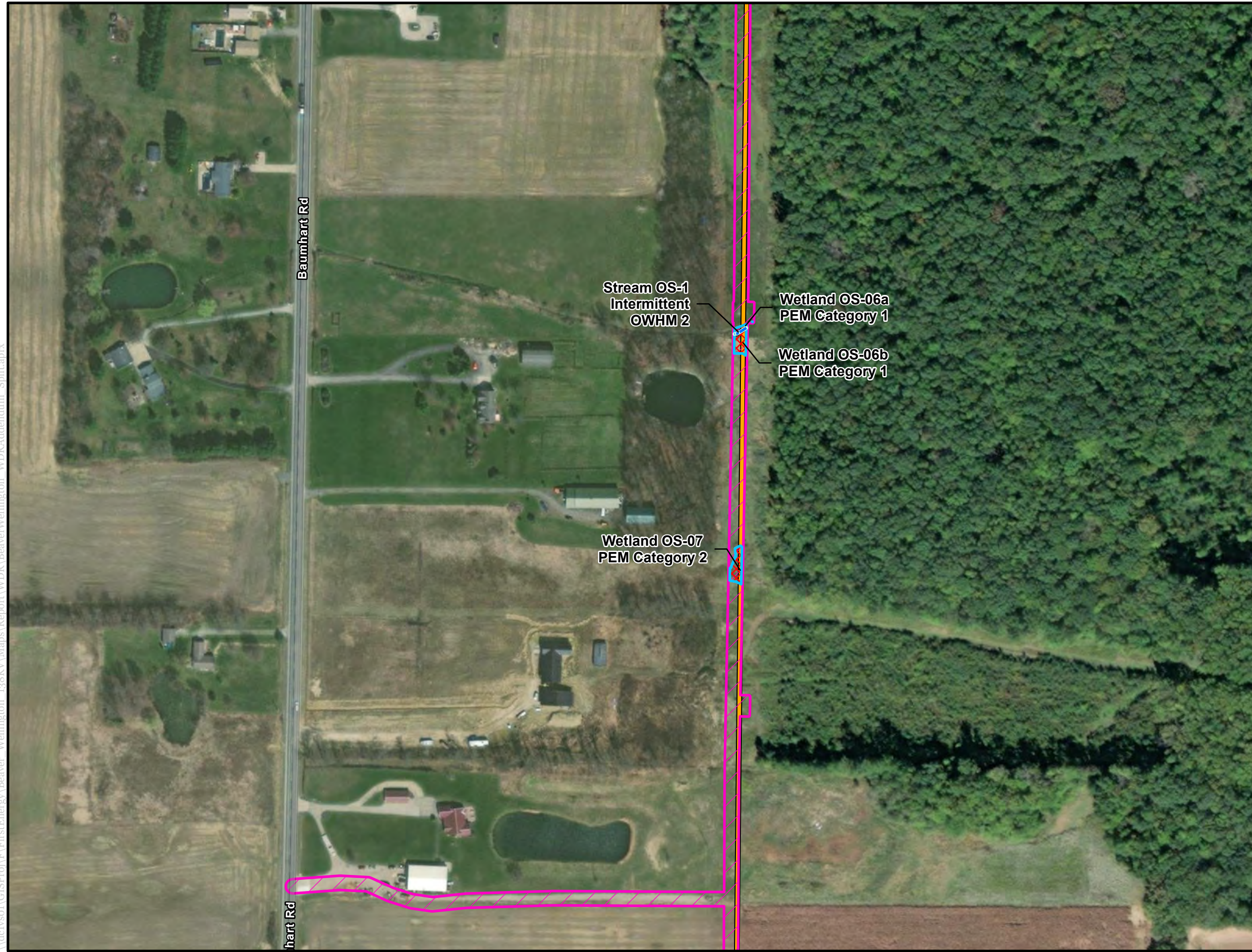
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Esri World Imagery

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FEET

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 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 3.5 Delineated Features Outlier Section	
9/24/2022	Jacobs

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LEGEND:

- Outlier Section Centerline
- Beaver Wellington 138kV Centerline
- Original Environmental Survey Corridor
- Addendum Environmental Survey Corridor
- Addendum Stream
- Previously Delineated Stream

Addendum Wetland

- PEM

Previously Delineated Wetland

- PEM
- PFO
- POW
- PSS

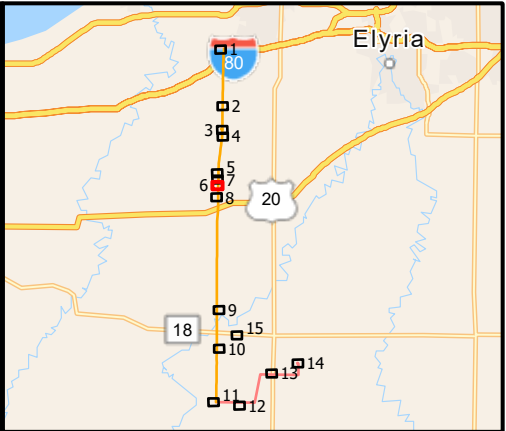
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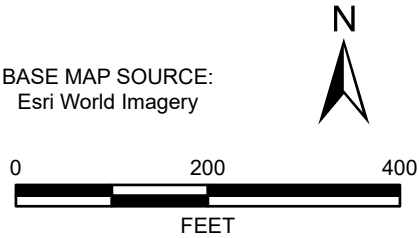
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 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 3.6 Delineated Features Outlier Section	
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- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Original Environmental Survey Corridor
 - Addendum Environmental Survey Corridor
 - Addendum Stream
 - Previously Delineated Stream
 - Addendum Wetland**
 - PEM
 - Previously Delineated Wetland**
 - PEM
 - PFO
 - POW
 - PSS



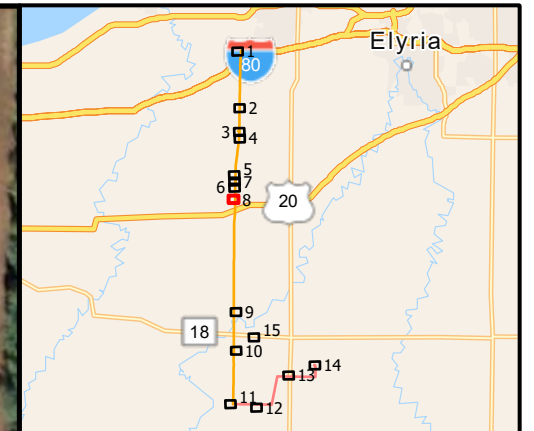
Beaver-Wellington
138 kV Transmission Line
Project Addendum

Figure 3.7
Delineated Features
Outlier Section

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LEGEND:

- Outlier Section Centerline
- Beaver Wellington 138kV Centerline
- Original Environmental Survey Corridor
- Addendum Environmental Survey Corridor
- Addendum Stream
- Previously Delineated Stream

Addendum Wetland

- PEM

Previously Delineated Wetland

- PEM
- PFO
- POW
- PSS

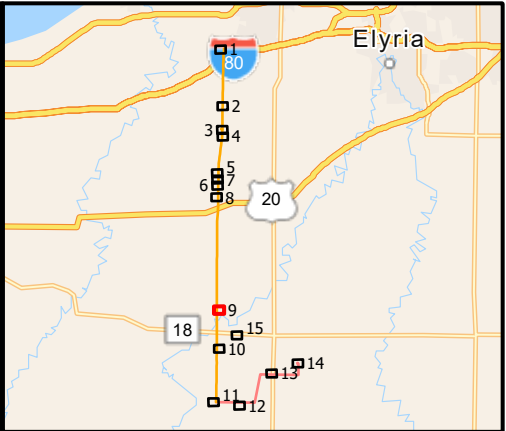
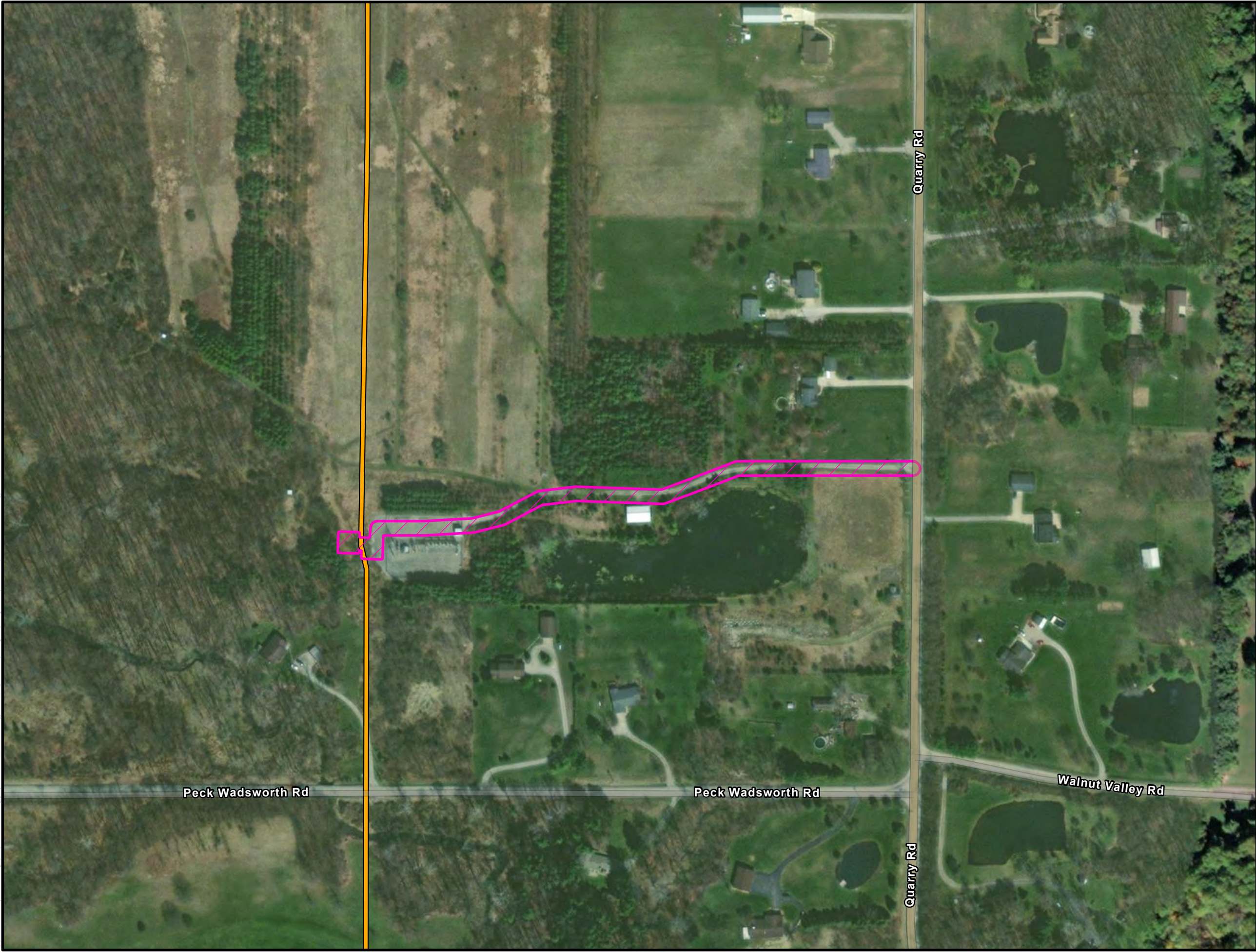
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 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 3.8 Delineated Features Outlier Section	
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- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Original Environmental Survey Corridor
 - Addendum Environmental Survey Corridor
 - Addendum Stream
 - Previously Delineated Stream
 - Addendum Wetland**
 - PEM
 - Previously Delineated Wetland**
 - PEM
 - PFO
 - POW
 - PSS

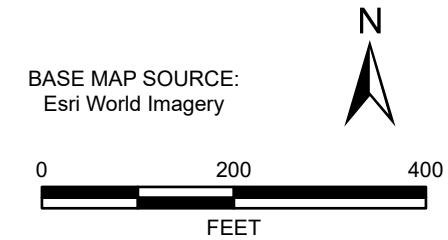
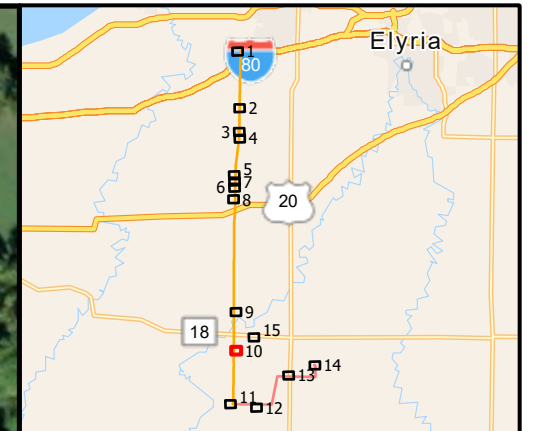
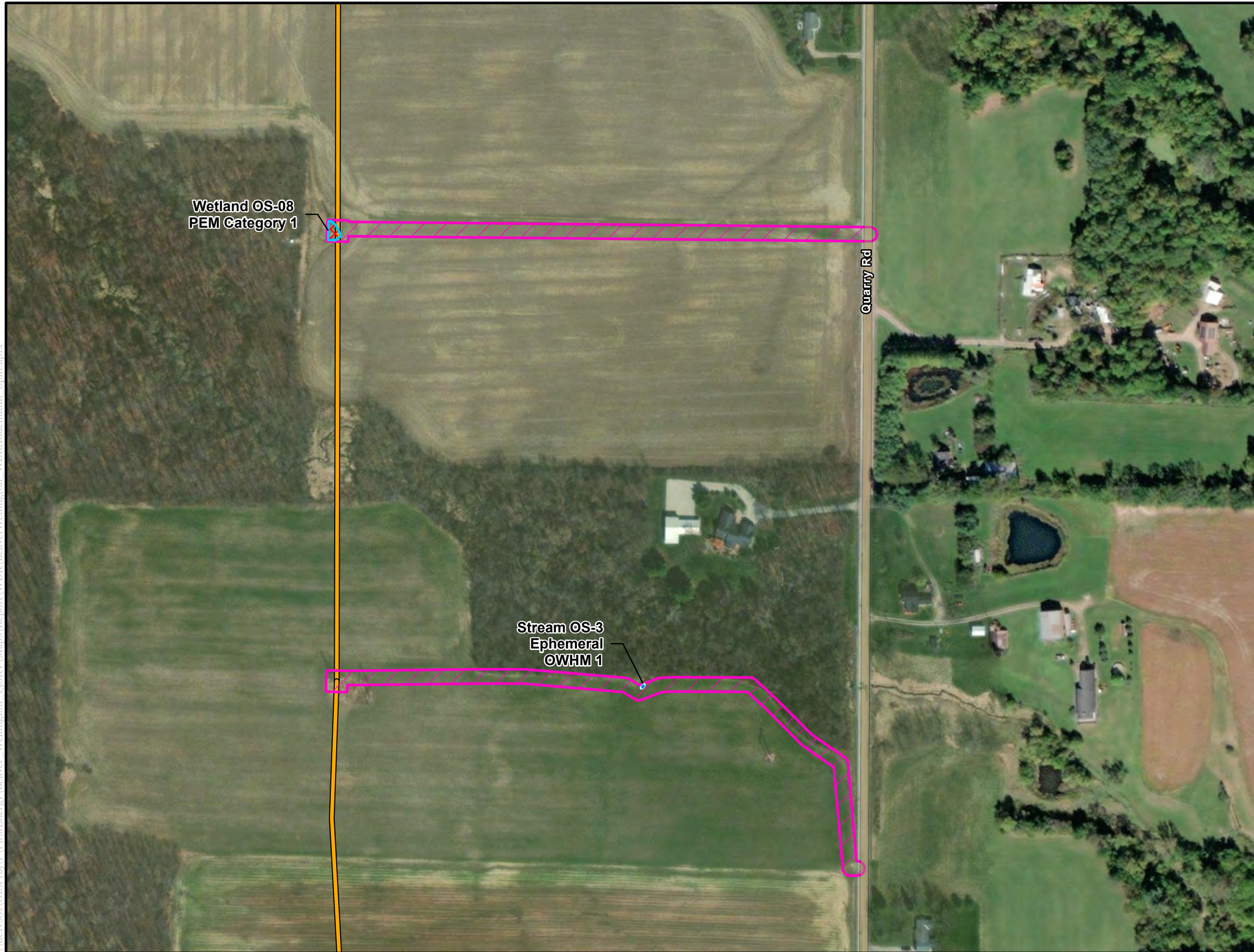


Figure 3.9
Delineated Features
Outlier Section

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LEGEND:

- Outlier Section Centerline
- Beaver Wellington 138kV Centerline
- Original Environmental Survey Corridor
- Addendum Environmental Survey Corridor
- Addendum Stream
- Previously Delineated Stream

Addendum Wetland

- PEM

Previously Delineated Wetland

- PEM
- PFO
- POW
- PSS

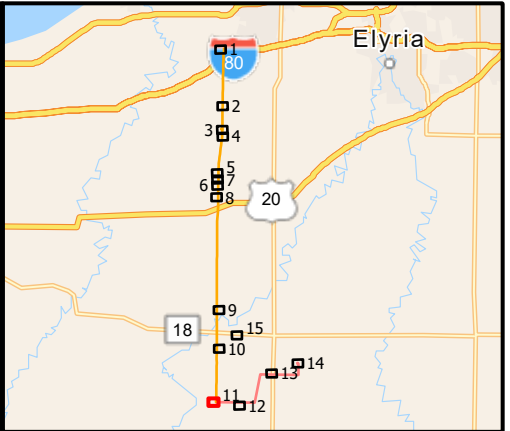
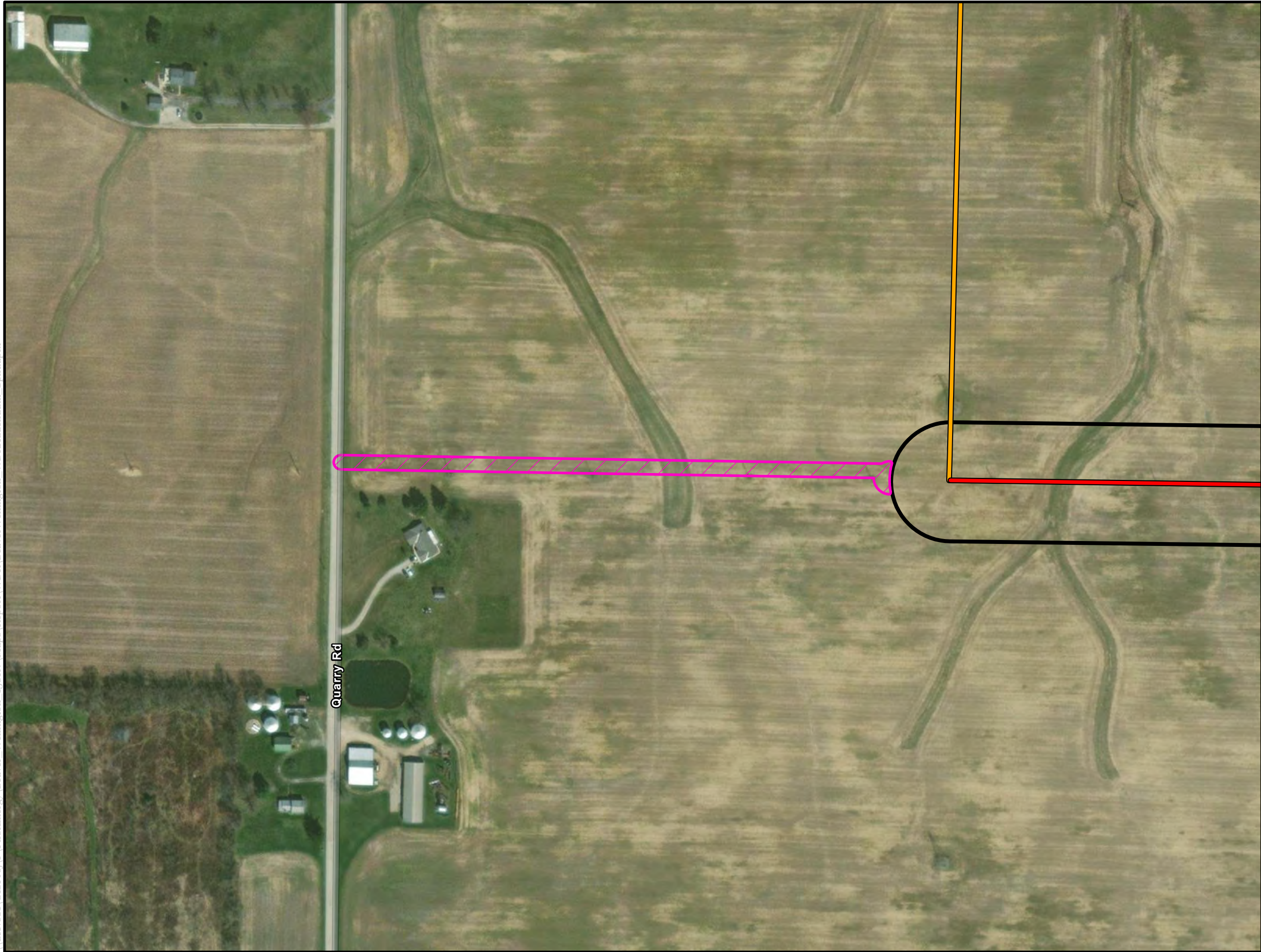
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Esri World Imagery

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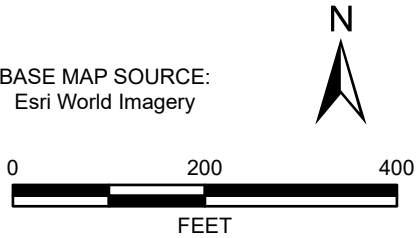
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 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 3.10 Delineated Features Outlier Section	
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- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Original Environmental Survey Corridor
 - Addendum Environmental Survey Corridor
 - Addendum Stream
 - Previously Delineated Stream
 - Addendum Wetland**
 - PEM
 - Previously Delineated Wetland**
 - PEM
 - PFO
 - POW
 - PSS

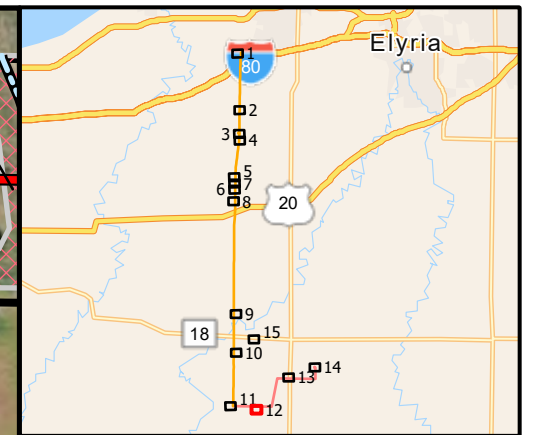
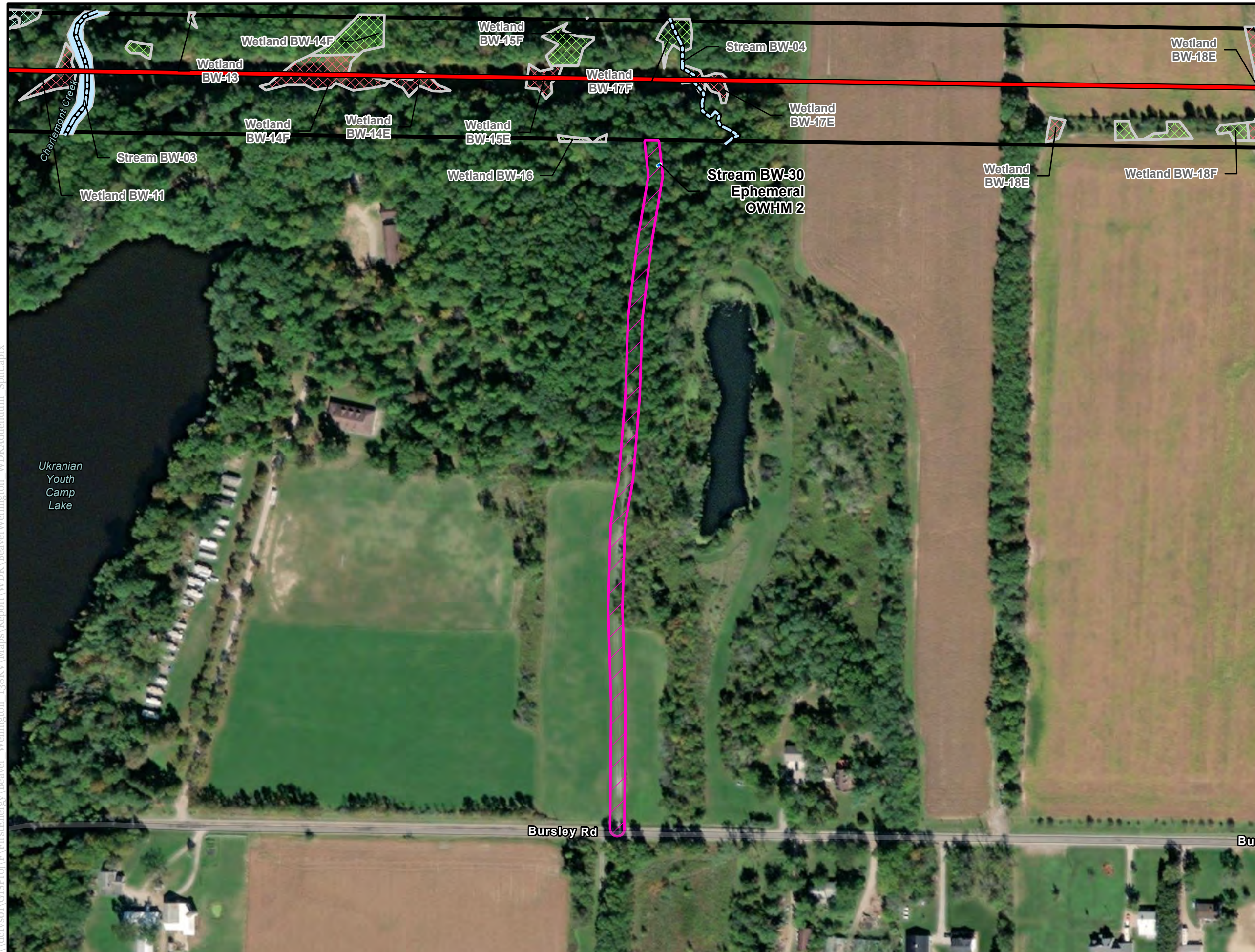


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Beaver-Wellington
138 kV Transmission Line
Project Addendum

Figure 3.11
Delineated Features
Wellington Section

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LEGEND:

- Outlier Section Centerline
- Beaver Wellington 138kV Centerline
- Original Environmental Survey Corridor
- Addendum Environmental Survey Corridor
- Addendum Stream
- Previously Delineated Stream

Addendum Wetland

- PEM

Previously Delineated Wetland

- PEM
- PFO
- POW
- PSS

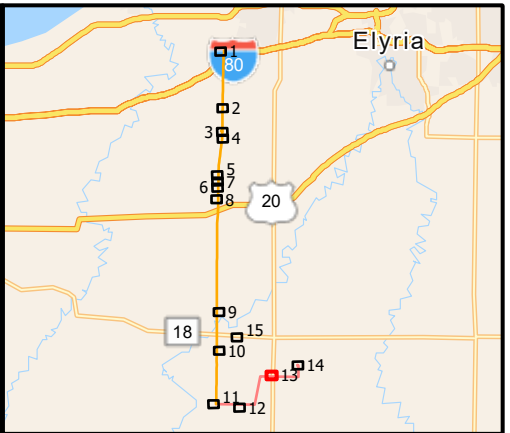
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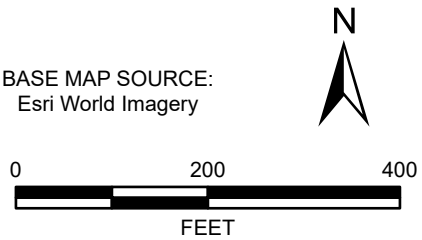
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 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 3.12 Delineated Features Wellington Section	
9/24/2022	Jacobs

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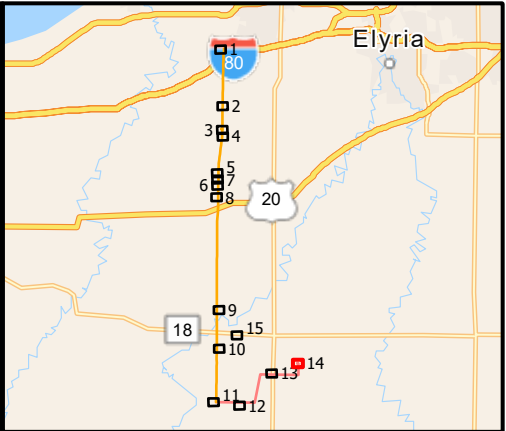
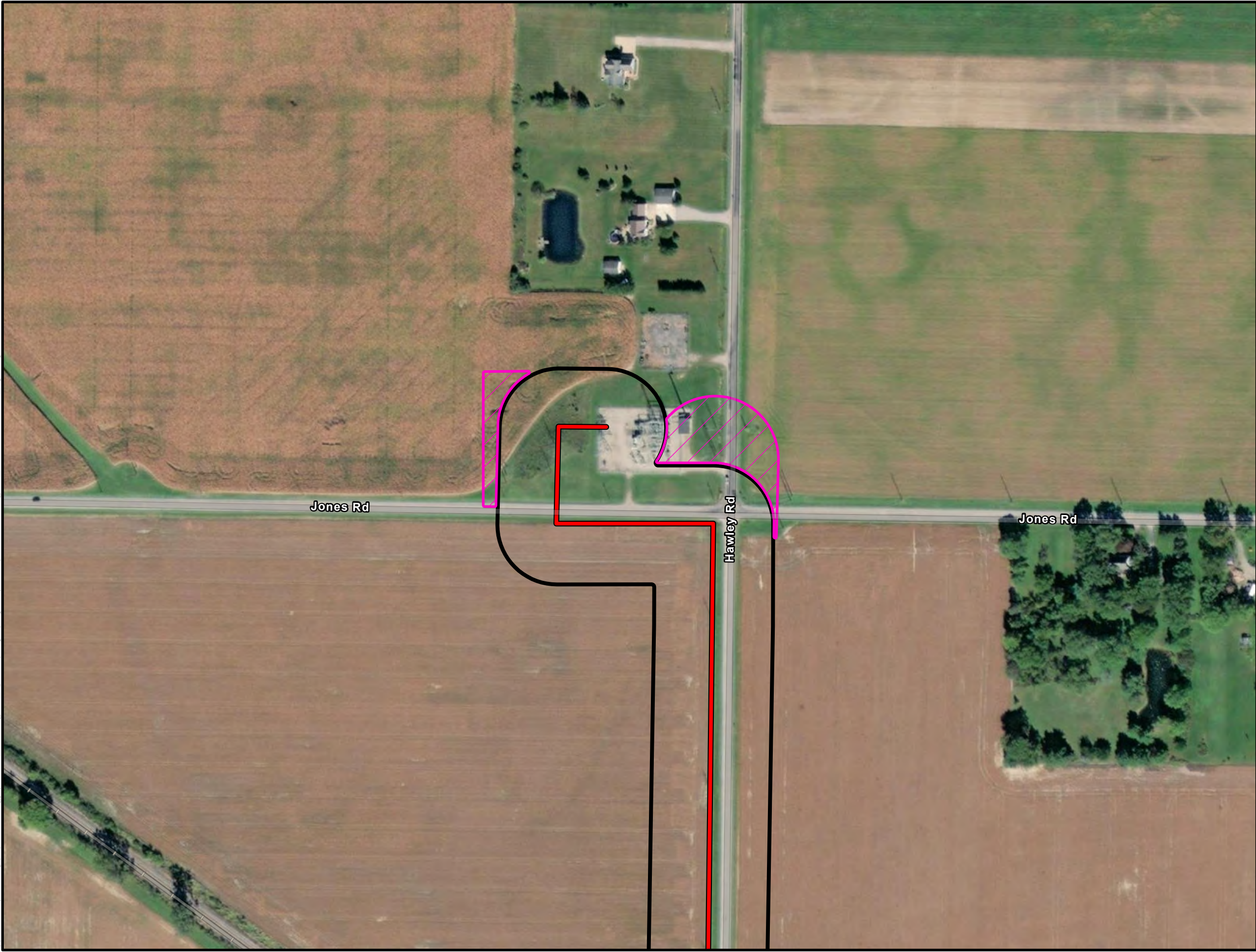


- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Original Environmental Survey Corridor
 - Addendum Environmental Survey Corridor
 - Addendum Stream
 - Previously Delineated Stream
 - Addendum Wetland**
 - PEM
 - Previously Delineated Wetland**
 - PEM
 - PFO
 - POW
 - PSS

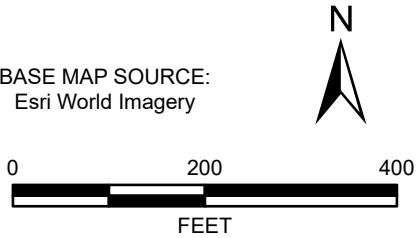


 American Transmission Systems, Inc. a subsidiary of FirstEnergy Group	Beaver-Wellington 138 kV Transmission Line Project Addendum
Figure 3.13 Delineated Features Wellington Section	
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- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Original Environmental Survey Corridor
 - Addendum Environmental Survey Corridor
 - Addendum Stream
 - Previously Delineated Stream
 - Addendum Wetland**
 - PEM
 - Previously Delineated Wetland**
 - PEM
 - PFO
 - POW
 - PSS



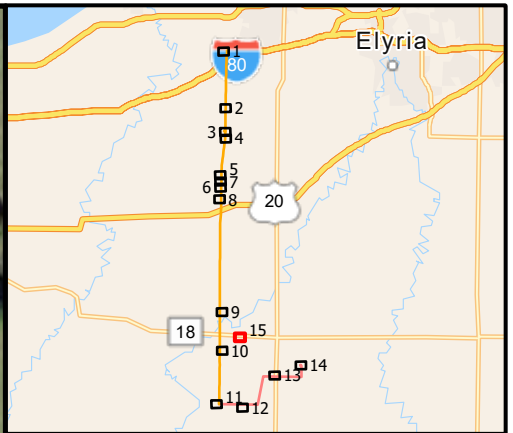
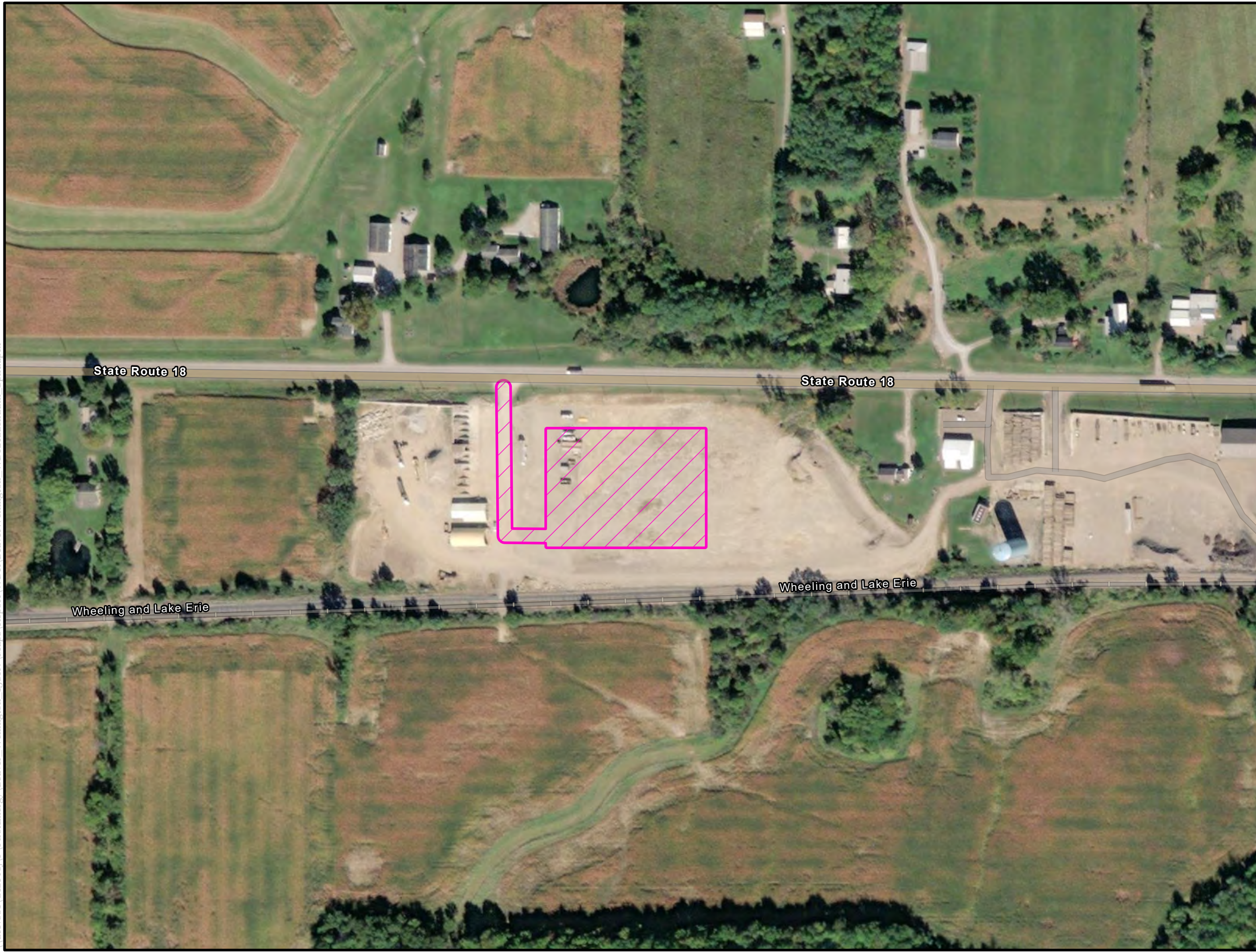


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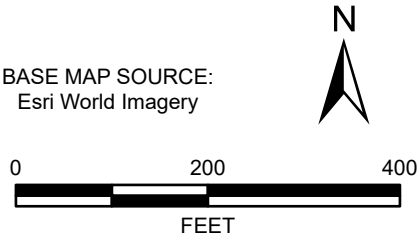
Beaver-Wellington
138 kV Transmission Line
Project Addendum

Figure 3.14
Delineated Features
Wellington Section

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- LEGEND:**
- Outlier Section Centerline
 - Beaver Wellington 138kV Centerline
 - Original Environmental Survey Corridor
 - Addendum Environmental Survey Corridor
 - Addendum Stream
 - Previously Delineated Stream
 - Addendum Wetland**
 - PEM
 - Previously Delineated Wetland**
 - PEM
 - PFO
 - POW
 - PSS



Beaver-Wellington
138 kV Transmission Line
Project Addendum

Figure 3.15
Delineated Features
Wellington Section

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Appendix A
USACE Wetland Determination Field Datasheets

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 138 kV Transmission Line City/County: Lorain County Sampling Date: 03/11/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: v-bcr-03/11/19-02
 Investigator(s): B.Robertson; Jacobs Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 1
 Subregion (LRR or MLRA): LRR R Lat: 41.3356 Long: -82.2669 Datum: WGS84
 Soil Map Unit Name: Sd, Sebring silt loam, sandstone substratum, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland OS-01</u>
Remarks: (Explain alternative procedures here or in a separate report.) PEM wetland depression within existing transmission line ROW. Former wetland BW-09 re-verified in Oct. 2021 and re-named Wetland OS-01.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ☒ Surface Water (A1) ☐ Water-Stained Leaves (B9) ☐ High Water Table (A2) ☐ Aquatic Fauna (B13) ☒ Saturation (A3) ☐ Marl Deposits (B15) ☐ Water Marks (B1) ☐ Hydrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Living Roots (C3) ☐ Drift Deposits (B3) ☐ Presence of Reduced Iron (C4) ☐ Algal Mat or Crust (B4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Iron Deposits (B5) ☐ Thin Muck Surface (C7) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Other (Explain in Remarks) ☐ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ☐ Surface Soil Cracks (B6) ☐ Drainage Patterns (B10) ☐ Moss Trim Lines (B16) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Stunted or Stressed Plants (D1) ☒ Geomorphic Position (D2) ☐ Shallow Aquitard (D3) ☐ Microtopographic Relief (D4) ☒ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>10</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

Sampling Point: 1-bcr-03/11/19-C

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Site Name	Cowardin Class	Photo Direction
Wetland OS-01	PEM	North



Site Name	Cowardin Class	Photo Direction
Wetland OS-01	PEM	South



Site Name	Cowardin Class	Photo Direction
Wetland OS-01	PEM	East



Site Name	Cowardin Class	Photo Direction
Wetland OS-01	PEM	Soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 69 kV Transmission Line City/County: Lorain County Sampling Date: 10/03/18
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-Bao-100318-01
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: 0
 Subregion (LRR or MLRA): LRR R Lat: 41.3342 Long: -82.2676 Datum: WGS84
 Soil Map Unit Name: MtA, Mitiwanga silt loam, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland OS-02</u>
Remarks: (Explain alternative procedures here or in a separate report.) PEM within ROW, cut. Previously delineated Wetland BW-01a,b re-verified in Oct. 2021 as Wetland OS-02.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <u> </u> Surface Water (A1) <u> </u> Water-Stained Leaves (B9) <u> </u> High Water Table (A2) <u> </u> Aquatic Fauna (B13) <u>X</u> Saturation (A3) <u> </u> Marl Deposits (B15) <u> </u> Water Marks (B1) <u> </u> Hydrogen Sulfide Odor (C1) <u> </u> Sediment Deposits (B2) <u> </u> Oxidized Rhizospheres on Living Roots (C3) <u> </u> Drift Deposits (B3) <u> </u> Presence of Reduced Iron (C4) <u> </u> Algal Mat or Crust (B4) <u> </u> Recent Iron Reduction in Tilled Soils (C6) <u> </u> Iron Deposits (B5) <u> </u> Thin Muck Surface (C7) <u> </u> Inundation Visible on Aerial Imagery (B7) <u> </u> Other (Explain in Remarks) <u> </u> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <u> </u> Surface Soil Cracks (B6) <u> </u> Drainage Patterns (B10) <u> </u> Moss Trim Lines (B16) <u> </u> Dry-Season Water Table (C2) <u> </u> Crayfish Burrows (C8) <u> </u> Saturation Visible on Aerial Imagery (C9) <u> </u> Stunted or Stressed Plants (D1) <u> </u> Geomorphic Position (D2) <u> </u> Shallow Aquitard (D3) <u> </u> Microtopographic Relief (D4) <u> </u> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>6</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION – Use scientific names of plants.Sampling Point: 1-bao-100318-0

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B) Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>20</u></td> <td>x 1 = <u>20</u></td> </tr> <tr> <td>FACW species <u>35</u></td> <td>x 2 = <u>70</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>80</u> (A)</td> <td><u>165</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.06</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>20</u>	x 1 = <u>20</u>	FACW species <u>35</u>	x 2 = <u>70</u>	FAC species <u>25</u>	x 3 = <u>75</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>80</u> (A)	<u>165</u> (B)	Prevalence Index = B/A = <u>2.06</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>20</u>	x 1 = <u>20</u>																			
FACW species <u>35</u>	x 2 = <u>70</u>																			
FAC species <u>25</u>	x 3 = <u>75</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>80</u> (A)	<u>165</u> (B)																			
Prevalence Index = B/A = <u>2.06</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)																				
1. <u>Quercus palustris</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Herb Stratum (Plot size: <u>5 ft</u>)																				
1. <u>Juncus sp.</u>	<u>40</u>	<u>Yes</u>		Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																
2. <u>Scirpus cyperinus</u>	<u>10</u>	<u>No</u>	<u>OBL</u>																	
3. <u>Apocynum cannabinum</u>	<u>20</u>	<u>No</u>	<u>FAC</u>																	
4. <u>Lysimachia nummularia</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																	
5. <u>Polygonum sagittatum</u>	<u>10</u>	<u>No</u>	<u>OBL</u>																	
6. <u>Echinochloa crus-galli</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		=Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		=Total Cover																		

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

[illegible]



Site Name	Cowardin Class	Photo Direction
Wetland OS-02	PEM	North



Site Name	Cowardin Class	Photo Direction
Wetland OS-02	PEM	East



Site Name	Cowardin Class	Photo Direction
Wetland OS-02	PEM	South



Site Name	Cowardin Class	Photo Direction
Wetland OS-02	PEM	West

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 69 kV Transmission Line City/County: Lorain County Sampling Date: 10/03/18
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-Bao-100318-02
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: 0
 Subregion (LRR or MLRA): LRR R Lat: 41.3205 Long: -82.2673 Datum: WGS84
 Soil Map Unit Name: Sb, Sebring silt loam, 0 to 2 percent slopes NWI classification: R4SBC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland OS-03</u>
Remarks: (Explain alternative procedures here or in a separate report.) PEM in PEM/PFO complex within ROW; stream crosses, braids. Previously delineated Wetland BW-03a re-verified in Oct. 2021 and re-named as Wetland OS-03.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ☒ Surface Water (A1) ☐ Water-Stained Leaves (B9) ☐ High Water Table (A2) ☐ Aquatic Fauna (B13) ☒ Saturation (A3) ☐ Marl Deposits (B15) ☐ Water Marks (B1) ☐ Hydrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Living Roots (C3) ☐ Drift Deposits (B3) ☐ Presence of Reduced Iron (C4) ☐ Algal Mat or Crust (B4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Iron Deposits (B5) ☐ Thin Muck Surface (C7) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Other (Explain in Remarks) ☐ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ☐ Surface Soil Cracks (B6) ☒ Drainage Patterns (B10) ☐ Moss Trim Lines (B16) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Stunted or Stressed Plants (D1) ☐ Geomorphic Position (D2) ☐ Shallow Aquitard (D3) ☐ Microtopographic Relief (D4) ☒ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>3</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	

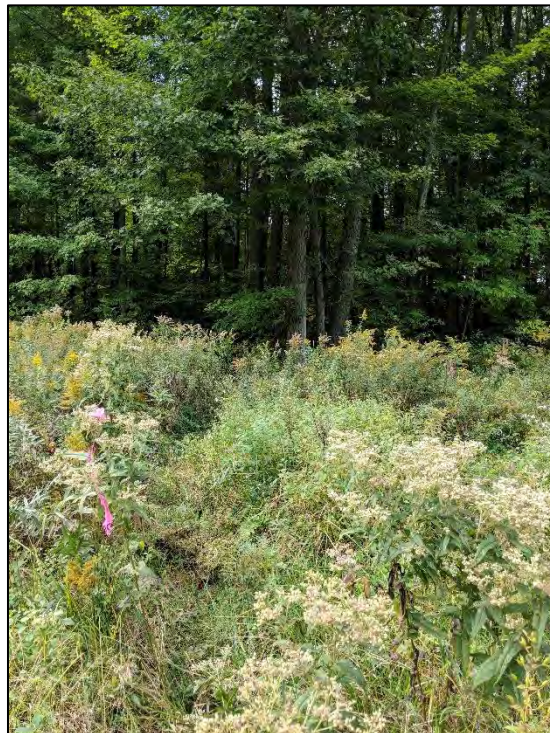
VEGETATION – Use scientific names of plants.Sampling Point: 1-bao-100318-0

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species <u>30</u></td> <td>x 1 = <u>30</u></td> </tr> <tr> <td>FACW species <u>95</u></td> <td>x 2 = <u>190</u></td> </tr> <tr> <td>FAC species <u>5</u></td> <td>x 3 = <u>15</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>130</u> (A)</td> <td><u>235</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>1.81</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>30</u>	x 1 = <u>30</u>	FACW species <u>95</u>	x 2 = <u>190</u>	FAC species <u>5</u>	x 3 = <u>15</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>130</u> (A)	<u>235</u> (B)	Prevalence Index = B/A = <u>1.81</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>30</u>	x 1 = <u>30</u>																			
FACW species <u>95</u>	x 2 = <u>190</u>																			
FAC species <u>5</u>	x 3 = <u>15</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>130</u> (A)	<u>235</u> (B)																			
Prevalence Index = B/A = <u>1.81</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Herb Stratum (Plot size: <u>5 ft</u>)																				
1. <u>Phalaris arundinacea</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																
2. <u>Leersia oryzoides</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>																	
3. <u>Saururus cernuus</u>	<u>10</u>	<u>No</u>	<u>OBL</u>																	
4. <u>Impatiens capensis</u>	<u>15</u>	<u>No</u>	<u>FACW</u>																	
5. <u>Eupatorium perfoliatum</u>	<u>15</u>	<u>No</u>	<u>FACW</u>																	
6. <u>Carex gigantea</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
7. <u>Toxicodendron radicans</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																	
8. <u>Lysimachia nummularia</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		130 =Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		=Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.)																				

Northcentral and Northeast Region – Version 2.0



Site Name	Cowardin Class	Photo Direction
Wetland OS-03	PEM	North



Site Name	Cowardin Class	Photo Direction
Wetland OS-03	PEM	East



Site Name	Cowardin Class	Photo Direction
Wetland OS-03	PEM	South



Site Name	Cowardin Class	Photo Direction
Wetland OS-03	PEM	West



Site Name	Cowardin Class	Photo Direction
Wetland OS-03	PEM	Soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver Wellington/Henrietta City/County: Lorain Co Sampling Date: 10/26/2021
 Applicant/Owner: First Energy State: OH Sampling Point: Wetland OS-04
 Investigator(s): BCR Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Lowland Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion (LRR or MLRA): LRR R, MLRA 139 Lat: 41.311852 Long: -82.267656 Datum: WGS 1984
 Soil Map Unit Name: MgA: Mahoning silt loam, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland OS-04</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: (Explain alternative procedures here or in a separate report.) Wetland OS-04. PEM wetland along access road to outlier structure	

HYDROLOGY

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>	
Primary Indicators (minimum of one is required; check all that apply)			
<u>X</u> Surface Water (A1)	<u> </u> Water-Stained Leaves (B9)	<u> </u> Surface Soil Cracks (B6)	
<u>X</u> High Water Table (A2)	<u> </u> Aquatic Fauna (B13)	<u> </u> Drainage Patterns (B10)	
<u>X</u> Saturation (A3)	<u> </u> Marl Deposits (B15)	<u> </u> Moss Trim Lines (B16)	
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Dry-Season Water Table (C2)	
<u> </u> Sediment Deposits (B2)	<u>X</u> Oxidized Rhizospheres on Living Roots (C3)	<u> </u> Crayfish Burrows (C8)	
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Saturation Visible on Aerial Imagery (C9)	
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Stunted or Stressed Plants (D1)	
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)	
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)	
<u> </u> Sparsely Vegetated Concave Surface (B8)		<u> </u> Microtopographic Relief (D4)	
		<u> </u> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? Yes <u>X</u> No <u> </u>	Depth (inches): <u>2</u>	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Water Table Present? Yes <u>X</u> No <u> </u>	Depth (inches): <u>1</u>		
Saturation Present? Yes <u>X</u> No <u> </u>	Depth (inches): <u>0</u>		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

Tree Stratum (Plot size: 30)				Absolute % Cover	Dominant Species?	Indicator Status
1.					No	
2.						
3.						
4.						
5.						
6.						
7.						
					= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)						
1.	Frangula alnus		10	Yes	FACW	
2.						
3.						
4.						
5.						
6.						
7.						
				10	= Total Cover	
Herb Stratum (Plot size: 5)						
1.	Juncus effusus		50	Yes	OBL	
2.	Epilobium coloratum		20	Yes	OBL	
3.	Erigeron annuus		10	No	FACU	
4.	Bidens frondosa		10	No	FACW	
5.	Solidago altissima		10	No	FACU	
6.	Verbena hastata		5	No	FACW	
7.						
8.						
9.						
10.						
11.						
12.						
				105	= Total Cover	
Woody Vine Stratum (Plot size: 30)						
1.				No		
2.						
3.						
4.						
					= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 70	x 1 = 70
FACW species 25	x 2 = 50
FAC species 0	x 3 = 0
FACU species 20	x 4 = 80
UPL species 0	x 5 = 0
Column Totals: 115 (A)	200 (B)

Prevalence Index = B/A = 1.74

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is ≤3.0¹

☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No

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



Soil



N



S



E



W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 69 kV Transmission Line City/County: Lorain County Sampling Date: 11/14/18
 Applicant/Owner: FirstEnergy State: OH Sampling Point: ww-bao-111418-02b
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: 0
 Subregion (LRR or MLRA): LRR R Lat: 41.286 Long: -82.271 Datum: WGS84
 Soil Map Unit Name: MkA, Mahoning-Tiro silt loams, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland OS-05</u>
Remarks: (Explain alternative procedures here or in a separate report.) PEM located within an existing ROW that is reed canary dominated. Previously delineated wetland BW-04a verified in Oct. 2021 and re-named as Wetland OS-05	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ☒ Surface Water (A1) ☐ Water-Stained Leaves (B9) ☒ High Water Table (A2) ☐ Aquatic Fauna (B13) ☒ Saturation (A3) ☐ Marl Deposits (B15) ☐ Water Marks (B1) ☐ Hydrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Living Roots (C3) ☐ Drift Deposits (B3) ☐ Presence of Reduced Iron (C4) ☐ Algal Mat or Crust (B4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Iron Deposits (B5) ☐ Thin Muck Surface (C7) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Other (Explain in Remarks) ☐ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ☐ Surface Soil Cracks (B6) ☒ Drainage Patterns (B10) ☐ Moss Trim Lines (B16) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Stunted or Stressed Plants (D1) ☐ Geomorphic Position (D2) ☐ Shallow Aquitard (D3) ☐ Microtopographic Relief (D4) ☒ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>3</u> Water Table Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>4</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	

VEGETATION – Use scientific names of plants.Sampling Point: -bao-111418-01

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>25</u></td> <td>x 1 = <u>25</u></td> </tr> <tr> <td>FACW species <u>85</u></td> <td>x 2 = <u>170</u></td> </tr> <tr> <td>FAC species <u>10</u></td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>120</u> (A)</td> <td><u>225</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>1.88</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>25</u>	x 1 = <u>25</u>	FACW species <u>85</u>	x 2 = <u>170</u>	FAC species <u>10</u>	x 3 = <u>30</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>120</u> (A)	<u>225</u> (B)	Prevalence Index = B/A = <u>1.88</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>25</u>	x 1 = <u>25</u>																			
FACW species <u>85</u>	x 2 = <u>170</u>																			
FAC species <u>10</u>	x 3 = <u>30</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>120</u> (A)	<u>225</u> (B)																			
Prevalence Index = B/A = <u>1.88</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Herb Stratum (Plot size: <u>5 ft</u>)																				
1. <u>Eupatorium perfoliatum</u>	<u>5</u>	<u>No</u>	<u>FACW</u>	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																
2. <u>Mimulus ringens</u>	<u>5</u>	<u>No</u>	<u>OBL</u>																	
3. <u>Phalaris arundinacea</u>	<u>75</u>	<u>Yes</u>	<u>FACW</u>																	
4. <u>Scirpus cyperinus</u>	<u>5</u>	<u>No</u>	<u>OBL</u>																	
5. <u>Verbena hastata</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
6. <u>Juncus sp.</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
7. <u>Polygonum sagittatum</u>	<u>15</u>	<u>No</u>	<u>OBL</u>																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		120 =Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		=Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.)																				

[illegible]



Site Name	Cowardin Class	Photo Direction
Wetland OS-05	PEM	North



Site Name	Cowardin Class	Photo Direction
Wetland OS-05	PEM	East



Site Name	Cowardin Class	Photo Direction
Wetland OS-05	PEM	West

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 69 kV Transmission Line City/County: Lorain County Sampling Date: 11/14/18
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-BAO-111418-01
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: 0
 Subregion (LRR or MLRA): LRR R Lat: 41.2834 Long: -82.271 Datum: WGS84
 Soil Map Unit Name: MkA, Mahoning-Tiro silt loams, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland OS-06a,b</u>
Remarks: (Explain alternative procedures here or in a separate report.) PEM, connect with other, adjacent to S01. Former Wetland BW-05a,b re-verified in Oct. 2021 and re-named Wetland OS-06a,b	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) <u>x</u> Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) <u>x</u> Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) <u>x</u> 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) <u>x</u> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Saturation Present? Yes <u>x</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION – Use scientific names of plants.Sampling Point: 1-bao-111418-0

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>10</u></td> <td>x 1 = <u>10</u></td> </tr> <tr> <td>FACW species <u>75</u></td> <td>x 2 = <u>150</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>110</u> (A)</td> <td><u>235</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.14</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>10</u>	x 1 = <u>10</u>	FACW species <u>75</u>	x 2 = <u>150</u>	FAC species <u>25</u>	x 3 = <u>75</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>110</u> (A)	<u>235</u> (B)	Prevalence Index = B/A = <u>2.14</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>10</u>	x 1 = <u>10</u>																			
FACW species <u>75</u>	x 2 = <u>150</u>																			
FAC species <u>25</u>	x 3 = <u>75</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>110</u> (A)	<u>235</u> (B)																			
Prevalence Index = B/A = <u>2.14</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Herb Stratum (Plot size: <u>5 ft</u>)																				
1. <u>Phalaris arundinacea</u>	<u>65</u>	<u>Yes</u>	<u>FACW</u>	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																
2. <u>Eupatorium perfoliatum</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
3. <u>Juncus sp.</u>	<u>15</u>	<u>No</u>	<u>FAC</u>																	
4. <u>Solidago sp.</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
5. <u>Mimulus ringens</u>	<u>10</u>	<u>No</u>	<u>OBL</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		110 =Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		=Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.)																				

[illegible]



Site Name	Cowardin Class	Photo Direction
Wetland OS-06a,b	PEM	West

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 69 kV Transmission Line City/County: Lorain County Sampling Date: 10/02/18
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-bao-100218-01
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): Depressioin Local relief (concave, convex, none): Concave Slope %:
 Subregion (LRR or MLRA): LRR R Lat: 41.2819 Long: -82.2709 Datum: WGS84
 Soil Map Unit Name: MkA, Mahoning-Tiro silt loams, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland OS-07</u>
Remarks: (Explain alternative procedures here or in a separate report.) PEM/PSS large wetland within ROW that is part of wetland complex. Previously delineated Wetland 06a re-verified in Oct. 2021 as Wetland OS-07	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) x Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) X Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) X FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	

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

Northcentral and Northeast Region – Version 2.0



Site Name	Cowardin Class	Photo Direction
Wetland OS-07	PEM	Northwest



Site Name	Cowardin Class	Photo Direction
Wetland OS-07	PEM	Southeast



Site Name	Cowardin Class	Photo Direction
Wetland OS-07	PEM	South



Site Name	Cowardin Class	Photo Direction
Wetland OS-07	PEM	Soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver Wellington/Henrietta City/County: Lorain Co Sampling Date: 10/25/2021
 Applicant/Owner: First Energy State: OH Sampling Point: Wetland OS-08
 Investigator(s): BCR Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Lowland Local relief (concave, convex, none): Concave Slope (%):
 Subregion (LRR or MLRA): LRR R, MLRA 139 Lat: 41.160378 Long: -82.273096 Datum: WGS 1984
 Soil Map Unit Name: MgB: Mahoning silt loam, 2 to 6 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland OS-08</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>	
Primary Indicators (minimum of one is required; check all that apply)			
<u> </u> Surface Water (A1)	<u> </u> Water-Stained Leaves (B9)	<u> </u> Surface Soil Cracks (B6)	
<u> </u> High Water Table (A2)	<u> </u> Aquatic Fauna (B13)	<u> </u> Drainage Patterns (B10)	
<u>X</u> Saturation (A3)	<u> </u> Marl Deposits (B15)	<u> </u> Moss Trim Lines (B16)	
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Dry-Season Water Table (C2)	
<u> </u> Sediment Deposits (B2)	<u>X</u> Oxidized Rhizospheres on Living Roots (C3)	<u> </u> Crayfish Burrows (C8)	
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Saturation Visible on Aerial Imagery (C9)	
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Stunted or Stressed Plants (D1)	
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)	
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)	
<u> </u> Sparsely Vegetated Concave Surface (B8)		<u> </u> Microtopographic Relief (D4)	
		<u> </u> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? Yes <u>X</u> No <u> </u>	Depth (inches): <u>1</u>	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Water Table Present? Yes <u>X</u> No <u> </u>	Depth (inches): <u>6</u>		
Saturation Present? Yes <u>X</u> No <u> </u>	Depth (inches): <u>0</u>		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			



Soil



N



S



E



W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 138 kV Transmission Line City/County: Lorain County Sampling Date: 03/11/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: uplnd-0311/119-01_02
 Investigator(s): B.Robertson; Jacobs Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): flat ground Local relief (concave, convex, none): none Slope %: 1
 Subregion (LRR or MLRA): LRR R Lat: 41.3360 Long: -82.2670 Datum: WGS84
 Soil Map Unit Name: Sd, Sebring silt loam, sandstone substratum, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u> If yes, optional Wetland Site ID: <u>Upland OS-01</u>
Remarks: (Explain alternative procedures here or in a separate report.) Upland data point associated with wetlands w-bcr-031119-01 and -02. Data point taken adjacent to road bed and within existing transmission line ROW. Former Upland point BW-09 re-verified in Oct 2021 as Upland OS-01	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	

VEGETATION – Use scientific names of plants.Sampling Point: bcr-03/11/19-01

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Populus deltoides</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B) Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>7</u></td> <td>x 2 = <u>14</u></td> </tr> <tr> <td>FAC species <u>15</u></td> <td>x 3 = <u>45</u></td> </tr> <tr> <td>FACU species <u>103</u></td> <td>x 4 = <u>412</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 = <u>50</u></td> </tr> <tr> <td>Column Totals: <u>135</u> (A)</td> <td><u>521</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.86</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>7</u>	x 2 = <u>14</u>	FAC species <u>15</u>	x 3 = <u>45</u>	FACU species <u>103</u>	x 4 = <u>412</u>	UPL species <u>10</u>	x 5 = <u>50</u>	Column Totals: <u>135</u> (A)	<u>521</u> (B)	Prevalence Index = B/A = <u>3.86</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>7</u>	x 2 = <u>14</u>																			
FAC species <u>15</u>	x 3 = <u>45</u>																			
FACU species <u>103</u>	x 4 = <u>412</u>																			
UPL species <u>10</u>	x 5 = <u>50</u>																			
Column Totals: <u>135</u> (A)	<u>521</u> (B)																			
Prevalence Index = B/A = <u>3.86</u>																				
2. <u>Platanus occidentalis</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		<u>20</u> =Total Cover		Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>Problematic Hydrophytic Vegetation</u> ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		_____ =Total Cover																		
Herb Stratum (Plot size: <u>5 ft</u>)																				
1. <u>Setaria faberi</u>	<u>40</u>	<u>Yes</u>	<u>FACU</u>	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																
2. <u>Schedonorus arundinaceus</u>	<u>30</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Symphyotrichum pilosum</u>	<u>15</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Solidago canadensis</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Daucus carota</u>	<u>10</u>	<u>No</u>	<u>UPL</u>																	
6. <u>Dipsacus fullonum</u>	<u>8</u>	<u>No</u>	<u>FACU</u>																	
7. <u>Cornus amomum</u>	<u>2</u>	<u>No</u>	<u>FACW</u>																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		<u>115</u> =Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		_____ =Total Cover																		

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

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 69 kV Transmission Line City/County: Lorain County Sampling Date: 10/03/18
 Applicant/Owner: FirstEnergy State: OH Sampling Point: u-bao-100318-01
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): None Slope %: 2
 Subregion (LRR or MLRA): LRR R Lat: 41.3341 Long: -82.2673 Datum: WGS84
 Soil Map Unit Name: MtA, Mitiwanga silt loam, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u> If yes, optional Wetland Site ID: <u>Upland OS-02</u>
Remarks: (Explain alternative procedures here or in a separate report.) Upland are located within ROW adjacent to Wetland BW-01a. Former upland BW-01 re-verified in Oct. 2021.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>x</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION – Use scientific names of plants.Sampling Point: I-bao-100318-0

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>10</u></td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species <u>45</u></td> <td>x 4 = <u>180</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>55</u> (A)</td> <td><u>210</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.82</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>10</u>	x 3 = <u>30</u>	FACU species <u>45</u>	x 4 = <u>180</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>55</u> (A)	<u>210</u> (B)	Prevalence Index = B/A = <u>3.82</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>10</u>	x 3 = <u>30</u>																			
FACU species <u>45</u>	x 4 = <u>180</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>55</u> (A)	<u>210</u> (B)																			
Prevalence Index = B/A = <u>3.82</u>																				
=Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
=Total Cover																				
Herb Stratum (Plot size: <u>5 ft</u>)																				
1. <u>Rubus allegheniensis</u>	<u>45</u>	<u>Yes</u>	<u>FACU</u>																	
2. <u>Apocynum cannabinum</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
3. <u>Solidago sp.</u>	<u>30</u>	<u>Yes</u>																		
4. <u>Poa sp.</u>	<u>20</u>	<u>No</u>																		
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>105</u> =Total Cover				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.																
=Total Cover																				
Woody Vine Stratum (Plot size: <u>30 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
=Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 69 kV Transmission Line City/County: Lorain County Sampling Date: 10/02/18
 Applicant/Owner: FirstEnergy State: OH Sampling Point: u-bao-100218-02
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): concave Slope %: 3
 Subregion (LRR or MLRA): LRR R Lat: 41.3208 Long: -82.2673 Datum: WGS84
 Soil Map Unit Name: Sd, Sebring silt loam, sandstone substratum, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u> If yes, optional Wetland Site ID: <u>Upland OS-03</u>
Remarks: (Explain alternative procedures here or in a separate report.) hillslope in ROW near wetland OS-03. Upland area re-verified in Oct. 2021	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>x</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

[illegible]

VEGETATION – Use scientific names of plants.Sampling Point: I-bao-100218-0

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B) Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>70</u></td> <td>x 2 = <u>140</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>45</u></td> <td>x 4 = <u>180</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>115</u> (A)</td> <td><u>320</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.78</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>70</u>	x 2 = <u>140</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>45</u>	x 4 = <u>180</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>115</u> (A)	<u>320</u> (B)	Prevalence Index = B/A = <u>2.78</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>70</u>	x 2 = <u>140</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>45</u>	x 4 = <u>180</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>115</u> (A)	<u>320</u> (B)																			
Prevalence Index = B/A = <u>2.78</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Herb Stratum (Plot size: <u>5 ft</u>)																				
1. <u>Rubus allegheniensis</u>	<u>30</u>	<u>Yes</u>	<u>FACU</u>	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>																
2. <u>Solidago gigantea</u>	<u>50</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Dichanthelium clandestinum</u>	<u>20</u>	<u>No</u>	<u>FACW</u>																	
4. <u>Symphyotrichum pilosum</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Cirsium vulgare</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		115 =Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		=Total Cover																		

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

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver Wellington/Henrietta City/County: Lorain Co Sampling Date: 10/26/2021
 Applicant/Owner: First Energy State: OH Sampling Point: Upland OS-04
 Investigator(s): BCR Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): LRR R, MLRA 139 Lat: 41.311726 Long: -82.267695 Datum: WGS 1984
 Soil Map Unit Name: MgA: Mahoning silt loam, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u> If yes, optional Wetland Site ID: <u>Upland OS-04</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: (Explain alternative procedures here or in a separate report.) upland point for wetland OS-04 (w-bcr-102621-02)	

HYDROLOGY

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>
Primary Indicators (minimum of one is required; check all that apply)		
<u> </u> Surface Water (A1)	<u> </u> Water-Stained Leaves (B9)	<u> </u> Surface Soil Cracks (B6)
<u> </u> High Water Table (A2)	<u> </u> Aquatic Fauna (B13)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Marl Deposits (B15)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Oxidized Rhizospheres on Living Roots (C3)	<u> </u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Stunted or Stressed Plants (D1)
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Sparsely Vegetated Concave Surface (B8)		<u> </u> Microtopographic Relief (D4)
		<u> </u> FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes <u> </u> No <u>X</u>	Depth (inches):	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Water Table Present? Yes <u>X</u> No <u> </u>	Depth (inches): 6	
Saturation Present? Yes <u>X</u> No <u> </u>	Depth (inches): 6	
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

[illegible]



Soil



N

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 69 kV Transmission Line City/County: Lorain County Sampling Date: 11/14/18
 Applicant/Owner: FirstEnergy State: OH Sampling Point: u-bao-111418-02
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope %: 1
 Subregion (LRR or MLRA): LRR R Lat: 41.2834 Long: -82.2712 Datum: WGS84
 Soil Map Unit Name: MkA, Mahoning-Tiro silt loams, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u>Upland OS-05</u>
Remarks: (Explain alternative procedures here or in a separate report.) within ROW. Former Upland BW-04 re-verified in Oct. 2021 as Upland OS-05	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION – Use scientific names of plants.Sampling Point: I-bao-111418-0

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B) Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species <u>25</u></td> <td>x 4 = <u>100</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>50</u> (A)</td> <td><u>175</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.50</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>25</u>	x 3 = <u>75</u>	FACU species <u>25</u>	x 4 = <u>100</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>50</u> (A)	<u>175</u> (B)	Prevalence Index = B/A = <u>3.50</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>25</u>	x 3 = <u>75</u>																			
FACU species <u>25</u>	x 4 = <u>100</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>50</u> (A)	<u>175</u> (B)																			
Prevalence Index = B/A = <u>3.50</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)																				
1. <u>Rosa multiflora</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>																	
2. <u>Frangula alnus</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Herb Stratum (Plot size: <u>5 ft</u>)																				
1. <u>Dipsacus fullonum</u>	<u>15</u>	<u>No</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>																
2. <u>Solidago sp.</u>	<u>50</u>	<u>Yes</u>																		
3. <u>Setaria pumila</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
4. <u>Cirsium vulgare</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		=Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		=Total Cover																		

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

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Wellington 69 kV Transmission Line City/County: Lorain County Sampling Date: 11/14/18
 Applicant/Owner: FirstEnergy State: OH Sampling Point: u-bao-111418-01
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope %:
 Subregion (LRR or MLRA): LRR R Lat: 41.2833 Long: -82.2712 Datum: WGS84
 Soil Map Unit Name: TrA, Trumbull silty clay loam, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u> If yes, optional Wetland Site ID: <u>Upland OS-06</u>
Remarks: (Explain alternative procedures here or in a separate report.) upland areas within ROW located near wetland OS-06. Former upland BW-05 re-verified in 2021.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION – Use scientific names of plants.Sampling Point: I-bao-111418-0

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B) Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>15</u></td> <td>x 4 = <u>60</u></td> </tr> <tr> <td>UPL species <u>5</u></td> <td>x 5 = <u>25</u></td> </tr> <tr> <td>Column Totals: <u>20</u> (A)</td> <td><u>85</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>4.25</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>15</u>	x 4 = <u>60</u>	UPL species <u>5</u>	x 5 = <u>25</u>	Column Totals: <u>20</u> (A)	<u>85</u> (B)	Prevalence Index = B/A = <u>4.25</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>15</u>	x 4 = <u>60</u>																			
UPL species <u>5</u>	x 5 = <u>25</u>																			
Column Totals: <u>20</u> (A)	<u>85</u> (B)																			
Prevalence Index = B/A = <u>4.25</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)																				
1. <u>Rosa multiflora</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>Problematic Hydrophytic Vegetation¹ (Explain)</u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
Herb Stratum (Plot size: <u>5 ft</u>)																				
1. <u>Solidago sp.</u>	<u>60</u>	<u>Yes</u>		Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>																
2. <u>Cirsium vulgare</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
3. <u>Festuca sp.</u>	<u>20</u>	<u>Yes</u>																		
4. <u>Daucus carota</u>	<u>5</u>	<u>No</u>	<u>UPL</u>																	
5. <u>Dipsacus fullonum</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		=Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		=Total Cover																		

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

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver Wellington/Henrietta City/County: Lorain Co Sampling Date: 10/25/2021
 Applicant/Owner: First Energy State: OH Sampling Point: Upland OS-08
 Investigator(s): BCR Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%):
 Subregion (LRR or MLRA): LRR R, MLRA 139 Lat: 41.160410 Long: -82.273068 Datum: WGS 1984
 Soil Map Unit Name: MgB: Mahoning silt loam, 2 to 6 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u> If yes, optional Wetland Site ID: <u>Upland OS-08</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: (Explain alternative procedures here or in a separate report.) U-BCR-102521-01 for adjacent wetland W-BCR-102521-01	

HYDROLOGY

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>
Primary Indicators (minimum of one is required; check all that apply)		
<u> </u> Surface Water (A1)	<u> </u> Water-Stained Leaves (B9)	<u> </u> Surface Soil Cracks (B6)
<u> </u> High Water Table (A2)	<u> </u> Aquatic Fauna (B13)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Marl Deposits (B15)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Oxidized Rhizospheres on Living Roots (C3)	<u> </u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Stunted or Stressed Plants (D1)
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Sparsely Vegetated Concave Surface (B8)		<u> </u> Microtopographic Relief (D4)
		<u> </u> FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches):	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches):		
Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		



Soil



E

Appendix B

OEPA ORAM Datasheets

Site: FirstEnergy Beaver-Wellington138kV	Rater(s): B. Robertson	Date: 03/11/2019
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0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

w-bcr-03/11/19-02

5	5
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), 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)

7	12
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

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

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

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

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

- | | |
|--|--|
| ☐ ditch
☐ tile
☐ dike
☐ weir
☐ stormwater input | ☐ point source (nonstormwater)
☒ filling/grading
☒ road bed/RR track
☐ dredging
☐ other _____ |
|--|--|

7	19
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

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

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

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

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

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

19

subtotal this page

Site: FirstEnergy Beaver-Wellington138kV	Rater(s): B. Robertson	Date: 03/11/2019
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19

subtotal first page

w-bcr-03/11/19-02

0	19
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max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

0	19
---	----

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☐ 1 Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ None (0)

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

- ☐ Extensive >75% cover (-5)
- ☒ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 1 Vegetated hummocks/tussocks
- ☐ Coarse woody debris >15cm (6in)
- ☐ Standing dead >25cm (10in) dbh
- ☐ 1 Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

19	GRAND TOTAL (max 100 pts)
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Site: FirstEnergy Beaver-Wellington 69kV Transmission Line	Date: October 3, 2018
Wetland: Wetland OS-02 (BW-01a,b (w-bao-100318-01))	Rater: Ben Otto, Jacobs Solutions

1	1
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)Select one size class and assign score.

☐	>50 acres (>20.2ha) (6 pts)	Acres: 0.26
☐	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)	
☐	<0.1 acres (0.04ha) (0 pts)	

11	10
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)2a. Calculate average buffer width (select one, do not double check)

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

2b. Intensity of surrounding land use (select one or double check & average)

☐	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☒	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)

17	6
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)3a. Sources of Water. Score all that apply.

☐	High pH groundwater (5)
☐	Other groundwater (3)
☒	Precipitation (1)
☐	Seasonal/intermittent surface water (3)
☐	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

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

3c. Maximum water depth. Select only 1.

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

3d. Duration inundation/saturation.

(select one or double check & average)

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

3e. Modifications to natural hydrologic regime.(select one or double check & average)

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

Check all disturbances observed

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

25	8
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)4a. Substrate disturbance. Score one or double check and average.

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

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

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

4b. Habitat development. Select one.

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

Check all disturbances observed

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

25	subtotal this page
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Site: FirstEnergy Beaver-Wellington 69kV Transmission Line	Date: October 3, 2018
Wetland: Wetland BW-01a,b (w-bao-100318-01)	Rater: Ben Otto, Jacobs Solutions

25 subtotal first page

25	0
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)Check all that apply and score as indicated

☐	Bog (10 pts)
☐	Fen (10 pts)
☐	Old Growth Forest (10 pts)
☐	Mature forested wetland (5 pts)
☐	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
☐	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
☐	Lake Plain Sand Prairies (Oak Openings) (10 pts)
☐	Relict Wet Prairies (10 pts)
☐	Known occurrence state/federal threatened or endangered species (10)
☐	Significant migratory songbird/waterfowl habitat or usage (10 pts)
☐	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

24	-1
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

0	Aquatic bed
1	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
0	Other (list)

6b. Horizontal (plan view) interspersions

Select only one

☐	High (5)
☐	Moderately high (4)
☐	Moderate (3)
☐	Moderately low (2)
☒	Low (1)
☐	None (0)

6c. Coverage of invasive plants

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

☐	Extensive >75 % cover (-5)
☒	Moderate 25-75% cover (-3)
☐	Sparse 5-25% cover (-1)
☐	Nearly Absent <5% cover (0)
☐	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

0	Vegetated hummocks/tussocks
0	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
0	Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (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

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

Provisional Wetland Category:

Category 1

Site: FirstEnergy Beaver-Wellington 69kV Transmission Line	Date: October 3, 2018
Wetland: Wetland OS-03 (BW-03a (w-bao-100318-02))	Rater: Ben Otto, Jacobs Solutions

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)Select one size class and assign score.

☐	>50 acres (>20.2ha) (6 pts)	Acres: 0.22
☐	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)	
☐	<0.1 acres (0.04ha) (0 pts)	

12	10
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)2a. Calculate average buffer width (select one, do not double check)

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

2b. Intensity of surrounding land use (select one or double check & average)

☐	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☒	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)

25	13
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)3a. Sources of Water. Score all that apply.

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

3b. Connectivity. Score all that apply.

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

3c. Maximum water depth. Select only 1.

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

3d. Duration inundation/saturation.

(select one or double check & average)

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

3e. Modifications to natural hydrologic regime.(select one or double check & average)

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

Check all disturbances observed

☒	ditch	☐	point source (nonstormwater)
☐	dike	☐	filling/grading
☐	tile	☐	road bed/RR track
☐	weir	☐	dredging
☐	stormwater input	☐	other- list

36.5	11.5
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)4a. Substrate disturbance. Score one or double check and average.

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

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

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

4b. Habitat development. Select one.

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

Check all disturbances observed

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

36.5 subtotal this page

Site: FirstEnergy Beaver-Wellington 69kV Transmission Line	Date: October 3, 2018
Wetland: Wetland_BW-03a (w-bao-100318-02)	Rater: Ben Otto, Jacobs Solutions

36.5 subtotal first page

36.5 0

Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)Check all that apply and score as indicated

- | | |
|--------------------------|--|
| ☐ | Bog (10 pts) |
| ☐ | Fen (10 pts) |
| ☐ | Old Growth Forest (10 pts) |
| ☐ | Mature forested wetland (5 pts) |
| ☐ | Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts) |
| ☐ | Lake Erie coastal/tributary wetland-restricted hydrology (5 pts) |
| ☐ | Lake Plain Sand Prairies (Oak Openings) (10 pts) |
| ☐ | Relict Wet Prairies (10 pts) |
| ☐ | Known occurrence state/federal threatened or endangered species (10) |
| ☐ | Significant migratory songbird/waterfowl habitat or usage (10 pts) |
| ☐ | Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts) |

39.5 3

Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- | | |
|---|--------------|
| 0 | Aquatic bed |
| 2 | Emergent |
| 0 | Shrub |
| 1 | Forest |
| 0 | Mudflats |
| 0 | Open water |
| 0 | Other (list) |

6b. Horizontal (plan view) interspersions

Select only one

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

6c. Coverage of invasive plants

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- | | |
|--------------------------|-----------------------------|
| ☐ | Extensive >75 % cover (-5) |
| x | Moderate 25-75% cover (-3) |
| ☐ | Sparse 5-25% cover (-1) |
| ☐ | Nearly Absent <5% cover (0) |
| ☐ | Absent (1) |

6d. Microtopography

Score all present using 0 to 3 scale

- | | |
|---|---------------------------------|
| 0 | Vegetated hummocks/tussocks |
| 0 | Coarse woody debris >15 cm (6") |
| 0 | Standing dead > 25 cm (10") dbh |
| 2 | Amphibian breeding pools |

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (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

39.5 GRAND TOTAL (max 100 pts)

Provisional Wetland Category:

modified 2

Site: Wetland OS-04	Rater(s): BCR	Date: 2021-10-26
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0.0	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)
- ☒ <0.1 acres (0.04ha) (0 pts)

7.0	7.0	Metric 2. Upland buffers and surrounding land use.
max 14 pts.	subtotal	

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

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

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

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), 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)

7.5	14.5	Metric 3. Hydrology.
max 30 pts.	subtotal	

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

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

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

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

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

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed	
☐ ditch	☐ point source (nonstormwater)
☐ tile	☒ filling/grading
☐ dike	☒ road bed/RR track
☐ weir	☐ dredging
☐ stormwater input	☐ other _____

6.0	20.5	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	

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

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

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

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

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

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
☒ mowing	☐ shrub/sapling removal
☐ grazing	☐ herbaceous/aquatic bed removal
☐ clearcutting	☐ sedimentation
☒ selective cutting	☐ dredging
☐ woody debris removal	☐ farming
☐ toxic pollutants	☐ nutrient enrichment

20.5

subtotal this page

Site: Wetland OS-04	Rater(s): BCR	Date: 2021-10-26
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20.5

subtotal first page

0.0	20.5
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max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

3.0	23.5
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max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☒ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

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

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☒ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ 1 Vegetated hummocks/tussocks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☒ 1 Amphibian breeding pools

2

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

23.5 GRAND TOTAL (max 100 pts)

Site: FirstEnergy Beaver-Wellington 69kV Transmission Line**Date:** November 14, 2018**Wetland:** Wetland OS-05 (BW-04a/b (w-bao-111418-02a/b))**Rater:** Ben Otto, Jacobs Solutions

2

2

Subtotal Points

Metric 1. Wetland Area (size). (max 6 pts)Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts) Acres: 0.36
- ☐ 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)
- ☐ <0.1 acres (0.04ha) (0 pts)

9

7

Subtotal Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)2a. Calculate average buffer width (select one, do not double check)

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

2b. Intensity of surrounding land use (select one or double check & average)

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ 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)

18

9

Subtotal Points

Metric 3. Hydrology. (max 30 pts)3a. Sources of Water. Score all that apply.

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

3b. Connectivity. Score all that apply.

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

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

- (select one or double check & average)
- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- ☒ ditch ☐ point source (nonstormwater)
- ☐ dike ☐ filling/grading
- ☒ tile ☐ road bed/RR track
- ☐ weir ☐ dredging
- ☐ stormwater input ☐ other- list

25.5

7.5

Subtotal Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

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

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

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

Check all disturbances observed

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

25.5 subtotal this page

Site: FirstEnergy Beaver-Wellington 69kV Transmission Line	Date: November 14, 2018
Wetland: Wetland BW-04a/b (w-bao-111418-02a/b)	Rater: Ben Otto, Jacobs Solutions

25.5 subtotal first page

25.5 0

Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)Check all that apply and score as indicated

☐	Bog (10 pts)
☐	Fen (10 pts)
☐	Old Growth Forest (10 pts)
☐	Mature forested wetland (5 pts)
☐	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
☐	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
☐	Lake Plain Sand Prairies (Oak Openings) (10 pts)
☐	Relict Wet Prairies (10 pts)
☐	Known occurrence state/federal threatened or endangered species (10)
☐	Significant migratory songbird/waterfowl habitat or usage (10 pts)
☐	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

23.5 -2

Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

☐	0 Aquatic bed
☐	1 Emergent
☐	0 Shrub
☐	0 Forest
☐	0 Mudflats
☐	0 Open water
☐	0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

☐	High (5)
☐	Moderately high (4)
☐	Moderate (3)
☐	Moderately low (2)
☒	Low (1)
☐	None (0)

6c. Coverage of invasive plants

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

☒	Extensive >75 % cover (-5)
☐	Moderate 25-75% cover (-3)
☐	Sparse 5-25% cover (-1)
☐	Nearly Absent <5% cover (0)
☐	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

☐	0 Vegetated hummocks/tussocks
☐	0 Coarse woody debris >15 cm (6")
☐	0 Standing dead > 25 cm (10") dbh
☐	1 Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (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

23.5 GRAND TOTAL (max 100 pts)

Provisional Wetland Category:

Category 1

Site: FirstEnergy Beaver-Wellington 69kV Transmission Line**Date:** November 14, 2018**Wetland:** Wetland OS-06a,b (BW-05a,b (w-bao-111418-01))**Rater:** Ben Otto, Jacobs Solutions

0 0

Subtotal Points

Metric 1. Wetland Area (size). (max 6 pts)Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts) Acres: 0.09
- ☐ 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)
- ☒ <0.1 acres (0.04ha) (0 pts)

8 8

Subtotal Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)2a. Calculate average buffer width (select one, do not double check)

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

2b. Intensity of surrounding land use (select one or double check & average)

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ 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)

20 12

Subtotal Points

Metric 3. Hydrology. (max 30 pts)3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

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

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

- (select one or double check & average)
- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☒ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- ☒ ditch ☐ point source (nonstormwater)
- ☐ dike ☐ filling/grading
- ☒ tile ☐ road bed/RR track
- ☐ weir ☐ dredging
- ☐ stormwater input ☒ other- list

29 9

Subtotal Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

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

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

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

Check all disturbances observed

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

29 subtotal this page

Site: FirstEnergy Beaver-Wellington 69kV Transmission Line	Date: November 14, 2018
Wetland: Wetland BW-05a,b (w-bao-111418-01)	Rater: Ben Otto, Jacobs Solutions

29 subtotal first page

29	0
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)Check all that apply and score as indicated

☐	Bog (10 pts)
☐	Fen (10 pts)
☐	Old Growth Forest (10 pts)
☐	Mature forested wetland (5 pts)
☐	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
☐	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
☐	Lake Plain Sand Prairies (Oak Openings) (10 pts)
☐	Relict Wet Prairies (10 pts)
☐	Known occurrence state/federal threatened or endangered species (10)
☐	Significant migratory songbird/waterfowl habitat or usage (10 pts)
☐	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

29	0
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

0	Aquatic bed
1	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
0	Other (list)

6b. Horizontal (plan view) interspersions

Select only one

☐	High (5)
☐	Moderately high (4)
☐	Moderate (3)
☐	Moderately low (2)
☒	Low (1)
☐	None (0)

6c. Coverage of invasive plants

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

☐	Extensive >75 % cover (-5)
☒	Moderate 25-75% cover (-3)
☐	Sparse 5-25% cover (-1)
☐	Nearly Absent <5% cover (0)
☐	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

0	Vegetated hummocks/tussocks
0	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
1	Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (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

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

Provisional Wetland Category:

Category 1

Site: FirstEnergy Beaver-Wellington 69kV Transmission Line	Date: October 2, 2018
Wetland: Wetland OS-07 (BW-06a,b (w-bao-100218-01,01b))	Rater: Ben Otto, Jacobs Solutions

3	3
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)Select one size class and assign score.

☐	>50 acres (>20.2ha) (6 pts)	Acres: 0.82
☐	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)	
☐	<0.1 acres (0.04ha) (0 pts)	

11	8
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)2a. Calculate average buffer width (select one, do not double check)

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

2b. Intensity of surrounding land use (select one or double check & average)

☐	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☒	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)

20	9
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)3a. Sources of Water. Score all that apply.

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

3b. Connectivity. Score all that apply.

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

3c. Maximum water depth. Select only 1.

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

3d. Duration inundation/saturation.

(select one or double check & average)

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

3e. Modifications to natural hydrologic regime.(select one or double check & average)

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

Check all disturbances observed

☒	ditch	☐	point source (nonstormwater)
☐	dike	☒	filling/grading
☐	tile	☐	road bed/RR track
☐	weir	☐	dredging
☐	stormwater input	☒	other- list

30	10
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)4a. Substrate disturbance. Score one or double check and average.

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

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

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

4b. Habitat development. Select one.

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

Check all disturbances observed

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

Site: FirstEnergy Beaver-Wellington 69kV Transmission Line	Date: October 2, 2018
Wetland: Wetland BW-06a,b (w-bao-100218-01,01b)	Rater: Ben Otto, Jacobs Solutions

30 subtotal first page

30	0
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)Check all that apply and score as indicated

☐	Bog (10 pts)
☐	Fen (10 pts)
☐	Old Growth Forest (10 pts)
☐	Mature forested wetland (5 pts)
☐	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
☐	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
☐	Lake Plain Sand Prairies (Oak Openings) (10 pts)
☐	Relict Wet Prairies (10 pts)
☐	Known occurrence state/federal threatened or endangered species (10)
☐	Significant migratory songbird/waterfowl habitat or usage (10 pts)
☐	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

35	5
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

0	Aquatic bed
1	Emergent
1	Shrub
1	Forest
0	Mudflats
0	Open water
0	Other (list)

6b. Horizontal (plan view) interspersions

Select only one

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

6c. Coverage of invasive plants

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

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

6d. Microtopography

Score all present using 0 to 3 scale

0	Vegetated hummocks/tussocks
0	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
1	Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

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

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

Provisional Wetland Category:

modified 2

Site: Wetland OS-08	Rater(s): BCR	Date: 2021-10-25
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1.0

1.0

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)
- ☐ <0.1 acres (0.04ha) (0 pts)

2.0

3.0

Metric 2. Upland buffers and surrounding land use.

max 14 pts.

subtotal

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

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

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

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), 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)

6.5

9.5

Metric 3. Hydrology.

max 30 pts.

subtotal

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

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

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

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

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

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

- | | |
|---|---|
| ☐ ditch | ☐ point source (nonstormwater) |
| ☐ tile | ☐ filling/grading |
| ☐ dike | ☒ road bed/RR track |
| ☐ weir | ☐ dredging |
| ☐ stormwater input | ☒ other <u>Farming adjacent</u> |

7.0

16.5

Metric 4. Habitat Alteration and Development.

max 20 pts.

subtotal

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

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

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

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

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

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

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

16.5

subtotal this page

Site: Wetland OS-08	Rater(s): BCR	Date: 2021-10-25
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16.5

subtotal first page

0.0	16.5
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max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-4.0	12.5
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max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ None (0)

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

- ☒ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

0

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

12.5 GRAND TOTAL (max 100 pts)

Appendix C

OEPA HHEI Datasheets

SITE NAME/LOCATION S-BCR-102521-01

SITE NUMBER BW-30 RIVER BASIN Black-Rocky RIVER CODE _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) 1.669 LAT 41.11905 LONG -82.25110 RIVER MILE _____

DATE 10/25/2021 SCORER BCR COMMENTS Stream BW-30. Ephemeral

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

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

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

TYPE	PERCENT	TYPE	PERCENT
☐ BLD R SLABS [16 pts]	_____	☐ SILT [3 pt]	_____
☐ BOULDER (>256 mm) [16 pts]	_____	☐ LEAF PACK/WOODY DEBRIS [3 pts]	5
☐ BEDROCK [16 pts]	_____	☐ FINE DETRITUS [3 pts]	_____
☐ COBBLE (65-256 mm) [12 pts]	_____	☐ CLAY or HARDPAN [0 pt]	_____
☐ GRAVEL (2-64 mm) [9 pts]	35	☐ MUCK [0 pts]	_____
☒ SAND (<2 mm) [6 pts]	60	☐ ARTIFICIAL [3 pts]	_____

HHEI Metric Points

Substrate Max = 40

18

A + B

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 15 (B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

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

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

Pool Depth Max = 30

0

COMMENTS _____ MAXIMUM POOL DEPTH (inches): 0

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

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

Bankfull Width Max=30

5

COMMENTS _____ AVERAGE BANKFULL WIDTH (feet): 2

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
☒	☒	☐	☐
Wide >10m		Mature Forest, Wetland	
☐	☐	☒	☒
Moderate 5-10m		Immature Forest, Shrub or Old Field	
☐	☐	☐	☐
Narrow <5m		Residential, Park, New Field	
☐	☐	☐	☐
None		Fenced Pasture	
		☐	☐
		Conservation Tillage	
		☐	☐
		Urban or Industrial	
		☐	☐
		Open Pasture, Row Crop	
		☐	☐
		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 _____

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: Nova NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Lorain County Township/City: Huntington Twp

MISCELLANEOUS

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

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): No Canopy (% open): _____

Were samples collected for water chemistry? (Y/N): No Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) _____ Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) _____ Species observed (if known): _____

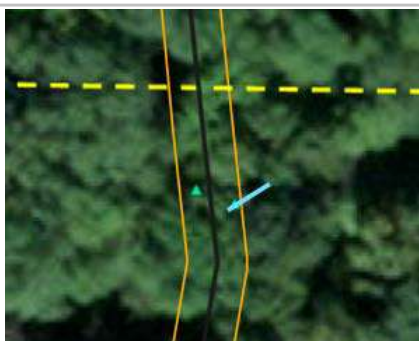
Salamanders Observed? (Y/N) _____ Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) _____ Species observed (if known): _____

Comments Regarding Biology: _____

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

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





Upstream



Downstream





Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION **FirstEnergy Beaver-Wellington 69kV Transmission Line**SITE NUMBER **s-bao-111418-01**

RIVER BASIN

DRAINAGE AREA (mi²) **0.45**LENGTH OF STREAM REACH (ft) **200**LAT. **41.28340**LONG. **-82.27120**

RIVER CODE

RIVER MILE

DATE **10/02/18**SCORER **BAO**COMMENTS **intermittent****NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions****STREAM CHANNEL MODIFICATIONS:**☐ NONE / NATURAL CHANNEL☐ RECOVERED☒ RECOVERING☐ RECENT OR NO RECOVERY

Stream has been channelized and riparian is cleared. Landowner and pasture has impacted the stream bank. Re-verified in Oct. 2021

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]	60%
☐ BOULDER (>256 mm) [16 pts]	0%	☐ LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ 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]	20%	☐ MUCK [0 pts]	0%
☐ SAND (<2 mm) [6 pts]	10%	☐ ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%**

(A)

Substrate Percentage Check **100%**

(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****3**

Pool Depth Max = 30

15

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

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

COMMENTS

AVERAGE BANKFULL WIDTH **Feet****2.00**

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**FLOODPLAIN QUALITY**

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	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

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: Beaver Creek	Distance from Evaluated Stream	2.78
☐ 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: **Kipton** NRCS Soil Map Page: NRCS Soil Map Stream Order

County: **Lorain** Township / City:

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **11/10/18** Quantity: **0.17**

Photograph Information:

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

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)

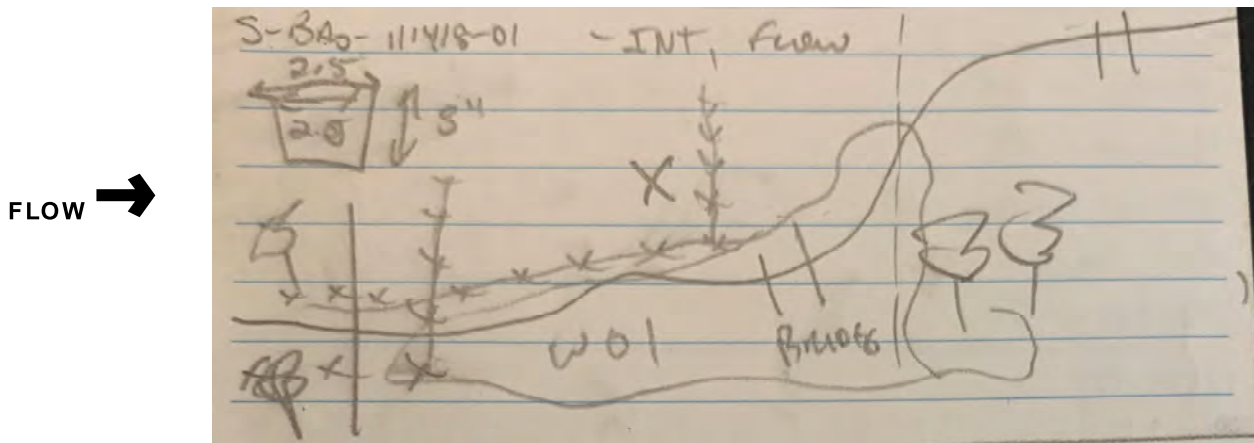
Fish Observed? (Y/N) ☐ Voucher? (Y/N) ☐ Salamanders Observed? (Y/N) ☐ Voucher? (Y/N) ☐

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





Site Name	Flow Regime	Photo Direction
Stream OS-01	Intermittent	Upstream



Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION **FirstEnergy Beaver-Wellington 69kV Transmission Line**SITE NUMBER **s-bao-100218-01**

RIVER BASIN

DRAINAGE AREA (mi²) **0.06**LENGTH OF STREAM REACH (ft) **200**LAT. **41.27790**LONG. **-82.27120**

RIVER CODE

RIVER MILE

DATE **10/02/18**SCORER **BAO**COMMENTS **ephemeral, in between ag and old field**

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

STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL☐ RECOVERED☒ RECOVERING☐ RECENT OR NO RECOVERY

Stream has been channelized and riparian area has been cut within ROW. Re-verified in Oct. 2021

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]	40%
☐ BOULDER (>256 mm) [16 pts]	0%	☐ LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐ BEDROCK [16 pt]	0%	☐ FINE DETRITUS [3 pts]	0%
☐ COBBLE (65-256 mm) [12 pts]	0%	☒ CLAY or HARDPAN [0 pt]	40%
☐ GRAVEL (2-64 mm) [9 pts]	0%	☐ MUCK [0 pts]	0%
☐ SAND (<2 mm) [6 pts]	0%	☐ ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%**

(A)

Substrate Percentage Check **100%**

(B)

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

HHEI Metric Points

Substrate Max = 40

6

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**

3

Pool Depth Max = 30

15

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

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

COMMENTS

AVERAGE BANKFULL WIDTH **Feet**

3.50

Bankfull Width Max=30

15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	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 **Ephemeral with pools present**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: Plum Creek	Distance from Evaluated Stream	1.33
☐ 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: Kipton NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Lorain Township / City:

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/26/18 Quantity: 1.27
Photograph Information:
Elevated Turbidity? (Y/N): N Canopy (% open): 20%
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:

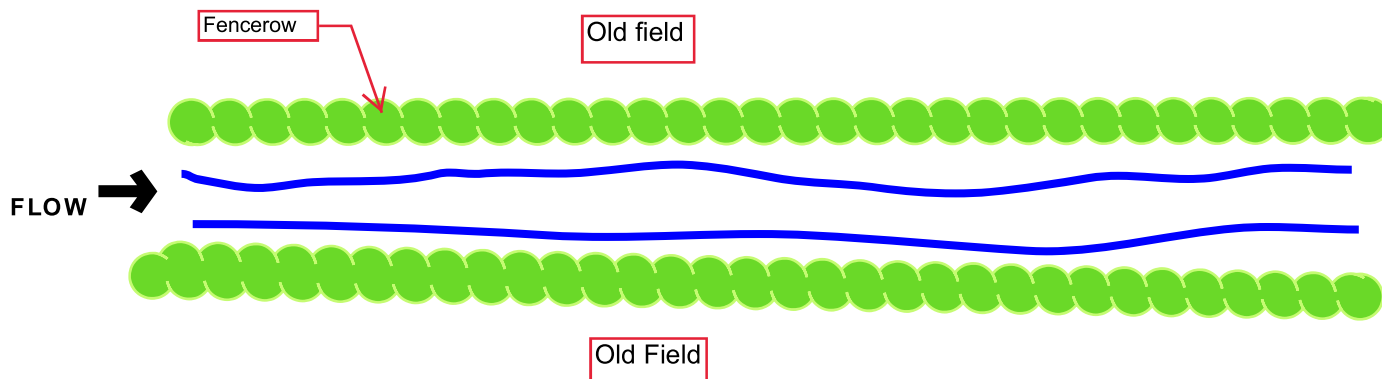
Additional comments/description of pollution impacts:

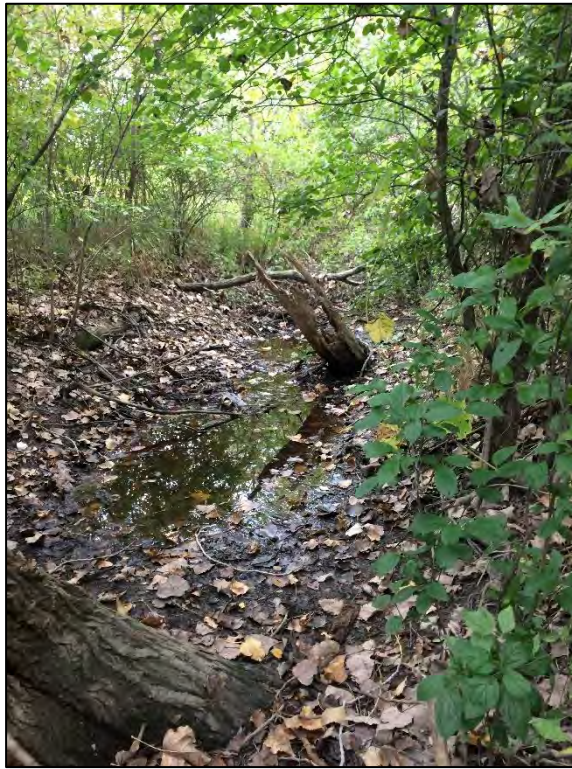
BIOTIC EVALUATION

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





Site Name	Flow Regime	Photo Direction
Stream OS-02	Ephemeral	Upstream



Site Name	Flow Regime	Photo Direction
Stream OS-02	Ephemeral	Downstream



Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION **FirstEnergy Beaver-Wellington 138 kV Transmission Line**SITE NUMBER **S-BAO-100119-01**RIVER BASIN **04110001**DRAINAGE AREA (mi²) **0.04**LENGTH OF STREAM REACH (ft) **50**LAT. **41.15772**LONG. **-82.27069**

RIVER CODE

RIVER MILE

DATE **10/01/2019**SCORER **Otto**COMMENTS **Stream off ag field, ephemeral flow regime**

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

STREAM CHANNEL

☐ NONE / NATURAL CHANNEL☐ RECOVERED☐ RECOVERING☒ RECENT OR NO RECOVERY

MODIFICATIONS:

Riparian cut, channelized

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]	20%
☐ BOULDER (>256 mm) [16 pts]	0%	☐ LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ BEDROCK [16 pt]	0%	☐ FINE DETRITUS [3 pts]	0%
☐ COBBLE (65-256 mm) [12 pts]	5%	☒ CLAY or HARDPAN [0 pt]	40%
☒ GRAVEL (2-64 mm) [9 pts]	25%	☐ MUCK [0 pts]	0%
☐ SAND (<2 mm) [6 pts]	0%	☐ ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

5%

(A)

Substrate Percentage Check 100%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

9

TOTAL NUMBER OF SUBSTRATE TYPES:

5

HHEI Metric Points

Substrate Max = 40

14

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]

Pool Depth Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH

(Inches): 0.00

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]	

Bankfull Width Max=30

5

COMMENTS

AVERAGE BANKFULL WIDTH

(Feet): 2.00

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	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

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: Brighton NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Lorain Township / City: Wellington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/29/19 Quantity: 0.04
Photograph Information: 3 photos
Elevated Turbidity? (Y/N): N Canopy (% open): 70
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



Ephemeral channel at edge of ag. field resulting from ag. swale drainage.

Site Photos



Upstream, south



Downstream, north



Substrate

**This foregoing document was electronically filed with the Public Utilities
Commission of Ohio Docketing Information System on**

12/15/2022 3:59:18 PM

in

Case No(s). 22-0494-EL-BTA

Summary: Amended Application Supplement to Application for Certificate
Amendment electronically filed by Ms. Devan K. Flahive on behalf of American
Transmission Systems Incorporated