LETTER OF NOTIFICATION FOR Dilles Bottom-FE Corridor 138 kV Transmission Line Project

PUCO Case No. 18-0603-EL-BLN

Submitted to:
The Ohio Power Siting Board
Pursuant to Ohio Administrative Code
Section 4906-6-05

Submitted by:
AEP Ohio Transmission Company, Inc.

May 23, 2018

LETTER OF NOTIFICATION

AEP Ohio Transmission Company, Inc.'s
Dilles Bottom-FE Corridor 138 kV Transmission Line Project

4906-6-05

AEP Ohio Transmission Company, Inc. ("AEP Ohio Transco") is providing this Letter of Notification ("LON") to the Ohio Power Siting Board ("OPSB") in accordance with the accelerated application requirements of Ohio Administrative Code ("O.A.C.")Section 4906-6-05.

4906-6-05(B) General Information

B(1) Project Description

The name of the project and applicant's reference number, names and reference number(s) of resulting circuits, a brief description of the project, and why the project meets the requirements for a Letter of Notification.

AEP Ohio Transco proposes the Dilles Bottom-FE Corridor 138 kilovolt ("kV") Transmission Line Project ("Project"), located in Mead Township, Belmont County, Ohio ("Project Area"). AEP Ohio Transco proposes to rebuild and upgrade approximately 1.3 miles of existing 69 kV transmission lines to 138 kV transmission line between the existing Dilles Bottom Station and an interconnection with a FirstEnergy transmission line corridor. The existing Dilles Bottom Station will be expanded and upgraded as part of this rebuild effort and filed in a separate LON in OPSB Case No. 18-0602-EL-BLN.

The Project consists of rebuilding and consolidating two parallel 69 kV transmission lines to a 138 kV double-circuit transmission line. The Project will utilize the existing rights-of-way by constructing between the two existing 69 kV lines that are to be removed. Figure 1 (Appendix A) shows the general location of the Project in relation to the existing transmission facilities.

The Project meets the requirements for a LON because it is within the types of projects defined by (1)(b) of Appendix A to O.A.C. 4906-1-01, *Application Requirement Matrix for Electric Power Transmission Lines*:

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

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

The Project has been assigned PUCO Case No. 18-0603-EL-BLN.

B(2) Statement of Need

If the proposed Letter of Notification project is an electric power transmission line or gas or natural gas transmission line, a statement explaining the need for the proposed facility.

The Project is a PJM Baseline RTEP project (identifier B2753), which was initially submitted to PJM in May 2016, and revised in September 2017 (see Appendix B). The baseline status is due to the project relieving transmission system criteria violations associated with future generation retirements in the region. In addition, a major industrial customer is proposing to build near the Project area. If the customer moves forward with its proposed facility, it will require substantial power, necessitating a substation upgrade near Dilles Bottom. The Project was referenced in the 2018 AEP Ohio Transco LTFR (see Appendix B), in section FE-T9 (Planned Electric Transmission Lines). The existing AEP 69kV transmission lines passing through the Project Area are not of sufficient capacity to meet the area's future power requirements. Constructing a new 138kV double-circuit transmission line from AEP's George Washington Station in West Virginia to AEP's Dilles Bottom Station in Ohio and connecting to FirstEnergy's 138 kV transmission lines proceeding to Holloway Station will add a robust, reliable source of power for years to come and resolve the system reliability concerns as studied by the PJM RTO. The Dilles Bottom 138-12kV station will also serve local AEP Ohio distribution loads in the area, and replace the existing Dilles Bottom 69-12kV Station.

B(3) Project Location

The applicant shall provide the location of the project in relation to existing or proposed lines and substations shown on an area system map of sufficient scale and size to show existing and proposed transmission facilities in the Project area.

Figure 1 shows the location of the Project in relation to existing transmission facilities on a United States Geological Survey 1:24,000 quadrangle. Figure 2 identifies the Project components on a 2016 aerial photograph.

B(4) Alternatives Considered

The applicant shall describe the alternatives considered and reasons why the proposed location or route is best suited for the proposed facility. The discussion shall include, but not be limited to, impacts associated with socioeconomic, ecological, construction, or engineering aspects of the project.

The Project is a rebuild of two existing 69 kV lines to a double-circuit 138 kV transmission line and will predominately utilize existing ROW; therefore, no other alternatives were considered. The proposed Project will not create significant negative socioeconomic, ecological, or construction impacts as the proposed Project will be largely within AEP Ohio Transco's currently maintained ROW.

B(5) Public Information Program

The applicant shall describe its public information program to inform affected property owners and tenants of the nature of the project and the proposed timeframe for project construction and restoration activities.

AEP Ohio Transco informs affected property owners and tenants about its projects through several different mediums. Within seven days after filing this LON, AEP Ohio Transco will issue a public notice in a newspaper of general circulation in the Project area. The notice will comply with all requirements under O.A.C. Section 4906-6-08(A)(1-6). Further, AEP Ohio Transco mailed a letter, via first class mail, to affected landowners, tenants, contiguous owners, and any other landowner AEP Ohio Transco approached for an easement necessary for the construction, operation, or maintenance of the facility. The letter complies with all the requirements of O.A.C. Section 4906-6-08(B). AEP Ohio Transco also maintains a website (http://aeptransmission.com/ohio/) which provides the public access to an electronic copy of this LON and the public notice for this LON. A paper copy of the LON will be served to the public library in each political subdivision affected by this proposed Project. Lastly, AEP Ohio Transco retains ROW land agents who discuss project timelines, construction and restoration activities with affected owners and tenants.

B(6) Construction Schedule

The applicant shall provide an anticipated construction schedule and proposed in-service date of the project.

AEP Ohio Transco anticipates that construction of the Project will begin in the first quarter of 2020, and the in-service date of the Project will be approximately May 2020.

B(7) Area Map

The applicant shall provide a map of at least 1:24,000 scale clearly depicting the facility with clearly marked streets, roads, and highways, and an aerial image.

Figure 1 identifies the location of the Project area on a United States Geological Survey 1:24,000 quadrangle map. Figure 2 is an aerial map of the Project area.

To visit the Project from Columbus, Ohio, take I-70 E toward Wheeling, West Virginia for approximately 119 miles. Continue onto I-470 E toward Bellaire/Washington, Pennsylvania for approximately six miles, take the ramp for OH-7 and turn right. Drive 11 miles south and turn left onto County Road 54/Dilles Bottom Road/Old State Highway 7. The southern terminus of the Project (Dilles Bottom Substation) will be 0.9-mile on the left. The approximate address of the Dilles Bottom Substation is 55586 Old State Highway, Shadyside, Ohio 43947 at latitude 39.9210, longitude -80.7897.

B(8) Property Agreements

The applicant shall provide a list of properties for which the applicant has obtained easements, options, and/or land use agreements necessary to construct and operate the facility and a list of the additional properties for which such agreements have not been obtained.

The Project will be constructed predominantly within existing ROW. Provided below is a table of property parcel numbers with an indication if the easement/option necessary to construct and operate the facility has been obtained.

Property Parcel Number	Easement Agreement/ Option Obtained (Yes/No)*
15-00552.000	Yes
15-00553.000	Yes
15-00013.000	Yes
15-00550.000	Yes
15-00552.002	Yes
15-00197.000	Yes
15-00037.000	Yes
15-00619.000	Yes
15-01320.000	Yes
15-00189.000	Yes
15-00431.000	Yes
15-01320.001	Yes
15-00092.000	Yes
15-01312.000	Yes
15-00093.000	Yes
15-00430.000	Yes
15-01311.000	Yes
15-00599.000	Yes
15-01245.000	Yes
15-00856.000	Yes
15-01246.000	Yes
15-01188.000	Yes

*AEP Ohio Transco may supplement its existing rights under certain blanket easements identified above

B(9) Technical Features

The applicant shall describe the following information regarding the technical features of the project:

B(9)(a) Operating characteristics, estimated number and types of structures required, and right-of-way and/or land requirements.

The Project will consist of seven (7) steel lattice towers at approximately 110 feet above ground height that are anticipated to utilize wither steel grillage or concrete pier foundations. The Project will also utilize four (4) steel monopoles at approximately 100 feet above ground height with concrete pier foundations.

The Project has the following characteristics:

Voltage:	138kV
Structure Type:	Steel lattice tower and steel monopoles
Shield Wire:	(1) OPGW (Fiber optic communication wire) and (1) 7#8 Alumoweld used above the phase conductors
Conductor:	(6) 1,233.6KCM ACSS/TW Type 13 Stranding – "Yukon"
Insulators:	Non-Ceramic Insulators (Polymer) with corona rings

B(9)(b) Electric and Magnetic Fields
For electric power transmission lines that are within one hundred feet of an occupied residence or institution, the production of electric and magnetic fields during the operation of the proposed electric power transmission line.

B(9)(b)(i) Calculated Electric and Magnetic Field Strength Levels

No occupied residences or institutions are located within 100 feet of the Project.

B(9)(b)(ii) Design Alternatives

A discussion of the applicant's consideration of design alternatives with respect to electric and magnetic fields and their strength levels, including alternate conductor configuration and phasing, tower height, corridor location, and right-of-way width.

No occupied residences or institutions are located within 100 feet of the Project.

B(9)(b)(ii)(c) Project Cost

The estimated capital cost of the project.

The capital costs estimate for the proposed Project, comprised of applicable tangible and capital costs, is approximately $5,000,000.

B(10) Social and Economic Impacts

The applicant shall describe the social and ecological impacts of the project.

B(10)(a) Operating Characteristics

Provide a brief, general description of land use within the vicinity of the proposed project, including a list of municipalities, townships, and counties affected.

The Project is located in Mead Township, Belmont County, Ohio. Land uses in the Project area consists of deciduous forest, hay/pasture, herbaceous, and developed open space.

B(10)(b) Agricultural Land Information

Provide the acreage and a general description of all agricultural land, and separately all agricultural district land, existing at least sixty days prior to submission of the application within the potential disturbance area of the project.

The Project is not located within or across a registered agricultural district land, based on data received from the Belmont County Auditor's office on March 29, 2018. Additionally, the Project Area does not contain any active agricultural row crop land (see Figure 2 in Appendix A).

B(10)(c) Archaeological and Cultural Resources

Provide a description of the applicant's investigation concerning the presence or absence of significant archaeological or cultural resources that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

In April 2018, AEP Ohio Transco's consultant completed a Phase I Cultural Resource Management Investigation for the Project, which will be provided to OPSB under separate cover. The field investigations were completed within a 100-foot-wide corridor along the entire 1.3-mile Project, including proposed access roads. Many situations were found to be poorly suited for testing due to steeply sloping conditions and disturbances.

A response from the Ohio Historic Preservation Office was received on May 10, 2018, see Appendix C.

B(10)(d) Local, State, and Federal Agency Correspondence

Provide a list of the local, state, and federal governmental agencies known to have requirements that must be met in connection with the construction of the project, and a list of documents that have been or are being filed with those agencies in connection with siting and constructing the project.

A Notice of Intent will be filed with the Ohio Environmental Protection Agency ("OEPA") for authorization of construction storm water discharges under General Permit OHC000005, and AEP Ohio Transco will implement and maintain best management practices, as outlined in the project-specific Storm Water Pollution Prevention Plan, to minimize erosion and control sediment to protect surface water quality during

storm events. It is anticipated the Project will meet the terms and conditions of the pre-authorized Section 401 Water Quality Certification from the OEPA.

A portion of the Project is located within a Federal Emergency Management Agency ("FEMA") 100-year floodplain area (specifically, map numbers 39013C0333E, 39013C0334E, 39013C0341E, and 39013C0342E), specifically the southern end of the line at the Dilles Bottom Station. However, the Project will not be located within a floodway. FEMA floodplain permitting through the Belmont County Engineer may be required for the Project. AEP Ohio Transco will coordinate with the Belmont County Engineer if a floodplain permit is required

Applicable municipal and state road and driveway permits will be applied for and obtained as necessary prior to construction.

There are no other known local, state, or federal requirements that must be met prior to commencement of the Project.

B(10)(e) Threatened, Endangered, and Rare Species

Provide a description of the applicant's investigation concerning the presence or absence of federal and state designated species (including endangered species, threatened species, rare species, species proposed for listing, species under review for listing, and species of special interest) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

The United States Fish and Wildlife Service's ("USFWS") *Federally Listed Species by Ohio Counties January 2018* (available at https://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyList29Jan2018.pdf) was reviewed to determine the threatened and endangered species known to occur in Belmont County. This USFWS publication lists the following species as occurring within Belmont County: Indiana bat (*Myotis sodalis*; federally endangered) and northern long-eared bat (*Myotis septentrionalis;* federally threatened). As part of the ecological study completed for the Project, a coordination letter was submitted to the USFWS' Ohio Ecological Services Field Office seeking technical assistance on the Project for potential impacts to threatened or endangered species. The February 14, 2018 response letter from the USFWS (see Appendix D) indicated the proposed Project is within the range of the Indiana bat and northern long-eared bat in Ohio, but if tree clearing occurs between October 1 and March 31, they do not anticipate the Project having any adverse effects to these species or any other federally-listed endangered, threatened, proposed, or candidate species. The proposed Project will require tree clearing within existing and new ROW. AEP Ohio Transco anticipates tree clearing associated with the Project will occur between October 1 and March 31.

Several state-listed threatened species, endangered species, and species of concern are listed by the Ohio Department of Natural Resources ("ODNR") (available at http://wildlife.ohiodnr.gov/species-and-habitats/state-listed-species/state-listed-species-by-county) as occurring, or potentially occurring in Belmont County. These state-listed species are addressed in detail in the Ecological Survey Report included in Appendix D.

A coordination letter was submitted to the ODNR in January 2018, seeking an environmental review of the proposed Project for potential impacts on state-listed threatened or endangered species. The March 13, 2018 response letter from ODNR (see Appendix D; Project ID 18-238) indicated the Natural Heritage Database ("NHD") has no records of state-endangered or -threatened plants or animals within the Project area. The NHD also has no records of state-potentially-threatened plants, special interest species or species of concern animals, or any federally-listed species.

Coordination was also conducted with ODNR's Division of Wildlife ("DOW") for the Project in January 2018. According to the March 2018 ODNR DOW response letter, the Project is within the range of the Indiana bat, a state-endangered and federally-endangered species, but if tree clearing occurs between October 1 and March 31, ODNR's DOW does not anticipate the Project having adverse effects to the Indiana bat. The Project is also located within the range of the following state-listed mussel species: butterfly (*Ellipsaria lineolata*), threehorn wartyback (*Obliquaria reflexa*), and black sandshell (*Ligumia recta*). However, due to the location of the Project and that there is no in-water work proposed in a perennial stream of sufficient size, the ODNR DOW indicated the Project is not likely to impact these mussel species. The Project is also located within the range of the following state-listed fish species: western banded killifish (*Fundulus diaphanous menona*), channel darter (*Percina copelandi*), river darter (*Percina shumardi*), Tippecanoe darter (*Etheostoma tippecanoe*), and paddlefish (*Polyodon spathula*). The Project is also within the range of the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), a state-endangered species, and the black bear (*ursus americanus*), a federal species of concern. However, based on the location of the Project, no in-water work being proposed in a perennial stream of sufficient size, type of habitat at the Project site, type of work proposed, and/or species mobility, the Project is not likely to impact these species per the ODNR DOW.

B(10)(f) Areas of Ecological Concern

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

The ODNR responded in a letter dated March 13, 2018 (Project ID 18-238; see Appendix D) indicating that the ODNR is unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refigures, or other protected natural areas within the Project Area.

Correspondence received from the USFWS (see Appendix D) indicated there are no federal wilderness areas, wildlife refuges, or designated critical habitat in the Project vicinity. No properties identified in the National Conservation Easement Database (http://www.conservationeasement.us) were identified in the Project vicinity.

The FEMA Flood Insurance Rate Map was reviewed to identify any floodplains/flood hazard areas that have been mapped within the Project area (specifically, map numbers 39013C0333E, 39013C0334E, 39013C0341E, and 39013C0342E). Based on this mapping, FEMA floodplains are located in a portion of the Project area, specifically the southern end of the line at the Dilles Bottom Substation. However, the Project is not proposed to be located in a floodway.

A review of the National Wetlands Inventory ("NWI") database indicated there is one NWI-mapped wetland identified within the Project Area. Wetland and stream delineation field surveys were completed within the Project area by AEP Ohio Transco's consultant in February 2018. The results of the wetland and stream delineations are presented in the Ecological Survey Report included in Appendix D. One palustrine forested (PFO) wetland, four perennial streams, and one intermittent stream were identified in the Project Area. The PFO wetland identified within the Project study area may require tree clearing but will be conducted by hand and no temporary or permanent fill will be placed within the wetland.

B(10)(g) Unusual Conditions

Provide any known additional information that will describe any unusual conditions resulting in significant environmental, social, health, or safety impacts.

To the best of AEP Ohio Transco's knowledge, no unusual conditions exist that would result in significant environmental, social, health, or safety impacts.

Appendix A Project Maps

PROJECT LOCATION

BELMONT COUNTY, OHIO

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: BUSINESSBURG (1978), OHIO AND MOUNDSVILLE (1977), WEST VIRGINIA, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 05/2018.

LEGEND

- Existing Substation
- Proposed 138 kV Transmission Line
- Existing 69 kV Transmission Line
- County Boundary
- Township Boundary

0 1,000 2,000 4,000 Feet

FIGURE 1
PROJECT LOCATION MAP

DILLES BOTTOM - FE CORRIDOR
138 kV TRANSMISSION LINE PROJECT
AMERICAN ELECTRIC POWER

gai consultants

DRAWN BY: JTH	DATE: 5/16/2018
CHECKED: EFJ	APPROVED:

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MARSHALL COUNTY, WV
BELMONT COUNTY, OH

Horse Mill Hill Rd
Cash Hill Rd
Broadview Rd
Big Run Rd
Lockwood Run Rd
Hamlo Rd
Pipe Creek Rd
Dilles Bottom Rd
Ohio River Scenic Bywy
OH-7 N
OH-7 S
Norfolk Southern
Ferry Landing Rd
Grandview Dr
Valley Dr
Walden Way
Dilles Bottom Dr

PROJECT LOCATION

BELMONT COUNTY, OHIO

REFERENCES: ESRI WORLD IMAGERY, DIGITALGLOBE, 2016, ACCESSED 05/2018. WORLD TRANSPORTATION, ESRI, DELORME, HERE, MAPMYINDIA, TOMTOM, ©OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, OBTAINED THROUGH ESRI ARCGIS ONLINE, ACCESSED 05/2018.

LEGEND

- Proposed 138 kV Transmission Line
- Existing 69 kV Transmission Line
- Existing Station Fence
- Proposed Station Fence
- County Boundary
- Township Boundary

0 500 1,000 2,000 Feet

FIGURE 2
PROJECT LAYOUT MAP

DILLES BOTTOM - FE CORRIDOR
138 kV TRANSMISSION LINE PROJECT
AMERICAN ELECTRIC POWER

gai consultants

DRAWN BY: JTH DATE: 5/16/2018
CHECKED: EFJ APPROVED:

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Appendix B PJM Submittal and 2018 Long Term Forecast Report

PJM Submittal

Baseline Cost Change (B2753.1-10)

Presented: 8/21/2017 Western Subregional TEAC

- N5076.1/B2753.1 - George Washington Station – Replace existing 138kV yard with GIS 138kV breaker and a half yard in existing station footprint. Install 138kV revenue metering for new IPP connection. (AEP)
- N5076.2/B2753.2 - Dilles Bottom Station – Replace Dilles Bottom 69/4kV Distribution station as breaker and a half 138kV yard design including AEP Distribution facilities but initial configuration will constitute a 3 breaker ring bus. (AEP)
- N5076.3/B2753.3 - Holloway Station – Connect two 138kV 6-wired ckts from “Point A” (currently de-energized and owned by First Energy) in ckt positions previously designated Burger #1 & Burger #2. Install interconnection settlement metering on both circuits exiting Holloway station. (AEP)
- N5076.4/B2753.4 - Holloway-”Point A” FE “Burger-Cloverdale No.2” 138kV Line – 6 wire “Burger-Cloverdale No. 2” 138kV Line for double capacity and connect at Holloway and “Point A” (ATSI)
- N5076.5/B2753.5 - Holloway -”Point A” FE “Burger-Longview” 138kV Line – 6 wire “Burger-Longview” 138kV Line for double capacity and connect at Holloway and “Point A” (ATSI)
- N5076.6/B2753.6 - Dilles Bottom -”Point A”138kV Line - Build dbl ckt 138kV line from Dilles Bottom to “Point A”. Tie each new AEP ckt in with a 6 wired line at Point A. This will create a Dilles Bottom-Holloway 138kV ckt and a George Washington-Holloway circuit. (AEP)
- N5076.7/B2753.7 - Dilles Bottom-Bellaire and Moundsville-Dilles Bottom 69kV Lines - Retire line sections south of First Energy 138kV line corridor, near “Point A”. Tie George Washington-Moundsville 69kV ckt to George Washington-West Bellaire 69kV ckt (AEP)
- N5076.8/B2753.8 - Washington-Dilles Bottom 69kV Line – Rebuild existing line as dbl ckt 138kV from George Washington to Dilles Bottom. One circuit will cut into Dilles Bottom initially and the other will go past with future plans to cut in. (AEP)
- N5076.9/B2753.9 - Remove/Open Kammer 345/138 kV transformer #301
- N5076.10/B2753.10 - Complete sag study mitigation on the Muskingum – Natrium 138 kV line

Continued on next slide

Baseline Cost Change (B2753.1-10)

Presented: 8/21/2017 Western Subregional TEAC

Cost Sharing Approach: The interconnection project was to share $24.5614M of the cost (their ISA commitment) and the Baseline would assume the remainder

Cost Sharing Update: The interconnection project withdrew, the project is still needed. The baseline cost portion will now be 100% of the required project cost.

Required IS Date: 1/1/2019

Original Split Cost	
B2753.1: $0M	N5076.1: $24M
B2753.2: $9M	N5076.2: $0M
B2753.3: $2M	N5076.3: $0M
B2753.4: $0.25M	N5076.4: $0M
B2753.5: $0.25M	N5076.5: $0M
B2753.6: $5M	N5076.6: $0M
B2753.7: $4.96M	N5076.7: $0.5614M
B2753.8: $3.56M	N5076.8: $0M
B2753.9: $0M	N5076.9: $0M
B2753.10: $2.8M	N5076.10: $0M

New Split Cost	
B2753.1: $22.32M	N5076.1: Cancelled
B2753.2: $9M	N5076.2: Cancelled
B2753.3: $2M	N5076.3: Cancelled
B2753.4: $0.25M	N5076.4: Cancelled
B2753.5: $0.25M	N5076.5: Cancelled
B2753.6: $5M	N5076.6: Cancelled
B2753.7: $5.52M	N5076.7: Cancelled
B2753.8: $3.56M	N5076.8: Cancelled
B2753.9: $0M	N5076.9: Cancelled
B2753.10: $2.8M	N5076.10: Cancelled

Continued on next slide

AEP/ATSI Transmission Zone

Baseline Cost Change (B2753.1-10)

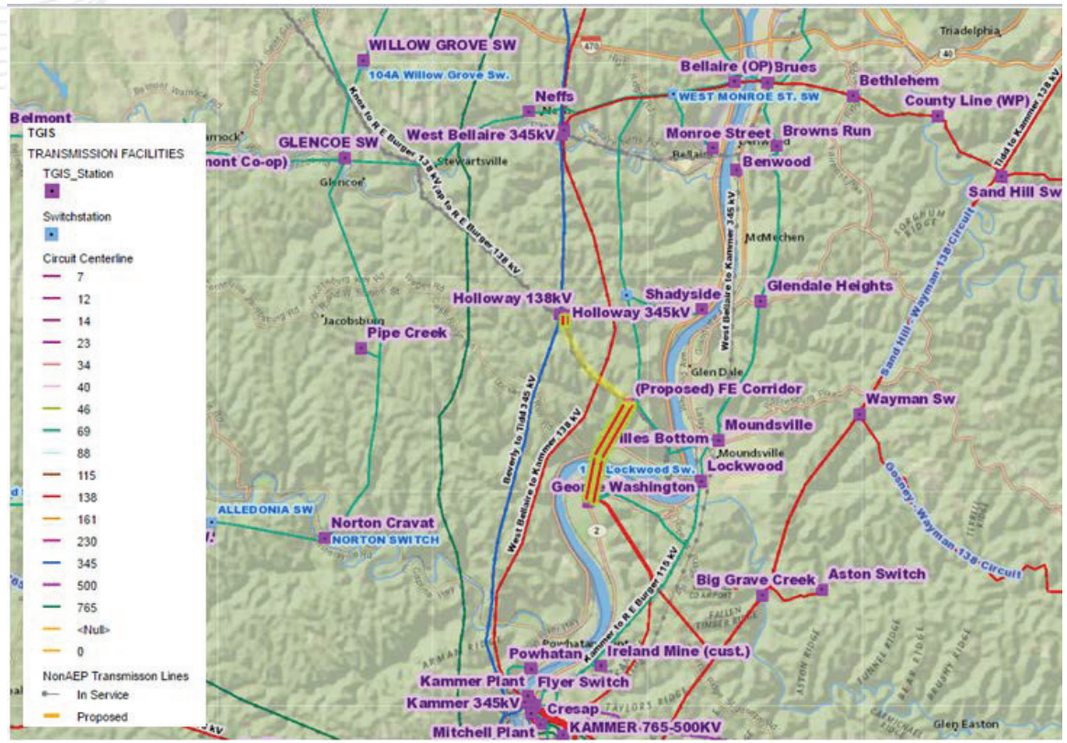
Presented: 8/21/2017 Western Subregional TEAC

Reasons for the Cost Change:

- Queue projects Y3-068 / Z2-048 have been withdrawn. The shared cost of $24.761M now is transferred to Baseline B2753.1-10.

- B2753.1 New Scope: George Washington Station – Replace existing 138kV yard with GIS 138kV breaker and a half yard in existing station footprint. (Due to the withdrawal of the interconnection request, there is no need for the revenue metering for new IPP connection)

- New Estimated Cost: $50.7M
- New Required IS Date: 5/31/2020



2018 Long Term Forecast Report

AEP OHIO TRANSMISSION COMPANY, INC.

LONG-TERM FORECAST REPORT

TO THE

PUBLIC UTILITIES COMMISSION OF OHIO

Case No. 18-1501-EL-FOR

2018

ELECTRIC

Case No. 18-1501-EL-FOR

LONG-TERM FORECAST REPORT

TO THE

PUBLIC UTILITIES COMMISSION OF OHIO

Submitted by

AEP Ohio Transmission Company, Inc.
700 Morrison Road
Gahanna, Ohio 43230
Telephone: (614) 716-1000

April 16, 2018

CERTIFICATE OF SERVICE

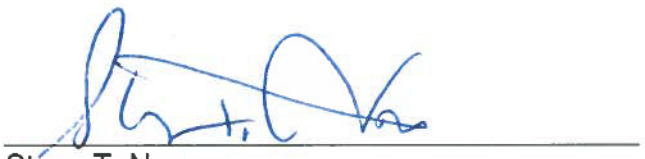
I hereby certify that:

1. Pursuant to Section 4901:5-1-03(F), Ohio Administrative Code, copies of AEP Ohio Transmission Company, Inc.'s 2018 Long-Term Forecast Report have been delivered or mailed to the Office of Consumers' Counsel on the day of the filing;

2. Pursuant to Section 4901:5-1-03(G), Ohio Administrative Code, a letter of notification stating where copies of AEP Ohio Transmission Company, Inc.'s 2018 Long-Term Forecast Report to the Public Utilities Commission of Ohio may be obtained, will be sent by first class mail to the appropriate county libraries within three days of filing;

3. Pursuant to Section 4901:5-1-03(H), Ohio Administrative Code, AEP Ohio Transmission Company, Inc. will keep at least one copy of their 2018 Long-Term Forecast Report at their principal business office for public inspection during business hours; and

4. Pursuant to Section 4901:5-1-03(I), Ohio Administrative Code, AEP Ohio Transmission Company, Inc. will provide a copy of their 2018 Long-Term Forecast Report to any person upon request at a cost to cover the expenses incurred.



Steve T. Nourse
American Electric Power Service Corporation
1 Riverside Plaza
Columbus, Ohio 43215
(614) 716-1608
Attorney for AEP Ohio Transmission Company, Inc.

April 16, 2018
Dated this day in Columbus, Ohio

OH Transco 2018

STATEMEMENT PURSUANT TO SECTION 4901:5-1-03(D),

OHIO ADMINISTRATIVE CODE

AEP Ohio Transmission Company, Inc.'s 2018 Long-Term Forecast Report is true and correct to the best of my knowledge and belief.

Robert W. Bradish
Vice President, Transmission Planning and Engineering
AEP Ohio Transmission Company, Inc.

April 16, 2018
Dated this day in Columbus, Ohio

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AEP OHIO TRANSMISSION COMPANY, Inc.

LTFR TRANSMISSION FORMS

Case No. 18-1501-EL-FOR

PUCO FORM FE-T7
AEP OHIO TRANSMISSION COMPANY
CHARACTERISTICS OF EXISTING TRANSMISSION LINES

Transmission Name & Line No.[a]	Point of (Origin - Terminus)	Summer Capability		Winter Capability		Indicate Design Voltage and Operating Voltage For Each Line		Right-of-Way		Type of Supporting Structure	Number of Circuits		Substations on the Line
List Each Transmission Line of 125 kV or More	Indicate Location of Line's Beginning and Terminus	Normal Rating	Emergency Rating	Normal Rating	Emergency Rating	Operating Voltage (kV)	Design Voltage (kV)	Length (Miles)	Width Max./Min. (feet)	Steel Towers, Wood Poles or Underground, etc. and Number of Miles of the Line of Each Structure	Design	Installed	Substation Name
25880	Allen - Logtown	167	167	210	210	138	138	2.29	100/100	Steel - 1 pole	1	1	
20237	Amlin - Hyatt	564	755	712	858	138	138	0.7	150/150	Steel - Lattice	1	1	
26298	Amlin - Sumac #1	766	898	970	1069	138	138	0.04	100/100	Steel - 1 pole	1	1	
26297	Amlin - Sumac #2	766	898	970	1069	138	138	0.04	100/100	Steel - 1 pole	1	1	
26319	Azalea - Leesville	537	537	566	566	138	138	1.35	100/100	Steel - 1 pole	1	1	
24231	Azalea - Yager	296	413	375	464	138	138	4.2	100/100	Steel - 1 pole	1	1	
2804	Bexley - Groves	427	498	541	572	138	138	4.34	100/100	Steel - 1 pole	1	1	
21617	Biers Run - Bixby	1409	1655	1781	1967	345	345	0.05	150/150	Steel - Lattice	1	1	
24218	Biers Run - Circleville	389	559	493	623	138	138	19.2	100/100	Steel - 1 pole	1	1	
22597	Biers Run - Delano	383	449	485	534	138	138	9.95	100/100	Steel - 1 pole	1	1	
21618	Biers Run - Don Marquis	1409	1409	1781	1781	345	345	0.08	150/150	Wood - H-frame	1	1	
658	Bixby - Groves Road No. 1	145	145	183	183	138	138	4.29	100/100	Wood - 1 pole	1	1	THREE CREEKS SWITCH
2331	Bixby - Groves Road No. 2	427	601	541	675	138	138	4.32	100/100	Steel - 2 pole	1	1	
20738	Bixby - Ohio Central	1409	1887	1781	2144	345	345	2.25	150/150	Wood - 1 pole	1	1	
593	Bixby - West Lancaster	296	413	375	464	138	138	19.04	100/100	Steel - 3 pole	1	1	PICKERINGTON RD
16797	Blue Creek - Maddox Creek	2365	2826	3016	3363	345	345	0.03	150/150	Steel - Lattice	1	1	
24899	Britton-Davidson #2	296	398	375	452	138	138	0.9	100/100	Steel - 1 pole	1	1	
23297	Canton Central - Stemple Sw.	1409	1409	1685	1781	345	345	0.45	150/150	Steel - 1 pole	1	1	
628	Circleville - Harrison #1	323	451	408	506	138	138	15.21	100/100	Steel - 1 pole	1	1	
25137	Circleville - Harrison #2	323	451	408	506	138	138	15.21	100/100	Steel - 1 pole	1	1	
637	Circleville - Scippo	150	219	189	243	138	138	2.62	100/100	Steel - 2 pole	1	1	
20737	Conesville - Ohio Central	1409	1887	1781	2144	345	345	2.25	150/150	Steel - 2 pole	1	1	
677	Corridor - Gahanna 138kV	338	456	427	517	138	138	1.34	150/150	Steel - Lattice	1	1	
18637	Corridor - Vassell No. 1	1409	1472	1781	1826	345	345	0.38	150/150	Steel - Lattice	1	1	
18638	Corridor - Vassell No. 2	1409	1887	1781	2144	345	345	0.38	150/150	Steel - Lattice	1	1	
22417	Corwin - Elk	219	223	277	281	138	138	12.6	100/100	Wood - 1 pole	1	1	
21641	Delano - Delano Rd (SCP)	200	254	253	293	138	138	0.05	100/100	Steel - 1 pole	1	1	
627	Delano - Kenworth - Ross	200	254	253	293	138	138	4.99	100/100	Steel - 2 pole	1	1	CLAYBURNE SWITCH
24219	Delano - Ross #2	323	449	408	506	138	138	4.69	100/100	Steel - 2 pole	1	1	
25938	Delano - Tuscany	248	248	248	248	138	138	11	100/100	Steel - H-frame	1	1	
19358	Delaware - Vassell	338	456	427	517	138	138	3.06	100/100	Steel - Lattice	1	1	
596	Dexter Sw. - Elliott - Poston	92	92	92	92	138	138	0.02	100/100	Steel - Lattice	1	1	ROSEWOOD SWITCH
17718	East Leipsic - Yellow Creek	296	361	375	453	138	138	0.41	100/100	Steel - 2 pole	1	1	
17717	East Lima - Yellow Creek	145	145	183	183	138	138	0.41	100/100	Wood - 1 pole	1	1	CAMPBELL ROAD, RILEY CREEK SWITCH, PAULDING
22418	Elk - Poston	207	223	261	281	138	138	10.7	100/100	Wood - H-frame	1	1	MINERAL SWITCHING
22219	Firebrick - Gavin	185	185	234	234	138	138	0.08	100/100	Steel - Lattice	1	1	
22220	Firebrick - Millbrook	185	185	234	234	138	138	0.05	100/100	Steel - 1 pole	1	1	
8315	Flatlick - Marysville	4047	4571	4484	4961	765	765	109	200/200	Steel - H-frame	1	1	
24229	Freebyrd - Nottingham	296	413	375	464	138	138	4.87	100/100	Steel - Lattice	2	1	
26538	Freebyrd - South Cadiz	296	413	375	464	138	138	3.69	100/100	Steel - H-frame	1	1	STONE PLANT SWITCH
709	Fremont Center - Tiffin Center #1	283	396	357	444	138	138	12.59	100/100	Steel - 1 pole	1	1	
21397	Fremont Center - Tiffin Center #2	283	396	357	444	138	138	12.59	100/100	Steel - 1 pole	1	1	
18657	Gahanna - West Millersport	359	520	455	581	138	345	1.34	150/150	Wood - 1 pole	1	1	
4942	Globe Metal - Muskingum River	167	167	210	210	138	138	0.35	100/100	Steel - 3 pole	1	1	
22942	Greenlawn - Melmore	257	360	325	404	138	138	4.94	100/100	Wood - 1 pole	1	1	
710	Greenlawn - Tiffin Center	257	360	325	404	138	138	2.24	100/100	Wood - 1 pole with push brace	1	1	
16677	Haviland - Timber Switch	167	240	210	267	138	138	8.56	100/100	Steel - 1 pole	1	1	

PUCO FORM FE-T7
AEP OHIO TRANSMISSION COMPANY
CHARACTERISTICS OF EXISTING TRANSMISSION LINES

Transmission Name & Line No.[a]	Point of (Origin - Terminus)	Summer Capability		Winter Capability		Indicate Design Voltage and Operating Voltage For Each Line		Right-of-Way		Type of Supporting Structure	Number of Circuits		Substations on the Line
List Each Transmission Line of 125 kV or More	Indicate Location of Line's Beginning and Terminus	Normal Rating	Emergency Rating	Normal Rating	Emergency Rating	Operating Voltage (kV)	Design Voltage (kV)	Length (Miles)	Width Max./Min. (feet)	Steel Towers, Wood Poles or Underground, etc. and Number of Miles of the Line of Each Structure	Design	Installed	Substation Name
21117	Highland (CSP) - Hillsboro	296	413	375	464	138	138	7.36	100/100	Wood - 1 pole	1	1	
21678	Highland (CSP) - Seaman	195	220	216	239	138	138	3.17	100/100	Steel - 2 pole	1	1	NEW MARKET SWITCH
10217	Hocking - West Lancaster	187	240	247	285	138	138	19.07	100/100	Steel - H-frame	1	1	
19359	Hyatt - Vassell	1409	1472	1781	1826	345	345	0.41	150/150	Steel - Lattice	1	1	
584	Hyatt (OP) - Marysville	1166	1376	1481	1639	345	345	0.35	150/150	Steel - Lattice	1	1	
20758	Jug Street - Kirk 138kV	564	784	712	880	138	345	12.48	150/150	Steel - 2 pole	1	1	HAZELTON
15238	Jug Street - Kirk 345kV	1239	1566	1564	1809	345	345	12.29	150/150	Steel - 2 pole	1	1	
21340	Jug Street - Smiths Mill	257	360	325	404	138	138	0.16	100/100	Steel - 1 pole	1	1	
19899	Kammer - Vassell	4047	4571	4484	4961	765	765	0.48	200/200	Steel - H-frame	1	1	
621	Kenny - Roberts	213	282	221	328	138	138	1.01	100/100	Steel - 1 pole	1	1	
24232	Leesville - Yager	296	413	375	464	138	138	3.95	100/100	Steel - H-frame	1	1	
19357	Maliszewski - Vassell	4142	4142	5133	5133	765	765	0.87	200/200	Steel - H-frame	1	1	
21398	Melmore - Tiffin Center	299	423	379	474	138	138	7.14	100/100	Steel - 1 pole	1	1	
24361	Muskingum River - South Caldwell #2	205	205	258	258	138	138	0.87	100/100	Steel - Lattice	1	1	
21357	Muskingum River - Wolf Creek	285	368	377	438	138	138	4.69	100/100	Steel - H-frame	1	1	
22397	North Bellville - Ohio Central	133	133	143	143	138	138	0.71	100/100	Wood - 1 pole	1	1	MILLWOOD
24279	North Delphos - Sterling	164	167	210	210	138	138	6.31	100/100	Wood - 1 pole with push brace	1	1	EAST SIDE (LIMA)
22537	Ohio Central - Philo #2	136	173	179	206	138	138	0.71	100/100	Steel - 3 pole	1	1	
17137	OSU - West Campus	323	392	323	409	138	138	1.13	100/100	UG Cable - Duct & Manhole	1	1	
2256	Poston - Ross	195	220	216	239	138	138	42.76	100/100	Steel - H-frame	1	1	SOUTH BLOOMINGVILLE SWITCH
17138	Roberts - West Campus	323	409	323	409	138	138	5.54	100/100	Wood	1	1	
670	Scioto Trail - Scippo	150	180	189	227	138	138	1.42	100/100	Wood - 1 pole	1	1	DUPONT (CSP)
25939	Scioto Trail(CSP) - Tuscany	427	541	601	675	138	138	0.64	100/100	Steel - 1 pole	1	1	NEVILLE SWITCH
24359	South Caldwell - Steamtown	205	205	258	258	138	138	0.87	100/100	Wood - 1 pole	1	1	
19398	Steamtown - Summerfield	187	205	247	258	138	138	2.42	100/100	Steel - 1 pole	1	1	
25559	Tidd - Gable SW	287	337	363	400	138	138	5.8	100/100	Steel - 1 pole	2	1	
25279	Tidd - Stemple	1409	1409	1781	1781	345	345	0.45	150/150	Steel - 1 pole	1	1	

a. Indicate with * if transmission line is an interconnection with another electric transmission owner and list the other transmission owner's name.

PUCO FOR FE-T8
AEP OHIO TRANSMISSION COMPANY
SUMMARY OF EXISTING SUBSTATIONS ON TRANSMISSION LINES

Substation Name	Type Distribution (D) Transmission (T)	Voltage(s) (kV)	Line Association (FE-T7 or FE-T9 Notation)	Notation	Line Existing or Proposed
AZALEA SWITCH	T	138	Azalea - Yager	24231	E
AZALEA SWITCH	T	138	Azalea - Leesville	26319	E
BERRYWOOD	T	138	Berrywood - Delaware	26717	E
BERRYWOOD	T	138	Berrywood - Berkshire	26717	E
BIERS RUN	T	138	Biers Run - Delano	22597	E
BIERS RUN	T	138	Biers Run Circleville	24218	E
BIERS RUN	T	345	Biers Run - Bixby	21617	E
BIERS RUN	T	345	Biers Run - Don Marquis	21618	E
BLUE RACER	T	138	Blue Racer - Summerfield	20577	E
BLUE RACER	T	138	Blue Racer - Texas Eastern	20578	E
BLUE RACER	T	138	Blue Racer - SCP Co-op	20579	E
COLE (CS)	T	138	Amlin - Cole	26897	E
COLE (CS)	T	345	Beatty - Cole	26781	E
COLE (CS)	T	345	Cole - Hayden	26782	E
EBERSOLE	T	138	Ebersole - New Liberty	20857	E
EBERSOLE	T	138	Ebersole - Fostoria Central #2	20858	E
EBERSOLE	T	138	Ebersole - Findlay Center	20859	E
EBERSOLE	T	138	Ebersole - Fostoria Central #1	20860	E
EBERSOLE	T	138	Ebersole - North Findlay	20917	E
EMERALD SWITCH	T	138	*Kenton (LGE-KU) - Wildcat	18078	E
FIREBRICK	T	138	Firebrick - Gavin	22219	E
FIREBRICK	T	138	Firebrick - Millbrook	22220	E
FREEBYRD	T	138	Freebyrd - Nottingham	24229	E
FREEBYRD	T	138	Freebyrd - South Cadiz	26538	E
GABLE SWITCH	T	138	Carrollton - Gable SW	25557	E
GABLE SWITCH	T	138	Gable SW - South Cadiz	25558	E
GABLE SWITCH	T	138	Gable SW - Tidd	25559	E
GOOD HOPE SWITCH	T	138	Harrison (Csp) - Poston	634	E
HOLLOWAY	T	345	Beverly - Holloway	22497	E
IRONWOOD SWITCH	T	138	Bellefonte - East Wheelersburg	193	E

PUCO FOR FE-T8
AEP OHIO TRANSMISSION COMPANY
SUMMARY OF EXISTING SUBSTATIONS ON TRANSMISSION LINES

Substation Name	Type Distribution (D) Transmission (T)	Voltage(s) (kV)	Line Association (FE-T7 or FE-T9 Notation)	Notation	Line Existing or Proposed
JUNE ROAD	T	138	Tidd - June Road	26958	E
JUNE ROAD	T	138	June Road - Wagenhals	26957	E
LOGTOWN	T	138	Logtown - North Delphos	24385	E
LOGTOWN	T	138	Allen - Logtown	25880	E
MADDOX CREEK	T	345	East Lima - Maddox Creek	16757	E
MADDOX CREEK	T	345	Maddox Creek - RP Mone	16758	E
MADDOX CREEK	T	345	Blue Creek - Maddox Creek	16797	E
MELMORE	T	138	Melmore - Tiffin Center	21398	E
MELMORE	T	138	Fostoria Central - Melmore	22938	E
MELMORE	T	138	Howard - Melmore #1	22939	E
MELMORE	T	138	Melmore - West End Fostoria	22940	E
MELMORE	T	138	Howard - Melmore #2	22941	E
MELMORE	T	138	Greenlawn - Melmore	22942	E
MINERAL SWITCHING	T	138	Elk - Poston	22418	E
NEVILLE SWITCH	T	138	Scioto Trail(CSP) - Tuscany	25939	E
NEW MARKET SWITCH	T	138	Highland (CSP) - Seaman	21678	E
NOTTINGHAM SWITCH	T	138	Freebyrd - Nottingham	24229	E
PANDA ROAD	T	138	Tidd - June Road	26958	E
ROBERT P. MONE	T	345	Maddox Creek - RP Mone	16758	E
ROBERT P. MONE	T	345	Allen - RP Mone	20482	E
SOUTH BLOOMINGVILLE SWITCH	T	138	Poston - Ross	2256	E
STEAMTOWN	T	138	Steamtown - Summerfield	19398	E
STEAMTOWN	T	138	South Caldwell - Steamtown	24359	E
STEMPLE SWITCH	T	345	Canton Central - Stemple Sw.	23297	E
STEMPLE SWITCH	T	345	Tidd - Stemple	25279	E
STONE PLANT SWITCH	T	138	Freebyrd - South Cadiz	18697	E
THORNWOOD SWITCH	T	138	Ebersole - Findlay Center	20859	E
TIMBER SWITCH	T	138	Haviland - Timber Switch	16677	E
TIMBER SWITCH	T	138	Timber Road No. 2 - Timber Switch	16817	E
TUSCANY	T	138	Delano - Tuscany	25938	E

PUCO FOR FE-T8
AEP OHIO TRANSMISSION COMPANY
SUMMARY OF EXISTING SUBSTATIONS ON TRANSMISSION LINES

Substation Name	Type Distribution (D) Transmission (T)	Voltage(s) (kV)	Line Association (FE-T7 or FE-T9 Notation)	Notation	Line Existing or Proposed
TUSCANY	T	138	Scioto Trail(CSP) - Tuscany	25939	E
VASSELL	T	138	Delaware - Vassell	19358	E
VASSELL	T	345	Corridor - Vassell No. 1	18637	E
VASSELL	T	345	Corridor - Vassell No. 2	18638	E
VASSELL	T	345	Hyatt - Vassell	19359	E
VASSELL	T	765	Maliszewski - Vassell	19357	E
VASSELL	T	765	Kammer - Vassell	19899	E
WARE ROAD	T	138	Ware Road - Waverly	18299	E
WARE ROAD	T	138	Adams - Ware Road	22118	E
WINDFALL SWITCH	T	138	South Kenton - West Mount Vernon	748	E
YAGER	T	138	Azalea - Yager	24231	E
YAGER	T	138	Leesville - Yager	24232	E
YELLOW CREEK	T	138	East Lima - Yellow Creek	17717	E
YELLOW CREEK	T	138	East Leipsic - Yellow Creek	17718	E

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Amlin-Dublin 138kV Line
2.	Points of Origin and Termination:	Amlin, Dublin, Sumac; Intermediate Station - N/A
3.	Right-Of-Way:	3.7 Miles / 100 ft / 2ckts
4.	Voltage:	138/138 kV, both circuits
5.	Application For Certificate:	LON/Application 2018
6.	Construction:	To be completed approx. June 2020
7.	Capital Investment:	Approx. $21 million
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead
10.	Participation with Other Utilities:	None
11.	Purpose of the Planned Transmission Line	Mitigate projected contingency overloads on 138kV system due to large load growth.
12.	Consequences of Line Construction Deferment or Termination:	New customer load would need to be limited.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Berlin - Lick - Ross
2.	Points of Origin and Termination:	Heppner/Rhodes; Intermediate Station - N/A
3.	Right-Of-Way:	~4.2 miles / 100 ft / 1 ckt
4.	Voltage:	138kV / 69kV
5.	Application For Certificate:	2018
6.	Construction:	2018
7.	Capital Investment:	$20M
8.	Planned Substations:	Name - Rhodes; Voltage - 138/12kV; Acreage - N/A; Location - Jackson
9.	Supporting Structures:	steel H - frame
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Tie 138kV Lick-Corwin line to Lick Ross line for reliability
12.	Consequences of Line Construction Deferment or Termination:	Reduced reilability for Jackson County customers
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Blue Racer - Texas Eastern 138kV
2.	Points of Origin and Termination:	Blue Racer & Texas Eastern Berne; Intermediate Station - N/A
3.	Right-Of-Way:	0.15 mi / 100 ft / 1 circuit
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	LON in 2017
6.	Construction:	Est completion in 2020
7.	Capital Investment:	$0.4 mil
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Provide 138kV service to customer; line must be re-routed to facilitate Blue Racer station upgrades
12.	Consequences of Line Construction Deferment or Termination:	Lack of 138kV service for Texas Eastern pipeline; delay of Herlan-Blue Racer PJM RTEP project
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Brice Extension 138kV Line
2.	Points of Origin and Termination:	Brice, Astor, Groves, Shannon; Intermediate Station - Refugee
3.	Right-Of-Way:	0.7 Miles / 100ft / 2ckts
4.	Voltage:	138/138 kV, both circuits
5.	Application For Certificate:	LON in 2018
6.	Construction:	To be completed approx. October 2019
7.	Capital Investment:	Approx. $2 million
8.	Planned Substations:	Name - Brice; Voltage - 138/13kV; Acreage - ~3; Location - 6870 American Parkway
9.	Supporting Structures:	Overhead
10.	Participation with Other Utilities:	None
11.	Purpose of the Planned Transmission Line	Connect new customer delivery point.
12.	Consequences of Line Construction Deferment or Termination:	Customer delivery point could not be energized.
13.	Miscellaneous	Allendale-Fremont Center line rebuild

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Buckley Road-East End Fostoria-Fremont Center, 4782
2.	Points of Origin and Termination:	Buckley Road-East End Fostoria-Fremont Center; Intermediate Station - West Allendale Switch, South Allendale Switch, Weaver Switch, Amsden Switch
3.	Right-Of-Way:	15.25 mi / 100 / single ckt, some double ckt
4.	Voltage:	138 kV/69 kV
5.	Application For Certificate:	Application, 2017
6.	Construction:	To be completed approx. 12/31/2020
7.	Capital Investment:	$26.8M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Rebuild of existing line for rehabilitation.
12.	Consequences of Line Construction Deferment or Termination:	Continued deterioration and reduced reliability.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Carrollton-Sunnyside 138kV
2.	Points of Origin and Termination:	Carrollton / Sunnyside; Intermediate Station - N/A
3.	Right-Of-Way:	20 mi / 100 ft / 1 circuit
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	LON in 2017
6.	Construction:	Est completion in 2019
7.	Capital Investment:	Approx. $50 M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	6-wired double-circuit steel poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Rebuild of 100-year old line which has deteriorated
12.	Consequences of Line Construction Deferment or Termination:	Potential reliability issues with 100-yr old T-Line (Tidd-Carrollton)
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Corridor-Jug Street Line
2.	Points of Origin and Termination:	Corridor Station / Jug Street Station; Intermediate Station - N/A
3.	Right-Of-Way:	6.4 miles / 150 ft / 2ckts
4.	Voltage:	345,345 kV Design / 345,138 kV Operation
5.	Application For Certificate:	2018
6.	Construction:	To be completed approx. 2019
7.	Capital Investment:	Approx. $30 million
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead
10.	Participation with Other Utilities:	None
11.	Purpose of the Planned Transmission Line	Area reliability/serve increased area capacity.
12.	Consequences of Line Construction Deferment or Termination:	Reduced area reliability. Limitations placed on rapid load growth.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Dennison-Yager 69kV (138kV design)
2.	Points of Origin and Termination:	Dennison / Yager; Intermediate Station - Irish Run Switch
3.	Right-Of-Way:	7.3 mi / 100 ft / 1 circuit
4.	Voltage:	138kV /69kV
5.	Application For Certificate:	Application approved in 2017
6.	Construction:	Est completion in 2019
7.	Capital Investment:	$15 M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	6-wired double-circuit steel poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Area reliability/serve increased customer loads
12.	Consequences of Line Construction Deferment or Termination:	Reduced area reliability; load curtailment at industrial customer sites
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Dexter Sw. - Elliott - Lemaster 138 kV (Existing circuit Dexter Sw. - Elliott - Poston 138 kV circuit renamed due to Poston station being replaced by Lemaster station.)
2.	Points of Origin and Termination:	Lemaster/ Dexter Sw. Elliott; Intermediate Station - Rosewood Sw
3.	Right-Of-Way:	20.88 miles/100ft, 1 circuit
4.	Voltage:	138 kV/ 138 kV
5.	Application For Certificate:	LON to be filed in Spring 2017.
6.	Construction:	Station construction to start in 2017. Line construction to start in 2018.
7.	Capital Investment:	Approx: $1.10 million
8.	Planned Substations:	Name - N/A; Voltage - 138 kV; Acreage - Approximately 22 acres.; Location - Athens
9.	Supporting Structures:	TBD
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Relocate to the new Lemaster station.
12.	Consequences of Line Construction Deferment or Termination:	Will not be energized as Poston station will be retired and Lemaster will replace it.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Dilles Bottom-George Washington 138kV
2.	Points of Origin and Termination:	Dilles Bottom & George Washington; Intermediate Station - N/A
3.	Right-Of-Way:	1.5 mi / 100 ft / 2 circuits
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	LON filing in 2018-19
6.	Construction:	Est completion in 2020
7.	Capital Investment:	$2.5 M
8.	Planned Substations:	Name - Dilles Bottom (expansion); Voltage - 138; Acreage - 3; Location - Dilles Bottom
9.	Supporting Structures:	Double-circuit steel poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Transmission system reinforcement; customer service
12.	Consequences of Line Construction Deferment or Termination:	PJM reliability issues
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Dilles Bottom-Holloway 138kV
2.	Points of Origin and Termination:	Dilles Bottom & Holloway; Intermediate Station - N/A
3.	Right-Of-Way:	1.5 mi / 100 ft / 2 circuits
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	LON filing in 2018-19
6.	Construction:	Est completion in 2020
7.	Capital Investment:	$3.5 M
8.	Planned Substations:	Name - Dilles Bottom (expansion); Voltage - 138; Acreage - 3; Location - Dilles Bottom
9.	Supporting Structures:	Double-circuit steel poles
10.	Participation with Other Utilities:	Yes, interconnect with FE ATSI 138kV lines (near former Burger power plant)
11.	Purpose of the Planned Transmission Line	Transmission system reinforcement; customer service
12.	Consequences of Line Construction Deferment or Termination:	PJM reliability issues
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	East Broad-Kirk 138kV
2.	Points of Origin and Termination:	East Broad St., Kirk; Intermediate Station - Mink
3.	Right-Of-Way:	0.2 Miles / 100ft / 2 circuits
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	LON 2018
6.	Construction:	2018
7.	Capital Investment:	$10M
8.	Planned Substations:	Name - Mink; Voltage - 138kV; Acreage - 3.5; Location - Licking County, OH
9.	Supporting Structures:	Overhead
10.	Participation with Other Utilities:	None
11.	Purpose of the Planned Transmission Line	New customer delivery point
12.	Consequences of Line Construction Deferment or Termination:	Customer cannot be served at desired load and reliability level.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	East Leipsic - New Liberty 138kV
2.	Points of Origin and Termination:	East Leipsic - New Liberty; Intermediate Station - McComb, Shawtown Sw
3.	Right-Of-Way:	17 mi / 100 / single ckt
4.	Voltage:	138 kV / 138 kV
5.	Application For Certificate:	2018/2019
6.	Construction:	To be completed approx. 6/1/2020
7.	Capital Investment:	Approx. $24M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Rebuild and voltage conversion of existing 34.5kV line to 138kV for operational flexibility
12.	Consequences of Line Construction Deferment or Termination:	Transmission Operational issues will continue to be of concern and will grow as new customer load is scheduled to come online in the area.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	East Leipsic - Newbery 138kV
2.	Points of Origin and Termination:	East Leipsic - Newbery; Intermediate Station - N/A
3.	Right-Of-Way:	1.06 mi / 100 / double ckt
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	2018
6.	Construction:	To be completed approx. 12/31/2018
7.	Capital Investment:	Approx. $2M (for both circuits)
8.	Planned Substations:	Name - Newbery; Voltage - 138/12kV; Acreage - 1; Location - Leipsic Area
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	These circuits will be created as a result of Newbery station established to serve retail
12.	Consequences of Line Construction Deferment or Termination:	Delay of line or station work would affect customer in-service dates.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	East Lima - Haviland, 2062
2.	Points of Origin and Termination:	East Lima-Haviland; Intermediate Station - N/A (in rebuild section)
3.	Right-Of-Way:	29.4 mi / 100 / double ckt
4.	Voltage:	138 kV / 138 kV
5.	Application For Certificate:	LON, 2017
6.	Construction:	To be completed approx. 12/18/20
7.	Capital Investment:	$51.5M for both circuits
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Rebuild of existing line for rehabilitation.
12.	Consequences of Line Construction Deferment or Termination:	Continued deterioration and reduced reliability.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	East Lima-Maddox Creek 345kV, 16757
2.	Points of Origin and Termination:	East Lima-Maddox Creek; Intermediate Station - NA
3.	Right-Of-Way:	30.34 mi / 150 / single ckt
4.	Voltage:	345 kV / 345 kV
5.	Application For Certificate:	LON, 2018
6.	Construction:	To be completed approx. 6/1/2021
7.	Capital Investment:	Approx $18.2M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Existing Steel Lattice
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Connect and serve new generation customer
12.	Consequences of Line Construction Deferment or Termination:	Generation deliverability limitation
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Elk - Corwin 138 kV
2.	Points of Origin and Termination:	Elk/Corwin; Intermediate Station - N/A
3.	Right-Of-Way:	12.6 miles / 100 ft / 1 circuit
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	2012 Case 11-4505-EL-BTX / 2016 Case 16-0020-EL-BLN
6.	Construction:	To be completed approx. Summer 2018.
7.	Capital Investment:	Approx $15.8M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - Athens
9.	Supporting Structures:	N/A
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Increase the reliability of the area. Line needs maintenance.
12.	Consequences of Line Construction Deferment or Termination:	Reduced area reliability
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Elk - Lemaster 138 kV (Existing circuit Elk - Poston 138 kV circuit renamed due to Poston
2.	Points of Origin and Termination:	Lemaster /Elk; Intermediate Station - Bolins Mill (Buckeye Co-op)
3.	Right-Of-Way:	21.79 miles/100ft, 1 circuit
4.	Voltage:	138 kV/ 138 kV
5.	Application For Certificate:	LON to be filed in Spring 2017.
6.	Construction:	Station construction to start in 2017. Line construction to start in 2018.
7.	Capital Investment:	Approx: $1 million
8.	Planned Substations:	Name - N/A; Voltage - 138 kV; Acreage - Approximately 22 acres.; Location - Athens
9.	Supporting Structures:	TBD
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Relocate to the new Lemaster station.
12.	Consequences of Line Construction Deferment or Termination:	Will not be energized as Poston station will be retired and Lemaster will replace it.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Gemini - West Moulton 138kV
2.	Points of Origin and Termination:	Gemini - West Moulton; Intermediate Station - N/A
3.	Right-Of-Way:	10 mi / 100 / single ckt
4.	Voltage:	138 kV / 138 kV
5.	Application For Certificate:	2018/2019
6.	Construction:	To be completed approx. 12/31/2019
7.	Capital Investment:	Approx. $14M
8.	Planned Substations:	Name - Gemini; Voltage - 138kV; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Service to new customer delivery point
12.	Consequences of Line Construction Deferment or Termination:	New customer load would not have service in required timeframe
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Glencoe-Speidel 138kV
2.	Points of Origin and Termination:	Glencoe / Speidel; Intermediate Station - South Belmont Switch; Lamira Switch
3.	Right-Of-Way:	13.5 mi / 100 ft / 1 circuit
4.	Voltage:	138kV / 69kV
5.	Application For Certificate:	Application anticipated 2018
6.	Construction:	Est completion in 2021-22
7.	Capital Investment:	Approx. $25 M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Single-circuit steel poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Replace deteriorated 69kV facilities. Support area shale load growth.
12.	Consequences of Line Construction Deferment or Termination:	Increased risk of customer service interruptions, due to deteriorating T-Line facilities
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Gristmill - Gemini 138kV
2.	Points of Origin and Termination:	Gristmill - Gemini; Intermediate Station - N/A
3.	Right-Of-Way:	4.7 mi / 100 / single ckt
4.	Voltage:	138 kV / 138 kV
5.	Application For Certificate:	2018/2019
6.	Construction:	To be completed approx. 12/31/2019
7.	Capital Investment:	Approx. $7M
8.	Planned Substations:	Name - Gristmill; Voltage - 345/138kV; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Service to new customer delivery point
12.	Consequences of Line Construction Deferment or Termination:	New customer load would not have service in required timeframe
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Gristmill - Shelby 345kV
2.	Points of Origin and Termination:	Gristmill - Shelby; Intermediate Station - N/A
3.	Right-Of-Way:	17.75 mi / 150 / single ckt
4.	Voltage:	345kV / 345kV
5.	Application For Certificate:	2018/2019
6.	Construction:	To be completed approx. 12/31/2019
7.	Capital Investment:	Approx. $2M
8.	Planned Substations:	Name - Gristmill; Voltage - 345/138kV; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Guyed V
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	This circuit is created by cutting into the existing Shelby - Southwest Lima 345kV circuit and terminating at the new Gristmill Station. The only new line construction involves entrance spans to Gristmill station.
12.	Consequences of Line Construction Deferment or Termination:	New customer load would not have service in required timeframe
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Gristmill - Southwest Lima 345kV
2.	Points of Origin and Termination:	Gristmill - Southwest Lima; Intermediate Station - N/A
3.	Right-Of-Way:	10.5 mi / 150 / single ckt
4.	Voltage:	345kV / 345kV
5.	Application For Certificate:	2018/2019
6.	Construction:	To be completed approx. 12/31/2019
7.	Capital Investment:	Approx. $2M
8.	Planned Substations:	Name - Gristmill; Voltage - 345/138kV; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Guyed V
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	This circuit is created by cutting into the existing Shelby - Southwest Lima 345kV circuit and terminating at the new Gristmill Station. The only new line construction involves entrance spans to Gristmill station.
12.	Consequences of Line Construction Deferment or Termination:	New customer load would not have service in required timeframe
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Guernsey 765kV Extensions
2.	Points of Origin and Termination:	Guernsey 765kV station (IPP interconnection); Intermediate Station - N/A
3.	Right-Of-Way:	0.1 mi / 150 ft / 2 circuits
4.	Voltage:	765kV / 765kV
5.	Application For Certificate:	LON filed in 2017
6.	Construction:	2019-20
7.	Capital Investment:	$1 M
8.	Planned Substations:	Name - Guernsey; Voltage - 765kV; Acreage - 6; Location - Byesville
9.	Supporting Structures:	Guyed V or Steel H-frame
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Extend existing 765kV line to new 765kV station (Guernsey), which will interconnect the proposed Guernsey Power Station
12.	Consequences of Line Construction Deferment or Termination:	Not being able to power new 765kV natural gas power plant
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Haviland - Timber Switch 138kV
2.	Points of Origin and Termination:	Haviland - Timber Switch; Intermediate Station - N/A
3.	Right-Of-Way:	8.6 mi / 100 / single ckt
4.	Voltage:	138 kV / 138 kV
5.	Application For Certificate:	LON, 2017
6.	Construction:	To be completed approx. 4/1/2018
7.	Capital Investment:	Approx. $10.4M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Rebuild of existing line for rehabilitation and PJM Baseline project b2161
12.	Consequences of Line Construction Deferment or Termination:	Continued deterioration and reduced reliability as well as inability to support PJM baseline project
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Herlan - Blue Racer 138kV
2.	Points of Origin and Termination:	Herlan & Blue Racer; Intermediate Station - N/A
3.	Right-Of-Way:	3.2 mi / 100 ft / 1 circuit
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	Application filed Jan 2017
6.	Construction:	Est completion in 2020
7.	Capital Investment:	$7 mil
8.	Planned Substations:	Name - Herlan; Voltage - 138; Acreage - 4; Location - Seneca Twp, Monroe County
9.	Supporting Structures:	Single-circuit steel poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Area reliability; serve increased customer loads; resolves PJM baseline reliability concerns
12.	Consequences of Line Construction Deferment or Termination:	PJM RTEP planning criteria violations; reduced reliability to major industrial customers
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Ironton-Portsmouth 69kV line
2.	Points of Origin and Termination:	Millbrook Park / Franklin Furnace; Intermediate Station - N/A
3.	Right-Of-Way:	~5 miles Ohio portion / 100ft / 2 ckt
4.	Voltage:	138kV / 69kV
5.	Application For Certificate:	2018
6.	Construction:	Possible 2020 - 2023
7.	Capital Investment:	~$20M Ohio portion
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	steel monopole
10.	Participation with Other Utilities:	AEP-KpCo
11.	Purpose of the Planned Transmission Line	Relocate Millbrook Park - Franklin Furnace line
12.	Consequences of Line Construction Deferment or Termination:	Increased risk of failure on the Millbrook Park - Franklin Furnace 69kV ilne
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Jug-Kirk 138kV
2.	Points of Origin and Termination:	Jug Street, Kirk; Intermediate Station - Babbit
3.	Right-Of-Way:	0.1 Miles / 150ft / 2ckts
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	LON, 2017-2018
6.	Construction:	2018
7.	Capital Investment:	Approx. $10M
8.	Planned Substations:	Name - Babbitt; Voltage - 138kV; Acreage - 3.5; Location - Licking County, OH
9.	Supporting Structures:	Overhead
10.	Participation with Other Utilities:	None
11.	Purpose of the Planned Transmission Line	Serve new customer delivery point
12.	Consequences of Line Construction Deferment or Termination:	Customer cannot be served at desired load and reliability level.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Lamping 345kV Extensions
2.	Points of Origin and Termination:	Lamping 345kV station; Intermediate Station - N/A
3.	Right-Of-Way:	0.2 mi / 150 ft / 2 circuits
4.	Voltage:	345kV / 345kV
5.	Application For Certificate:	LON in 2018-19
6.	Construction:	2019
7.	Capital Investment:	$1 M
8.	Planned Substations:	Name - Lamping; Voltage - 345/138kV; Acreage - 6; Location - Graysville
9.	Supporting Structures:	Steel Poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Extend existing 345kV line to new 345kV station (Lamping)
12.	Consequences of Line Construction Deferment or Termination:	Not being able to power new 345-138kV source station
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Lemaster - Ross (Existing circuit Poston - Ross 138 kV circuit renamed due to Poston station being replaced by Lemaster station.)
2.	Points of Origin and Termination:	Lemaster/Ross; Intermediate Station - South Bloomingville Sw
3.	Right-Of-Way:	42.44 miles/100ft, 1 circuit
4.	Voltage:	138 kV/ 138 kV
5.	Application For Certificate:	LON to be filed in Spring 2017.
6.	Construction:	Station construction to start in 2017. Line construction to start in 2018.
7.	Capital Investment:	Approx: $0.803 million
8.	Planned Substations:	Name - N/A; Voltage - 138 kV; Acreage - Approximately 22 acres.; Location - Athens
9.	Supporting Structures:	TBD
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Relocate to the new Lemaster station.
12.	Consequences of Line Construction Deferment or Termination:	Will not be energized as Poston station will be retired and Lemaster will replace it.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Logtown-North Delphos 138kV, 24385
2.	Points of Origin and Termination:	Logtown-North Delphos; Intermediate Station - N/A (in rebuild section)
3.	Right-Of-Way:	25.7 mi / 100 / double ckt
4.	Voltage:	138 kV/138 kV
5.	Application For Certificate:	LON, 2017
6.	Construction:	To be completed approx. 12/31/2018
7.	Capital Investment:	$28.2M for both circuits
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Rebuild of existing line for rehabilitation.
12.	Consequences of Line Construction Deferment or Termination:	Continued deterioration and reduced reliability.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Lowell 138 kV extension
2.	Points of Origin and Termination:	Lowell / Macksburg - Highland Ridge Switch 138 kV; Intermediate Station - N/A
3.	Right-Of-Way:	3.5 miles / 100 ft / 1 circuit
4.	Voltage:	138 kV/138 kV
5.	Application For Certificate:	To be sumbitted 2017 or 2018
6.	Construction:	To be completed approx. Fall 2020
7.	Capital Investment:	Approx $ 4 M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Single steel poles with single circuit
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Increased area reliability
12.	Consequences of Line Construction Deferment or Termination:	Reduced area reliability
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Macksburg - Highland Ridge Switch 138 kV
2.	Points of Origin and Termination:	Macksburg / Highland Ridge Switch; Intermediate Station - N/A
3.	Right-Of-Way:	11.3 miles / 100 ft / 1 circuit
4.	Voltage:	138 kV/138 kV
5.	Application For Certificate:	Approx February 2016
6.	Construction:	To be completed approx. 2019-20
7.	Capital Investment:	Approx $30 M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Single steel poles with single circuit
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Increased area reliability
12.	Consequences of Line Construction Deferment or Termination:	Reduced area reliability
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Miles Avenue Extension (connect to S. Canton-W. Canton #2 138kV)
2.	Points of Origin and Termination:	Miles Avenue station; in-and-out loop; Intermediate Station - N/A
3.	Right-Of-Way:	325 ft / 100 ft / 2 circuits
4.	Voltage:	138kV
5.	Application For Certificate:	Construction Notice filed in 2016
6.	Construction:	Est completion in 2019
7.	Capital Investment:	$420k
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Double-circuit steel poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Serve AEP distribution station with improved reliability; retire switch in residential backyard
12.	Consequences of Line Construction Deferment or Termination:	Continued inaccessibility of AEP transmission facilities; risk of reliability problems
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	New line, Corner-Coolville 138kV
2.	Points of Origin and Termination:	Corner/Coolville; Intermediate Station - N/A
3.	Right-Of-Way:	~12 miles / 100 ft / 1 ckt
4.	Voltage:	138kV/138kV
5.	Application For Certificate:	2019
6.	Construction:	Possible 2020 - 2023
7.	Capital Investment:	~$33M
8.	Planned Substations:	Name - Expand Coolville station; Voltage - 138/69/12kV; Acreage - +3 acres; Location - Meigs/Galia
9.	Supporting Structures:	TBD
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Provide source for Coolville and Hemlock-Ravenswood 69 kV line for reliability and voltage support
12.	Consequences of Line Construction Deferment or Termination:	Poor reliability for Galia county customers
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Newbery - Yellow Creek 138kV
2.	Points of Origin and Termination:	Newbery - Yellow Creek; Intermediate Station - N/A
3.	Right-Of-Way:	0.67 mi / 100 / double ckt
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	2018
6.	Construction:	To be completed approx. 12/31/2018
7.	Capital Investment:	Approx. $2M (for both circuits)
8.	Planned Substations:	Name - Newbery; Voltage - 138/12kV; Acreage - 2; Location - Leipsic Area
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	These circuits will be created as a result of Newbery station established to serve retail
12.	Consequences of Line Construction Deferment or Termination:	Delay of line or station work would affect customer in-service dates.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	North Delphos - Sterling, 24386
2.	Points of Origin and Termination:	North Delphos-Sterling; Intermediate Station - N/A (in rebuild section)
3.	Right-Of-Way:	15.4 mi / 100 / double ckt
4.	Voltage:	138 kV / 138 kV
5.	Application For Certificate:	LON, 2017
6.	Construction:	To be completed approx. 12/18/20
7.	Capital Investment:	$28.9M for both circuits
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Rebuild of existing line for rehabilitation.
12.	Consequences of Line Construction Deferment or Termination:	Continued deterioration and reduced reliability.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Portsmouth-Trenton
2.	Points of Origin and Termination:	Hillsboro, Hutchings (DP&L); Intermediate Station - Clinton County (Duke), Middleboro (DP&L)
3.	Right-Of-Way:	~36 miles / 100ft / dbl & sgl ckt
4.	Voltage:	138kV/138kV
5.	Application For Certificate:	LON 2018
6.	Construction:	2018-2021
7.	Capital Investment:	$114.6M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Steel H-frame & Steel Monopole
10.	Participation with Other Utilities:	Duke & DP&L
11.	Purpose of the Planned Transmission Line	Aging infrastructure
12.	Consequences of Line Construction Deferment or Termination:	Increase risk of line failure and outages to Middleboro
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Poston - Elk 138 kV
2.	Points of Origin and Termination:	Poston/Elk; Intermediate Station - Mineral and Bolins Mill
3.	Right-Of-Way:	21.79 miles / 100 ft / 1 circuit
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	2012 Case 11-4505-EL-BTX / 2016 Case 16-0020-EL-BLN
6.	Construction:	To be completed approx. Summer 2018.
7.	Capital Investment:	Approx $27M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - Athens
9.	Supporting Structures:	N/A
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Increase the reliability of the area. Line needs maintenance.
12.	Consequences of Line Construction Deferment or Termination:	Reduced area reliability
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Poston - Harrison 138 kV
2.	Points of Origin and Termination:	Poston/Harrison; Intermediate Station - Good Hope
3.	Right-Of-Way:	54.33 miles / 100 ft / 1 circuit
4.	Voltage:	138kV / 138kV
5.	Application For Certificate:	2016
6.	Construction:	To be completed approx. 12-2019.
7.	Capital Investment:	Approx $61.8M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - Athens
9.	Supporting Structures:	N/A
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Increase the reliability of the area. Line needs maintenance.
12.	Consequences of Line Construction Deferment or Termination:	Customers would be subject to long outages if there were an outatge due to the line condition.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Rockhill - West Lima, 743
2.	Points of Origin and Termination:	Rockhill-West Lima; Intermediate Station - N/A (in rebuild section)
3.	Right-Of-Way:	3.0 mi / 100 / double ckt
4.	Voltage:	138 kV / 138 kV
5.	Application For Certificate:	LON, 2017
6.	Construction:	To be completed approx. 12/18/20
7.	Capital Investment:	$5.6M for both circuits
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Overhead, Steel, Pole
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Rebuild of existing line for rehabilitation.
12.	Consequences of Line Construction Deferment or Termination:	Continued deterioration and reduced reliability.
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Sardinia extension
2.	Points of Origin and Termination:	Wild Cat / Kenton 138kV line; Intermediate Station - N/A
3.	Right-Of-Way:	~4 miles / 100 ft / 2 ckt
4.	Voltage:	138kV/138kV
5.	Application For Certificate:	2018
6.	Construction:	ISD 2021
7.	Capital Investment:	$12M
8.	Planned Substations:	Name - Possible expansion of Sardinia; Voltage - 138/12kV; Acreage - <1 acre; Location - Highland
9.	Supporting Structures:	TBD
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Retire Seaman - Sardinia lineand provide new rendundant source for Sardinia
12.	Consequences of Line Construction Deferment or Termination:	Increased risk of failure on Seaman-Sardinia line, increased CMI for Sardinia customers
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	South Caldwell - Macksburg 138kV
2.	Points of Origin and Termination:	South Caldwell / Macksburg; Intermediate Station - South Olive Switch
3.	Right-Of-Way:	11.3 miles / 100 ft / 1 circuit
4.	Voltage:	138 kV / 138 kV
5.	Application For Certificate:	Approx. February 2016
6.	Construction:	To be completed approx. June 2018
7.	Capital Investment:	Approx. $16 million
8.	Planned Substations:	Name - South Olive Switch (proposed); Voltage - 138 kV; Acreage - 0.1; Location - Dexter City,
9.	Supporting Structures:	Single steel poles with single circuit
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Increase area reliability
12.	Consequences of Line Construction Deferment or Termination:	Reduced area reliability
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	South Kenton - West Mount Vernon, 748
2.	Points of Origin and Termination:	South Kenton - West Mount Vernon; Intermediate Station - FULTON (OP), NORTH WALDO,
3.	Right-Of-Way:	59.1 mi / 100 / single ckt
4.	Voltage:	138 kV / 138 kV
5.	Application For Certificate:	LON, 2017
6.	Construction:	Target completion 12/1/2020
7.	Capital Investment:	70319000
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Steel Poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Rebuild of existing line for rehabilitation.
12.	Consequences of Line Construction Deferment or Termination:	Reduced reliability as line continues to deteriorate
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Speidel-Summerfield 138kV
2.	Points of Origin and Termination:	Speidel / Summerfield; Intermediate Station - Batesville; Barnesville
3.	Right-Of-Way:	19.5 mi / 100 ft / 1 circuit
4.	Voltage:	138kV / 69kV
5.	Application For Certificate:	Application approved in 2017
6.	Construction:	Est completion in 2020
7.	Capital Investment:	Approx. $30 M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Single-circuit steel poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Replace deteriorated 69kV facilities. Support area shale load growth.
12.	Consequences of Line Construction Deferment or Termination:	Increased risk of customer service interruptions, due to deteriorating T-Line facilities
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Summerfield- Blue Racer 138kV
2.	Points of Origin and Termination:	Summerfield & Blue Racer; Intermediate Station - N/A
3.	Right-Of-Way:	3.5 mi / 100 ft / 1 circuit
4.	Voltage:	138 kV/138 kV
5.	Application For Certificate:	LON filed Jan 2018
6.	Construction:	Est completion in 2020
7.	Capital Investment:	$7 mil
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	Single-circuit steel poles & steel H-frames
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Area reliability; serve increased customer loads; replace deteriorated wood pole line
12.	Consequences of Line Construction Deferment or Termination:	Reduced reliability due to limited thermal ratings and T-Line deterioration
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	West Bellaire-Glencoe 138kV
2.	Points of Origin and Termination:	West Bellaire / Glencoe; Intermediate Station - N/A
3.	Right-Of-Way:	5.8 mi / 100 ft / 2 circuit (1 @ 69kV; 1 @ 138kV)
4.	Voltage:	138kV Design; 1 operate @ 138; 1 operate @ 69
5.	Application For Certificate:	Application approved in 2018
6.	Construction:	Est completion in mid-2019
7.	Capital Investment:	Approx. $13 M
8.	Planned Substations:	Name - Glencoe (expansion); Voltage - 138/69; Acreage - 4; Location - Glencoe, Belmont County
9.	Supporting Structures:	Double-circuit steel poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Resolve thermal overload violations
12.	Consequences of Line Construction Deferment or Termination:	Risk of system overloads, which could affect customer reliability in the area
13.	Miscellaneous	

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	Line Name and Number:	Yager-Desert Road 69kV (138kV design)
2.	Points of Origin and Termination:	Yager / Desert Road; Intermediate Station - West Bowerston Switch
3.	Right-Of-Way:	6.8 mi / 100 ft / 1 circuit
4.	Voltage:	138kV /69kV
5.	Application For Certificate:	Application approved in 2017
6.	Construction:	Est completion in 2019
7.	Capital Investment:	$14 M
8.	Planned Substations:	Name - N/A; Voltage - N/A; Acreage - N/A; Location - N/A
9.	Supporting Structures:	6-wired double-circuit steel poles
10.	Participation with Other Utilities:	N/A
11.	Purpose of the Planned Transmission Line	Area reliability/serve increased customer loads
12.	Consequences of Line Construction Deferment or Termination:	Reduced area reliability; load curtailment at industrial customer sites
13.	Miscellaneous	

PUCO FORM FE-T10
AEP OHIO TRANSMISSION COMPANY
SUMMARY OF PROPOSED SUBSTATIONS

Substation Name	Voltage(s) (kV)	Type Distribution (D) Transmission (T)	Timing	Line Association(s)	Line Existing or Proposed	Minimum Substation Site Acreage
Babbit	345/138	T	8/1/2018	Jug-Kirk 138kV => Babbit-Jug 138kV & Babbit-Kirk 138kV	Existing	3.5
Bell Ridge Switch	138	T	2020	Devola - Rouse switch 138 kV	Proposed	TBD
Devola	138/12	D	2020	Mill Creek-Belmont 138kV tie-line; Lamping-Devola 138kV; South Caldwell-Devola 138kV; Gorsuch-Mill Creek 138kV	2 Existing; 2 Proposed	5
Gemini	138	T	7/11/1905	Gristmill - Gemini 138kV, Gristmill - West Moulton 138kV	Proposed	3
Gristmill	345/138	T	7/11/1905	Gristmill - Shelby 345kV, Gristmill - Southwest Lima 345kV, Gristmill - Gemini 138kV	Proposed	3
Guernsey (IPP interconnection)	765	T	2019 - 2020	Kammer-Vassell 765kV	Existing	6
Hannibal (IPP interconnection)	138	T	2020	Kammer-Ormet #1 , #2, #3, #4 138kV	Existing	4
Heppner	138kV Design, Operated 69kV	T	2018	Lick-Ross 69kV, Rhodes-Heppner 69kV	Existing	2 acres used, 5 acres purchased
Herlan	138	T	2020	Summerfield - Herlan 138kV; South Caldwell-Herlan 138kV; Herlan - Blue Racer 138kV; Herlan-Natrium #1 & #2 138kV	4 Existing, 1 Proposed	4
Hopetown	138 kV	T	2020	Biers Run - Circleville 138kV	Proposed	estimated 6 acres
Lamping	345/138	T	2019	Kammer-Muskingum 345kV	Existing	6
Lemaster	138/12kV	D	Estimated 6/1/2018	Poston - Ross 138 kV; Poston - Harrison 138 kV; Poston - Hocking 138 kV; Crooksville - Poston - Strouds Run 138 kV; Corwin - Elk - Poston 138 kV; Dexter - Elliot - Poston 138 kV	Existing	Approx 10 acres
Newbery	138/12	T	7/10/1905	East Leipsic - Newbery 138kV, Newbery - Yellow Creek 138kV	Proposed	1
Parlett	138 (energized at 69)	T	2018	Blackhawk-Parlett 69kV; Sparrow-Parlett 69kV; Dillonvale-Parlett 69kV	Existing	3

PUCO FORM FE-T10
AEP OHIO TRANSMISSION COMPANY
SUMMARY OF PROPOSED SUBSTATIONS

Substation Name	Voltage(s) (kV)	Type Distribution (D) Transmission (T)	Timing	Line Association(s)	Line Existing or Proposed	Minimum Substation Site Acreage
Rhodes	138 kV	T	2018	Corwin-Lick 138kV, Rhodes-Heppner 69kV	Existing	2 acres used, 4.5 acres purchased
Rouse Switch	138	T	2020	Rouse Switch - Devola 138 kV; Rose switch - New Metamoras 138 kV	Proposed	TBD
Ruhlman Tap Switch Station	138 kV	T	2021	Central Portsmouth-North Portsmouth 138kV	Existing	Estimated 1 acre
Sunday Switch	138 kV	T	12/1/2018	Crooksville - Poston - Strouds Run 138 kV	Proposed	TBD

Appendix C Ohio Historic Preservation Office Response Letter

OHIO HISTORY CONNECTION

In reply, refer to
2018-BEL-41725

May 10, 2018

Mr. Ryan J. Weller
Weller & Associates, Inc.
1395 West Fifth Avenue
Columbus, Ohio 43212

RE: Dilles Bottom-FE Corridor 69kV to 138kV Upgrade Project, Mead Township, Belmont County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on April 13, 2018 regarding the proposed Dilles Bottom-FE Corridor 69kV to 138kV Upgrade Project, Mead Township, Belmont 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 and the Ohio Power Siting Board rules for siting this project (OAC 4906-4). 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 following comments pertain to the *Phase I Cultural Resource Management Investigations for the 2.4 km (1.5 mi) Dilles Bottom-FE Corridor 69kV to 138kV Upgrade Project in Mead Township, Belmont County, Ohio* by Weller & Associates, Inc. (2018).

A literature review, visual inspection, and shovel probe excavation was completed as part of the investigations. No previously identified archaeological sites are located within the project area and no new archaeological sites were identified. No additional archaeological investigation is recommended.

The report states that no significant history/architectural resources were identified. However, properties that are fifty years of age or older and located within one-thousand feet of the project area (indirect APE) were not identified, photographed, or described in any way to confirm their lack of significance.

It is our understanding that for OPSB reviews, a systematic assessment should be conducted of all properties fifty years of age or older within the project area (direct APE), and within one thousand feet of the project area (indirect APE) that have a potential view of the project. No such assessment was provided with this report. Future reports lacking this assessment will require additional information prior to our office providing its comments and findings.

It is Weller's recommendation that no significant history/architectural resources were identified. Based on information provided in two reports, *Phase I History/Architecture Survey for the Dilles Bottom Unincorporated Area, Dilles Bottom, Belmont County, Ohio* and *Revised Historic Context of Dilles Bottom, Mead Township, Belmont County, Ohio* by Gray & Pape, Inc. (2017), it is our opinion that properties in the survey area do not meet the minimum criteria for listing in the National Register of Historic Places. Therefore, the project as proposed will have no indirect effect on historic properties.

Based on the information provided, we agree the project will not affect historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional

RPR Serial No: 1073519

historic properties are discovered during implementation of this project. In such a situation, this office should be contacted.

If you have any questions, please contact me at (614) 298-2022, or by e-mail at khorrocks@ohiohistory.org, or Joy Williams at jwilliams@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Krista Horrocks, Project Reviews Manager
Resource Protection and Review

cc: Ron Howard, AEP (rmhoward@aep.com)

RPR Serial No: 1073519

Appendix D Ecological Survey Report

gai consultants

Ecological Survey Report

AEP Ohio Transmission Company
Dilles Bottom 138kV Line Rebuild Project
Belmont County, Ohio

GAI Project Number: C170352.20, Task 001

March 2018

AMERICAN ELECTRIC POWER℠

BOUNDLESS ENERGY℠

Prepared by: GAI Consultants, Inc.
Canton Office
3720 Dressler Road Northwest
Canton, Ohio 15120-2700

Prepared for: American Electric Power Service Corporation
1 Riverside Place
22nd Floor
Columbus, Ohio 43215-2373

Ecological Survey Report

AEP Ohio Transmission Company
Dilles Bottom 138kV Line Rebuild Project
Belmont County, Ohio

GAI Project Number: C170352.20, Task 001

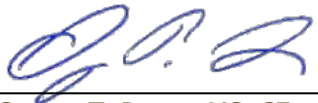
March 2018

Prepared for:
American Electric Power Service Corporation
1 Riverside Place
22nd Floor
Columbus, Ohio 43215-2373

Prepared by:
GAI Consultants, Inc.
Canton Office
3720 Dressler Road Northwest
Canton, Ohio 15120-2700

Report Authors:

Allison R. Wheaton, WPIT
Senior Project Environmental Specialist



George T. Reese, MS, CE
Environmental Director

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Table 2 Waterbodies Identified Within the Project Study Area
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Figure 1 Project Location Map
Figure 2 Resource Location Map
Figure 3 Stream Eligibility Map

Appendix A Photographs
Appendix B Wetland Determination Data Forms
Appendix C Primary Headwater Habitat Evaluation (HHEI) Data Forms
Appendix D Ohio Rapid Assessment Method for Wetlands (ORAM) Data Forms
Appendix E ODNR and USFWS Correspondence

1.0 Introduction

GAI Consultants, Inc. (GAI), on behalf of American Electric Power Ohio Transmission Company (AEP), completed an ecological survey for the Dilles Bottom 138kV Line Rebuild Project (Project) located in Belmont County, Ohio (OH). The Project involves the rebuild and upgrade of approximately 1.3 miles of existing 69 kilovolt (kV) transmission line to a 138 kV transmission line.

The ecological surveys were conducted February 5-6, and February 8, 2018. The Project study area consisted of a 330-foot-wide corridor centered along the existing and proposed transmission lines, and a 50-foot-wide corridor centered along the potential access routes, as shown on Figure 1.

The Project study area is located within the Pipe Creek – Ohio River (United States Geological Survey [USGS] Hydrologic Unit Code [HUC] #050301061207) watershed.

This report details the results of the ecological surveys regarding the existence of aquatic resources within the Project area (Figure 2). The United States Army Corps of Engineers (USACE) Wetland Determination Data Forms are provided in Appendix B. Ohio Environmental Protection Agency (OEPA) Primary Headwater Habitat Evaluation (HHEI) Data Forms are provided in Appendix C and Ohio Rapid Assessment Method for Wetlands (ORAM) Data Forms are provided in Appendix D.

2.0 Methods

2.1 Wetlands

The 1987 USACE *Corps of Engineers Wetlands Delineation Manual* (Wetlands Delineation Manual) (USACE, 1987) and the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, Version 2.0* (Regional Supplement) (USACE, 2012) describe the methods used to identify and delineate wetlands that fall under the jurisdiction of the USACE. This approach recognizes the three parameters of wetland hydrology, hydrophytic vegetation, and hydric soils to identify and delineate wetland boundaries. In accordance with the Wetlands Delineation Manual and Regional Supplement, GAI completed preliminary data gathering and an onsite inspections.

2.1.1 Preliminary Data Gathering

The preliminary data gathering was used to compile and review information that may be helpful in identifying wetlands and/or areas that warrant further inspection during the investigation. The preliminary data gathering included a review of the following:

- USGS 7.5-minute topographic mapping for Businessburg (USGS, 1978) OH and Moundsville (USGS, 1977) West Virginia (Figure 1);
- United States Fish and Wildlife Service (USFWS), National Wetlands Inventory (NWI) mapping (USFWS, 2017) (Figure 2);
- Federal Emergency Management Agency (FEMA), National Flood Hazard Layer (FEMA, 2015) (Figure 2); and
- United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS, 2017) soil mapping (Figure 2).

Topographic mapping was used to identify mapped streams and the overall shape of the landscape in the Project area to determine potential locations for wetlands, such as floodplains and depressions. NWI mapping was used to determine locations where probable wetlands are located based on infrared photography. Soil mapping was reviewed to determine the location and extent of mapped hydric soils that have a high probability of containing wetlands.

2.1.2 Onsite Inspection

The methodology described in the Regional Supplement identifies areas meeting the definition of a wetland by evaluating three parameters: hydrology, vegetation, and soil. During the on-site inspection, GAI staff traversed the Project study area on foot to determine if any indicators of wetlands were present. When indicators of wetlands were observed, an observation point was established, and a Wetland Determination Data Form (Data Form) was completed to determine if all three wetland indicators were present.

The presence of wetland hydrology was determined by examining the observation point for primary and secondary indicators of wetland hydrology. The presence of any primary indicator signified the presence of wetland hydrology, or the presence of two or more secondary indicators signified the presence of wetland hydrology.

Vegetation was characterized by four different strata. This included trees (woody plants, excluding vines, three inches or more in diameter at breast height [DBH]), saplings/shrubs (woody plants, excluding vines, less than three inches DBH and greater than or equal to 3.28 feet tall), herbs (non-woody plants, regardless of size, and all other plants less than 3.28 feet tall), and woody vines (greater than 3.28 feet tall). In general, trees and woody vines were sampled within a thirty-foot (30') radius, saplings and shrubs were sampled within a fifteen-foot (15') radius, and herbs were sampled within a five-foot (5') radius.

When evaluating an area for the presence of hydrophytes, classification of the indicator status of vegetation was based on *The National Wetland Plant List: 2016 Update of Wetland Ratings* (Lichvar et al., 2016). The list of possible indicator statuses for plants is as follows:

- Obligate Wetland (OBL) - Obligate Wetland plants occur in standing water or in saturated soils;
- Facultative Wetland (FACW) - Facultative Wetland plants nearly always occur in areas of prolonged flooding or require standing water or saturated soils but may on rare occasions, occur in non-wetlands;
- Facultative (FAC) - Facultative plants occur in a variety of habitats, including wetland and mesic to xeric non-wetland habitats but often occur in standing water or saturated soils;
- Facultative Upland (FACU) - Facultative Upland plants typically occur in xeric or mesic non-wetland habitats but may frequently occur in standing water or saturated soils; and
- Obligate Upland (UPL) - Obligate Upland plants almost never occur in water or saturated soils.

Presence of hydrophytic vegetation was determined by using a Rapid Test, Dominance Test or Prevalence Index (USACE, 2012). The Rapid Test finds a vegetation community to be hydrophytic if all dominant species are OBL or FACW. Hydrophytic vegetation was considered present based on the Dominance Test if more than 50 percent of dominant species are OBL, FACW, or FAC. The Prevalence Index weighs the total percent of vegetation cover based on the indicator status of each plant. Hydrophytic vegetation was considered present when the Prevalence Index is less than or equal to 3.0.

To determine the presence of hydric soils, soil data was collected by digging a minimum 16-inch-deep soil pit. The soil profile was studied and described, while possible hydric indicators were examined. Soil indicators described in the Wetlands Delineation Manual and Regional Supplement were used to determine the presence of hydric soils. The presence of any of these indicators signified a hydric soil.

If all three parameters including wetland hydrology, a dominance of hydrophytic vegetation, and hydric soils were identified at a single observation point, the area was determined to be a wetland. Once a wetland was identified, the boundary was delineated.

Wetland boundaries were determined by looking for locations in which one of the three wetland indicators would transition into an upland characteristic. When the transition was identified, a Data Form was completed in the Upland Area. Wetland boundaries were then marked in the field using pink flagging labeled "WETLAND DELINEATION." The locations of the flags were recorded using a Global Positioning System (GPS) unit. Each wetland was codified with a unique identifier indicating the feature type and number (e.g., W001).

Wetlands were then classified using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979) as modified for NWI Mapping Convention. This system classifies wetlands based on topographic position and vegetation type. Palustrine system wetlands found within the study area are classified as Palustrine Emergent (PEM), Palustrine Scrub-Shrub (PSS), Palustrine Forested (PFO), or Palustrine Unconsolidated Bottom (PUB) based on aerial coverage of the vegetative community across the extent of the wetland boundary (Cowardin et al., 1979).

2.2 Waterbodies

As with wetlands, Section 404 of the Clean Water Act (CWA) and state regulations protect waterbodies in OH. Generally, waterbodies are defined as environmental features that have defined beds and banks, an ordinary high water mark (OHWM), and contain flowing or standing water for at least a portion of the year.

2.2.1 Preliminary Data Gathering

During the preliminary data gathering, the USGS 7.5-minute topographic mapping was examined for the presence of mapped waterbodies including perennial and intermittent streams. In addition, the topographic mapping was used to identify areas likely to contain unmapped waterbodies including ephemeral streams (USGS, 1978 and 1977) (Figure 1).

The OEPA Stream Eligibility Web Map was used to determine eligibility coverage under the 401 Water Quality Certification (WQC) for the 2017 Nationwide Permits (NWPs). Furthermore, the map was used to identify any ineligible areas that may require a CWA Section 401 individual permit from the OEPA should stream impacts occur within the Project area (OEPA, 2017) (Figure 3).

2.2.2 Onsite Inspection

During the onsite inspection, GAI staff traversed the study area, concurrently with the wetland inspection, and waterbodies were identified. Waterbodies were identified based on the morphological and hydrologic characteristics of the channel and the presence of aquatic macroinvertebrates.

When a waterbody was identified, field measurements were collected. The measurements included top of bank width, top of bank depth, pool depth, water depth, OHWM width, and OHWM depth. A detailed description of substrate composition was also recorded. Waterbodies were then delineated using white flagging marked with the GAI stream code (e.g., S001). The tops-of-bank for streams wider than 10 feet were delineated and the centerline of smaller streams were delineated. The locations of the flags were recorded using a sub-meter capable hand-held GPS unit.

2.3 Rare, Threatened, and Endangered Species

GAI conducted a literature review of potential Rare, Threatened, and Endangered (RTE) species in the vicinity of the Project study area. Potential habitat for RTE species as a result of the literature review was noted during the ecological survey.

2.3.1 Preliminary Data Gathering

A request for review of the Ohio Natural Heritage Database (ONHD) was submitted to the Ohio Department of Natural Resources (ODNR) to determine if any state-listed Threatened or Endangered species occur within a one-mile radius of the Project area. A request was also submitted to the USFWS Ohio Ecological Services Field Office to determine if any federally-listed Threatened or Endangered species occur within the vicinity of the Project area.

2.3.2 Onsite Inspection

During the onsite inspection, GAI staff traversed the study area in conjunction with the wetland and waterbody inspections to determine if suitable habitat for state- and/or federally-listed RTE species are present within the study area.

3.0 Results

3.1 Wetlands

3.1.1 Preliminary Data Gathering

Desktop review of available USFWS NWI digital data for the Project revealed one NWI mapped wetlands located within the Project study area. (USFWS, 2017). The NWI wetland is classified as Palustrine Emergent, Persistent, Seasonally flooded (PEM1C) and corresponds with W001.

According to the USDA-NRCS soil mapping, a total of 15 soil map units are located within the Project study area (Figure 2). None of the soil map units within the Project study area are classified as hydric, and none are known to contain hydric inclusions.

3.1.2 Onsite Inspection

Two (2) PFO wetlands were identified and delineated within the Project study area. In order to document site conditions, USACE Data Forms were completed for each wetland and upland reference. Information on the delineated wetlands can be found in Table 1 and photographs of the wetlands are included in Appendix A.

3.1.3 Regulatory Discussion

The USACE guidance divides waterbodies into three groups: Traditionally Navigable Waters (TNWs), non-navigable Relatively Permanent Waters (RPWs), and non-navigable Non-RPWs. TNWs are waterbodies which have been, are, or may be susceptible to use in interstate commerce, including recreational use of the waterbody. RPWs are waterbodies that flow year round, or at a minimum seasonally, by exhibiting continuous flow for at least three consecutive months, but are not TNWs (USACE, 2007). Non-RPWs are waterbodies that do not flow continuously for at least three consecutive months, are not TNWs or RPWs, but typically exhibit characteristic beds, banks, and OHWM (USACE, 2007).

The status of wetlands is determined partly based on the classification of the waterbody that the wetland is associated with, and the degree of that association. Wetlands that abut or are adjacent to TNWs are jurisdictional. Wetlands that abut RPWs are jurisdictional. Wetlands that are adjacent to RPWs and wetlands that abut or are adjacent to Non-RPWs must be subjected to the Significant Nexus Test (SNT) to determine their jurisdictional status. Generally, the

USACE considers wetlands that are isolated, meaning that they are not associated with any other surface water feature, as non-jurisdictional; and wetlands that abut or are adjacent to Non-RPWs as needing further examination by the USACE to determine and verify whether they exhibit a significant nexus to waters of the United States. If these wetlands exhibit a significant nexus, they are jurisdictional; if not, they are not subject to USACE jurisdiction.

Wetlands that do not exhibit an association with any surface water are categorized as "isolated" under present USACE guidance and policy. These wetlands are regulated by the OEPA Division of Surface Water, and may require an Isolated Wetland Permit.

As regulated by Ohio Administrative Code (OAC) rules 3745-1-50 through 3745-1-54, wetlands were also evaluated using the ORAM to determine the appropriate wetland category. Any wetland score that fell within a gray zone between categories was scored one of two ways. Either the wetland was assigned to the higher of the two categories or it was assessed using a non-rapid method to determine its quality (Mack, 2001). The category assigned to a particular wetland determines the requirement, if any, for additional levels of protection administered by the OEPA.

All wetlands within the Project study area were identified as jurisdictional. Jurisdictional status is the opinion of GAI and must be confirmed by USACE and state agencies through the Jurisdictional Determination (JD) process.

3.2 Waterbodies

3.2.1 Preliminary Data Gathering

Desktop review of the available USGS topographic mapping revealed one (1) previously mapped stream segment located within the Project study area (Figure 1). Desktop review of OEPA's Stream Eligibility Web Map revealed that Project is located within an eligible area for automatic 401 WQC coverage (Figure 3).

3.2.2 Onsite Inspection

Eleven (11) stream segments were identified and delineated within the Project study area. Five (5) streams were classified as having a perennial flow regime, two (2) were classified as intermittent and four (4) were classified as ephemeral. Information on the delineated waterbodies and their classifications can be found in Table 2, and photographs of the identified streams are included in Appendix A.

3.2.3 Regulatory Discussion

As with wetlands, present USACE guidance and policy determines the jurisdictional status of waterbodies identified during the Project. TNWs and RPWs are jurisdictional. Non-RPWs must be subjected to the SNT by USACE to determine their jurisdictional status. If Non-RPWs exhibit a Significant Nexus, as defined in USACE guidance documents, they are jurisdictional. If not, they do not fall under the jurisdiction of the USACE.

Streams are generally defined as environmental features that have defined beds and banks, an OHWM as defined in Regulatory Guidance Letter No. 05-05 (USACE, 2005), and contain flowing or standing waters for at least a portion of the year. Streams were classified as perennial, intermittent, or ephemeral based upon presence of flow, estimated duration of flow, stream bed characteristics, and presence of aquatic biota. The USACE *Jurisdictional Determination Form Instructional Guidebook* (USACE, 2007) was used to determine stream classification and flow status.

As regulated by OAC Chapter 3745-1 and Section 401 WQC, streams were also assessed according to OEPA guidance using either the HHEI for watersheds less than one square mile in size, or the Qualitative Habitat Evaluation Index (QHEI) for watersheds between one and 20 square miles in size.

One stream segment (S006) located within the Project study area is identified as Big Run, which is designated as a Limited Resource Water (LRW) by OAC Chapter 3745-1-13. The remaining stream segments are identified as UNTs to Big Run. All of the stream segments are located within an eligible area for automatic coverage under the 401 WQC for NWPs.

3.3 Rare, Threatened, and Endangered Species

3.3.1 Preliminary Data Gathering

Desktop review of ODNR, Division of Wildlife's Ohio's Listed Species revealed 336 Endangered, Threatened, Species of Concern, and Species of Interest located in OH (ODNR, 2017). Seventeen (17) of the state-listed species are considered federally Endangered, and four (4) are federally Threatened.

A review of the USFWS *County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species for Ohio*, as well as the Information for Planning and Consultation (IPaC) website, revealed three (3) federally Endangered or Threatened species that may occur within the Project study area (USFWS, 2017). The list of species includes the following:

- Indiana Bat (*Myotis sodalis*) – Endangered;
- Northern Long-eared Bat (*Myotis septentrionalis*) – Threatened; and
- Running Buffalo Clover (*Trifolium stolonifernum*) – Endangered.

In addition to the species listed above, there are twelve (12) species of migratory birds that may occur within the Project study area.

3.3.2 Onsite Inspection

Potential habitat for RTE species was evaluated within the Project study area. In general, the habitat encountered within the study area consisted of maintained transmission line right-of-way bordered by mixed deciduous forests, floodplain forests, and PFO wetlands. Five (5) perennial streams, two (2) intermittent streams and four (4) ephemeral streams were also identified within the Project study area. Representative photographs of the identified habitat types are included in Appendix A.

3.3.3 Regulatory Discussion

State-listed RTE species fall under the jurisdiction of the ODNR, Division of Wildlife, while federally-listed species are covered under Section 7 of the Endangered Species Act. The Bald and Golden Eagle Protection Act and Migratory Bird Act aim to extend protection to certain bird species that fall under the jurisdiction of the USFWS. Based on the desktop review and on-site inspection, informal consultation with the ODNR and USFWS has been initiated to determine if any activities associated with the proposed Project may affect state- and/or federally-listed RTE species. The ODNR and USFWS consultation letters were submitted on January 16, 2018, and are provided in Appendix E. A response from USFWS was received on February 14, 2018 and is included in Appendix E. No response from ODNR has been received, but will be appended once available.

4.0 Conclusions

Ecological surveys were conducted within the Project study area from February 5-6, and February 8, 2018. Two (2) PFO wetlands were identified within the Project study area. Eleven (11) stream segments (5 perennial, 2 intermittent and 4 ephemeral) were also identified within the Project study area. Summaries of the delineated aquatic features are provided in Tables 1 and 2, and a map of their locations is depicted on Figure 2. Photographs of the wetland and stream features are included in Appendix A. Wetland Determination Data Forms documenting the investigation are provided in Appendix B, with HHEI and ORAM Data Forms provided in Appendix C and D, respectively.

The jurisdictional status of these features are considered preliminary and should be confirmed with the USACE and state agencies through the JD process.

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TABLES

Table 1
Wetlands Identified Within the Project Study Area

Wetland I.D.[1]	Latitude[2]	Longitude[2]	Proximal Waterbody	USACE Classification[3]	Cowardin Classification[4]	Size[5] (acres)	ORAM v. 5.0 Score[6]	ORAM Category[7]	Figure 2 (sheet)
W001-PFO-CATMOD2	39.930247	-80.784407	Big Run	Jurisdictional; Adjacent	PFO	0.099	37	Modified 2	3
W002-PFO-CATMOD2	39.930662	-80.785103	Big Run	Jurisdictional; Adjacent	PFO	0.025	35	Modified 2	3

Notes:

1 GAI map designation.

2 North American Datum, 1983.

3 Jurisdictional status is the opinion of GAI and must be confirmed by USACE and state agencies through the JD process.

4 PFO – Palustrine Forested;

5 Total acreage of wetland located within the Project study area.

6 Interim scoring breakpoints for wetland regulatory categories for ORAM v 5.0 Score: Category 1 score 0 - 29.9; Category 1 or 2 gray zone ORAM score 30 - 34.9; Category modified 2 ORAM score 35 - 44.9; Category 2 ORAM score 45 - 59.9; Category 2 or 3 ORAM score 60 - 64.9; Category 3 ORAM score 65 - 100. OEPA Ecology Unit Division of Surface Water. *ORAM v. 5.0 Qualitative Score Calibration.* Dated August 15, 2000. http://www.epa.ohio.gov/portals/35/401/oram50sc_s.pdf.

7 OAC Rule 3745-1-54(C)(2) defines Category 1 wetlands as wetlands which "…support minimal wildlife habitat, and minimal hydrological and recreation functions," and as wetlands which have "..hydrologic isolation, low species diversity, a predominance of non-native species, no significant habitat or wildlife use, and limited potential to achieve beneficial wetland functions." Category 2 wetlands are defined as wetlands which "...support moderate wildlife habitat, or hydrological or recreational functions," and as wetlands which are "...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." Degraded but Restorable Category 2 Wetlands are according to OAC Rule 3745-1-54(C) states that wetlands that are assigned to Category 2 constitute the broad middle category that "...support moderate wildlife habitat, or hydrological or recreational functions," but also include "...wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." OAC Rule 3745-1-54(C)(2) defines Category 3 wetlands as wetlands which "…support superior habitat, or hydrological or recreational functions," and as wetlands which have "…high levels of diversity, a high proportion of native species, or high functional values."

Table 2
Waterbodies Identified Within the Project Study Area

Stream I.D.[1]	Waterbody Name	OEPA WQ Designation[2]	OEPA Stream Eligibility[3]	Stream Type	USACE Classification[4]	HHEI Score[5]	PHWH Class[5]	QHEI Score[6]	Bank Width (feet)[7]	OHWM Width (feet)	OHWM Depth (inches)	Stream Length[8] (feet)	Latitude[9]	Longitude[9]	Figure 2 (sheet)
S001	UNT to Big Run	-	Eligible	Ephemeral	NRPW	32	Class II	-	4	3	3	156	39.938461	-80.780559	1
S002	UNT to Big Run	-	Eligible	Perennial	RPW	53	Class III	-	6	5	24	482	39.938171	-80.780520	1
S003	UNT to Big Run	-	Eligible	Perennial	RPW	61	Class III	-	9	7	18	408	39.935130	-80.781017	2
S004	UNT to Big Run	-	Eligible	Intermittent	RPW	36	Class II	-	5	2	6	196	39.934586	-80.781076	2
S005	UNT to Big Run	-	Eligible	Intermittent	RPW	13	Class I	-	2	2	3	94	39.933426	-80.781815	2
S006	Big Run	LRW	Eligible	Perennial	RPW	-	-	-	30	20	24	401	39.930272	-80.784782	3
S007	UNT to Big Run	-	Eligible	Perennial	RPW	46	Class II	-	9	4	6	730	39.930202	-80.784914	2, 3
S008	UNT to Big Run	-	Eligible	Ephemeral	NRPW	21	Class I	-	2	0.5	1	278	39.930886	-80.784575	3
S009	UNT to Big Run	-	Eligible	Ephemeral	NRPW	21	Class I	-	2	0.5	3	79	39.930063	-80.785470	3
S010	UNT to Big Run	-	Eligible	Ephemeral	NRPW	15	Modified Class I	-	2	1	6	178	39.929133	-80.788395	3
S011	UNT to Big Run	-	Eligible	Perennial	RPW	56	Class III	-	12	8	24	335	39.929133	-80.789586	4

Notes:

1 GAI map designation.

2 As defined by OAC Chapter 3745-1 Water Quality Standards, Water use designations and statewide criteria (OAC 3745-1-07). http://www.epa.ohio.gov/dsw/rules/3745_1.aspx.

3 As defined by the 401 WQC conditions for stream eligibility coverage under the 2017 NWP program. Streams located in Possibly Eligible areas are eligible for coverage if the pH is <6.5 or stream flow is ephemeral. Streams located in Possibly Eligible areas are also eligible for coverage if the HHEI score is <50, or if the HHEI score is between 50-69 and substrate composition is ≤10% coarse types (includes cumulative percentage of bedrock, boulders, boulder slabs, and cobble).

4 Jurisdictional status is the opinion of GAI and must be confirmed by USACE and state agencies through the JD process. NRPW - Non Relatively Permanent Waters.

5 Scoring for OEPA Headwater Habitat Evaluation Index (HHEI) Primary Headwater Habitats (PHWH). Class I = 0 - 29.9 and include "normally dry channels with little or no aquatic life present"; Class II = 30 - 69.9 and are equivalent to "warm water habitat"; Class III = 70 – 100 and typically have perennial flow with cool-cold water adapted native fauna.

6 Narrative rating for headwater streams using the OEPA Qualitative Habitat Evaluation Index (QHEI). Excellent = ≥70; Good = 55 - 60; Fair = 43 - 54; Poor = 30 - 42; Very Poor = <30.

7 Width in feet from tops of stream bank.

8 Total stream length (in feet) located within the Project study area.

9 North American Datum, 1983.

Table 3
ODNR RTE Species and Critical Habitat Review Results[1]

Common Name	Scientific Name	Habitat Type	Listing Status[3]	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Amphibians						
Eastern hellbender	*Cryptobranchus alleganiensis alleganiensis*	Swift flowing, unpolluted, and well-oxygenated streams and rivers with large flat rocks	E	Yes	No; In-stream work is not proposed	-
Bats						
Indiana bat[2]	*Myotis sodalis*	Trees >3" dbh	E, FE	Yes	Yes; Avoided with winter tree clearing	April 1 to September 30
Northern long-eared bat[2]	*Myotis septentrionalis*	Roost in cavities or in crevices of both live trees and snags; Hibernate in caves and mines with constant temperatures, high humidity, and no air currents	SC, FT	Yes	Yes; Avoided with winter tree clearing	April 1 to September 30
Fish						
Western banded killifish	*Fundulus diaphanous menona*	Areas with an abundance of rooted aquatic vegetation, clear waters; substrates with clean sand or organic debris free of silt	E	No	No; Known habitat types are not present within the Project area	-
Tippecanoe darter	*Etheostoma tippecanoe*	Medium to large streams and rivers in riffles with gravel and small cobble sized rocks	T	Yes	No; In-stream work is not proposed	-
Channel darter	*Percina copelandi*	Large, coarse sand or fine gravel bars in large rivers or lake shores	T	No	No; Known habitat types are not present within the Project area	-
River darter	*Percina shumardi*	Very large rivers in areas of swift current; found over a gravel or rocky bottom in depths of three feet or more	T	Yes	No; In-stream work is not proposed	-

Common Name	Scientific Name	Habitat Type	Listing Status[3]	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Fish (Continued)						
Paddlefish	*Polyodon spathula*	Sluggish pools and backwater areas of rivers and streams	T	No	No; Known habitat types are not present within the Project area	-
Insects						
River jewelwing	*Calopteryx aequabilis*	Clear streams and rivers with moderate current; small streams in woodlands; rocky shores of large lakes	E	Yes	No; In-stream work is not proposed	-
Mammals						
Black bear	*Ursus americanus*	Large forested areas	E	Yes	No; Impacts are not anticipated due to the migratory nature of this species	-
Mussels						
Butterfly	*Ellipsaria lineolata*	Large rivers with swift currents in sand or gravel substrates	E	Yes	No; In-stream work is not proposed	-
Black sandshell	*Ligumia recta*	Medium to large rivers in riffles or raceways in gravel or firm sand	T	Yes	No; In-stream work is not proposed	-
Threehorn Wartyback	*Obliquaria reflexa*	Large rivers with moderate current and stable substrate of gravel, sand, and mud	T	No	No; Known habitat types are not present within the Project area	-
Plants						
White wood-sorrel	*Oxalis montana*	Moist woods	E	No	No; Known habitat types are not present within the Project area	-

Common Name	Scientific Name	Habitat Type	Listing Status[3]	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Plants (Continued)						
Rock ramalina	*Ramalina intermedia*	Variety of rock and bark types; restricted to sandstone, generally in light shade	E	No	No; Known habitat types are not present within the Project area	-
Bearded wheat grass	*Elymus trachycaulus*	Wide range of soils and climates from very dry to very boggy habitats	T	No	No; Known habitat types are not present within the Project area	-
Wild pea	*Lathyrus venosus*	Open sandy soils and deeply shaded forests; Prairies, disturbed sites, woods, riverbanks, slopes, and shores	T	Yes	Unknown; Impacts to known habitat types are anticipated	-
Shale barren aster	*Symphyotrichum oblongifolium*	Rocky and sandy soils in prairies and bluffs as well as moist woodland habitats	T	No	No; Known habitat types are not present within the Project area	-

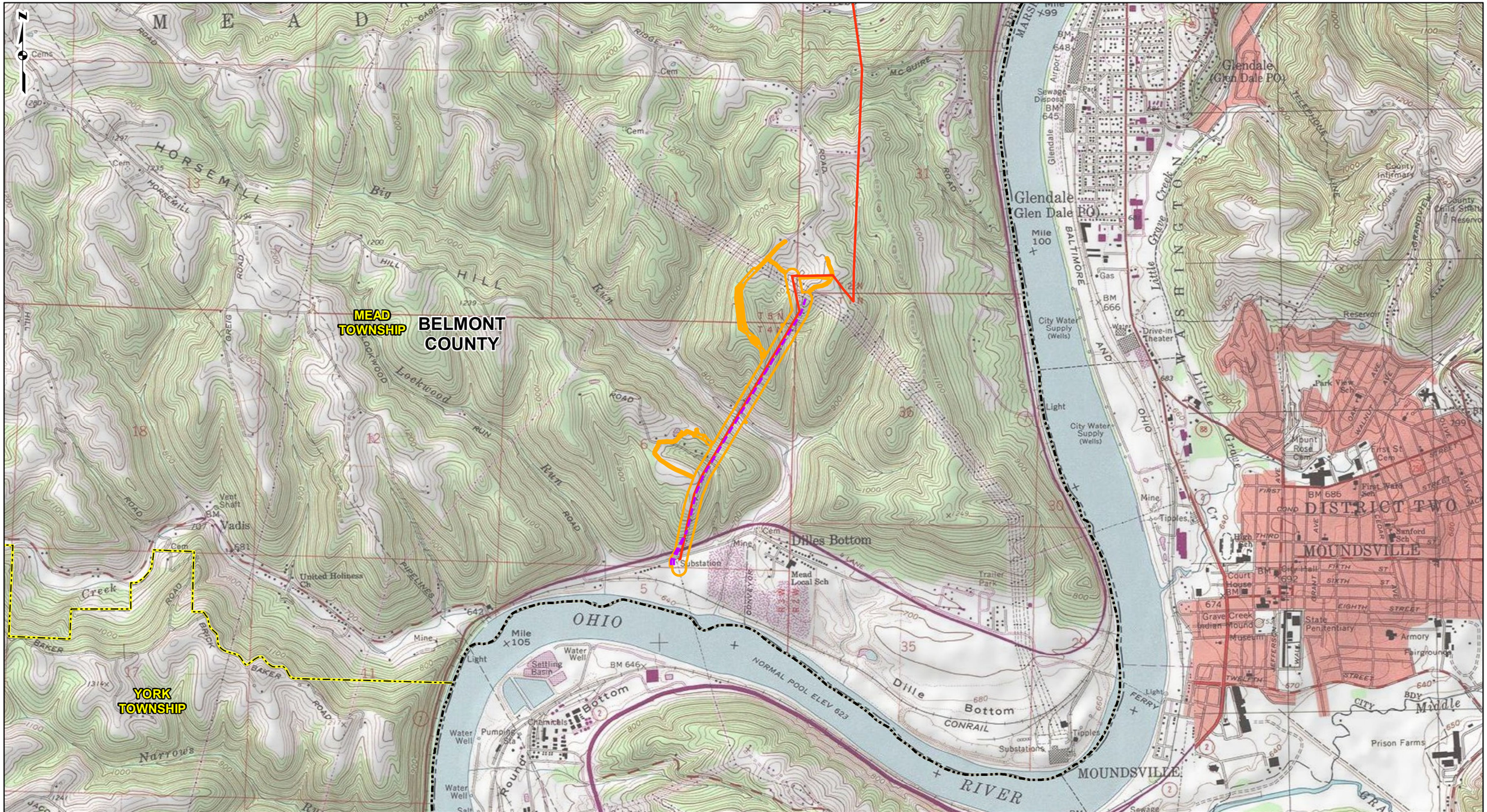
Notes:

1 Results are tentatively based upon the State Listed Species list(s) for Belmont County and will be updated once the ODNR response is received.

2 Federally listed species, migratory bird, or species of concern comments included in the USFWS response, dated February 14, 2018.

3 E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; FE = federal endangered; FT = federal threatened; FSC = federal species of concern; FC = federal candidate.

FIGURES



PROJECT LOCATION

BELMONT COUNTY, OHIO

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: BUSINESSBURG (1978), OHIO AND MOUNDSVILLE (1977), WEST VIRGINIA, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 05/2018.

LEGEND

- Existing Transmission Line
- Proposed Transmission Line
- Study Area
- County Boundary
- Township Boundary

0 1,000 2,000 4,000 Feet

FIGURE 1
PROJECT LOCATION MAP

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DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

DRAWN BY: JTH DATE: 5/17/2018
CHECKED: REZ APPROVED:

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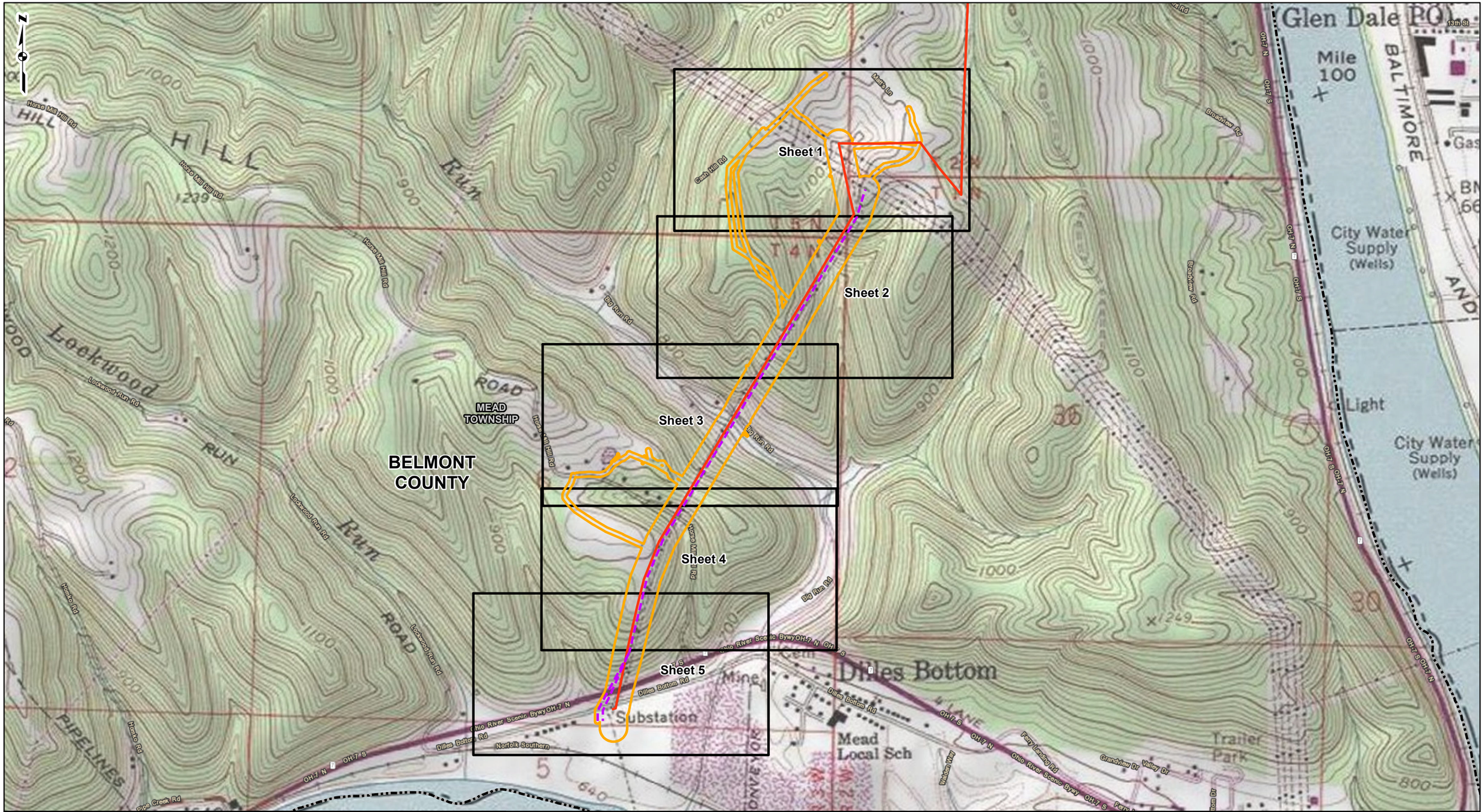

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LEGEND

- Proposed Transmission Line
- Existing Transmission Line
- Township Boundary
- County Boundary

0 500 1,000 2,000 Feet

FIGURE 2
RESOURCE LOCATION MAP
SHEET INDEX

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DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

AMERICAN ELECTRIC POWER
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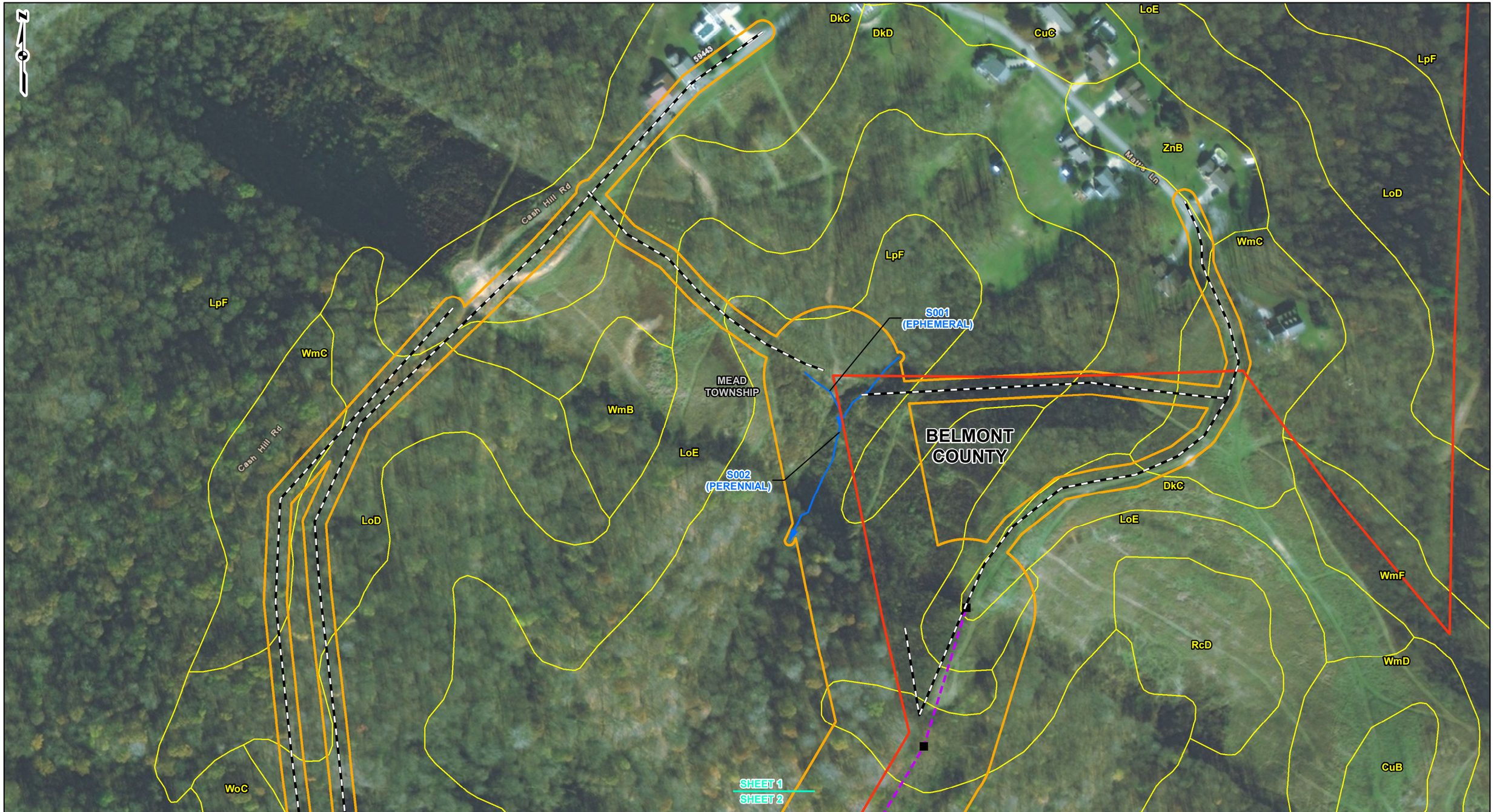

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LEGEND

- Proposed Structure
- Culvert
- Upland Data Point
- Wetland Data Point
- Soil Test Pit
- Proposed Transmission Line
- Existing Transmission Line
- Access Road
- Stream
- Open-Ended Boundary
- Study Area
- Soil Type Boundary
- ODNR Land
- NWI Wetland
- 100-Year Floodplain
- FEMA Floodway
- Township Boundary
- County Boundary

Wetland Type:

- PFO

0 100 200 400 Feet

FIGURE 2
RESOURCE LOCATION MAP
SHEET 1 OF 5

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DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

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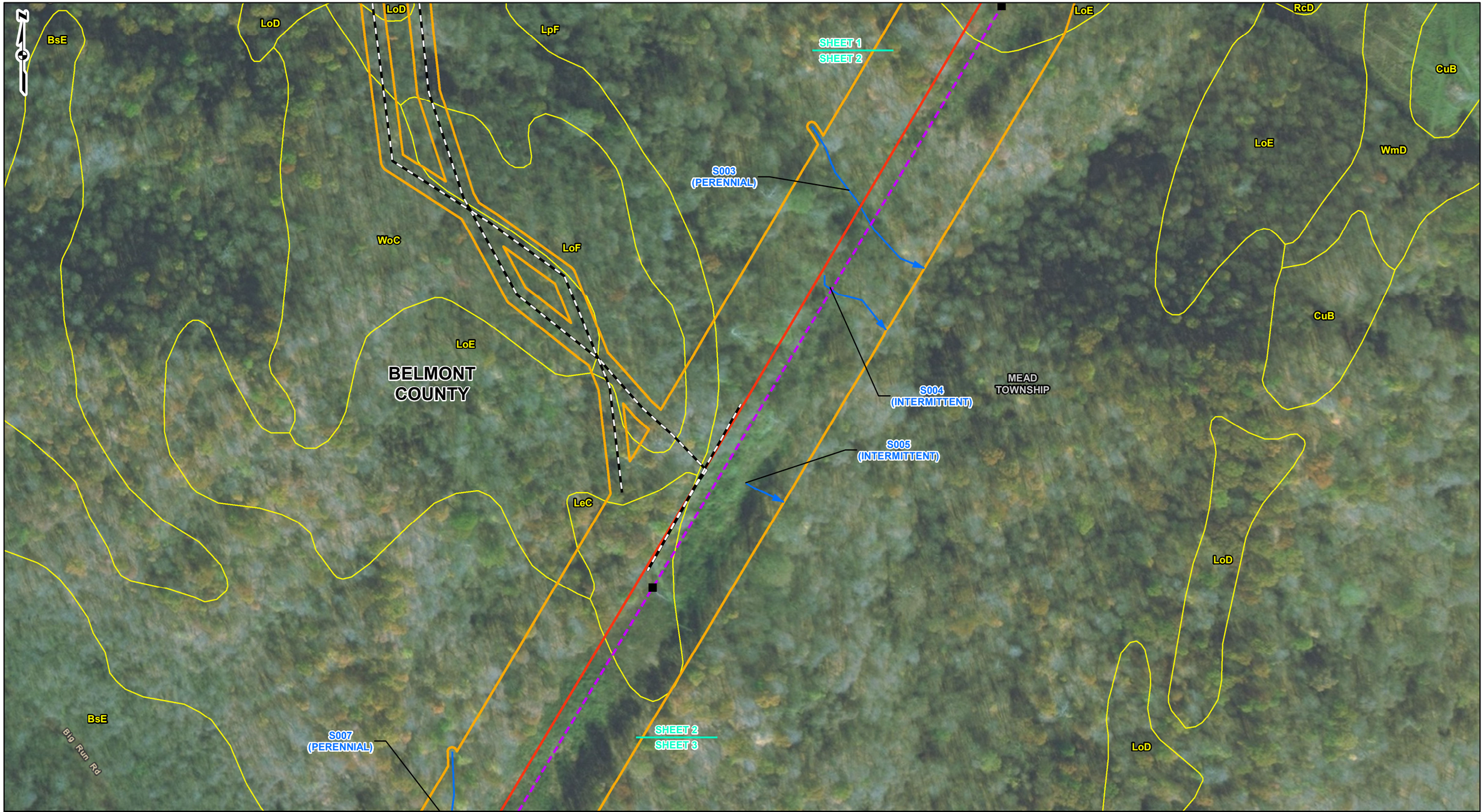

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- County Boundary

Wetland Type:

- PFO

0 100 200 400 Feet

FIGURE 2
RESOURCE LOCATION MAP
SHEET 2 OF 5

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DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

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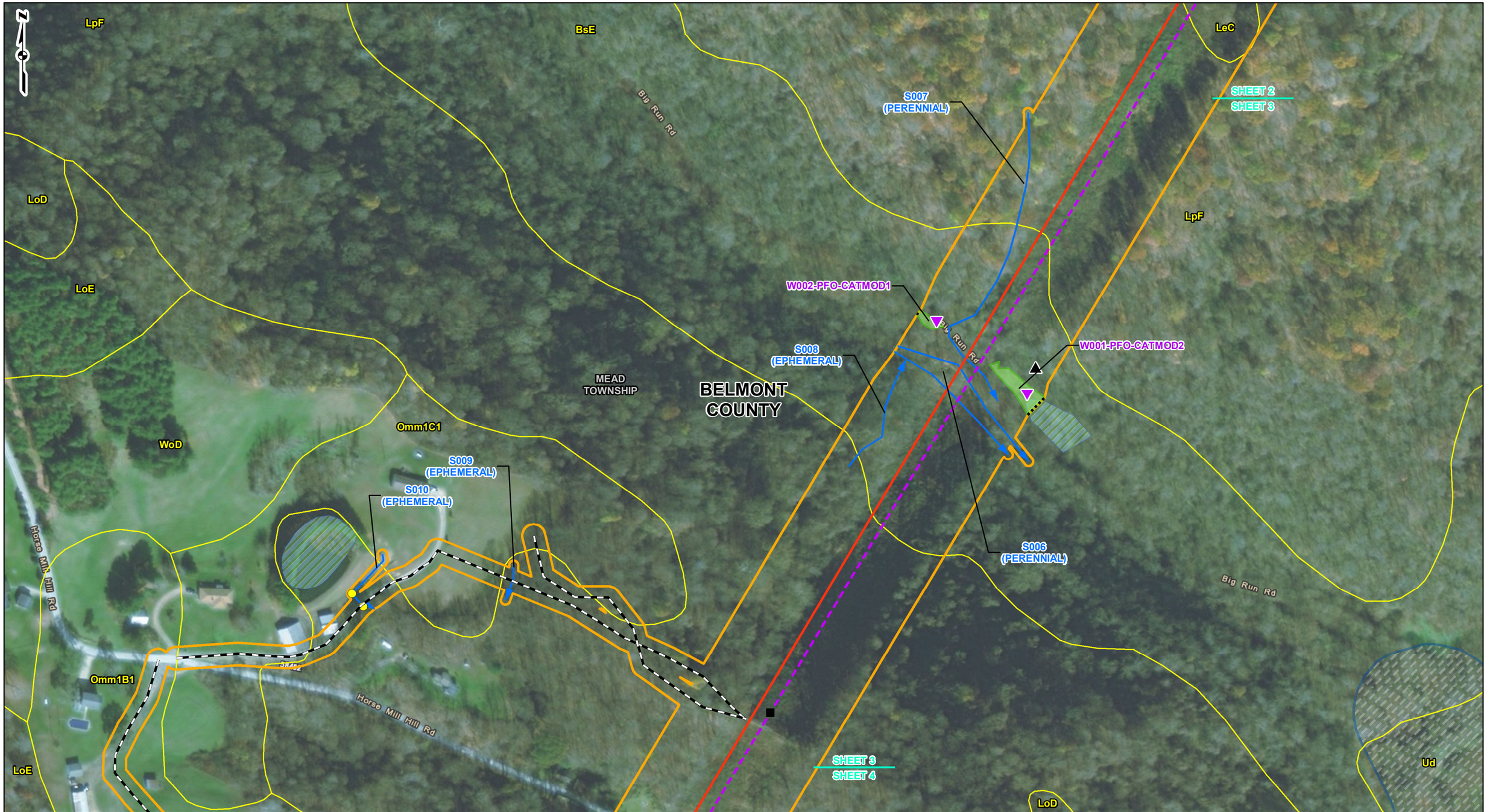

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LEGEND

- Proposed Structure
- Culvert
- Upland Data Point
- Wetland Data Point
- Soil Test Pit
- Proposed Transmission Line
- Existing Transmission Line
- Access Road
- Stream
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- 100-Year Floodplain
- FEMA Floodway
- Township Boundary
- County Boundary

Wetland Type:

- PFO

0 100 200 400 Feet

FIGURE 2
RESOURCE LOCATION MAP
SHEET 3 OF 5

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DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

AMERICAN ELECTRIC POWER
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LEGEND

- Proposed Structure
- Culvert
- Upland Data Point
- Wetland Data Point
- Soil Test Pit
- Proposed Transmission Line
- Existing Transmission Line
- Access Road
- Stream
- Open-Ended Boundary
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- 100-Year Floodplain
- FEMA Floodway
- Township Boundary
- County Boundary
- **Wetland Type:**
- PFO

0 100 200 400 Feet

FIGURE 2
RESOURCE LOCATION MAP
SHEET 4 OF 5

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DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

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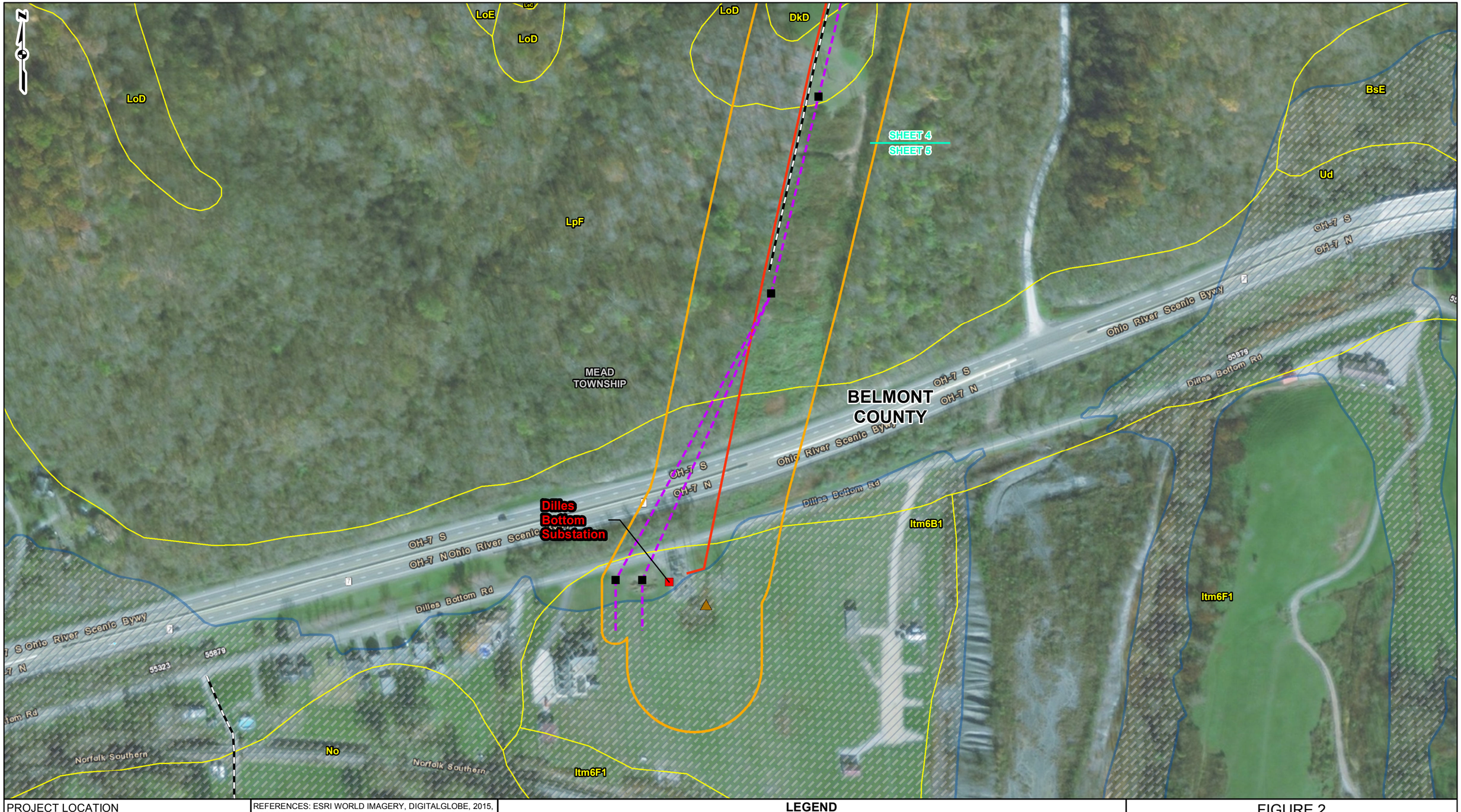

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LEGEND

- Proposed Structure
- Substation
- Culvert
- Upland Data Point
- Wetland Data Point
- Soil Test Pit
- Proposed Transmission Line
- Existing Transmission Line
- Access Road
- Stream
- Open-Ended Boundary
- Study Area
- Soil Type Boundary
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- 100-Year Floodplain
- FEMA Floodway
- Township Boundary
- County Boundary

Wetland Type:

- PFO

0 100 200 400 Feet

FIGURE 2
RESOURCE LOCATION MAP
SHEET 5 OF 5

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DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

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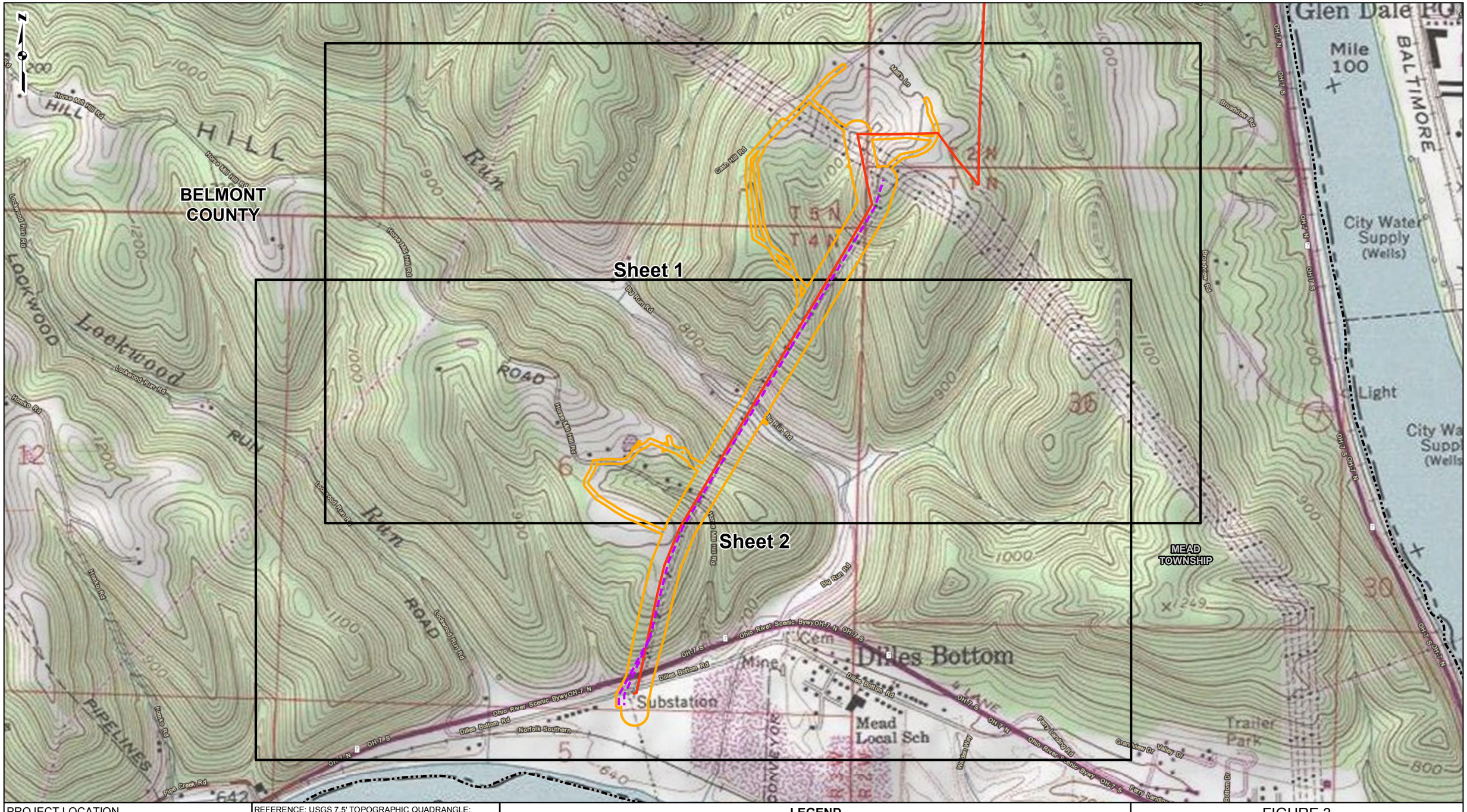

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LEGEND

- Proposed Transmission Line
- Existing Transmission Line
- Study Area
- Township Boundary
- County Boundary

0 500 1,000 2,000 Feet

FIGURE 3
STREAM ELIGIBILITY MAP
SHEET INDEX

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DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

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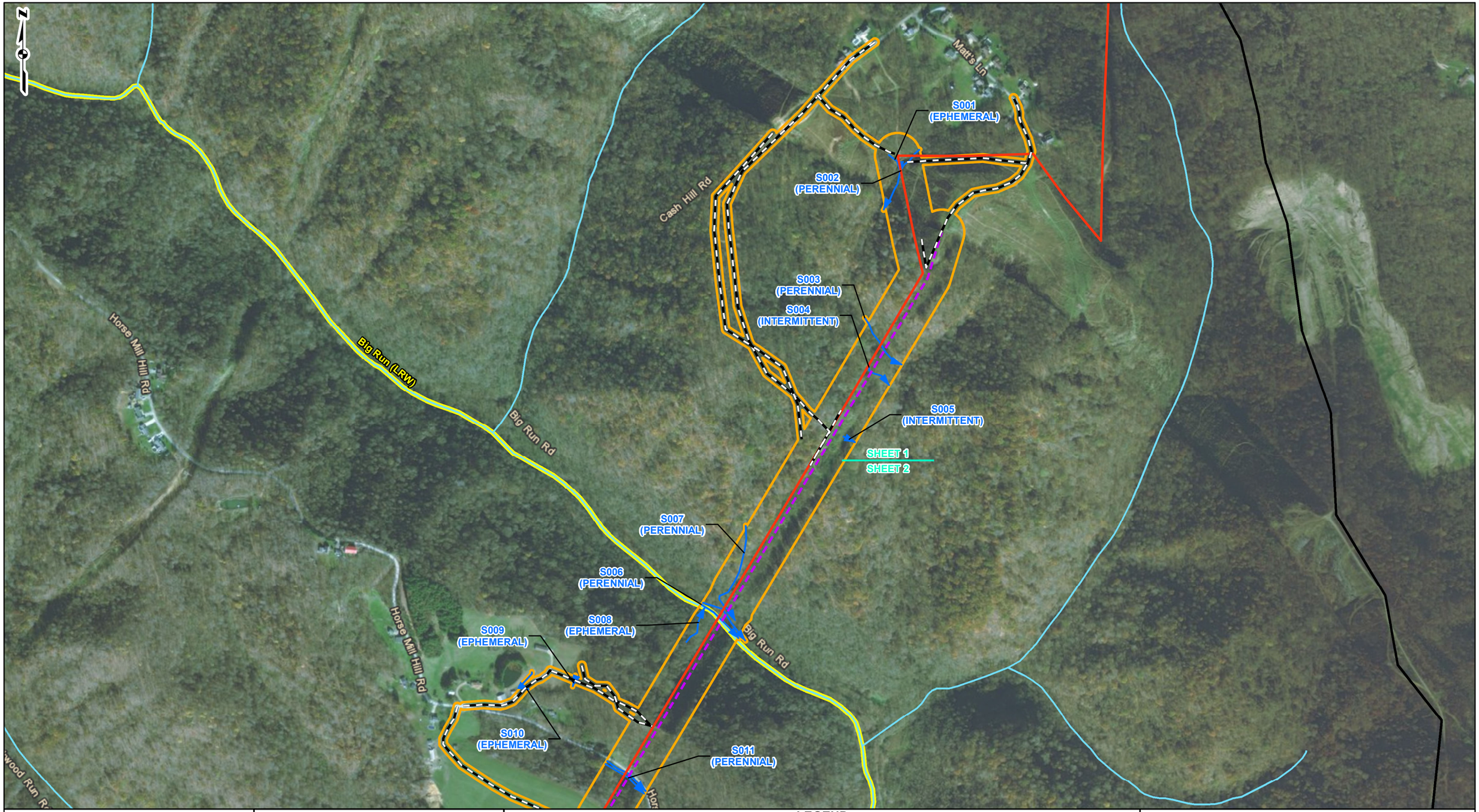

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LEGEND

- Proposed Transmission Line
- Existing Transmission Line
- Access Road
- Stream
- NHD Stream
- OH WQS Stream
- Study Area

OEPA Stream Eligibility:

- Ineligible
- Possibly Eligible
- Eligible

0 300 600 1,200 Feet

FIGURE 3
STREAM ELIGIBILITY MAP
SHEET 1 OF 2

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DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

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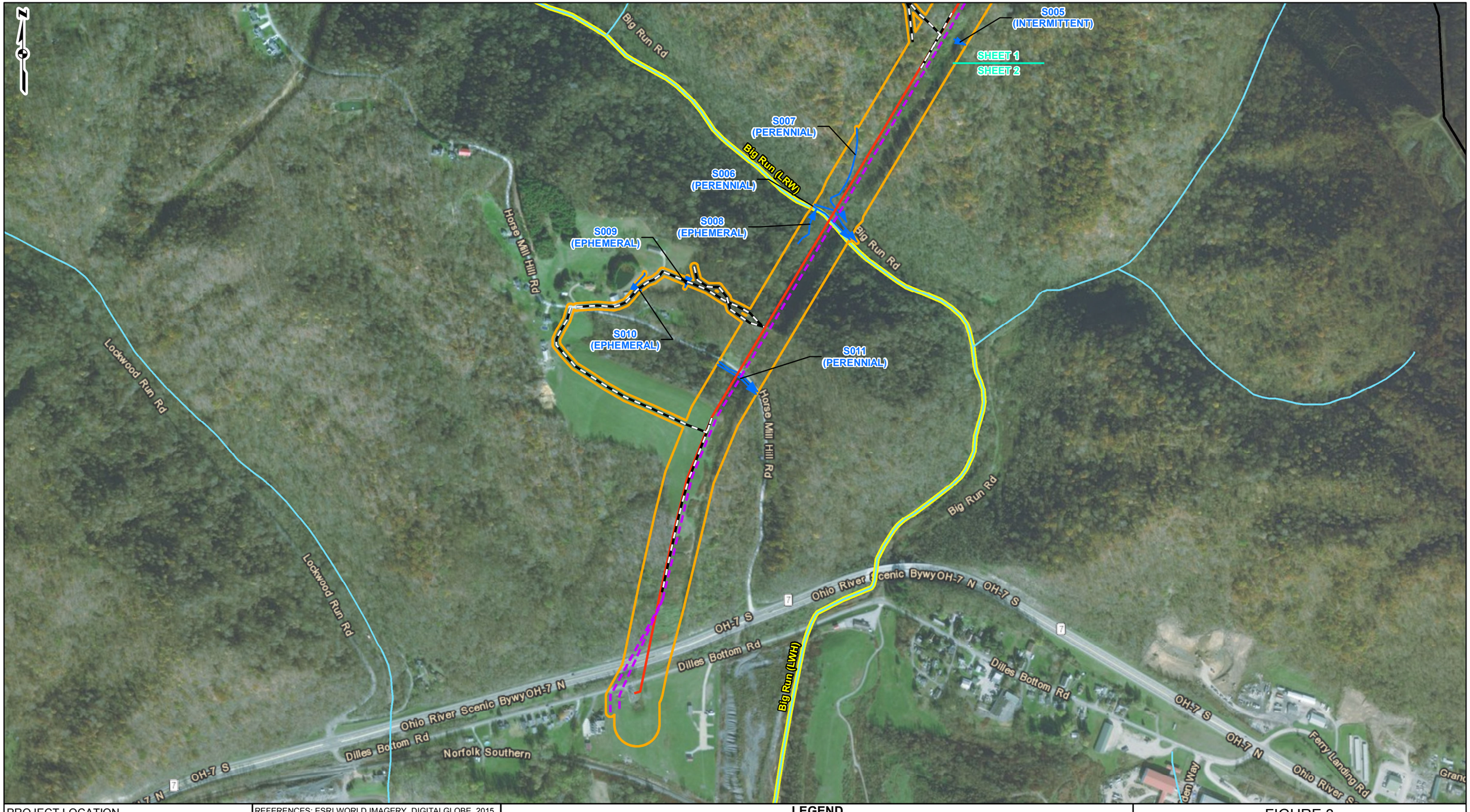

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LEGEND

- Proposed Transmission Line
- Existing Transmission Line
- Access Road
- Stream
- NHD Stream
- OH WQS Stream
- Study Area

OEPA Stream Eligibility:

- Ineligible
- Possibly Eligible
- Eligible

0 300 600 1,200 Feet

FIGURE 3
STREAM ELIGIBILITY MAP
SHEET 2 OF 2

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DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

AMERICAN ELECTRIC POWER

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APPENDIX A
Photographs

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Photograph 1. Wetland W001-PFO-CATMOD2, Facing South

Photograph 2. Wetland W001-PFO-CATMOD2, Facing West

Photograph 3. Wetland W002-PFO-CATMOD2, Facing North

Photograph 4. Wetland W002-PFO-CATMOD2, Facing East

Photograph 5. Stream S001, Upstream, Facing East

Photograph 6. Stream S001, Downstream, Facing West

Photograph 7. Stream S002, Upstream, Facing North

Photograph 8. Stream S002, Downstream, Facing South

Photograph 9. Stream S003, Upstream, Facing West

Photograph 10. Stream S003, Downstream, Facing East

Photograph 11. Stream S004, Upstream, Facing West

Photograph 12. Stream S004, Downstream, Facing East

Photograph 13. Stream S005, Upstream, Facing West

Photograph 14. Stream S005, Downstream, Facing East

Photograph 15. Stream S006 (Big Run), Upstream, Facing Northwest

Photograph 16. Stream S006 (Big Run), Downstream, Facing Southeast

Photograph 17. Stream S007, Upstream, Facing Northeast

Photograph 18. Stream S007, Downstream, Facing Southwest

Photograph 19. Stream S008, Upstream, Facing West

Photograph 20. Stream S008, Downstream, Facing East

Photograph 21. Stream S009, Upstream, Facing North

Photograph 22. Stream S009, Downstream, Facing South

Photograph 23. Stream S010, Upstream, Facing Northwest

Photograph 24. Stream S010, Downstream, Facing Southeast

Photograph 25. Stream S011, Upstream, Facing West

Photograph 26. Stream S011, Downstream, Facing East

Photograph 27. Representative upland habitat, Facing East

Photograph 28. Representative upland habitat, Facing Southwest

Photograph 29. Representative upland habitat, Facing North

Photograph 30. Representative upland habitat, Facing South

APPENDIX B
Wetland Determination Data Forms

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transforming ideas into reality

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Dilles Bottom 138 kV City/County: Mead Twp / Belmont Co Sampling Date: 2/6/19

Applicant/Owner: AEP State: OH Sampling Point: W001(PFO)

Investigator(s): RFZ Section, Township, Range: NO PLSS

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): NONE Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.930205 Long: -80.784346 Datum: NAD83

Soil Map Unit Name: Brookside silty clay loam 25-40% slopes NWI classification: PEMIC

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:

Taken along floodplain of Big Run

PFO data point for W001-PFO-CATMOD2

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (Inches): ____
Water Table Present?	Yes ____	No X	Depth (Inches): ____
Saturation Present? (Includes capillary fringe)	Yes ____	No X	Depth (Inches): ____

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Wetland hydrology indicators are B2, B9, C3, D2 & D5

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WD01 (PF01)

Tree Stratum (Plot size: 30' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	45	Y	FAC
2. Populus deltoides	15	N	FAC
3. Ulmus americana	30	Y	FACW
4. Platanus occidentalis	5	N	FACW
5.			
6.			
7.			
	95 = Total Cover		
50% of total cover: 48	20% of total cover: 19		

Sapling/Shrub Stratum (Plot size: 15x15')			
1. Acer negundo	30	Y	FAC
2. Ulmus americana	10	N	FACW
3. Polygonum cuspidatum	20	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		

Herb Stratum (Plot size: 5' x 5')			
1. Lysimachia nummularia	70	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover:	20% of total cover:		

Woody Vine Stratum (Plot size: 30x30')			
1. Absent			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, 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 vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

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

Wetland vegetation is dominant - passes dominance test

SOIL Sampling Point: WOOL (PFO)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/2	90	10YR4/6	10	C	M	Loamy clay	
4-16	10YR4/2	60	10YR4/6	40	C	M/PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (Inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Soils meet F3 - depleted matrix

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Dilles Bottom 138 Kv City/County: Mead Twp / Belmont Co. Sampling Date: 2/6/18
Applicant/Owner: AEP State: OH Sampling Point: W002 (PFO)
Investigator(s): REZ Section, Township, Range: NO PLSS
Landform (hillslope, terrace, etc.): Dip - Floodplain Local relief (concave, convex, none): Concave Slope (%): 2%0
Subregion (LRR or MLRA): LRRN Lat: 39.930653 Long: -80.785040 Datum: NAD 83
Soil Map Unit Name: Brookside silty clay loam 25-40% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Concave area of forest floodplain. About 5007
PFO data point for W002-PFO-CATW002

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (Includes capillary fringe)	Yes X	No ____	Depth (inches): 5"

Wetland Hydrology Present? Yes X No ____

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

Remarks:
Wetland hydrology indicators are A3, B9, C3, B16, D2 & D5

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WOO2 (PFO)

Tree Stratum (Plot size: 30' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Platnus occidentalis	70	Y	FACW
2. Acer negundo	10	N	FAC
3. Ulmus americana	10	N	FACW
4.			
5.			
6.			
7.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		

Sapling/Shrub Stratum (Plot size: 15' x 15')			
1. Polygonum cuspidatum	30	Y	FACU
2. Acer negundo	5	N	FAC
3. Platnus occidentalis	15	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		

Herb Stratum (Plot size: 5' x 5')			
1. Eysimarchia nummularia	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
50% of total cover:	20% of total cover:		

Woody Vine Stratum (Plot size: 30 x 30')			
1. Absent			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, 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 vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

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

Wetland vegetation is dominant - passes dominance test

SOIL Sampling Point: W002(PFO)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR4/1.2	90	10YR4/6	80	C	M	Clay Loam	
			5YR4/6	20	C	M/PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (Inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Meets F3 - Depleted matrix

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Dilles Bottom 138 KV City/County: Mead Twp/Belmont Sampling Date: 2/16/18

Applicant/Owner: AEP State: OH Sampling Point: W001&W002 -

Investigator(s): REE Section, Township, Range: NO PLSS UPL

Landform (hillslope, terrace, etc.): Base of Hill Local relief (concave, convex, none): Flat Slope (%): 0%

Subregion (LRR or MLRA): LRR N Lat: 39.930369 Long: -80.784276 Datum: NAD83

Soil Map Unit Name: Brookside Silty clay loam NWI classification: None

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

Upland representative for W001-PFO-CAT.MOD2 & W002-PFO-CAT.MOD2

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (Inches): ____
Water Table Present?	Yes ____	No X	Depth (Inches): ____
Saturation Present? (Includes capillary fringe)	Yes ____	No X	Depth (Inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No primary or secondary wetland hydrology indicators observed.

W001

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 4WX002-UP

Tree Stratum (Plot size: 30x30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Gleditsia triacanthos	60	Y	FAC
2. Celtis occidentalis	20	Y	FACU
3. Ulmus rubra	10	N	FAC
4.			
5.			
6.			
7.			
	90	= Total Cover	
50% of total cover: 45	20% of total cover: 18		

Sapling/Shrub Stratum (Plot size: 15x15)			
1. Gleditsia triacanthos	30	Y	FAC
2. Celtis occidentalis	35	Y	FACU
3. Rosa multiflora	20	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	85	= Total Cover	
50% of total cover: 43	20% of total cover: 17		

Herb Stratum (Plot size: 5x5')			
1. Alliaria petiolata	15	Y	FACU
2. Verbesina alternifolia	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
50% of total cover: 10	20% of total cover: 5		

Woody Vine Stratum (Plot size: 30x30')			
1. Vitis Sp.*	15		
2.			
3.			
4.			
5.			
	15	= Total Cover	
50% of total cover:	20% of 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	–	x 1 =	–
FACW species	–	x 2 =	–
FAC species	105	x 3 =	315
FACU species	90	x 4 =	360
UPL species	–	x 5 =	–
Column Totals:	195 (A)		675 (B)

Prevalence Index = B/A = 3.46

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, 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 vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

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

*Could not identify to species. Therefore not included in dominance test or prevalence index.

Vegetation does not pass dominance test or prevalence index.

SOIL

Sampling Point: W0001 & W0002-UPL

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock

Depth (Inches): 10+

Hydric Soil Present? Yes ____ No X

Remarks:

Non hydric soils

APPENDIX C
Primary Headwater Habitat Evaluation (HHEI) Data Forms

gai consultants
transforming ideas into reality

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 32

SITE NAME/LOCATION Piles Bottom 138kV

S001 SITE NUMBER _____ RIVER BASIN Ohio DRAINAGE AREA (mi²) < 0.1m²

LENGTH OF STREAM REACH (ft) 200' LAT. 39.938461 LONG. -80.780559 RIVER CODE _____ RIVER MILE _____

DATE 2/5/18 SCORER ZEZ COMMENTS SOH-ZEZ-001

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	60
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]		☐	CLAY or HARDPAN [0 pt]	
☐	GRAVEL (2-64 mm) [9 pts]	10	☐	MUCK [0 pts]	
☒	SAND (<2 mm) [6 pts]	30	☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

(A) 9 (B) 3

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

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 42" **MAXIMUM POOL DEPTH (centimeters):** 1.25

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 5' 4' 4' = 4.3' **AVERAGE BANKFULL WIDTH (meters)** 1.31

HHEI Metric Points

Substrate Max = 40: 12

A + B

Pool Depth Max = 30: 5

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☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (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)

October 24, 2002 Revision

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: Big Run Distance from Evaluated Stream 1.25 mi

☐ 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: Bussinessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont Co. Township / City: Mead Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 2/4/18 Quantity: 0.05"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

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)

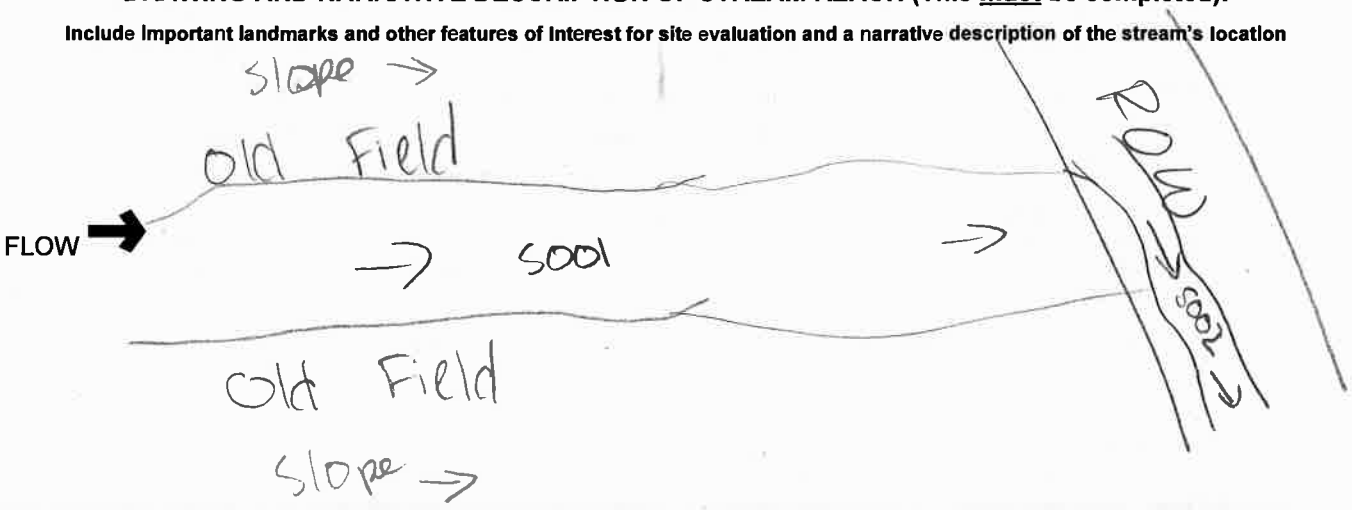
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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



Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 53

SITE NAME/LOCATION Dilles Bottom 138 KV

SO02 SITE NUMBER _____ RIVER BASIN Ohio DRAINAGE AREA (mi²) 0.06 mi²

LENGTH OF STREAM REACH (ft) 200' LAT. 39.938171 LONG. -80.780520 RIVER CODE _____ RIVER MILE _____

DATE 2/5/18 SCORER REZ COMMENTS SOH-REZ-002

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	50
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]	10	☐	CLAY or HARDPAN [0 pt]	
☐	GRAVEL (2-64 mm) [9 pts]	10	☐	MUCK [0 pts]	
☒	SAND (<2 mm) [6 pts]	30	☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10 (A) 9 (B) 4

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

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 (centimeters):** 17.5

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

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

COMMENTS 4' 6' 5' = 5' **AVERAGE BANKFULL WIDTH (meters)** 1.5

HHEI Metric Points

Substrate Max = 40	13
A + B	
Pool Depth Max = 30	25
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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☒	☒	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☒	☒	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

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

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

COMMENTS _____

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)

October 24, 2002 Revision

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: Big Run Distance from Evaluated Stream 1.1 mi

☐ 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: Businessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont Co. Township / City: Mead Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 2/4/18 Quantity: 0.06"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

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)

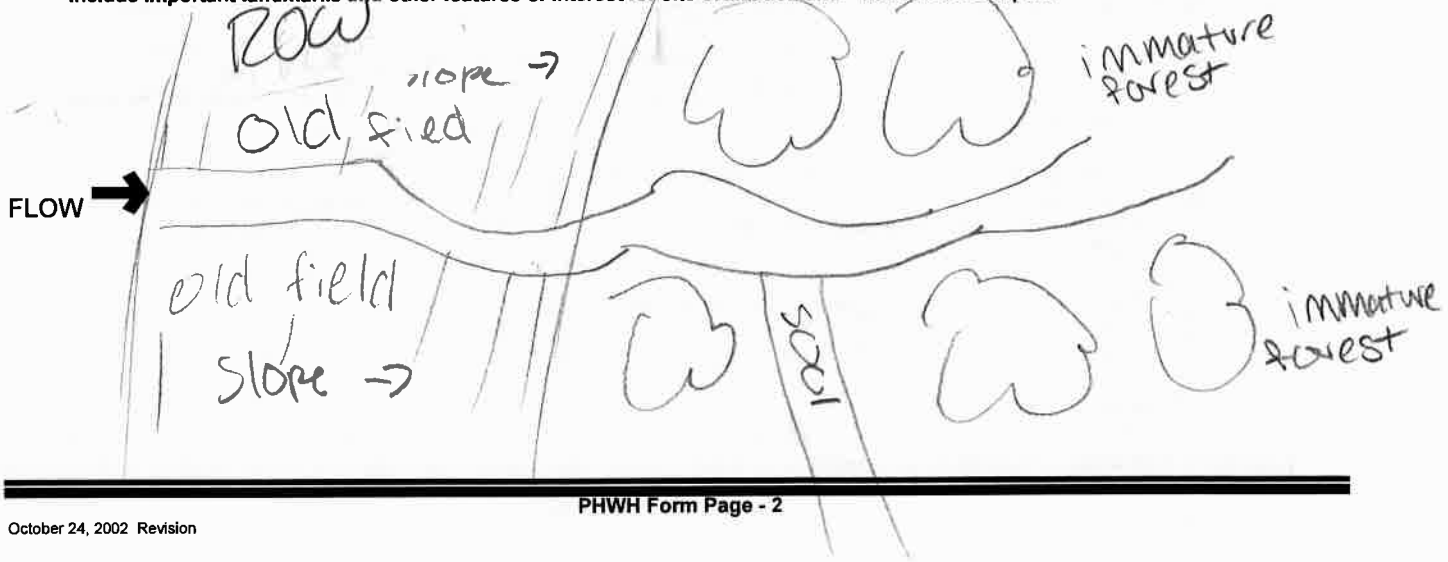
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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



OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 61

SITE NAME/LOCATION Dills Bottom 138 kV

SDO3 SITE NUMBER _____ RIVER BASIN Ohio DRAINAGE AREA (mi²) 0.16 mi²

LENGTH OF STREAM REACH (ft) 200' LAT. 39.935130 LONG. -80.781017 RIVER CODE _____ RIVER MILE _____

DATE 7/5/18 SCORER REZ COMMENTS SOH-REZ-003

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	25
☐	BOULDER (>256 mm) [16 pts]	20	☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]	15	☐	CLAY or HARDPAN [0 pt]	
☒	GRAVEL (2-64 mm) [9 pts]	90	☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 35

(A) 12 **SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:**

(B) 4 **TOTAL NUMBER OF SUBSTRATE TYPES:**

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

15

COMMENTS (0" **MAXIMUM POOL DEPTH (centimeters):**

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

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

25

COMMENTS 9' 8' 8.5' = 8.5' **AVERAGE BANKFULL WIDTH (meters)**

HHEI Metric Points

	Max	Score
Substrate	40	16
A + B		
Pool Depth	30	25
Bankfull Width	30	20

This information must also be completed

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

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (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
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

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

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☒ 2.5
- ☐ 3.0
- ☐ >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)

October 24, 2002 Revision

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: Big Run Distance from Evaluated Stream 1mi

☐ 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: Bussinessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont Co. Township / City: Mead Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 2/4/18 Quantity: 0.05"

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)

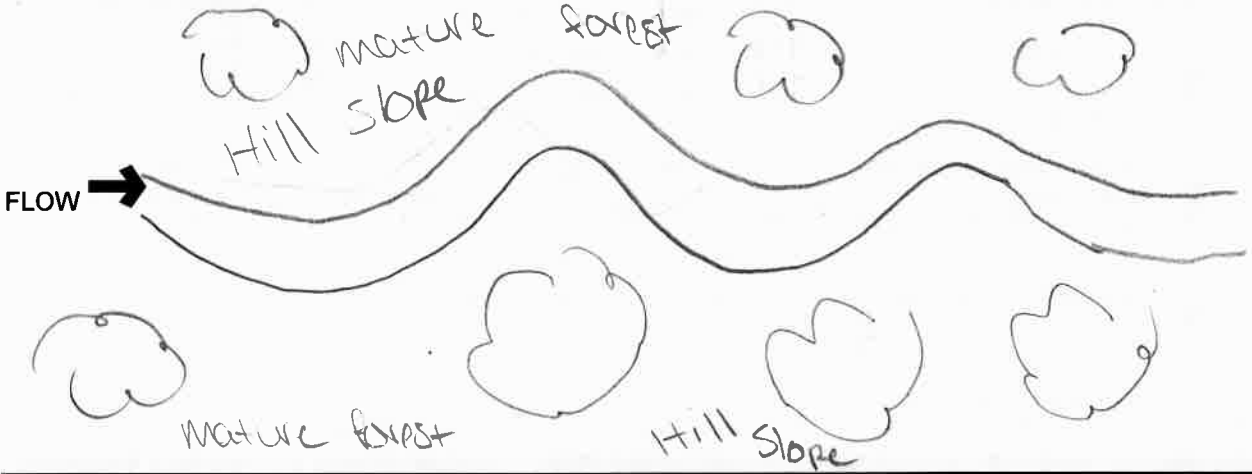
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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



Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 36

SITE NAME/LOCATION Dilles Bottom 138 KV

SO04 SITE NUMBER _____ RIVER BASIN Ohio DRAINAGE AREA (mi²) <0.1mi²

LENGTH OF STREAM REACH (ft) 200' LAT. 39.934586 LONG. -80.781076 RIVER CODE _____ RIVER MILE _____

DATE 2/5/18 SCORER RTZ COMMENTS SOH-RTZ-004

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	15
☐	BOULDER (>256 mm) [16 pts]		☒	LEAF PACK/WOODY DEBRIS [3 pts]	70
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]	5	☐	CLAY or HARDPAN [0 pt]	
☐	GRAVEL (2-64 mm) [9 pts]	5	☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]	5	☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5 (A) 10 (B) 5

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

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]

2.5

COMMENTS 1" **MAXIMUM POOL DEPTH (centimeters):**

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]		

1.5

COMMENTS 5' 4.5' 5.5' = 5 **AVERAGE BANKFULL WIDTH (meters)**

HHEI Metric Points

Substrate Max = 40 11

A + B

Pool Depth Max = 30 5

Bankfull Width Max=30 20

This information must also be completed

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

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

COMMENTS _____

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

☒	Stream Flowing	☐	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: Big Run Distance from Evaluated Stream 1 mi.

☐ 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: Businessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont Co. Township / City: Mead Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 2/4/18 Quantity: 0.05"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

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

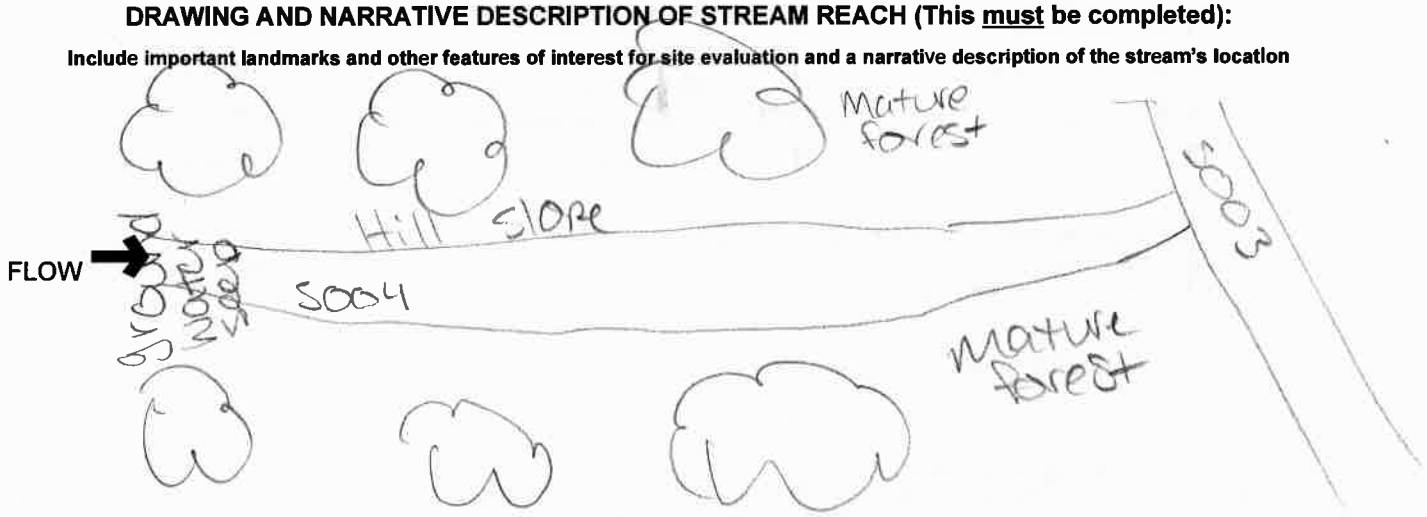
Comments Regarding Biology: _____

_____

_____

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



OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 13

SITE NAME/LOCATION Dills Bottom 138 KV

SOO5 SITE NUMBER _____ RIVER BASIN Ohio DRAINAGE AREA (mi²) 20.1 mi²

LENGTH OF STREAM REACH (ft) 200' LAT. 39.933426 LONG. -80.781815 RIVER CODE _____ RIVER MILE _____

DATE 2/5/18 SCORER REZ COMMENTS SOH-REZ-005

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☐	SILT [3 pt]	10
☐	BOULDER (>256 mm) [16 pts]		☒	LEAF PACK/WOODY DEBRIS [3 pts]	90
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]		☐	CLAY or HARDPAN [0 pt]	
☐	GRAVEL (2-64 mm) [9 pts]		☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 6 (B) 2

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

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 (centimeters):** 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 (> 9' 7" - 4' 8") [20 pts]		

COMMENTS 2' 1.5' 2.25 - 1.91' **AVERAGE BANKFULL WIDTH (meters)** 1.6

HHEI Metric Points

Substrate Max = 40: 8

A + B

Pool Depth Max = 30: 0

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS _____

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: Big Run Distance from Evaluated Stream 1 mi

☐ 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: Businessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont Co. Township / City: Mead Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 2/4/18 Quantity: 0.05"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

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) ____

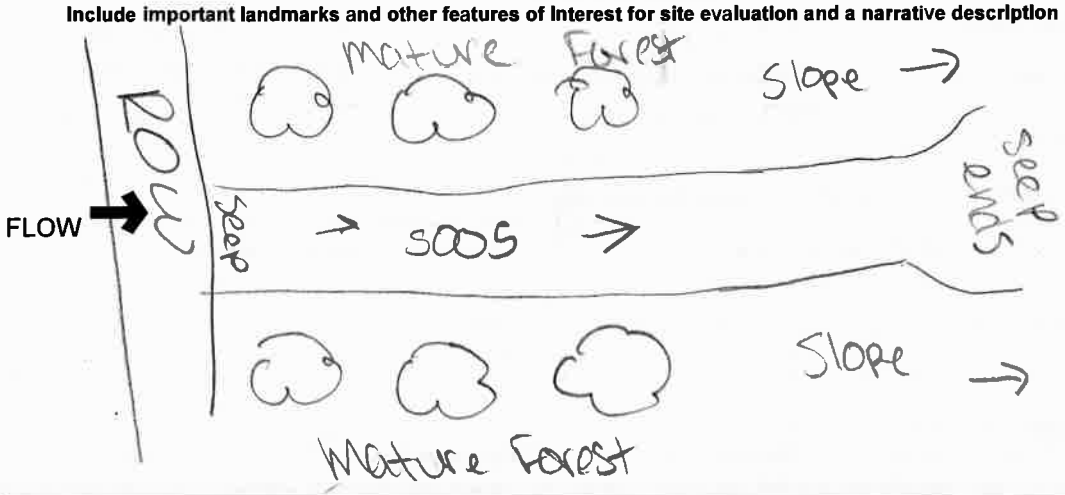
Comments Regarding Biology: _____

_____

_____

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



OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 46

SITE NAME/LOCATION Dills Bottom 138 kV

S007 SITE NUMBER _____ RIVER BASIN Ohio DRAINAGE AREA (mi²) <0.1 mi²

LENGTH OF STREAM REACH (ft) 200' LAT. 39.930886 LONG. -80.784575 RIVER CODE _____ RIVER MILE _____

DATE 2/6/18 SCORER RLE COMMENTS SOH - RLE - 007

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	55
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]	5	☐	CLAY or HARDPAN [0 pt]	
☒	GRAVEL (2-64 mm) [9 pts]	30	☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5 (A) 12 (B) 4

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

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 3" MAXIMUM POOL DEPTH (centimeters): 7.5

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

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

COMMENTS 3' 4' 5' = 4' AVERAGE BANKFULL WIDTH (meters): 1.2

HHEI Metric Points

Substrate Max = 40: 16

A + B

Pool Depth Max = 30: 15

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 L	R	(Per Bank)	FLOODPLAIN QUALITY 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)

October 24, 2002 Revision

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: Big Run Distance from Evaluated Stream 100'

☐ 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: Bussinessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont Co. Township / City: Mead Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 2/4/18 Quantity: 0.05"

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)

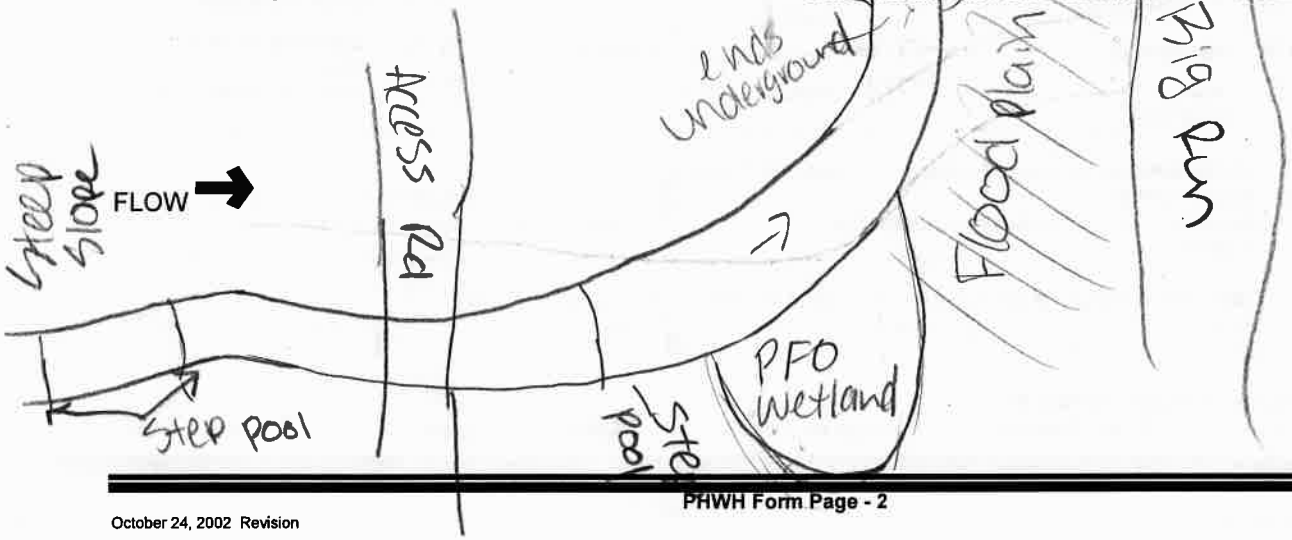
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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



Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 21

SITE NAME/LOCATION Dills Bottom 138 kV

S008 SITE NUMBER _____ RIVER BASIN Ohio DRAINAGE AREA (mi²) < 0.1 mi²

LENGTH OF STREAM REACH (ft) 200' LAT. 39.930063 LONG. -80.785470 RIVER CODE _____ RIVER MILE _____

DATE 2/6/18 SCORER REZ COMMENTS SOH-REZ-008

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

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

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

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 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]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30 0

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

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

COMMENTS 2', 1', 1.5' - 1.5' **AVERAGE BANKFULL WIDTH (meters)** .5

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 L	R	(Per Bank)	FLOODPLAIN QUALITY 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
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☒ Dry channel, no water (Ephemeral)

COMMENTS _____

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

- ☒ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >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)

October 24, 2002 Revision

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: Big Run Distance from Evaluated Stream 150'

☐ 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: Bussinessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont Co. Township / City: Mead Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 2/4/18 Quantity: .05"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 15%

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)

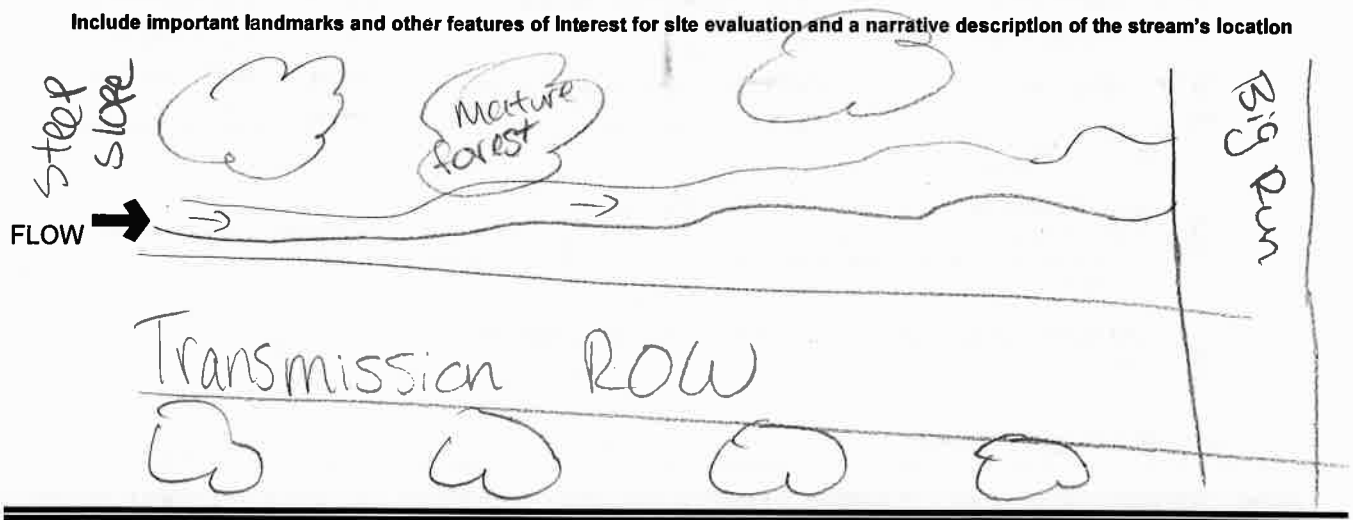
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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



Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 21

SITE NAME/LOCATION Dilles Bottom 138 kV

SDO9 SITE NUMBER _____ RIVER BASIN Ohio DRAINAGE AREA (mi²) <0.1mi²

LENGTH OF STREAM REACH (ft) 200' LAT. 39.929133 LONG. -80.788395 RIVER CODE _____ RIVER MILE _____

DATE 2/6/18 SCORER REZ COMMENTS SOH-REZ-609

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pts]	30
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	25
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]	5	☐	CLAY or HARDPAN [0 pt]	
☒	GRAVEL (2-64 mm) [9 pts]	40	☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5 (A) 12 (B) 4

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

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 (centimeters): –

Pool Depth Max = 30: 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 (> 9' 7" - 4' 8") [20 pts]		

COMMENTS 2' 1.5' 2' AVERAGE BANKFULL WIDTH (meters): .55

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS _____

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: Big Run Distance from Evaluated Stream 0.5mi

☐ 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: Bussinessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont CO Township / City: Mead Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 2/4/18 Quantity: 0.05"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 50

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)_____ 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)

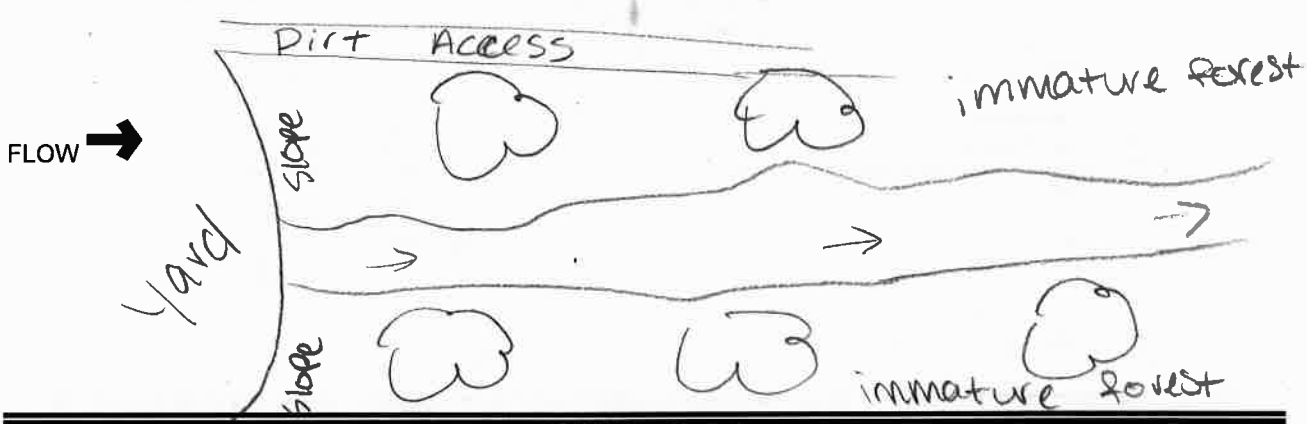
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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



Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 15

SITE NAME/LOCATION Dills Bottom 138 KV

SO10 SITE NUMBER _____ RIVER BASIN Ohio DRAINAGE AREA (mi²) <0.1 mi²

LENGTH OF STREAM REACH (ft) 200' LAT. 39.929133 LONG. -80.708586 RIVER CODE _____ RIVER MILE _____

DATE 2/6/18 SCORER RE7 COMMENTS SOH-RE7-010

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	60
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	20
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]		☐	CLAY or HARDPAN [0 pt]	10
☐	GRAVEL (2-64 mm) [9 pts]	10	☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 6

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: 10

A + B

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): –

Pool Depth Max = 30: 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 (> 9' 7" - 4' 8") [20 pts]		

COMMENTS 2' 2.5' 1.76' AVERAGE BANKFULL WIDTH (meters) .63

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 L	R (Per Bank)	FLOODPLAIN QUALITY 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 Begins w/in yard, flows under driveway & into immature forest

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: Big Run Distance from Evaluated Stream 0.5mi

☐ 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: Businessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont co. Township / City: Mead Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 2/4/18 Quantity: 0.05"

Photograph Information: _____

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)_____ 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)

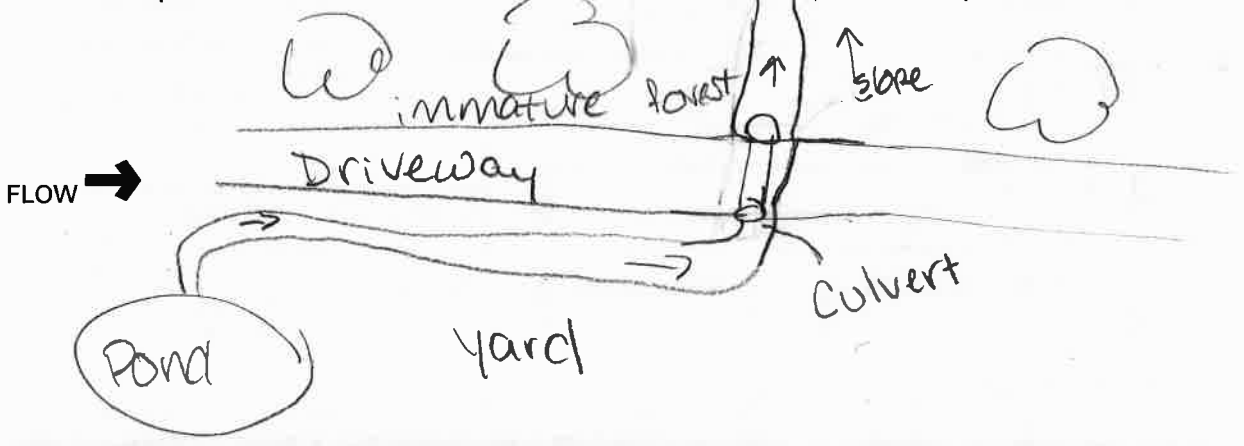
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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



Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 56

SITE NAME/LOCATION Dills Bottom 138 RV

SO11 SITE NUMBER _____ RIVER BASIN Ohio DRAINAGE AREA (mi²) 0.05mi²

LENGTH OF STREAM REACH (ft) 200' LAT. 39.9274446 LONG. -80.7871866 RIVER CODE _____ RIVER MILE _____

DATE 2/9/18 SCORER REZ COMMENTS SOH-REZ-011

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	30
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]	10	☐	CLAY or HARDPAN [0 pt]	
☒	GRAVEL (2-64 mm) [9 pts]	40	☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]	20	☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10 (A) 12 (B) 4

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

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 4" MAXIMUM POOL DEPTH (centimeters): 10

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 12' 9' 11' = 10.67' AVERAGE BANKFULL WIDTH (meters): 3.25

Bankfull Width Max=30: 25

This information must also be completed

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

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (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)

October 24, 2002 Revision

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: Big Run Distance from Evaluated Stream 0.5mi

☐ 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: Bussinessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont Co. Township / City: Mead Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 2/7/19 Quantity: 0.57"

Photograph Information: _____

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)

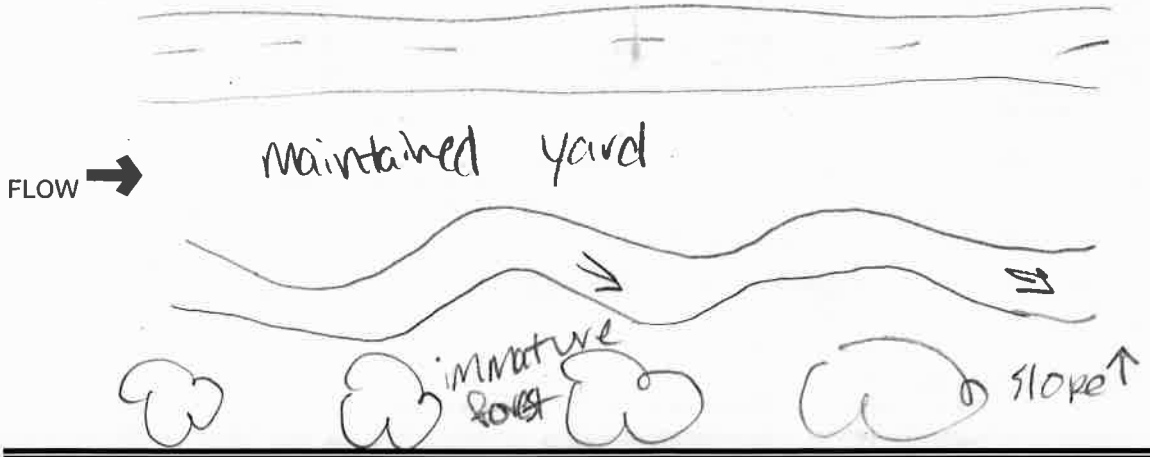
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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



APPENDIX D
Ohio Rapid Assessment Method for Wetlands (ORAM) Data Forms

gai consultants
transforming ideas into reality

ORAM v. 5.0 Field Form Quantitative Rating

Site: Dills Bottom 138 kV	Rater(s): RET	Date: 2/6/18

W001-PFO-CATMOD2

Metric 1. Wetland Area (size).

max 6 pts. | subtotal: 1 | 1

Select one size class and assign score.

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

Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal: 9 | 10

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

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

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

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

Metric 3. Hydrology.

max 30 pts. | subtotal: 15 | 25

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [X] Precipitation (1) (6)
- [ ] Seasonal/Intermittent surface water (3)
- [X] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [X] 100 year floodplain (1)
- [X] Between stream/lake and other human use (1) (3)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [X] Part of riparian or upland corridor (1)

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

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

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

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal: 7 | 32

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

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

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

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

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

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

Check all disturbances observed

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

32
subtotal this page

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: Dilles Bottom 138 kV	Rater(s): DEZ	Date: 2/6/18

32 subtotal first page

WOO1-PFO-CATMOD2

Metric 5. Special Wetlands.

0 max 10 pts. | 32 subtotal

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)

Metric 6. Plant communities, interspersion, microtopography.

5 max 20 pts. | 37 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [1] Shrub
- [2] Forest
- [0] Mudflats
- [0] Open water
- [0] Other_____

4

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [X] Moderately low (2)
- [ ] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer 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 hummucks/tussucks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] 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

37 Cat Mod2

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM v. 5.0 Field Form Quantitative Rating

Site: Dills Bottom 138kV	Rater(s): RET	Date: 2/6/18

W002-PFO-CATMOD2

Metric 1. Wetland Area (size).

0 (max 6 pts.) | 0 (subtotal)

Select one size class and assign score.

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

Metric 2. Upland buffers and surrounding land use.

9 (max 14 pts.) | 9 (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)
- [X] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

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

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

Metric 3. Hydrology.

15 (max 30 pts.) | 24 (subtotal)

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [X] Precipitation (1) 6
- [ ] Seasonal/Intermittent surface water (3)
- [X] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [X] 100 year floodplain (1)
- [X] Between stream/lake and other human use (1) 3
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [X] Part of riparian or upland corridor (1)

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

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

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

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

7 (max 20 pts.) | 31 (subtotal)

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

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

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

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

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

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

Check all disturbances observed

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

31 subtotal this page

last revised 1 February 2001 jjm

Site: Dilles Bottom 138 kV	Rater(s): DEZ	Date: 2/6/18

31 subtotal first page

WOO2-PFO-CATMOD2

0 max 10 pts. | 31 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 max 20 pts. | 35 subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [1] Shrub
- [2] Forest
- [0] Mudflats
- [0] Open water
- [0] Other_____

4

6b. horizontal (plan view) Interspersion.
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)
- [ ] 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 hummucks/tussucks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

35 cat mod2

End of Quantitative Rating. Complete Categorization Worksheets.

APPENDIX E
ODNR and USFWS Correspondence

gai consultants
transforming ideas into reality

gai consultants

Canton Office
3720 Dressler Road Northwest
Canton, Ohio 44718

T 330.433.2680
F 330.433.2694

January 16, 2018

Project C170352.20

Environmental Review Staff
Ohio Department of Natural Resources
Division of Wildlife - Ohio Natural Heritage Program
2045 Morse Road, Building G-3
Columbus, Ohio 43229-6693

American Electric Power
Dilles Bottom 138kV Line Rebuild Project
Request for Technical Assistance Regarding Threatened and Endangered Species and Critical Habitat
Belmont County, Ohio

Dear Staff:

GAI Consultants, Inc. (GAI), on behalf of American Electric Power (AEP), is requesting information regarding state- and federally-listed threatened and endangered species in the vicinity of the Dilles Bottom 138kV Line Rebuild Project (Project) in Belmont County, Ohio. As part of this request, please provide information specific to any threatened and endangered bats. GAI is also requesting the locations of any known golden or bald eagle nests in the area.

The proposed Project involves the rebuild of approximately 1.3 miles of existing 69 kilovolt (kV) transmission line to 138kV transmission line.

The study area for the Project is shown on the attached map (Figure 1). The study area consists of maintained right-of-way bordered by mixed deciduous forest and agricultural lands. The study area also crosses several existing roadways. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

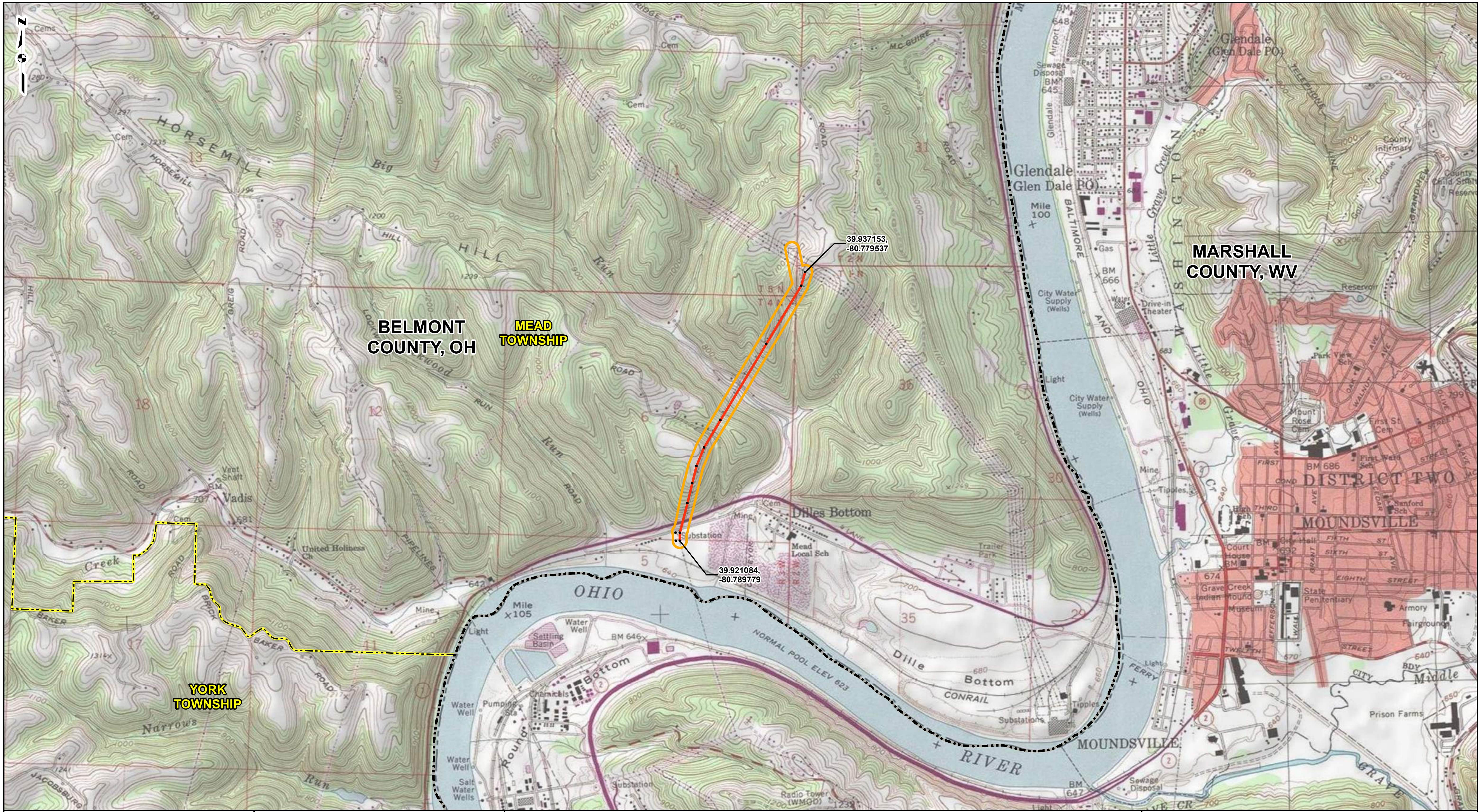
Allison R. Wheaton, WPIT
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)
Project Shapefiles

ATTACHMENT 1

PROJECT LOCATION MAP



PROJECT LOCATION

BELMONT COUNTY, OHIO

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: BUSINESSBURG (1978), OHIO AND MOUNDSVILLE (1977), WEST VIRGINIA, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 01/2018.

LEGEND

- PROPOSED STRUCTURE
- PROPOSED TRANSMISSION LINE
- STUDY AREA
- COUNTY BOUNDARY
- TOWNSHIP BOUNDARY

0 1,000 2,000 4,000 Feet

PROJECT LOCATION MAP

gai consultants

DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

DRAWN BY: JTH
DATE: 1/16/2018
CHECKED: EFJ
APPROVED: ARW

Z:\Energy\2017\C170352.20 - AEP - Dilles Bottom 138kV\GIS\MXD\Dilles_Bottom_138kV\Agency_Consultation\Project_Location_2018_01_16.mxd

From:	susan_zimmermann@fws.gov on behalf of Ohio, FW3
To:	Allison Wheaton
Cc:	nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject:	GAI C170352.20, AEP Dilles Bottom 138 kV Line Rebuild, Belmont Co.,
Date:	Wednesday, February 14, 2018 1:36:08 PM
Attachments:	Capture of Dan.PNG

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

TAILS# 03E15000-2018-TA-0548

Dear Ms. Wheaton,

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

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

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

Should the proposed site contain trees =3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees =3 inches dbh cannot be avoided, we recommend that removal of any trees =3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see http://www.fws.gov/midwest/endangered/mammals/nleb/index.html), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

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

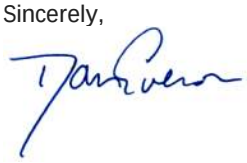
If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend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

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

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

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

Sincerely,



Dan Everson
Field Office Supervisor

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

gai consultants

Canton Office
3720 Dressler Road Northwest
Canton, Ohio 44718

T 330.433.2680
F 330.433.2694

January 16, 2018

Project C170352.20

Mr. Dan Everson
United States Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230

American Electric Power
Dilles Bottom 138kV Line Rebuild Project
Request for Technical Assistance Regarding Threatened and Endangered Species and Critical Habitat
Belmont County, Ohio

Dear Mr. Everson:

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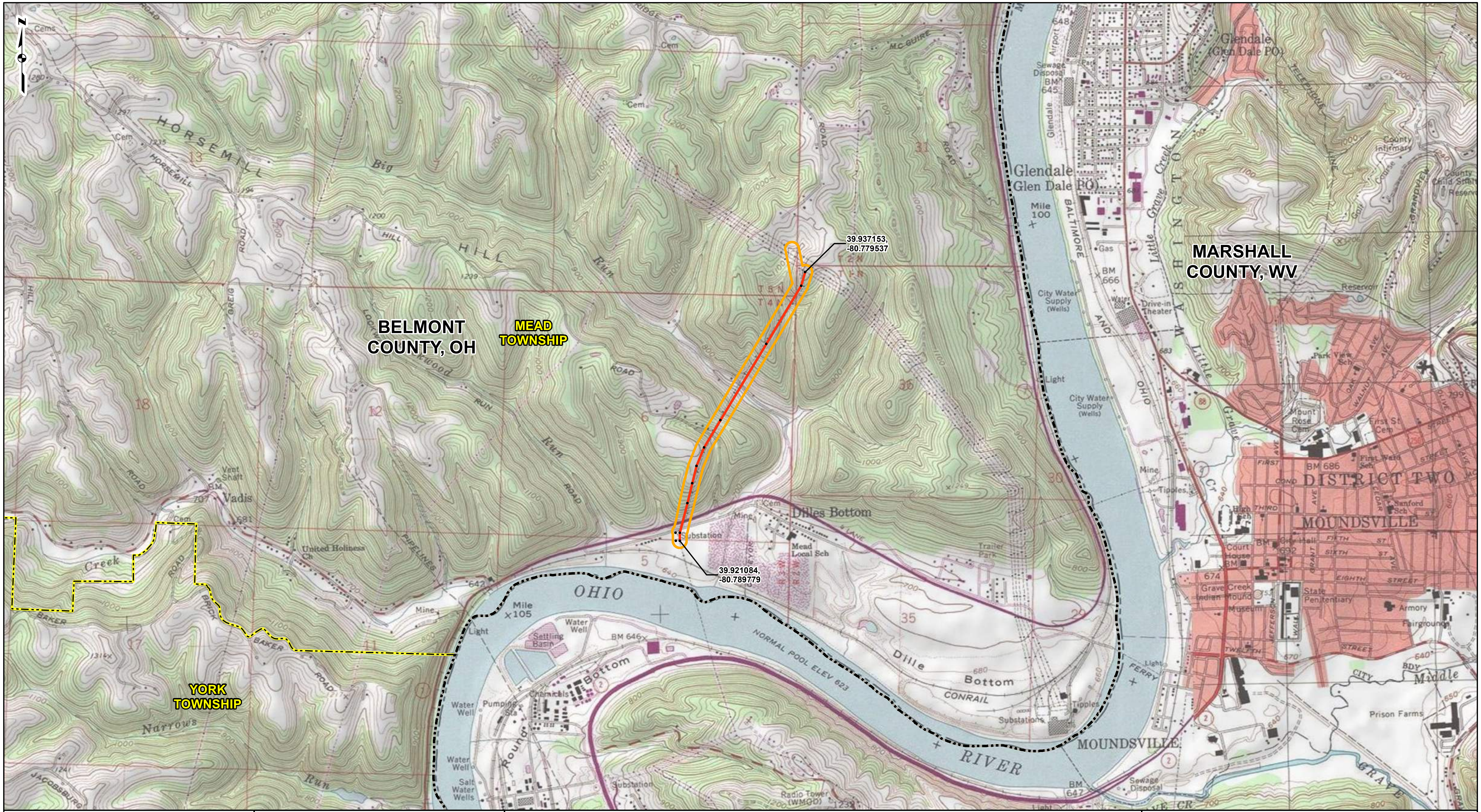

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0 1,000 2,000 4,000 Feet

PROJECT LOCATION MAP

DILLES BOTTOM
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

gai consultants

DRAWN BY: JTH
CHECKED: EFJ

DATE: 1/16/2018
APPROVED: ARW

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