AMERICAN TRANSMISSION SYSTEMS, INCORPORATED A FIRSTENERGY COMPANY

LETTER OF NOTIFICATION

KNOX-NOTTINGHAM 138 kV TRANSMISSION LINE REBUILD PROJECT KNOX-WASHINGTON SEGMENT

OPSB CASE NO.: 21-0667-EL-BLN

October 29, 2021

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

LETTER OF NOTIFICATION KNOX-NOTTINGHAM 138 kV TRANSMISSION LINE REBUILD PROJECT - KNOX-WASHINGTON SEGMENT

The following information is being provided in accordance with Ohio Administrative Code (OAC) Chapter 4906-6 for the application and review of Accelerated Certificate Applications. Based upon the requirements found in Appendix A to OAC Rule 4906-1-01, this Project qualifies for submittal to the Ohio Power Siting Board ("Board") as a Letter of Notification application.

4906-6-05: ACCELERATED APPLICATION REQUIREMENTS

4906-6-05(B)(1): Name

<u>Name of Project:</u> Knox-Nottingham 138 kV Transmission Line Rebuild Project – Knox-Washington Segment ("Project").

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

In this Project, American Transmission Systems, Incorporated ("ATSI"), a FirstEnergy company, proposes to rebuild the approximate 13.2 mile Knox to Washington segment of the approximately 44-mile Knox-Nottingham 138 kV Transmission Line ("Knox-Washington Segment" or "Project").

The Knox-Washington Segment extends from the Knox Substation in Columbiana County to the point of interconnection with Carroll Electric Cooperative located on the Knox-Nottingham 138 kV Transmission Line in Carroll County, Ohio. The Project will traverse West Township in Columbiana County, as well as Augusta and Washington Townships in Carroll County. The Project will be comprised of the following:

- 1. The Project will rebuild the existing wood pole H-frame structures, along the existing centerline, with a combination of steel structures on concrete foundations or direct embed steel structures.
- The existing conductor, 477 kcmil 24/7 ACSR, will be replaced with 795 kcmil 26/7 ACSR: ATSI's current standard for 138 kV transmission lines.

The general location of the Project is shown in Exhibit 1, a partial copy of the United States Geologic Survey, Carrollton, Homeworth, and Minerva Quad Maps. Exhibit 2 is a partial copy of Bing aerial imagery. A general layout of the project is shown in Exhibit 3.

In April 2021, representatives of ATSI met with technical and legal Staff of the Ohio Power Siting Board ("OPSB Staff") to discuss ATSI's 64-mile Holloway-Knox Project, which is divided into two sections: the 44-mile Knox-Nottingham and the 20-mile Holloway-Nottingham #1 and #2. The first sections is in turn divided into five discrete segments. As noted below in section 4906-6-05(B)(2), there were several logistical aspects of the rebuild project that contributed to a mutual-agreed understanding between ATSI and OPSB Staff that the Project would be presented for approval in phases corresponding with each segment. Due to restrictions on construction, outage schedules, and the need to minimize service disruptions, the improvements required to fix deteriorating facility conditions of such length cannot be completed in a single project and must be broken into segments. As such, there will be four segments in addition to this Project, as follows:

Washington to Polo Road (Kilgore) Segment Polo Road (Kilgore) to Buckeye Power (New Stacy) Segment Buckeye Power (New Stacy) to Nottingham Segment Holloway-Nottingham #1 and #2 Segment

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

The Project meets the requirements for a Letter of Notification because the Project is within the types of projects defined by Item (2)(b) of the Application Requirement Matrix for Electric Power Transmission Lines, Appendix A of OAC Rule 4906-1-01. This item states:

(2) Adding new circuits on existing structures designed for multiple circuit use, replacing conductors on existing structures with larger or bundled conductors,

adding structures to an existing transmission line, or replacing structures with a different type of structure, for a distance of:

(b) More than two miles.

The proposed Project is within the requirements of Item (2)(b) as it involves replacing structures and conductor for a distance greater than two miles.

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

ATSI needs to rebuild all 64 miles of the Holloway to Knox 138 kV Transmission Line due to uniformly-deteriorating facility conditions and the growing amount of maintenance required to maintain the line as-is. The primary benefit of the Project is to enhance system reliability through protection from unplanned outages, and to augment ATSI's operating flexibility as well as system resiliency by replacing deteriorating wood poles and by upgrading the existing conductor. Additionally, by increasing the conductor size, as discussed herein, these facilities support future load growth in the area for new and existing customers. Routine line inspections have shown a persistently-increasing number of active conditions that require repair, leading to an overall worsened line condition. The most recent transmission line inspection conducted by a third-party contractor in April 2020, found that 63 of 91 structures (approximately 70%) of the Knox-Washington Segment were defective and were rejected. Table 1 summarizes the results of that inspection.¹

Table 1– Pole Inspection Summary

Defect Type By Pole	Total Poles With Defect
Woodpecker Holes	51
Repaired Woodpecker Holes	6
Decay	4

¹ Similar structural problems are present along the entire Holloway-Knox 138 kV Transmission Line. However, the improvements required to fix these deteriorating facility conditions cannot be completed in a single project and must be broken into segments, designed to accommodate construction sequencing, outage schedules, and the need to minimize service disruptions.

Failed Sound Test	2

Wood poles are considered rejected when defects render a pole unsafe, unreliable, or non-compliant with current code, including the rejection of wood poles when the pole strength has been reduced to 2/3rd of the original design strength. This is in line with the National Electrical Safety Code ("NESC") Table 261-1, note 2, which states: "wood and reinforced structures shall be replaced or rehabilitated when deterioration reduces the structure strength to 2/3 of that required when installed..."

The primary reasons for structure rejection on this Project are woodpecker holes and decay. A major maintenance concern for all wood poles is damage caused by woodpeckers. The damage results in varying amounts of structural degradation depending where on the structure the damage takes place. The standard maintenance procedures include filling the holes and wrapping the pole in a metal mesh to prevent further damage; however, woodpeckers typically return to either a different location on the same pole or go to a different pole and the problem continues. If woodpecker damage occurs near a critical point on the structure such as the x-brace or crossarm attachment points, the pole must be replaced. Ultimately, woodpeckers may return to cause the same type of damage. The proposed upgrade to steel structures eliminates this maintenance problem.

As part of this Project, ATSI proposes to upgrade the conductor to its standard of 795 kcmil 26/7 ACSR, which will allow for future load growth and generator connections, if any occur, while adding sufficient margins to the transmission system. The new proposed conductors meet FirstEnergy's current standard. Upgrading to the current standard will improve reliability and performance.

Lastly, the shield wires will be replaced with one 7#8 Alumoweld shield wire and OPGW in the second position. Since 2016, it has been a FirstEnergy practice to include OPGW in one of the static wire positions for any transmission line rebuild project. This enables the modernization of grid protection and control communication between substations.

The need for the entire Holloway-Knox project was first presented at the August 31, 2018 Subregional Regional Transmission Expansion Plan (SRRTEP) Committee Western meeting. A month later, on September 28, 2018, the proposed solution was presented and was assigned PJM supplemental RTEP number s1718. Since that time, the scope of the overall project changed and was re-presented at the September 11, 2020 SRRTEP Committee Western meeting and assigned RTEP number s2389. The PJM SSRTEP-Western presentation slide from the 2020 meeting is included as Exhibit 4 and provides additional details of the project drivers.

4906-6-05 (B)(3): Location of the Project Relative to Existing or Proposed Lines

The location of the Project relative to existing or proposed lines is shown in the ATSI Transmission Network Map, included as part of the confidential portion of the FirstEnergy Corp. 2021 Long-Term Forecast Report. This map was submitted to the PUCO in Case No. 21-0504-EL-FOR under Rule 4901:5-5:04 (C)(2)(b) of the Ohio Administrative Code. The map is incorporated by reference only. This map shows ATSI's 345 kV and 138 kV transmission lines and transmission substations including the Knox-Nottingham 138 kV Transmission Line. The Project is included on page 91 of the Long-Term Forecast Report and is a part of the larger Holloway-Nottingham-Knox 138 kV Line Rebuild Project. The general location and layout of the project area is shown in Exhibits 1 and 2.

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

Due to the physical condition of the existing transmission line and nature of the Project, there were only two alternatives considered; replace only the identified failed structures or full rebuild.

Alternative 1:

Replace 63 failed wood H-frame structures with wood H-frame structures and re-use the existing conductor and shield wire. Includes construction of approximately 8.25 miles of access roads and restoration after replacement.

Alternative 2

Rebuild 13.2 miles of the transmission line consisting of replacing all existing wood pole structures with steel monopoles, replacing conductor with 795 kcmil 26/7 ACSR and replacing the shield wire with 7/8# Alumoweld shield wire and OPGW. Includes construction of approximately 10.37 miles of access roads and restoration after project completion.

Several factors were considered by ATSI in opting to rebuild the entire line rather than continuing to maintain the deteriorating facilities. These factors include:

Existing Wood Pole Condition

As described in Section 4906-6-05 (B)(2), approximately 70% of the wood poles have physical damage and/or signs of deterioration. This percentage will only increase over time, resulting in multiple returns, increased impact and greater costs. Replacing all of the poles with steel eliminates damage caused by woodpeckers as well as reduces maintenance and extends the life of the facilities.

Conductor Replacement and Upgrade

ATSI proposes to replace and upgrade the conductor to its current standard of 795 kcmil 26/7 ACSR as part of the proposed Project. As stated above, this would not be completed under the Alternate 1 scenario. Not only does it upgrade the conductor to current standards, it increases the line rating to 275 MVA (Summer Normal). The upgrade will improve reliability and performance as well as support future load growth in the area. Lastly, by replacing the conductor as part of this Project, it eliminates the need for a complete reconductor project in the coming years as the conductor is aging along with the rest of the facilities.

Communications

Although outside the scope of this application, this Project also facilitate ATSI's replacing the existing shield wire with one 7#8 Alumoweld shield wire and one Optical Ground Wire ("OPGW"). With the addition of OPGW in the proposed Project, ATSI is able to modernize grid protection and control communications between substations.

Since the installation method is identical to traditional shield wire, the cost per mile of adding OPGW is negligible compared to the return on the investment from a reliability and communication perspective. If pole replacement is done under a maintenance approach, OPGW would not be installed, and a separate alternative fiber route may be required to meet communication enhancement needs.

Land Use and Sensitive Areas

As referenced in Section 4906-6-05 (B)(10), the land use in the area of the Project is primarily rural residential, agricultural, and mining. Disruption to landowners and/or operators are minimized from the proposed Project as opposed to the multiple number of access times that would be necessary under the maintenance alternative. In cases where crops are planted, multiple access increases the potential for crop damage and payment for the loss.

Further there are several cultural features identified where barriers need to be installed to avoid damage during construction.

The United States Fish and Wildlife Service ("USFWS") and the Ohio Department of Natural Resources ("ODNR") identified the state and federally listed species that may potentially be affected by the Project. Seasonal restrictions along with avoidance and minimization measures were identified to reduce impacts to these species.

Overall, land use impacts, including but not limited to crop and other environmental features, increase with multiple mobilizations as compared to a single construction project as proposed. These impacts along with the installation of barriers or matting and adhering to seasonal restrictions lead to increase costs and complicate construction sequencing and outage coordination.

Safe and Reliable Service

ATSI has an obligation to provide safe and reliable service to its customers and the condition of the Knox-Washington Segment presents a significant risk to ATSI's ability to meet this obligation. In this segment, the Carroll Electric Cooperative tap to its Washington Substation extends from the Knox-Nottingham 138 kV Transmission Line

and is the only 138 kV source to that substation. Should the Knox-Nottingham Transmission Line fail, customers served from the Washington Substation along with others in the region would be out of service.

The best approach is to completely rebuild the Knox-Washington Segment of the Knox-Nottingham 138 kV Transmission Line. ATSI believes that the rebuild project is the most cost effective, least impactful, and effective approach to ensure its ability to continue to provide safe and reliable service to its customers.

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

ATSI's manager of External Affairs will advise local officials of features and the status of the proposed Project as necessary. ATSI will maintain a copy of this Letter of Notification, along with other Project information, on FirstEnergy's website:

https://www.firstenergycorp.com/about/transmission_projects/ohio.html.

ATSI will publish notice of the Project in the Lisbon Morning Journal and the Carroll County Messenger within 7 days of filing this Letter of Notification application. The notice will comply with OAC 4906-6-08(A)(1)-(6). In addition to the public notice (and also within 7 days of filing this Letter of Notification application), ATSI will mail letters in accordance with OAC 4906-6-08(B) explaining the Project to affected landowners and tenants informing them of the Project's start and a proposed timeframe of construction and restoration activities.

During all phases of this Project, the public may contact ATSI with questions/comments through the transmission projects hotline at 1-888-311-4737 or via email at: transmissionprojects@firstenergycorp.com.

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

The construction schedule for this Project is expected to begin as early as August 2022 and is proposed to be completed/in-service by May 2023.

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

Exhibit 1 depicts the general location of the Project on a partial copy of the United States Geological Survey, Carrollton, Homeworth, and Minerva Quad Maps. Exhibit 2 provides a partial copy of Bing aerial imagery of the Project area.

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

The Project is located on existing right-of-way. New temporary access rights may be required as part of the Project. Exhibit 5 contains a list of properties for which ATSI has obtained necessary easement/right-of-way/land rights as well as those for which such agreements have not been obtained.

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

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

The transmission line construction will have the following characteristics:

Voltage:	138 kV					
Conductors:	Existing: 477 kcmil 24/7 ACSR					
	New: 795 kcmil 26/7 ACSR					
Static Wire:	OPGW and 7#8 Alumoweld					
Insulators:	Polymer					
ROW Width:	100 feet					
Land Requirements:	Access Rights					
Structure Types:	Exhibit 6: 138 kV Double Circuit Steel Pole, Deadend					
	(approximately 2 Structures)					
	Exhibit 7: 138 kV Double Circuit Steel Pole, Suspension					
	(approximately 2 Structure)					
	Exhibit 8: 138 kV Single Circuit Steel Pole, Suspension					
	(approximately 64 Structures)					
	Exhibit 9: 138 kV Single Circuit Steel Pole, Deadend					
	(approximately 8 Structures)					

Exhibit 10: 138 kV Single Circuit Steel Pole, Strain (approximately 5 Structures)
Exhibit 11: 138 kV Single Circuit Steel H-Frame, Strain (approximately 6 Structures)
Exhibit 12: 138 kV Single Circuit Steel Pole, Angle (approximately 2 Structures)
Exhibit 13: 138 kV Single Circuit Steel Pole, Strain (approximately 2 Structures)
Exhibit 14: 138 kV Single Circuit Steel Pole, Switch (approximately 1 Structure)

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

As there are occupied residences or institutions that are within 100 feet from the existing transmission line centerline, Electric and Magnetic Field ("EMF") calculations are required by this code provision.

4906-6-05 (B)(9)(b)(i): Calculated Electric and Magnetic Fields Strength Levels

The Knox-Washington Segment is a 13.2 mile single circuit transmission line and is located on a 100-foot right-of-way that does not share the right-of-way with any other transmission lines with the exception of the first four spans extending from the Knox Substation, which is double circuit with the Bluebell-Knox 138 kV Transmission Line and parallels the Bluebell-Knox 69 kV Transmission Line. For purposes of the modeling, this section was excluded since it is located on company property with no residents within 100 feet.

Table 2 itemizes the line loading of the Project. The normal line loading represents FirstEnergy's peak system load for the transmission lines. The emergency line loading represents the maximum line loading under contingency operation. The winter rating is based on the continuous maximum conductor rating ("MCR") of the circuit for the single conductors per phase and an ambient temperature of zero degrees centigrade (32 °F),

wind speed of 1.3 miles per hour, and a circuit design operating temperature of 100 $^{\circ}$ C (212 $^{\circ}$ F).

Line Name	Normal	Emergency	Winter Rating
	Loading Amps	Loading Amps	Amps
Knox-Washington Segment of the Knox- Nottingham 138 kV Transmission Line	264.6	297.4	1320

Table 2: Transmission Line Loading

Table 3 provides an approximation of the magnetic and electric fields strengths for the Project. The calculations provide an approximation of the electric and magnetic fields levels based on specific assumptions utilizing the EPRI EMF Workstation 2015 program software. This program software assumes the input transmission line configuration is located on flat terrain. Also, a balanced, three-phase circuit loading is assumed for the transmission circuit. The model utilizes the normal, emergency, and winter rating of the transmission line.

Table 3: EMF Calculations for Knox-Washington 138 kV Transmission Line

Knox-Washin ROW	igton Segment, 100-foot	Electric Field kV/m	Magnetic Field mG
Normal	Under Lowest Conductors	0.732	18.21
Loading	At Right-of-Way Edges	0.324 / 0.368	8.99 / 10.78
Emergency	Under Lowest Conductors	0.732	20.59
Loading	At Right-of-Way Edges	0.324 / 0.368	10.40 / 12.01
Winter	Under Lowest Conductors	0.732	91.38
Rating	At Right-of-Way Edges	0.324 / 0.368	46.17 / 53.81

<u>4906-6-05 (B)(9)(b)(ii): Alternative Design Consideration for Electric and Magnetic</u> <u>Fields</u>

The strength of EMFs can potentially be reduced by installing the transmission line conductors in a compact configuration by selecting conductor phasing that reduces the field strengths. ATSI designs its facilities according to the requirements of the NESC. The pole heights and configuration were chosen based on NESC specifications, engineering parameters, and cost. ATSI's typical practice, as proposed in this Project, is to install 138 kV transmission lines primarily on single circuit steel pole tangent structures supported on suspension insulators, and double circuit tangent structures near Knox Substation. This compact design reduces EMF field strengths in comparison to other installations.

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

The estimated capital cost for the proposed project is approximately \$30,250,000 paid by ATSI.

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

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

The Project is located in West Township of Columbiana County and Augusta and Washington Townships of Carroll County, Ohio. The main land use around the Project is rural residential, agricultural, and mining land.

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

A list of all agricultural land and acreage including agricultural district land is provided in Exhibit 5.

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

On behalf of ATSI, Jacobs Engineering Group, Inc. ("Jacobs") submitted a Section 106 Review ("Review") for the entire Holloway-Knox 138kV Transmission Line in August 2020. The Review examined the records available through the Ohio Historic Preservation Office's ("OHPO") online mapping database within 1 mile of the transmission line. As currently designed, all of the preliminary off-ROW access roads are within the 1-mile study area. The results of the search are shown in Exhibit 15. The results are summarized below.

A review of the records available through the OHPO online mapping system identified 71 OHI-listed resources, 19 cemeteries, and 106 OAI-listed archaeological sites have been inventoried within one mile of the Project area. Additionally, 12 previous archaeological investigations have been documented within one mile of the Project.

Two of the OHI listed resources are eligible for listing in the National Register of Historic Places. These resources are located approximately 4,500 feet from the Project and will not be impacted.

Four OAI-listed archaeological sites are within the Project ROW. The four OAI-listed archaeological sites (33CO0257, 33CO0258, 33CO0986, and 33CA2016) are small, diffuse lithic scatters, with unassigned prehistoric temporal affiliations. None of the archaeological sites are recommended as eligible for NRHP listing. An avoidance buffer of 50 feet will be used and construction fencing will be placed around 33CO0257 to avoid impacts to the site.

One cemetery is within the Project ROW. The Byrd/Bird Cemetery (OGS ID 1381) appears to be a small, family cemetery or single-grave dating from the late-eighteenth to mid-nineteenth century. The cemetery is located south of Abbey Road, approximately 150 feet south of the nearest existing transmission structure. An avoidance buffer of 50 feet will be established by installing construction fencing around the cemetery.

Four previous archaeological surveys intersect the Project ROW. Three of the four previous archaeological investigations intersecting the Project ROW are associated with improvements to U.S. Highway 30 and the fourth investigation is associated with the Knox Substation expansion.

Jacobs recommended a 50-foot buffer using construction fencing be placed around one archaeological site (33CO0257) and the Bird/Byrd Cemetery to avoid these resources. In a letter dated September 16, 2020, the OHPO concurred that the Project, as proposed will have no effect on historic properties. No further coordination is required unless the scope of work changes or archaeological deposits are discovered during construction.

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

Table 4 shows the list of government agency requirements and the application status at the time of filing.

Agency	Permit Requirement	Status
Ohio Environmental Protection Agency (OEPA)	General NPDES Construction Storm Water Permit OHC000005	To be filed
Columbiana and Carroll Counties Soil and Water Conservation District(s)	Storm Water Pollution Prevention Plan (SWP3) – Review Application	To be filed
Columbiana and Carroll Counties	Floodplain Development Review	To be filed

Table 4. List of Government Agency Requirements to be Secured Prior to Construction

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

Jacobs, on behalf of ATSI, submitted a request to the ODNR to conduct an Environmental Review of the entire Holloway-Knox 138kV Transmission Line. As part of the Environmental Review, the ODNR conducted a search of the ODNR Division of Wildlife's Natural Heritage Database to research the presence of any endangered, threatened, or rare species within one (1) mile of the Project area. The ODNR's response on June 1, 2020 stated that the Natural Heritage Database had two (2) state endangered species, two (2) state threatened species, one (1) state species of concern, and a mussel bed, within a one (1) mile radius of the Project area. The Division of Wildlife found that within range of the Project area, there is one (1) state and federally endangered species, one (1) state endangered and federal species of concern, three (3) state endangered

species, and four (4) state threatened species. A copy of ODNR's response is included as Exhibit 16.

Jacobs also submitted a request to the USFWS for an Ecological Review on March 31, 2020 to research the presence of any endangered, threatened, or rare species within one (1) mile of the entire Holloway-Knox 138kV Transmission Line. A copy of USFWS's Ecological Review response is included as Exhibit 17. The USFW's response on April 13, 2020 indicated the federal and state endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (*Myotis septentrionalis*) are within the range of the Project. A list of all endangered, threatened, and rare species, as identified by ODNR and USFWS, is provided in Table 5.

Common Name	Scientific Name	Federal Listed Status	State Listed Status	Affected Habitat	
Mammals					
Indiana bat	Myotis sodalis	Endangered	Endangered	Trees and forests	
Northernlong -eared bat	Myotis septentrionalis	Threatened	Threatened	Trees and forests	
Birds					
American bittern	Botaurus lentiginosus	NA	Endangered	Bogs, meadows, and swamps	
Least bittern	Ixobrychus exilis	NA	Threatened	Dense emergent marshlands or wetlands	
Upland sandpiper	Bartramia longicauda	NA	Endangered	Grasslands	
Northern harrier	Circus cyaneus	NA	Endangered	Marshes and grasslands	
Sharp- shinned hawk	Accipiter striatus	NA	Species of Concern	Forests and agricultural	

Table 5. List of Endangered, Threatened, and Rare Species

Barn owl	Tyto alba	NA	Threatened	Forests and agricultural	
Amphibians					
Eastern hellbender	Cryptobranchus alleganiensis	Species of Concern	Endangered	Streams	
Mussels		-	-		
Threehorn wartyback	Obliquaria reflexa	NA	Threatened	Rivers	
Fish					
Tippecanoe darter	Etheostoma tippecanoe	NA	Threatened	Rivers and streams	
Channel darter	Percina copelandi	NA	Threatened	Lakes and rivers	
Plants					
Drummond's aster	Symphyotrichum drummondii	NA	Threatened	Forest openings	

The response from ODNR and USFWS indicated that the Project is within range of the federal and state endangered Indiana bat and the federal and state threatened northern long-eared bat. Within the Project disturbance area, tree clearing will be conducted between October 1st and March 31st to avoid impacts to these species. Therefore, no adverse effects to these species are anticipated.

The response from ODNR indicated the Project is within the range of the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel. No impact to this species is expected because no in-stream work is proposed.

The response from ODNR indicated the Project is within the range of two state threatened fish: the channel darter (*Percina copelandi*) and the Tippecanoe darter (*Etheostoma tippecanoe*). No impacts to these species are expected because no in-stream work is proposed.

The response from ODNR indicated the Project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis*), a state endangered salamander and federal

species of concern. No impacts to this species is expected due to the Project's location and because no in-stream work is proposed.

The response from ODNR indicated the Project is within range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Impacts to dry grasslands, including native grasslands, seeded grasslands, hayfields, and grazed and un-grazed pastures, should be avoided during the nesting period of April 15th to July 31st.

The response from ODNR indicated the Project is within range of the northern harrier (*Circus cyaneus*), a state endangered bird. Impacts to large marshes and grasslands should be avoided during the nesting period of May 15th to August 1st.

The response from ODNR indicated the Project is within range of the American bittern (*Botaurus lentiginosus*), a state endangered bird. Impacts to bogs and large wet meadows should be avoided during the nesting period of May 1st to July 31st.

The response from ODNR indicated the Project is within range of the Least bittern (*Ixobrychus exilis*), a state threatened bird. Impacts to inland marshes and dense emergent wetlands should be avoided during the nesting period of May 1st to July 31st.

The response from ODNR Ohio Natural Heritage Database indicated the Sharp-shinned hawk (*Accipiter striatus*), a state species of concern bird, and the barn owl (*Tyto alba*), a state threatened bird, have been observed within one-mile of the project area. No sightings or nests of these species were observed during the environmental surveys of the Project.

The response from ODNR Ohio Natural Heritage Database indicated the Drummond's aster (*Symphyotrichum drummondii*), a state threatened plant, has a recorded observation in a wooded area located 0.5-mile to the east of the Phase 3 (Polo Road-Buckeye Power) in Harrison County. No general observations of this species were recorded during the environmental surveys of the Project.

Jacobs is presently mapping the various habitats within the Project's disturbance area to identify any areas of concern relating to the above-listed species. Coordination with ODNR will continue to evaluate appropriate avoidance and minimization measures,

including by not limited to sequencing construction activities to address seasonal restrictions to reduce potential impact.

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

As part of the investigation, the ODNR and the USFWS provided responses regarding the presence of unique ecological sites, geological features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forest, national wildlife refuges, or other protected natural areas within one (1) mile of the project area. The ODNR's response on June 1, 2020 stated that the Jockey Hollow Wildlife Area was within one (1) mile radius of the Project area. A copy of ODNR's response is included as Exhibit 15. The USFW's response on April 13, 2020 indicated that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project area. A copy of USFWS's Ecological Review response is included as Exhibit 16. The Project will have no impact to Jockey Hollow Wildlife Area.

Jacobs conducted a wetland and stream delineation of the Project. Jacobs' assessment focused on the approximately 13-miles of existing 100-foot wide transmission line ROW that starts in Columbiana County at the Knox Substation and extends south, ending just north of Cobbler Road NE in Carroll County, as shown on the Overview Maps (Exhibit 1 and 2).

Jacobs conducted the environmental survey of the Project on May 1 through 4, 2018 and June 5, 2018. A total of 22 wetlands, 28 streams, and seven ponds were delineated within the Project environmental survey corridor (ESC) and are depicted on Figures 3-A to 3-AU of Exhibit 18, a copy of the wetland and waterbody delineation report. The 22 wetlands, totaling 21.03 acres within the ESC, were identified as three different wetland habitat types which included 20 palustrine emergent (PEM) wetlands, one PEM/ palustrine scrub-shrub (PSS) wetland complex, and one PEM/PSS/ palustrine forested (PFO) wetland complex. Of the 22 wetlands, eight wetlands were identified as Category 1 wetlands and fourteen wetlands were identified as Category 2 wetlands. No Category 3 wetlands were identified within the ESC. Categories were based on the Ohio Environmental Protection Agency (OEPA) Ohio Rapid Assessment Method (ORAM)

scores, which were scored on a variety of factors such as size, surrounding land use, disturbance, invasive species, and vegetation growth.

The 28 streams, totaling 6,421 linear feet within the ESC, included eight ephemeral streams, three intermittent streams, and 17 perennial streams. Twenty-one streams were assessed using the OEPA's Headwater Habitat Evaluation Index (HHEI) methodology and seven streams were assessed using the OEPA's Qualitative Habitat Evaluation Index (QHEI) methodology. Additionally, seven ponds were identified within the ESC that total 1.09 acres.

All streams will be crossed above the ordinary high-water mark to avoid impacts and no in-stream work is proposed for the Project. Additionally, ATSI will utilize best management practices to avoid any indirect impact to streams and wetlands through its use of erosion and sediment controls. Streams will either be avoided or bridged (no work below the ordinary high-water mark), and wetlands will be traversed using low ground pressure equipment and/or matting. Jacobs has made preliminary determinations concerning the likely jurisdiction of all assessed features; however, the United States Army Corps of Engineers ("USACE") will make the final determination. Further coordination with the USACE will occur, if necessary, prior to the submittal of any permit or commencing construction activities.

The results of the environmental resource survey described in this report conducted by Jacobs are limited to what was identified within the ESC and depicted in Figure 3A to 3AU of Exhibit 18. The information contained in this wetland and waterbody delineation summary is for a study area that may be larger than the actual Project limits-of-disturbance for construction; therefore, lengths and acreages listed above may likely not constitute the actual impacts of the Project at the time of construction. If permits are necessary, actual impacted lengths and/or acreages will be submitted in subsequent permit applications.

Additionally, a review of the online FEMA Flood Insurance Rate Mapping was performed. FEMA floodplain mapping can be found within the wetland and waterbody delineation report in Exhibit 18. Consultation with Columbiana and Carroll counties is required for floodplain development review.

4906-6-05(B)(10)(g): Other Information

Construction and operation of the proposed Project will be in accordance with the requirements specified in the latest revision of the NESC as adopted by the PUCO and will meet all applicable safety standards established by the Occupational Safety and Health Administration.

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

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

This Letter of Notification is being provided concurrently with its docketing with the Board to the following officials:

Columbiana County

Board of County Commissioners and County Planning Commission Mr. Tim Weigle 105 South Market Street Lisbon, OH 44432

Board of County Commissioners Mr. Michael Halleck 105 South Market Street Lisbon, OH 44432

Board of County Commissioners Mr. Roy Paparodis 105 South Market Street Lisbon, OH 44432 Columbiana County Soil & Water District Mr. Pete Conkle, District Program Coordinator 1834 South Lincoln Avenue Salem, OH 44460

Columbiana County Engineer's Office Mr. Bert Dawson 235 South Market Street Lisbon, OH 44432

West Township

Mr. Glenn Whiteleather West Township Trustee 8008 Essick Road Minerva, OH 44657 Mr. Dale Lowmiller West Township Trustee 23980 State Route 172 Minerva, OH 44657 Mr. John Olenik West Township Trustee 25424 State Route 172 Minerva, OH 44657 Mr. Jeffery Haynam West Township Fiscal Officer 9291 Rochester Road Minerva, OH 44657

Library

Lepper Library Marcy Kaiser, Director 303 East Lincoln Way Lisbon, OH 44432

Carroll County

Board of County Commissioners Mr. Jeffery Ohler 119 South Lisbon Street, Suite 201 Carrollton, OH 44615

Board of County Commissioners Mr. Robert Wirkner 119 South Lisbon Street, Suite 201 Carrollton, OH 44615

Board of County Commissioners Mr. Christopher Modranski 119 South Lisbon Street, Suite 201 Carrollton, OH 44615

<u>Augusta Township</u>

Mr. John Thompson Augusta Township Trustee 3855 Arbor Road Northeast Mechanicstown, OH 44651

Mr. Jeffery Hawk Augusta Township Trustee 9277 Kensington Road Northeast Kensington, OH 44427 Carroll County Engineer's Office Mr. Brian Wise 200 Kensington Road Northeast Carrollton, OH 44615

Carroll County Regional Planning Commission Mr. Tom Konst, Director 119 South Lisbon Street, Suite 201 Carrollton, OH 44615

Carroll County Soil & Water District Ms. Amanda Tubaugh, District Admin. 613 High Street Northwest #2 Carrollton, Ohio 44615

Mr. Calvin Mangun August Township Trustee 3063 Lustre Road Northeast Carrollton, OH 44615

Ms. Tonya Hawk Augusta Township Fiscal Officer 9160 Kensington Road Northeast East Rochester, OH 44625

Washington Township

Mr. Darrell Shafer Washington Township Trustee 4071 Mayham Rd NE Carrollton, OH 44615

Mr. Zachary Campbell Washington Township Trustee 4290 Andora Road Northeast Carrollton, OH 44615 Mr. Christopher Keyser, Washington Township Trustee 4126 Macaw Road Northeast Carrollton, OH 44615

Ms. Constance Days Washington Township Fiscal Officer 2222 Channel Road NE Carrollton, OH 44615

<u>Library</u>

Carroll County District Library Ellen Finnicum, Director 70 2nd Street Northeast Carrollton, OH 44615

Copies of the transmittal letters to these officials have been included with this application as proof of compliance under OAC Rule 4906-6-07 (B) to provide the Board with proof of notice to local officials as required by OAC Rule 4906-6-07 (A)(1) and to libraries per OAC Rule 4906-6-07 (A)(2).

Information is posted at:

www.firstenergycorp.com/about/transmission_project/ohio.html on how to request an electronic or paper copy of this Letter of Notification application. The link to this website is being provided to meet the requirements of OAC Rule 4906-6-07 (B) and to provide the Board with proof of compliance with the notice requirements in OAC Rule 4906-6-07 (A)(3).



















Previously Presented: 8/31/2018 SRRTEP

Problem Statement (Scope and Need/Drivers)

Equipment Material Condition, Performance and Risk

- Improve system reliability ad performance
- Remove obsolete and deteriorated equipment
 - 53 to 82 year old construction
 - -57%-83% inspection rejection rate
 - Approximately 29 repair records over the past 3 years; increasing trend
 - 529 active repair conditions; negative increase in maintenance findings
- Upgrade to current standards
- Support shale gas load growth area; multiple (6) transmission service connections

Potential Solution:

Holloway-Nottingham-Knox 138 kV Line Rebuild (s1718)

- Rebuild the existing Knox-Nottingham 138 kV Line (Approximately 44 miles).
- Rebuild the existing Nottingham-Holloway #1 138 kV Line (Approximately 21 miles)
- Existing Conductor: Mixed conductor 795 ACSR & 477 ACSR
- Future Conductor: 795 ACSR
- Old Rating 158 MVA SN New Rating 275 MVA SN
- Rebuild the existing Nottingham-Holloway #2 138 kV Line (Approximately 21 miles) sharing a structure with the Nottingham-Holloway #1 138 kV Line
- Old Rating 200 MVA SN New Rating 275 MVA SN
- Rebuild a portion of the Nottingham-Yager #1138 kV Line (Approximately 3.6 miles) sharing a structure with the Knox-Nottingham 138 kV Line
- Old Rating 200 MVA SN New Rating 275 MVA SN

Alternatives Considered: Maintain existing condition

Estimated Project Cost: \$193.8M Project ISD: 5/31/2025 Status: Engineering

ATSI Transmission Zone Holloway-Nottingham-Knox 138 kV Line



EXHIBIT 5	5
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Parcel Number	Property Owner	Property Address	Acreage	Easement Status	Agricultural District (Yes/No)	Agricultural District Expiration Year
Notification for	Impacted Parcels Only					
79-00187.000	ARNOTO JEFFREY E	24575 SR 172, MINERVA, OH, 44657	17.718	Existing	No	N/A
79-00629.000	BERGER NORMAN G &/OR KRISTINE I	24695 SR 172, MINERAVA, OH, 44657	15.98	Existing	No	N/A
020000184000, 79-00532.000, 020000183000	BIGGS CONSTANCE J	11893 AUGUSTA RD, EAST ROCHESTER, OH, 44625	50.97 40 22.54	Existing Existing Existing	No No No	N/A N/A N/A
79-02429.000	BLEVINS, KENNETH C & GARY L	24203 SANDY CREEK, MINERVA, OH, 44657	45.095	Existing	No	N/A
79-01819.000	BOLANZ MARY ALICE	24575 RIDGE RD, EAST ROCHESTER, OH, 44625	3.17	Existing	No	N/A
010000049000	BOWMAN EVELYN M	8301 KENSINGTON RD NE, EAST ROCHESTER, OH, 44625	60	Existing	No	N/A
340000369005	BRUNSKI ROBERT	1203 ASHWOOD RD, AKRON, OH 44312	5.5	Existing	No	N/A
79-02394.000	BUCKMAN DALE L & MARY LOU & HEESTAND SHARON K	24841 GEORGETOWN, Homeworth, oh, 44634	33.2667	Existing	No	N/A
010000505000, 010000076001	BYLER WALLY & LINDA J	7249 ABBEY RD NE, CARROLLTON, OH, 44615	6.0 3.2	Existing Existing	No No	N/A N/A
340000109000	CARLTON TREE FARMS INC	7033 AVON RD NE, CARROLLTON, OH, 44615	74.12	Existing	Yes	2025 x
010000076005, 010000076004	CORBIN, DEREK A & JODY A	7292 ABBEY RD NE, CARROLLTON, OH, 44615	4.22 4.609	Existing	No No	N/A N/A
010000291002, 010000291001, 010000249007, 010000249006	DETWEILER MERVIN & CYNDA J	6365 KENSINGTON RD, CARROLLTON, OH, 44615	8.338 24.581 2.39 10.174	Existing Existing Existing Existing	No No No	N/A N/A N/A N/A
79-00519.000	DOURM MELVIN LEE	24462 SANDY CREEK RD, MINERVA, 44657	0.55	Existing	No	N/A
010000459000, 010000462000, 010000461000, 010000456000, 010000457000,	ELLINGTON BARBARA & DAVID Q SCHMUCK	1912 RAVENNA AVE NE E CANTON, OH, 44730	35 79 68 7.26 12.75	Existing Existing Existing Existing Existing	No No No No	N/A N/A N/A N/A N/A
79-01718.000, 79-02351.000	ESSICK RONALD	24423 SANDY SPRINGS RD MINERVA, OH, 44657	29.95 113.053	Existing Existing	No No	N/A N/A
010000149000	FIGLEY SAMUEL L	2154 AURORA RD, EAST ROCHESTER, OH, 44625	31.67	Existing	No	N/A

010000369005	GINGERICH PHILIP A	7174 ABBEY RD, CARROLLTON, OH, 44615	50.482	Existing	No	N/A
79-00048.000	GINGERICH ROBERT A &/OR KATHRYN L	24656 SANDY CREEK RD, MINERAVA, OH 44657	17.04	Existing	No	N/A
340000410002, 340000367000, 340000411001	GRAHAM FAMILY TRUST THE	2261 MING RD NE, CARROLLTON, OH, 44615	108.172 121.123 95.65	Existing Existing Existing	No No No	N/A N/A N/A
79-02436.002	GREINER MICHAEL JAMES &/OR JAMIE BETH	2481 BELLEFLOWER, ALLIANCE, OH, 44601	104.887	Existing	No	N/A
79-00230.000	GRIEBENOW CAROL L	11537 AUGUSTA EAST ROCHESTER, OH, 44625	27.5	Existing	No	N/A
340000241000 340000240000 340000237000 340000239000 340000238000	HICKLIN MARTIN L & SHERRY E	PO BOX 514 CARROLLTON, OH, 44615	25.39 14.05 0.33 3.89 3.85	Existing Existing Existing Existing Existing	No No No No	N/A N/A N/A N/A N/A
010000249000	HOSTETLER, DANIEL L & KRISTINA	2179 ARBOR RD, CARROLLTON, OH, 44615	19.469	Existing	No	N/A
010000249004	HOSTETLER, LESTER E & BARBARA	2159 ARBOR RD, CARROLLTON, OH, 44615	25.665	Existing	No	N/A
010000217000	HOYT, TERRY L & GRACE E	2374 BELLFLOWER NE, EAST ROCHSTER, 44625	1.04	Existing	No	N/A
010000209000, 340000158000, 010000414000,	HUTCHISON ERIC J & CYNTHIA	2239 BRUSSEL RD NE, CARROLLTON, OH, 44615	90.02 33.64 31.493	Existing Existing Existing	Yes Yes No	2022 2022 N/A
010000231000,	JACKSON JAMES F & LESLEY J	2383 BELLFLOWER RD NE, EAST ROCHESTER, OH, 44625	81.8	Existing	No	N/A
79-00720.000	JOHNSON JANET S	24415 WEST EGYPT RD, MINERVA, OH, 44657	24.958	Existing	Yes	2021
79-00722.000	LEBEAU DONALD	P O BOX 522, MALVERN, OH, 44644	2.33	Existing	No	N/A
010000304000	LONGSWORTH ROBERT M & A CAROL	216 KENDAL DR, OBERLIN, OH, 44074	17.71	Existing	No	N/A
79-00405.000, 79-00251.000, 79-00408.000, 79-00407.000, 79-00556.000	LOWMILLER DALE L & LANA L	23980 SR 172 MINERVA, OH, 44657	129.75 135.79 89.869 56.24 1.60	Existing Existing Existing Existing Existing	No No No	N/A N/A N/A
020000121000	LUTES FRANK A	2179 BRUSH RD SE EAST ROCHESTER, OH, 44625	77	Existing	No	N/A
79-00225.000	MANGUS LARRY &/OR RUTH V MANGUS	25370 BUFFALO, EAST ROCHESTER, 44625	2.834	Existing	No	N/A
020000267000	MCCAULEY K SEAN	PO BOX 521, LOUISVILLE, OH 44641	57.86	Existing	No	N/A
79-02436.001, 79-01689.000	MCDANIEL ROGER A &/OR SALLY JO	24371 SR 30, EAST ROCHESTER, OH, 44625	1.681 17.171	Existing Existing	No No	N/A N/A
020000132000	MILLARD STEVEN F & CYNTHIA A	2471 BELLFLOWER RD NE, EAST ROCHESTER, OH, 44625	67.09	Existing	No	N/A

79-00376.000, 79-00378.000	MYERS, RICHARD A & ANN K	24460 SANDY CREEK RD, MINERAVA, 44657	9.5 30.954	Existing Existing	No No	N/A N/A
010000390000	OSSLER WILLIAM P ETAL C/O ARRY OSSLER	7218 KENSINGTON RD NE, CARROLLTON, OH, 44615	35	Existing	No	N/A
340000038000	PETERMAN REVOCABLE LIVING TRUST	1368 ANDORA RD NE, CARROLLTON, 44615	80.255	Existing	No	N/A
79-01243.000, 79-00578.000, 79-00590.000	PIDGEON JAMES P &/OR TRACIE ANN	7236 ANDORA RD, MECHANICSTOWN, OH, 44651	27.418 34.847 95.153	Existing Existing Existing	No No No	N/A N/A N/A
79-00373.000	RICHARDSON TERRY L & PATRICIA K RICHARDSON	24733 SR 30 EAST ROCHESTER, OH, 44625	41.737	Existing	No	N/A
79-00209.000	ROHALEY RENTALS LLC	22499 BATES MINERVA, OH, 44657	8.591	Existing	Yes	2024
79-00362.000	ROSENBERGER BENJAMIN W &/OR LAUNI L	5299 BANDY HOMEWORTH, OH, 44634	79.784	Existing	No	N/A
79-00675.000	RUSS KIKO ASSOCIATES INC	2722 FULTON, CANTON, OH, 44718	92.26	Existing	No	N/A
020000266000	SCHMACHTENBERGER JOHN ALAN	2389 BELLFLOWER RD NE, EAST ROCHESTER, OH, 44625	5	Existing	No	N/A
79-00209.001	SCHROCK STEPHEN R	24376 WEST EGYPT RD MINERVA, OH, 55657	10	Existing	No	N/A
010000076002	SEBRELL HOWARD A & CAROLE L J/S	7325 ABBEY RD NE, CARROLLTON, OH, 44615	5.06	Existing	No	N/A
79-00563.000, 79-00563.002	SEIBERT WESLEY E	24722 SR 172, MINERVA, OH, 44657	12.888 2.395	Existing Existing	No No	N/A N/A
79-00720.001	SMITH BENJAMIN A	24467 EGYPT RD W, MINERVA, OH, 44657	5.042	Existing	No	N/A
79-01800.000	SMITH FAMILY TRUST 3/8/00	6219 KNOX SCHOOL MINERVA, OH, 44657	34.89	Existing	Yes	2021
010000010001	SMITH, JAMES S & CONSTANCE A	PO BOX 312, MAGNOLIA, OH, 44643	100.816	Existing	No	N/A
79-00225.001	SMITH STACI L	24420 SR 30 E ROCHESTER, OH 44625	1.205	Existing	No	N/A
79-02438.000	SMITH VICKI L	6301 KNOX SCHOOL MINERVA, OH, 44657	48.78	Existing	Yes	2021
79-02404.000	STOLTZFUS AMOS K JR & ANITA F	8415 KNOX SCHOOL RD, MINERVA, OH, 44657	26.155	Existing	No	N/A
79-00611.000	SUMMERS MARILYN J	24704 WEST EGYPT RD, MINERVA, OH, 44657	80	Existing	Yes	2021
79-01965.000 79-02128.000	SUNTHEIMER, JAMES MARC	24366 RIDGE RD E ROCHESTER, OH 44625	38.66 34.34	Existing Existing	Yes Yes	2021 2021

010000501000	THOMPSON DERRICK A	2093 MOCCASIN NE CARROLLTON, OH, 44615	16.2	Existing	No	N/A
010000502000	THOMPSON ROBERT LANCE	8091 ABBEY RD NE, CARROLLTON, OH, 44615	47.33	Existing	No	N/A
010000521002, 010000521001	ULMAN JEFFERY & EMILY	88 ARROW RD CARROLLTON, OH, 44615	2.43 3.45	Existing Existing	No No	N/A N/A
010000519000, 010000522000, 340000364000	ULMAN, STEPHEN E	2197 BRUSSEL RD NE, CARROLLTON, OH, 44615	0.75 46.51 34	Existing Existing Existing	No No No	N/A N/A N/A
340000369000	VARNER PATRICIA ANN	2175 BRUSSEL RD NE, CARROLLTON, OH, 44615	24.72	Existing	No	N/A
79-01893.000	W T JOHNSON FAMILY FARMS LLC	28240 GILSON, SALEM, OH, 44460	168.009	Existing	No	N/A
010000335000	WAYTS THOMAS A & JUDITH ANN	2237 AURORA NE Rd E ROCHESTER, OH 44625	265.892	Existing	No	N/A
020000137000, 020000136000	WEST FARMS LTD	1881 APPLEGROVE ST NE, CANTON, OH, 44721	39 4.39	Existing Existing	No No	N/A N/A
79-00692.000, 79-00690.000	WHITELEATHER GLEN L & BETTY F & LAWRENCE W	8208 BAYARD MINERVA, OH. 44657	99.2 80.2	Existing Existing	Yes Yes	2024 2024
79-00237.000	WILLIAMS MATTHEW J &/OR AUDRIA J	24250 WEST EGYPT RD MINERVA, OH. 44657	40	Existing	No	N/A
79-01690.000, 79-01690.001	WOOLF WILLIAM A &/OR JEANNE K WOOLF	26533 SUMMER, EAST ROCHESTER, OH, 44625	45.085 48.003	Existing Existing	Yes No	2021 N/A
010000582000	ZWICK RAYMOND E & MARTHA JEAN	2324 BELLFLOWER RD NE, EAST ROCHESTER, OH 44625	78.31	Existing	No	N/A
010000369000	ZWICK SAMANTHA N	7200 ABBEY RD NE CARROLLTON, OH 44615	6.309	Existing	Yes	2024
Governmental/Customer Account/External Affairs Notification for Impacted Parcels Only						
None Provided (Railroad)	OHIO CENTRAL RAILROAD	Not Provided	N/A	Existing	N/A	N/A
79-00563.001	OHIO STATE OF	Not Provided	4.404	Existing	No	N/A
79-00187.001	OHIO STATE OF	Not Provided	1.713	Existing	No	N/A
79-00556.001	OHIO STATE OF	Not Provided	0.910	Existing	No	N/A
79-00408.001	OHIO STATE OF	Not Provided	0.681	Existing	No	N/A
340090013000	TENNESSEE GAS PIPELINE CO	PO BOX 4372, HOUSTON, TX, 77210	185.602	Existing	No	N/A




















Ohio Department of Natural Resources



MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate John Kessler, Chief 2045 Morse Road – Bldg. E-2 Columbus, OH 43229 Phone: (614) 265-6621 Fax: (614) 267-4764

June 1, 2020

Ben Otto Jacobs 400 E. Business Way, Suite 400 Cincinnati, Ohio 45241

Re: 20-383; Request No. 18-182; Holloway-Knox 138 kV Transmission Line Rebuild Project

Project: The proposed project involves replacing existing wood h-frame structures of the 138-kV electric transmission line with a combination of new direct embedded steel and drilled shaft H-frame wood pole structures within the existing and maintained 100-foot wide right-of-way.

Location: The proposed project is located in Columbiana, Carroll, Harrison, and Belmont Counties, Ohio.

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

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

The Natural Heritage Database has data within the project area, given in the attached shapefiles. The review was based on the project area specified in the request and performed using the shapefile provided to us. Records searched date from 1980. This data is provided to inform you of features present within the project area. Additional comments on some of the features may be found in pertinent sections below.

Records included in the data layer may be for rare plants and animals, geologic features, high quality plant communities, and other ecological features. Fields included are scientific and common names, state and federal statuses (when applicable), date of most recent observation, and whether the record is located within a managed area or conservation site.

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

endangered, FT = federal threatened, FSC = federal species of concern, and FC = federal candidate species.

There are a few species considered as sensitive for which we do not give out an exact location. They are not within the data layer but are included in the sensitive species data layer which shows a general location.

The managed areas layer shows boundaries for state, federal, county, non-profit, private and sites under other types of ownership that are protected and managed for their natural resources. Please be aware that this layer may not be complete, and we are continually updating it as additional information becomes available to us.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project is within the range of the Indiana bat (Myotis sodalis), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (Carya ovata), shellbark hickory (Carya laciniosa), bitternut hickory (Carya cordiformis), black ash (Fraxinus nigra), green ash (Fraxinus pennsylvanica), white ash (Fraxinus americana), shingle oak (Quercus imbricaria), northern red oak (Quercus rubra), slippery elm (Ulmus rubra), American elm (Ulmus americana), eastern cottonwood (Populus deltoides), silver maple (Acer saccharinum), sassafras (Sassafras albidum), post oak (Ouercus stellata), and white oak (Ouercus alba). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel. The DOW understands that there is no in-water work proposed for this project. Therefore, this project is not likely to impact this or other mussel species.

The project is within the range of the Tippecanoe darter (*Etheostoma tippecanoe*), a state threatened fish, and the channel darter (*Percina copelandi*), a state threatened fish. The DOW understands that there is no in-water work proposed for this project. Therefore, this project is not likely to impact these or other aquatic species.

The project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), a state endangered species and a federal species of concern. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size to provide suitable habitat, this project is not likely to impact this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus cyaneus*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the American bittern (*Botaurus lentiginosus*), a state endangered bird. Nesting bitterns prefer large undisturbed wetlands that have scattered small pools amongst dense vegetation. They occasionally occupy bogs, large wet meadows, and dense shrubby swamps. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the least bittern (*Ixobrychus exilis*), a state threatened bird. This secretive marsh species prefers dense emergent wetlands with thick stands of cattails, sedges, sawgrass or other semiaquatic vegetation interspersed with woody vegetation and open water. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community %20Contact%20List 8 16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or <u>Sarah.Tebbe@dnr.state.oh.us</u> if you have questions about these comments or need additional information.

Mike Pettegrew Environmental Services Administrator (Acting)

 From: Ohio, FW3 <ohio@fws.gov>
 EX

 Sent: Monday, April 13, 2020 12:49 PM

 To: Otto, Ben/CIN <Ben.Otto@jacobs.com>

 Subject: [EXTERNAL] ATSI Holloway-Knox 138 kV Transmission Line Rebuild Project, Columbiana, Carroll, Harrison, and Belmont Counties, Ohio



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-0404

Dear Mr. Otto,

We have received your recent correspondence regarding potential impacts to federally listed species in the vicinity of the above referenced project. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. We recommend that proposed activities minimize water quality impacts, including fill in streams and wetlands. Best management practices should be utilized to minimize erosion and sedimentation.

FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES COMMENTS: Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees \geq 3 inches diameter at breast height between October 1 and March 31) to avoid impacts to the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*), we do not anticipate adverse effects to any 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 U.S. Fish and Wildlife Service (Service) should be initiated to assess any potential impacts.

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 Endangered Species Act (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.

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.), 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 Mike

Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.state.oh.us.

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

Sincerely,

Patrice Ashfield Ohio Field Office Supervisor

Exhibit 18

Wetland and Waterbody Delineation Report

Knox-Washington 138 kV Transmission Line Rebuild Project

Carroll and Columbiana Counties, Ohio

Prepared for



May 2020



Jacobs Engineering Group, Inc. 2 Crowne Point Court Cincinnati, OH 45241

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Acronyms and Abbreviations

ATSI	American Transmission Systems Inc.
CWA	Clean Water Act
ESC	Environmental Survey Corridor
°F	Fahrenheit
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
Jacobs	Jacobs Engineering Group, Inc.
kV	Kilovolt
NHD	National Hydrography Dataset
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OAC	Ohio Administrative Code
OBL	Obligate wetland
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High-Water Mark
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PFO	Palustrine forested
PHWH	Primary Headwater Habitat
Project	Knox-Washington 138 kV Transmission Line Rebuild Project
PSS	Palustrine scrub-shrub
QHEI	Qualitative Habitat Evaluation Index
ROW	Right-of-way
TNW	Traditionally navigable water
UPL	Upland
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

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USGS United States Geological Survey

1 Introduction

This wetland and waterbody delineation report (Report) summarizes the results of the wetland and waterbody delineation surveys conducted in Carroll and Columbiana Counties, Ohio by Jacobs Engineering Group, Inc. (Jacobs), for American Transmission Systems Inc. (ATSI), a subsidiary of FirstEnergy Corporation (FirstEnergy). ATSI is proposing to replace existing wood H-Frame structures with new direct embedded steel and drilled shaft H-frame wood pole structures as part of the Knox-Washington 138 kilovolt (kV) Transmission Line Rebuild Project (Project). The Project (approximately 13 miles long) is the northern most segment of a larger 64-mile project originating at the Knox Substation in Columbiana County, near the intersection of Township Line Road and Knox School Road, north of the City of Chambersburg, and extending south to the Holloway Substation terminus in Belmont County, southeast of the City of St. Clairsville. The larger 64-mile project is broken down into five phases, of which this Project is Phase 1.

The Project starts in Columbiana County at the Knox Substation and extends south, ending just north of Cobbler Road NE in Carroll County, as shown on Overview Figure (Figure 1). Jacobs conducted environmental surveys May 1-4, 2018 and June 5, 2018. The environmental survey corridor (ESC) included the existing 100-foot right-of-way (ROW), potential access routes, and pull pads.

This wetland and waterbody delineation report contains the following components:

- Figure 1 provides an overview map of the ESC overlain on ArcGIS Online USA topographic maps.
- Figures 2-A through 2-AU show U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) mapped soil units, the location of National Wetland Inventory (NWI) polygons, national hydrography dataset (NHD) streams, and Federal Emergency Management Agency (FEMA) 100-year floodplain and floodway information. Table 3-1 lists the soils types identified within the ESC and Table 3-2 list the NWI wetland types identified within the ESC.
- Figures 3-A through 3-AU provide the location of all features mapped during the delineation by Jacobs biologists within the ESC. This includes all wetlands, data points, waterbodies, and ponds. Tables 4-1 (wetlands), 4-2 (streams), 4-3 (ponds) follow the text, and provide detailed information for all delineated features within the ESC. Tables 4-4 (wetlands), 4-5 (streams), and 4-6 (ponds) within the text, provide summary information for all delineated features within the ESC.
- U.S. Army Corps of Engineers (USACE) wetland determination field data forms are in Appendix A.
- Ohio Rapid Assessment Method for Wetlands (ORAM) two-page forms are in Appendix B.
- Primary Headwater Habitat Evaluation Index (HHEI) stream data forms for each stream identified with a drainage area less than 1 square mile are in Appendix C.
- Qualitative Habitat Evaluation Index (QHEI) stream data forms for each stream identified with a drainage area of 1 square mile or greater are in Appendix D.
- Jacobs Open Water/Pond data forms for each open water feature identified within the ESC are in Appendix E.
- Representative photographs for all delineated features within the ESC are in Appendix F.

2 Background Information

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

2.1 Project Area

The Project is located within Carroll and Columbiana Counties, Ohio. The ESC begins at Knox Substation, west of Knox School Road (40.807613, -81.037256) and extends generally south terminating at the north end of the Washington-Polo Road (Kilgore) 138 kilovolt (kV) Transmission Line (i.e., Phase 2), which is just north of Cobbler Road NE (40.622370, -81.042573) as shown in Figure 1. The ESC is approximately 13-miles long and is 100 feet wide within the Project ROW, and it also contains multiple proposed off-ROW access routes and pull pads.

Review of the USGS 7.5-minute topographic maps indicates the ESC crosses three USGS 7.5-minute topographic quadrangles and includes: Homeworth, Minerva, and Carrollton. Additional review of the USGS 7.5-minute topographic maps of the area indicates that multiple ditches, streams, and rivers drain the ESC, including Conser Run, Muddy Fork, Pipes Fork, Reed's Run, Sandy Creek, Still Fork and multiple unnamed tributaries of these waterways. Topographic relief is comprised of a landscape of rolling hills, with elevations ranging between 1,040 feet and 1,320 feet above sea level throughout the ESC (Figure 1).

Land use and natural communities observed within the ESC includes agricultural land, existing roadway, existing ROW, industrial/substation, residential, old field, upland scrub shrub, palustrine emergent (PEM) wetland, palustrine scrub-shrub (PSS) wetland, and palustrine forested (PFO) wetland, in addition to the previously identified waterbodies.

2.1.1 Annual Precipitation

TABLE 2-1: Recent Precipitation Data

Recent rainfall data for Steubenville, Ohio was reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. Steubenville, Ohio was the nearest weather station with both historical and recent precipitation records. Rainfall recorded in Steubenville, Ohio was above normal for two out of three months prior to survey conducted in the month of May (Table 2-1; USDA, 2018). This data suggests climatic conditions were generally wetter than normal for 2018 leading up to the ecological survey of May. This was taken into consideration during the delineation.

Knox-Washington 138 kV Transmission Line Rebuild Project								
2018 Precipitation Data	Feb	Mar	Apr	May	Total			
Steubenville Monthly Sum ^{1, 3}	5.76	1.63	5.61	1.81	14.81			
Steubenville Normal Precip. ^{2, 3}	1.69-2.93	2.56-3.80	2.33-3.77	2.95-4.85	9.53-15.35			
Monthly climatic condition	Above Normal	Below Normal	Above Normal	Below Normal	Normal			

¹Monthly weather summary from weather station Steubenville, OH (2018)

²USDA WETS Station Climate Data 1971-2000 (Steubenville, OH (USDA 2000))

³Displayed in inches

2.1.2 Drainage Basins

The ESC is within the Mahoning (05030103) and Tuscarawas (05040001), 8-digit Hydrologic Unit Codes (HUC). The ESC crosses ten 12-digit HUCs, as outlined in Table 2-2 (USGS, 2018):

TABLE 2-2: 12-Digit HUCs Crossed by the Project Knox-Washington 138 kV Transmission Line Rebuild Project

knox-washington 130 kw manshission Line Rebuild Project					
HUC 12-Digit Code	HUC 12-Digit Name				
050301030101	Beaver Run-Mahoning River				
050400010401	Conser Run				
050400010402	Middle Branch Sandy Creek				
050400010403	Pipes Fork-Still Fork				
050400010404	Muddy Fork				
050400010405	Reeds Run-Still Fork				
050400010406	Headwaters Sandy Creek				

Source: USGS 2018

2.1.3 Traditional Navigable Waters

The U.S. Environmental Protection Agency (EPA) and USACE assert jurisdiction over "all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce including all waters which are subject to the ebb and flow of the tide" (USACE and EPA, 2008). These waters are considered traditionally navigable waters (TNW). The ESC does not directly cross a TNW, yet many of the streams will be considered tributaries to the Mahoning or Tuscarawas Rivers (USACE, 2009).

3 Wetland and Waterbody Delineation

3.1 Desktop Review

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

- Aerial photo-based maps (ArcGIS Online, World Imagery Map, 2018)
- Topographic maps (ArcGIS Online, USA Topo Maps, 2018)
- NRCS Web Soil Survey (NRCS, 2018)
- NWI shapefile (USFWS, 2018)
- National Hydrography Dataset (NHD) (USGS, 2018)

According to the NRCS soil survey of Carroll and Columbiana Counties (NRCS, 2018), 48 soil map units are crossed by the ESC. Of the 48 soil map units, one is listed as hydric, two predominantly hydric, eight predominantly non-hydric, and the remaining 37 units are listed as not hydric (Figures 2-A to 2-AU; Table 3-1). NRCS data indicates that hydric soils comprise approximately 0.63 acres, which is approximately 0.4 percent of the ESC; approximately 21 acres of land cover in the ESC is comprised of predominately hydric soils, which is approximately 13 percent of the ESC; approximately 19 acres of land cover in the ESC is comprised of predominantly non-hydric, which is approximately 11 percent of the ESC; and approximately 126 acres of land cover in the ESC is comprised of predominately 126 acres of land cover in the ESC is comprised of non-hydric soils, which is approximately 76 percent of the ESC.

Generally, hydric soils are those soils that indicate through their color and structure that they have experienced dominantly reducing (i.e. oxygen poor) conditions. Oxygen-poor conditions result from inundation and/or saturation by water. Partially hydric soils have both hydric and non-hydric soil components identified in the mapped soil unit.

NWI data was obtained from the USFWS for review of potential wetlands that may occur within the ESC. The NWI data (USFWS, 2018) identifies the type of wetland or open water present at a location using the USFWS classification system (Cowardin et al., 1979). The NWI data indicated that 32 NWI features (approximately 16.5 acres) are within the ESC (Figure 2-A to 2-AU), three PEM wetland features (PEM1A, PEM1C), three palustrine scrub-shrub (PSS1/EM1A, PSS1/EM1C), three palustrine forested (PFO1C) features, five palustrine unconsolidated bottom (PUBG, PUBGx) features, and 18 riverine unconsolidated bottom (R2UBG, R5UBH) features (USFWS, 2018). The presence of an NWI feature is not a definitive indicator that a wetland or waterbody is present. The information on NWI maps is obtained largely from aerial interpretation, may be outdated, and is only sporadically field-checked. Additional detail regarding the mapped NWI wetlands within the ESC is provided in Table 3-2.

Knox-Washington 138 kV Transmission Line Rebuild Project							
Wetland Type ¹	Mapped NWI Features	Acreage within ESA					
PEM1A	1	0.90					
PEM1C	2	5.83					
PFO1C	3	0.86					
PSS1/EM1A	1	0.69					
PSS1/EM1C	2	5.22					
PUBG	4	1.48					
PUBGx	1	0.02					

TABLE 3-2: Mapped Nationa	l Wetland Inventory Features
---------------------------	------------------------------

Overall Total	32	16.53
R5UBH	17	1.10
R2UBG	1	0.43

¹Cowardin et al. 1979.

As shown on the FEMA floodplain panels (Figures 2-A to 2-AU), the ESC crosses the FEMA-mapped 100-year floodplains of eight streams (FEMA, 2018):

- Unnamed tributary to Conser Run (Stream KW-11)
- Conser Run (Stream KW-14)
- Sandy Creek (Stream KW-15)
- Muddy Fork (Stream KW-17)
- Reed's Run (Stream KW-20)
- Still Fork (Stream KW-21)
- Unnamed tributary to Pipe Run (Stream KW-24)
- Pipe Run (Stream KW-27 and Stream KW-28)

3.2 Field Survey Methodology

Jacobs biologists surveyed the ESC May 1-4, 2018 and June 5, 2018, by walking the corridor and evaluating for wetlands and other waters of the U.S. The boundaries of each wetland and waterbody within the ESC were delineated and recorded using handheld global positioning system (GPS) units. For waterbodies identified within the Project area, the ordinary high-water mark (OHWM) was used as the jurisdictional boundary.

Wetland, stream, and pond data was recorded on USACE Regional Supplement wetland determination data forms, Headwater Habitat Evaluation Index (HHEI) forms and Qualitative Habitat Evaluation Index (QHEI) forms, and Jacobs standard open water/pond data forms, respectively. All other land use, habitat, and other supplemental data was collected in a field notebook during the environmental survey.

3.2.1 Wetland Delineation

Wetland boundaries were field-delineated according to Section 404 of the Clean Water Act (CWA) and the routine onsite methodology described in the Technical Report Y-87-1 *Corps of Engineers' Wetlands Delineation Manual* and subsequent guidance documents (USACE, 1987) and according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE, 2012). Wetland delineation data was recorded on the USACE Regional Supplement wetland determination data forms. Representative wetland and upland data points were recorded during the wetland delineation to determine the presence/absence of wetlands and/or document upland conditions within the Project area. Upland data points were determined not to be within wetlands because they did not have positive indicators of one or more of the three wetland criteria: hydrophytic vegetation, wetland hydrology, and hydric soils.

3.2.1.1 Soils

Jacobs biologists examined soils using a shovel to extract soil cores, which were examined for hydric soil characteristics. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 1988) was used to identify the hue, value, and chroma of the matrix and mottles of the soils. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics (USACE, 1987). In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.

3.2.1.2 Hydrology

The *1987 Manual* requires that an area be inundated or saturated to the surface for an absolute minimum of five percent of the growing season. Areas saturated between five percent and 12.5 percent of the growing season may or may not be wetlands, while areas saturated over 12.5 percent of the growing season fulfill the hydrology requirements for wetlands. The *Regional Supplement* states that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year; (1) above-ground growth and development of vascular plants, and/or (2) soil temperature (12-in. depth is 41 degree Fahrenheit (°F) or higher) as an indicator of soil microbial activity. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later.

The soils and ground surface were examined by Jacobs biologists for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the *1987 Manual* and the *Regional Supplement*. Evidence indicating wetland hydrology typically includes primary indicators such as surface water, saturation, water marks, drift deposits, water-stained leaves, sediment deposits and oxidized rhizospheres on living roots; and secondary indicators such as, drainage patterns, geomorphic position, micro-topographic relief, and a positive Facultative (FAC)-neutral test (USACE, 2011).

3.2.1.3 Vegetation

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the 2016 National List of Plant Species that Occur in Wetlands: Region 1 (Region 1 encompasses the state of Ohio). An area is determined to have hydrophytic vegetation when, under normal circumstances, 50 percent or more of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when more than 50 percent of the composition of the dominant species was FACU and/or UPL species. In addition to the dominance test, the FAC-Neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation.

Wetland quality was evaluated using the Ohio Environmental Protection Agency (OEPA) Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001). Categorization was conducted in accordance with the latest quantitative score calibration (OEPA, 2000). Wetlands are scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into subcategories under ORAM v5.0 resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1", 30 to 59.9 are "Category 2" and 60 to 100 are "Category 3". Transitional zones exist between "Categories 1 and 2" from 30 to 34.9 and between "Categories 2 and 3" from 60 to 64.9. However, according to the OEPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower category (Mack, 2001).

According to recent guidance from the USEPA and USACE, wetlands that are adjacent to or have a significant nexus to TNWs are regulated under Sections 401 and 404 of the CWA (USEPA and USACE, 2008). A significant nexus must meet criteria that indicate the wetland provides biological, physical, or chemical benefits to the TNW. A significant nexus includes consideration of both hydrologic and ecologic factors. All of the streams in the ESC are tributaries to the Mahoning or Tuscarawas Rivers.

3.2.2 Stream Assessment

Jurisdictional streams were identified as those waters that possessed a continuously defined bed and bank, OHWM indicators, and lacked a dominance of upland vegetation in the channel. Per USACE guidance, the OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (USACE, 2005). Channels that parallel a roadway or railroad were identified as upland drainage features and were not considered to be jurisdictional unless they had an identifiable OHWM, were identified on the USGS topographic map, or represented a presumed relocation of a natural channel.

During the field survey, functional stream assessments were conducted using the methods described in the OEPA's Methods for Assessing Habitat in Flowing Waters: Using OEPA's *Qualitative Habitat Evaluation Index* (OEPA, 2006) and in the OEPA's Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (OEPA, 2002). The Qualitative Habitat Evaluation Index (QHEI), is used to characterize larger streams (drainage areas greater than 1 square mile), while the Primary Headwater Habitat Evaluation Index (HHEI) is appropriate for first-order and second-order headwater streams (drainage areas less than 1 square mile).

4 Field Survey Results

Jacobs biologists surveyed the ESC on May 1-4, 2018 and June 5, 2018 by walking the 100-foot wide ESC and evaluating for wetlands and other waters of the U.S. A total of 22 wetlands, 28 streams, and seven ponds were delineated within the Project ESC (Figures 3A to 3-AU). The features identified within the Project ESC are displayed and identified on the Wetlands and Waterbodies Delineation Map (Figures 3-A to 3-AH). Detailed information for wetland and waterbody features within the Project ESC is provided in Tables 4-1 (wetlands), 4 2 (streams), and 4-3 (ponds).

4.1 Wetlands

Twenty-two wetlands totaling 21.03 acres, ranging in size from 0.03 to 5.30 acres, were delineated within the ESC and are depicted in Figure 3-A to 3-AU. Of the 22 wetlands, 20 were identified as PEM wetlands, one was identified as a PEM/PSS wetland complex, and one was identified as a PEM/PSS/PFO complex.

Detailed information for each delineated wetland within the ESC is provided in Table 4-1 (follows text) and a summary of the delineated wetlands is provided in Table 4-4. The reported wetland acreage only corresponds to areas delineated within the ESC as some wetlands extended beyond the survey boundary. Completed USACE wetland and upland determination forms are provided in Appendix A. Representative photographs were taken of each wetland during the field survey and are provided in Appendix F.

Knox-Washington 138 kV Transmission Line Rebuild Project									
Watland	0	RAM Catego	ry	Number of					
Туре	Category 1	Category 2	Category 3	Wetlands	Acreage within ESC				
PEM	8	12	0	20	17.15				
PEM/PSS	0	1	0	1	1.09				
PEM/PSS/PFO	0	1	0	1	2.79				
Totals	8	14	0	22	21.03				

TABLE 4-4: Wetland Summary Table

4.1.1 Wetland ORAM Results

A total of eight Category 1 wetlands and 14 Category 2 wetlands were identified within the ESC. No Category 3 wetlands were identified within the ESC. Table 4-4 provides additional summary information regarding wetlands identified within the ESC. Completed ORAM forms are included in Appendix B.

Eight wetlands were classified as Category 1 wetlands based on ORAM scores ranging from 15 to 29. Generally, these wetlands scored low due to a variety of factors such as small size, intensity of surrounding land use, narrow buffer areas, disturbance to soils and hydrology, the lack of second growth vegetation, and the presence of invasive species.

Fourteen wetlands were classified as Category 2 wetlands based on ORAM scores ranging from 30 to 55. Generally, Category 2 wetlands exhibit medium upland buffers, very low to moderately high intensity surrounding land use (e.g. second growth forest, residential, fenced pasture), sparse to moderate coverage of invasive species, and have recovered or are recovering from previous manipulations such as clearcutting, shrub/sapling removal, or other disturbances.

4.2 Streams

A total of 28 streams, totaling 6,421 linear feet, were identified within the ESC as shown in Figures 3-A to 3-AU. Of the 28 streams, eight streams were identified as ephemeral streams, three were intermittent streams, and 17 were perennial streams. Twenty-one streams were assessed using the HHEI methodology (drainage area less than 1 mi²) and seven streams were assessed using the QHEI methodology (drainage area greater than 1 mi²). Detailed information for each delineated stream within the ESC is provided in Table 4-2 (follows text).

4.2.1 QHEI Results

TABLE 4-5: QHEI Summary Table

Seven streams, totaling 1,243 linear feet, within the ESC were evaluated using the QHEI methodology. Of the seven QHEI streams, three were classified as Poor Warmwater, three as Fair Warmwater, and one as Good Warmwater. A summary of the QHEI results for the identified stream is provided in Table 4-5. Completed QHEI forms are included in Appendix C.

Knox-Washington 138 kV Transmission Line Rebuild Project										
		N								
Flow Regime	Very Poor Warmwater	Poor Warmwater	Fair Warmwater	Good Warmwater	Excellent Warmwater	of Streams	within ESA			
Perennial	0	3	3	1	0	7	1,243			
Total	0	3	3	1	0	7	1,243			

4.2.2 HHEI Results

Twenty-one headwater streams totaling 5,178 linear feet within the ESC were evaluated using the HHEI methodology. A summary of the HHEI results for streams identified within the ESC is provided in Table 4-6. Completed HHEI forms are included in Appendix D.

TABLE 4-6: HHEI Summary Tabl

Knox-Washington 138 kV Transmission Line Rebuild Project

Flow Regime	Ephemeral	Modified Ephemeral	Small Drainage Warmwater	Modified Small Drainage Warmwater	Spring Water	Number of Streams	Length (feet) within ESA
Ephemeral	4	3	1	0	0	8	2,059
Intermittent	0	0	2	1	0	3	1,515
Perennial	0	0	8	1	1	10	1,604
Total	4	3	11	2	1	21	5,178

4.3 Ponds/Open Water

Seven ponds, totaling 1.09 acres, were identified within the ESC. Detailed information for each delineated pond within the ESC is provided in Table 4-3 (follows text). More detailed information on pond conditions can be found in Appendix E. Representative photographs of ponds can be found in Appendix F.

5 Conclusion

Jacobs conducted an environmental survey of the Knox-Washington 138 kV Transmission Line Rebuild Project on May 1-4, 2018 and June 5, 2018. A total of 22 wetlands, 28 streams, and seven ponds were delineated within the Project ESC. The 22 wetlands totaling 21.03 acres within the ESC were identified as three different wetland habitat types which included 20 PEM wetlands, one PEM/PSS wetland complex, and one PEM/PSS/PFO wetland complex. Of the 22 wetlands, eight wetlands were identified as Category 1 wetlands and fourteen wetlands were identified as Category 2 wetlands. No Category 3 wetlands were identified within the ESC.

The 28 streams, totaling 6,421 linear feet within the ESC, included eight ephemeral streams, three intermittent streams, and 17 perennial streams. Twenty-one streams were assessed using the HHEI methodology (drainage area less than 1 mi²) and seven streams were assessed using the QHEI methodology (drainage area greater than 1 mi²). Additionally, seven ponds were identified within the ESC that totaled 1.09 acres.

The jurisdiction of all assessed features will be determined by the USACE based on hydrologic connectivity. Further coordination with the USACE is recommended prior to the submittal of any permit or construction activities.

The results of the environmental resource survey described in this report conducted by Jacobs are limited to what was identified within the ESC and depicted in Figure 3A to 3-AU. The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance for construction; therefore, lengths and acreages listed in this report may likely not constitute the actual impacts of the Project at the time of construction. If permits are determined to be necessary, actual impacted lengths and/or acreages will be submitted in subsequent permit applications.

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

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Tables

TABLE 3-1: Mapped Soil Units

Knox-Washinaton	138 kV	Transmission	Line	Rebuild P	roiect

Symbol	Description	Hydric Classification	Acres
BkE	Berks channery silt loam, 25 to 35 percent slopes	Non-Hydric	0.16
BtA	Bogart silt loam, 0 to 2 percent slopes	Non-Hydric	0.77
BtB	Bogart silt loam, 2 to 6 percent slopes	Non-Hydric	0.21
СсВ	Canfield silt loam, 2 to 6 percent slopes	Non-Hydric	11.38
CcC	Canfield silt loam, 6 to 12 percent slopes	Non-Hydric	2.56
CcD	Canfield silt loam, 12 to 20 percent slopes	Non-Hydric	1.71
CcE	Canfield silt loam, 20 to 35 percent slopes	Non-Hydric	2.79
ChB	Chili silt loam, 2 to 6 percent slopes	Non-Hydric	0.04
СоВ	Coshocton-Keene silt loams, 3 to 8 percent slopes	Non-Hydric	11.38
CuB	Culleoka silt loam, 3 to 8 percent slopes	Non-Hydric	4.99
FcA	Fitchville silt loam, 0 to 3 percent slopes	Predominantly Non-Hydric	1.35
FcB	Fitchville silt loam, 3 to 8 percent slopes	Predominantly Non-Hydric	0.56
FdA	Fitchville silt loam, 0 to 2 percent slopes	Predominantly Non-Hydric	3.77
FeA	Fluvaquents, silty, 0 to 1 percent slopes, frequently flooded	Hydric	0.63
FnC2	Fredericktown gravelly loam, 6 to 15 percent slopes, eroded	Non-Hydric	3.40
FoB	Fredericktown silt loam, 2 to 6 percent slopes	Non-Hydric	2.90
GeB	Glenford silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	1.20
GfB	Glenford silt loam, 3 to 8 percent slopes	Predominantly Non-Hydric	6.11
GnD	Gilpin silt loam, 15 to 25 percent slopes	Non-Hydric	0.61
GuC2	Guernsey silty clay loam, 8 to 15 percent slopes, eroded	Non-Hydric	0.59
HaD	Hazleton channery loam, 15 to 25 percent slopes	Non-Hydric	6.18
HaE	Hazleton channery loam, 25 to 35 percent slopes	Non-Hydric	1.60
HeB	Hazleton channery loam, 3 to 8 percent slopes	Non-Hydric	0.72
HeB	Hazleton loam, 3 to 8 percent slopes	Non-Hydric	2.97
HeC	Hazleton loam, 8 to 15 percent slopes	Non-Hydric	7.27
HeD	Hazleton loam, 15 to 25 percent slopes	Non-Hydric	4.25
HeE	Hazleton loam, 25 to 40 percent slopes	Non-Hydric	7.44
HgF	Hazleton-Westmoreland channery loams, 40 to 70 percent slopes	Non-Hydric	2.12
HIB	Homewood silt loam, 2 to 6 percent slopes	Non-Hydric	0.58
HzC	Hazleton channery loam, 6 to 15 percent slopes	Non-Hydric	0.13
JwB	Jimtown silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	0.36
KnC	Kensington silt loam, 6 to 15 percent slopes	Non-Hydric	6.80
KnD	Kensington silt loam, 15 to 25 percent slopes	Non-Hydric	5.56
ReB	Ravenna silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	0.78
RsB	Rittman silt loam, 2 to 6 percent slopes	Non-Hydric	0.39
RsC	Rittman silt loam, 6 to 12 percent slopes	Non-Hydric	1.07
RsD2	Rittman silt loam, 12 to 20 percent slopes, eroded	Non-Hydric	1.94
Sb	Sebring silt loam	Predominantly Hydric	16.76
TeC2	Teegarden silt loam, 6 to 15 percent slopes, eroded	Non-Hydric	2.42
Uc	Udorthents-Pits complex, 0 to 70 percent slopes	Non-Hydric	0.01
WhB	Wellston silt loam, 3 to 8 percent slopes	Non-Hydric	0.06
WkC	Westmoreland silt loam, 8 to 15 percent slopes	Non-Hydric	4.02
WkD	Westmoreland silt loam, 15 to 25 percent slopes	Non-Hydric	10.05
WkE	Westmoreland silt loam, 25 to 35 percent slopes	Non-Hydric	2.20
WmC	Westmoreland-Coshocton silt loams, 8 to 15 percent slopes	Non-Hydric	9.98
WmD	Westmoreland-Coshocton silt loams, 15 to 25 percent slopes	Non-Hydric	4.60
WoA	Wick silt loam, 0 to 2 percent slopes, frequently flooded	Predominantly Hydric	4.31
ZeA	Zepernick silt loam, 0 to 2 percent slopes, occasionally flooded	Predominantly Non-Hydric	5.05

Table 4-1: Detailed Delineated Wetland TableKnox-Washington 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Watland Typo1	$Area (ac)^2$	OPAM Score Category	
	Latitude	Longitude	wettand Type-	Alea (ac)	ORAW Store, Category	
Wetland KW-01	40.80809	-81.04120	PEM	0.88	46, Category 2	
Wetland KW-02	40.80416	-81.04160	PEM	0.18	38, Category 2	
Wetland KW-03	40.80043	-81.04156	PEM	0.04	30, Category 2	
Wetland KW-04	40.78208	-81.04159	PEM	0.30	41, Category 2	
Wetland KW-05	40.77915	-81.04161	PEM	0.05	37, Category 2	
Wetland KW-06E	40.77609	-81.04160	PEM	1.02	44.5, Category 2	
Wetland KW-06S	40.77521	-81.04145	PSS	0.07	44.5, Category 2	
Wetland KW-07	40.77182	-81.04159	PEM	3.78	41, Category 2	
Wetland KW-08	40.76780	-81.04161	PEM	0.48	29, Category 1	
Wetland KW-09	40.75137	-81.04214	PEM	0.68	23, Category 1	
Wetland KW-10	40.74943	-81.04226	PEM	0.13	15, Category 1	
Wetland KW-11	40.74736	-81.04229	PEM	0.08	21.5, Category 1	
Wetland KW-12	40.70451	-81.03875	PEM	1.08	39, Category 2	
Wetland KW-13	40.70326	-81.03879	PEM	0.74	41, Category 2	
Wetland KW-14	40.67272	-81.04048	PEM	1.00	33, Category 2	
Wetland KW-15E	40.66545	-81.03870	PEM	2.63	40, Category 2	
Wetland KW-15F	40.66541	-81.04065	PFO	0.08	40, Category 2	
Wetland KW-15S	40.66597	-81.03994	PSS	0.08	40, Category 2	
Wetland KW-16	40.65254	-81.04136	PEM	0.41	21, Category 1	
Wetland KW-17	40.64881	-81.04131	PEM	0.31	33, Category 2	
Wetland KW-18	40.64760	-81.04122	PEM	0.03	24, Category 1	
Wetland KW-19	40.64526	-81.04149	PEM	0.45	29, Category 1	
Wetland KW-20	40.64392	-81.04156	PEM	0.56	34, Category 2	
Wetland KW-21	40.63211	-81.04215	PEM	0.69	29, Category 1	
Wetland KW-22	40.62900	-81.04232	PEM	5.30	55, Category 2	
TOTAL: 22 WETLAND ACREAGE SUBTOTAL			21.03			

¹Cowardin et al. 1979.

²This acreage only corresponds to the area delineated within the environmental survey corridor.

TABLE 4-2: Detailed Delineated Stream Table

Knox-Washington 138 kV Transmission Line Rebuild Project

Stream ID Loc		cation	Flow Regime ¹	Linear	Average OHWM	Average TOB	HHEI/QHEI	Class / Designation
	Latitude	Longitude	now negline	Feet ²	Width (Feet)	Width (Feet)	Score	
Stream KW-01	40.80777	-81.03765	Ephemeral	563	1	2	26	Ephemeral
Stream KW-02	40.80779	-81.03860	Perennial	203	3	5	51	Spring Water
Stream KW-03	40.80836	-81.04138	Perennial	155	2	6	36	Small Drainage Warmwater
Stream KW-04	40.79230	-81.04164	Ephemeral	532	3	4	26	Ephemeral
Stream KW-05	40.79163	-81.04155	Ephemeral	139	3	5	35	Small Drainage Warmwater
Stream KW-06	40.78750	-81.04148	Perennial	168	3	5	54	Small Drainage Warmwater
Stream KW-07	40.78721	-81.04156	Ephemeral	109	1.5	3	21	Modified Ephemeral
Stream KW-08	40.78690	-81.04157	Ephemeral	96	2	3	21	Modified Ephemeral
Stream KW-09	40.78171	-81.04158	Perennial	167	2.5	4	41	Small Drainage Warmwater
Stream KW-10	40.77898	-81.04160	Perennial	138	1.5	2	17	Small Drainage Warmwater
Stream KW-11	40.77469	-81.04160	Intermittent	104	1.5	2	45	Modified Small Drainage Warmwater
Stream KW-12	40.76922	-81.04166	Perennial	233	1.5	2	49	Small Drainage Warmwater
Stream KW-13	40.75235	-81.04188	Intermittent	880	6	8	41	Modified Small Drainage Warmwater
Stream KW-14	40.74954	-81.04226	Perennial	128	15	20	47.25	Fair Warmwater
Stream KW-15	40.74762	-81.04232	Perennial	110	10	15	46.75	Fair Warmwater
Stream KW-16	40.72501	-81.04160	Perennial	130	3	4	56	Modified Small Drainage Warmwater
Stream KW-17	40.70370	-81.03879	Perennial	151	15	25	41.5	Poor Warmwater
Stream KW-18	40.69156	-81.03910	Perennial	106	3.5	6	66	Small Drainage Warmwater
Stream KW-19	40.68734	-81.03945	Perennial	171	2	5	42	Small Drainage Warmwater
Stream KW-20	40.67248	-81.04050	Perennial	103	15	18	41.5	Poor Warmwater
Stream KW-21	40.66482	-81.04108	Perennial	333	15	20	49	Fair Warmwater
Stream KW-22	40.65326	-81.04135	Ephemeral	161	2	5	25	Modified Ephemeral
Stream KW-23	40.64797	-81.04123	Ephemeral	361	1	2	22	Ephemeral
Stream KW-24	40.64553	-81.04142	Perennial	131	2.5	4	47	Small Drainage Warmwater
Stream KW-25	40.64467	-81.04139	Intermittent	532	2	3	42	Small Drainage Warmwater
Stream KW-26	40.63736	-81.04189	Ephemeral	99	2	4.5	43	Small Drainage Warmwater
Stream KW-27	40.62852	-81.04220	Perennial	186	15	15	62.25	Good Warmwater
Stream KW-28	40.62541	-81.04245	Perennial	232	15	15	39.25	Poor Warmwater
TOTAL: 28		CUMULATIVE	STREAM LENGTH	6.421				

¹ Flow regime is defined as perennial, intermittent, or ephemeral. This determination was interpreted using field observations and USGS topographic maps as appropriate.

²Stream length within the environmental survey area.

TABLE 4-3: Detailed Delineated Pond Table Knox-Washington 138 kV Transmission Line Rebuild Project

Pond ID	Loc	Area (ac)1		
Polla ID	Latitude	Longitude	Area (ac)-	
Pond KW-01	40.76341	-81.04168	0.17	
Pond KW-02	40.75327	-81.04195	0.01	
Pond KW-03	40.72582	-81.04170	0.09	
Pond KW-04	40.72524	-81.04177	0.22	
Pond KW-05	40.72478	-81.04171	0.06	
Pond KW-06	40.68107	-81.03969	0.01	
Pond KW-07	40.63139	-81.04219	0.53	
TOTAL: 7		CUMULATIVE POND AREA	1.09	

¹This acreage only corresponds to the area delineated within the environmental survey corridor.

Figures





























































































































































- Upland Data Point
- Wetland Data Point

Delineated PSS Wetland Delineated PUB Wetland



CREATED BY: RED

REVIEWED BY: BAO

Jacobs






























































































































Appendix A USACE Wetland Determination Field Datasheets

				Report Name:	Wetland KW-1	
Project/Site: Holloway-Knox 138 k	V Transmission Line	City/County:	Columbiana	Sampling Date	: 5/1/2018	
Applicant/Owner: FirstEnergy		State:	Ohio	Sampling Point	:: w-mdt-5/01/2018-03a	
Investigator(s): <u>M. Thomayer, T. Qua</u>	lio; Jacobs	Section	, Township, Ran	ge: <u>T16N R5W S4</u>	01 (01) 0 101	
Landform (hillslope, terrace, etc.): <u>I</u>	oodplain	Local relief (cor	icave, convex, no	one): <u>concave</u>	Slope (%): <u>0-1%</u>	
Soil Map Unit Name: EdA- Eitchville sil	t loam 0 to 2 percent	slopes	LONG NW	LClassification: R5	URH	
Are elimetic/budgelegie conditions of the	a site trained for this ti					
Are climatic/hydrologic conditions of th	e site typical for this ti	ime of the year?	res <u>x</u>		explain in remarks)	
Are vegetation, soil	, or hydrology	significantly	disturbed?	Are "normal circum	stances" Yes	
Are vegetation, soli	, or hydrology	naturally pr	oblematic?	(If needed explain	any answers in remarks	
SUMMARY OF FINDINGS						
	N/					
Hydrophytic vegetation present?	Yes	le the sam	olod area within	a wetland?	/es	
Wetland hydrology present?	Voc	is the sam			63	
	165					
Remarks:						
Wetland Hydrology Indicators:			Second	ary Indicators (mini	mum of two required)	
Primary Indicators (minimum of one is	required: check all the	at apply)	Sur	face Soil Cracks (B6)		
X Surface Water (A1)	True Aqua	tic Plants (B14)	Oui	Sparsely Vegetated Concave Surface (B8) X Drainage Patterns (B10)		
X High Water Table (A2)	Hvdrogen 3	Sulfide Odor (C1)	X Dra			
X Saturation (A3)	Ovidized F	Phizospheres on Liv	ing Mos	ss Trim Lines (B16)		
Water Marks (B1)	Roots (C3)		Drv	-Season Water Table	e (C2)	
Sediment Deposits (B2)	Presence	of Reduced Iron (C	4) Cra	yfish Burrows (C8)	()	
Drift Deposits (B3)	Recent Iro	n Reduction in Tille	rial Imagery (C9)			
Algal Mat or Crust (B4)	Soils (C6)		Stu	Stunted or Stressed Plants (D1)		
Iron Deposits (B5)	Thin Muck	Surface (C7)	X Geo	omorphic Position (D2	2)	
Inundation Visible on Aerial	Other (Exp	lain in Remarks)	Sha	llow Aquitard (D3)		
Imagery (B7)			X Mic	rotopographic Relief	(D4)	
Water-Stained Leaves (B9)			X FAC	C-Neutral Test (D5)		
Aquatic Fauna (B13)						
Field Observations:						
Surface water present? Yes	X No	Depth (inches):	1	Wetland		
Water table present? Yes	<u>X</u> No	Depth (inches):	5	hydrology		
Saturation present? Yes		D (1 /2 -)	<u>^</u>		X	
(includes capillary fringe)	<u>X</u> No	Depth (inches):	0	present?	Y	

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturated and inundated throughout. Perennial stream flows through wetland.

VEGETATION - Use scientific names of plants

		1				Sampling Point:	w-mdt-5/01/2018-03
Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds Tree Stratum	20% 50% 0 0
1				·		Sapling/Shrub Stratum	0 0
2						Herb Stratum	21 53
3 4						woody vine Stratum	0 0
5 6						Dominance Test Workshe Number of Dominant	et
7						Species that are OBL,	
8						FACW, or FAC: Total Number of Dominant	<u> 2 (</u> A)
10						Species Across all Strata:	(B)
			0 =	Total Cover		Percent of Dominant	
Sanling/Shrub			Absolute %	Dominant	Indicator	Species that are OBL,	100.00% (A/P)
Stratum	Plot Size (15 ft.)	Cover	Species	Status		<u>100:00 %</u> (A/B)
1						Prevalence Index Worksh	eet
2						I otal % Cover of: OBL species 10 x 1	1 = 10
4						FACW species 95 x 2	2 = 190
5						FAC species 0 x 3	3 = 0
7						UPL species 0 x 5	5 = 0
8						Column totals 105 (A) <u>200</u> (B)
9						Prevalence Index = B/A =	1.90
		·······	0 =	Total Cover		Hydrophytic Vogotation Ir	dicators:
Herb Stratum	Plot Size (5.ft)	Absolute %	Dominant	Indicator	X Rapid test for hydrophy	rtic vegetation
1 Declaria aruna		5 n.)	Cover	Species	Status	X Dominance test is >50%	%
2 Typha latifolia	iiiacea		10	<u> </u>	OBL	Morphological adaptation	ons* (provide
3						supporting data in Rem	arks or on a
4 5						separate sheet) Problematic hydrophyti	c vegetation*
6						(explain)	e regetation
7						*Indicators of hydric soil and wetl	and hydrology must be
8 9						present, unless disturbed or prob	lematic
10						Definitions of Vegetation	Strata:
11						breast height (DBH), regardless of	i) or more in diameter at of height.
13						Sapling/shrub Woody plants lo	es than 2 in DRU and
14 15						greater than 3.28 ft (1 m) tall.	
			105 =	Total Cover		Herb - All herbaceous (non-wood	ly) plants, regardless of 3 28 ft tall
Woody Vine	Plot Size (30 ft.)	Absolute %	Dominant	Indicator	oizo, ana woody planto looo than	0.20 11 1011.
Stratum	,	,	Cover	Species	Status	Woody vines - All woody vines g height.	_l reater than 3.28 ft in
2							
3 4						Hydrophytic	
5						vegetation	
			0 =	Total Cover		present? Y	_
Remarks: (Include pl	noto numbers her	re or on a separa	ate sheet)			1	

Sampling Point: w-mdt-5/01/2018-03a

	Matrix		Rec	lox Feat	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Техците	Remarks
0-12	10YR 3/2	90	10YR 4/6	10	С	М	silty clay	
					ļ			
						<u> </u>		
I ype: C=C	oncentration, D=	Depletio	n, RM=Reduced	i Matrix,	CS=Cov	/ered or	Coated Sand Grains	
Location:	PL=Pore Lining,	w=Matri	X					
ydric Soi	Indicators:						Indicators for P	Problematic Hydric Soils:
	()		Dark St	urtace (S	37) 	- (00)	0 M L	
Histisol	(A1)		Polyval		w Surrac	e (58)	2 cm Muck (A10) (MLRA 147)
	(A2)		(MILKA Thin Da	147, 14 ark Surfs	ace (S9)		Coast Prain	e Redox (A16) (MLRA 147, 14 oodplain Soils (E19)
	$an Sulfide (\Delta A)$			147 14	8)		(MI PA 136	147)
Stratifie	$d \mid avers (\Delta 5)$			Gleved	Matrix (F	2)	Very Shallov	w Dark Surface (TE12)
2 cm M	uck (A10) (I RR	N)	X Deplete	d Matrix	(F3)	-)	Other (Expla	ain in Remarks)
Deplete	d Below Dark Su	urface (A	(11) Redox	Dark Su	rface (F6	5)		
 Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface ((F7)		
Sandy	Mucky Mineral (S	Ś1)	Redox	Depress	ions (F8)		
(LRR N	, MLRA 147, 14	8)	Iron-Ma	inganes	e Masse	s (F12) ((LRR N, MLRA 136)	
Sandy	Gleyed Matrix (S	4)	Umbric	Surface	e (F13) (N	/ILRA 13	36, 122)	
Sandy	Redox (S5)		Piedmo	nt Flood	Iplain So	ils (F19)	(MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 147)	
ndicators	of hydrophytic ve	egetation	and wetland hy	drology	must be	present,	unless disturbed or prob	lematic
		۵۱.						
estrictive	aver (if observe	(1):					Hydric soil preser	42 V
estrictive	Layer (if observe	a):						וני ז
estrictive ype: pepth (inch	Layer (if observe	a):			-			it :
estrictive ype: epth (inch	Layer (if observe es):	a):			-			<u> </u>
estrictive ype: epth (inch	Layer (if observe es):	a):			-			<u> </u>
estrictive ype: epth (inch emarks:	Layer (if observe es):	a):			-			<u> </u>
estrictive ype: epth (inch	Layer (if observe es):	a):			-			<u> </u>
estrictive ype: epth (inch emarks:	Layer (if observe es):	d): 			-			

Project/Site: Holloway-Kno	x 138 kV Transmission Line	City/County:	Columbiana	Report Name: Sampling Date	Upland KW-1 5/1/2018		
Applicant/Owner: FirstEnerg	ау	State:	Ohio	Sampling Point	:: upl-mdt-5/01/2018-03		
Investigator(s): <u>M. Thomayer</u> ,	T. Qualio; Jacobs	Section	n, Township, Range	: T16N R5W S4			
Landform (hillslope, terrace, etc	c.): <u>hillslope</u>	Local relief (cor	ncave, convex, non	e): <u>convex</u>	Slope (%): 2		
Subregion (LRR or MLRA): LI	RRN Lat.:	40.808075607	Long.: <u>-8</u>	31.041586479	Datum: NAD 83		
Soil Map Unit Name: CCE - Car	ntield slit loam, 20 to 35 perc	ent slopes		lassification: No	ne (Upland)		
Are climatic/hydrologic conditio	ns of the site typical for this	time of the year?	Yes <u>X</u> N	o(lf no, e	explain in remarks)		
Are vegetation, soil	, or hydrology	significantly	y disturbed? A	re "normal circum	stances" Yes		
Are vegetation, soil	, or hydrology	naturally pr	oblematic? pr	resent?			
SUMMARY OF FINDINGS	6		(1)	r needed, explain	any answers in remarks		
Hvdrophytic vegetation present	? No						
Hydric soil present?	No	Is the sam	pled area within a	wetland?	No		
Wetland hydrology present?	No		-				
Remarks:							
Lipland plat to DEM/DSS	watland (w mdt 0E/01/	0010 020/b) in n	naintainad DOW				
Upland plot to PEIM/PSS	welland (w-mdt-05/01/2	2018-03a/b) in n	naintained ROW	•			
HYDROLOGY							
Wetland Hydrology Indicate	ors:		Secondar	y Indicators (minir	num of two required)		
Primary Indicators (minimum of	f one is required; check all th	nat apply)	Surfac	e Soil Cracks (B6)			
Surface Water (A1)	True Aqu	atic Plants (B14)	Spars	elv Vegetated Con	cave Surface (B8)		
High Water Table (A2)	 Hydrogen	Sulfide Odor (C1)	Draina	Drainage Patterns (B10)			
Saturation (A3)		Dhizaanharaa an Lii	Moss	Trim Lines (B16)			
Water Marks (B1)	Boots (C		Dry-Se	ason Water Table	(C2)		
Sediment Deposits (B2)	Roots (C	of Reduced Iron (C	(4) Cravfi	sh Burrows (C8)	(02)		
Drift Deposits (B3)	Recent In	on Reduction in Tille	ed Satura	ation Visible on Aer	ial Imagery (C9)		
Algal Mat or Crust (B4)	Soils (C6))	Stunte	ed or Stressed Plar	nts (D1)		
Iron Deposits (B5)	Thin Muc	, k Surface (C7)	Geom	orphic Position (D2	2)		
Inundation Visible on Aerial	Other (Ex	plain in Remarks)	Shallo	w Aquitard (D3)	-,		
Inuluation visible on Aenal		plain in romano,	Microt	onographic Relief	(D4)		
Water-Stained Leaves (B9)			EAC-N	Jeutral Test (D5)	(04)		
Field Observations:	Vac Na V	Donth (inches)		Wotland			
Surface water present?		Depth (inches):		wettand			
soturation procent?		Depth (inches):	I	nyurology	N		
Saturation present?		Depth (inches):	·	present?	<u> </u>		
(includes capillary fillige)							
Describe recorded data (stream	n gauge, monitoring well. ae	rial photos. previou	us inspections). if av	/ailable:			
	0 0 , <u>0</u> , uo	-, -, -, -, -, -, -, -, -, -, -, -, -, -	,,, , . .				
Remarks:							

VEGETATION - Use scientific names of plants

Sampling Point: upl-mdt-5/01/2018-03

				50/20 Thresholds
Tree Stratum Plot Size (30 ft.)	Absolute %	Dominant	Indicator	20% 50%
, , , , , , , , , , , , , , , , , , , ,	Cover	Species	Status	Tree Stratum 0 0
1				Sapling/Shrub Stratum 0 0
2	·			Herb Stratum 18 45
3				Woody Vine Stratum 0 0
4				Deminence Test Werksheet
5	·			Number of Dominant
7				Species that are OBI
8				EACW or EAC: 0 (A)
9				Total Number of Dominant
10				Species Across all Strata: 3 (B)
	0 =	 Total Cover 		Percent of Dominant
				Species that are OBI
Sapling/Shrub	Absolute %	Dominant	Indicator	FACW or FAC: 0.00% (A/B)
Stratum Plot Size (15 ft.)	Cover	Species	Status	
1		opeoloo	Clattic	Brovelence Index Werkeheet
1	·			
2	·			
3				$\frac{OBL species}{O} = \frac{O}{x^2} = \frac{O}{x^2}$
45	·			FAC species $0 \times 3 = 0$
6	·			FACU species $90 \times 4 = 360$
7				UPL species $0 \times 5 = 0$
8				Column totals 90 (A) 360 (B)
9				Prevalence Index = $B/A = 4.00$
10				
	0 =	 Total Cover 		
				Hydrophytic Vegetation Indicators:
Horb Stratum Plot Size (5 ft)	Absolute %	Dominant	Indicator	Rapid test for hydrophytic vegetation
Held Stratum Plot Size (5 it.)	Cover	Species	Status	Dominance test is >50%
1 Solidago sp	30	Y	FACU	Prevalence index is ≤3.0*
2 Rubus allegheniensis	20	Y	FACU	Morphological adaptations* (provide
3 Poa pratensis	40	Y	FACU	supporting data in Remarks or on a
4				separate sheet)
5				Problematic hydrophytic vegetation*
6				(explain)
7				*Indicators of hydric soil and wetland hydrology must be
8				present, unless disturbed or problematic
9	·			Definitions of Vagatation Strata:
11				Tree - Woody plants 3 in (7.6 cm) or more in diameter at
12				breast height (DBH), regardless of height.
13				
14				Sapling/shrub - Woody plants less than 3 in. DBH and
15				greater than 3.28 ft (1 m) tall.
	90 =	 Total Cover 		Herb - All herbaceous (non-woody) plants, regardless of
				size, and woody plants less than 3.28 ft tall.
Woody Vine Plot Size (30 ft)	Absolute %	Dominant	Indicator	,
Stratum	Cover	Species	Status	Woody vines - All woody vines greater than 3.28 ft in
1				height.
2				
3				
4				Hydrophytic
5				vegetation
		 Total Cover 		present? N
Remarks: (Include photo numbers here or on a separ	ate sheet)			

Sampling Point: upl-mdt-5/01/2018-03

Color (moist) % Color (moist) % Type* Loc**	Depth	Matrix		Rec	lox Feat	tures		Texture	Remarks
0-8 10YR 4/3 100 sandy loam 0-8 10YR 4/3 100 sandy loam 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Техціс	Kemanas
Image: Section of the section of th	0-8	10YR 4/3	100					sandy loam	
Image: Section of the section of th									
Image: Stratified Layers (A1) Image: Stratified Layers (A2) Image: Stratified Layers (A1) Image: Stratified Layers (A1) Image: Stratified Layers (A12) Image: Stratified Layers (A12) Image: Stratified Layers (S3) Image: Stratified Layers (S4) Image: Stratified Layers (S4) Image: Stratified Layers (S4) Image: Stratified Layers (S5) Image: Stratified Layers (S5) Image: Stratified Layers (S4) Image: Stratified Layers (S5) Image: Stratified Layers (S5) Image: Stratified Layers (S4) Image: Stratified Layers (S5) Image: Stratified Layers (S4) Image: Stratified Layers (S4) Image: Stratified Layers (S4) Image: Stratified Layers (S4) Image: Stratified Layers (S4) Image: Stratified Layers (S4) Image: Stratified Layers (S4) Image: Stratified Layers (S5) Image: Stratified Layers (S4) Image: Stratified Layers (S5) Image: Stratified Layers (S4) Image: Stratified Layers (S4) Image: Stratified Layers (S4) Image: Stratified Layers (S4)									
Image: Section of the section of th									
Image: Section State Section State Section State Section State Section State Section State Section Sectin Sectin Section Section Section Sectin Section Section									
image: stratified Layers (A1) Image: Comparison of the c									
Image: Stratified Layers (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Strate (A1) Image: Construction of the strate (A1) Image: Strate (A2) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Strate (A2) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Strate (A2) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Construction of the strate (A1) Image: Constre									
Image: Solution of the system of the syst									
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix ydric Soil Indicators: Indicators for Problematic Hydric Soils: Histisc [A1] Dark Surface (S7) Histic Epipedon (A2) Output (MLRA 147, 148) Coast Prairie Redox (A16) (MLRA 147, 147, 148) Black Histic (A3) (MLRA 147, 148) Coast Prairie Redox (A16) (MLRA 147, 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Very Shallow Dark Surface (TF12) 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Redox Dark Surface (F7) Other (Explain in Remarks) Sandy Mucky Mineral (S1) Redox Depressions (F8) Umbric Surface (F12) (LRR N, MLRA 136) Sandy Redox (S5) Piedmont Floodplain Soils (F13) (MLRA 147, 148) Stripped Matrix (S6) Piedmont Floodplain Soils (F13) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 147, 148)									
Image: Strate in the									
Image: Section in the image: Sectio									
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix ydric Soil Indicators: Indicators for Problematic Hydric Soils: Histisol (A1) Polyvalue Below Surface (S8) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) (MLRA 147, 148) Coast Prairie Redox (A16) (MLRA 147, 147, 148) Black Histic (A3) Thin Dark Surface (S9) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) (MLRA 147, 148) (MLRA 136, 147) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Very Shallow Dark Surface (TF12) 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Sandy Mucky Mineral (S1) Redox Depressions (F8) Iron-Manganese Masses (F12) (MLRA 148) Sandy Gleyed Matrix (S6) Piedmont Floodplain Soils (F19) (MLRA 148) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) Red Parent Material (F21) (MLRA 127, 147)						+			+
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix ydric Soil Indicators: Indicators for Problematic Hydric Soils: Histisol (A1) Polyvalue Below Surface (S8) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) (MLRA 147, 148) Coast Prairie Redox (A16) (MLRA 147, 142) Black Histic (A3) Thin Dark Surface (S9) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) (MLRA 147, 148) (MLRA 136, 147) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Very Shallow Dark Surface (TF12) 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Redox Dark Surface (F7) Sandy Mucky Mineral (S1) Redox Depressions (F8) (LRR N, MLRA 147, 148) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) mdicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic									
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Location: PL=Pore Lining, M=Matrix ydric Soil Indicators:	ype: C=C	oncentration, D=	Depletic	on, RM=Reduced	i Matrix,	CS=Cov	vered or	Coated Sand Grains	
ydric Soil Indicators: Indicators for Problematic Hydric Soils: Histisol (A1) Dark Surface (S7) Histic Epipedon (A2) (MLRA 147, 148) Black Histic (A3) Thin Dark Surface (S9) Hydrogen Sulfide (A4) (MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1) Redox Depressions (F8) (LRR N, MLRA 147, 148) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 136, 122) ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	Location:	PL=Pore Lining,	M=Matr	X					
Dark Surface (S7)Histisol (A1)Polyvalue Below Surface (S8)Histic Epipedon (A2)(MLRA 147, 148)Black Histic (A3)Thin Dark Surface (S9)Hydrogen Sulfide (A4)(MLRA 147, 148)Stratified Layers (A5)Loamy Gleyed Matrix (F2)2 cm Muck (A10) (LRR N)Depleted Matrix (F3)Depleted Below Dark Surface (A11)Redox Dark Surface (F6)Thick Dark Surface (A12)Depleted Dark Surface (F7)Sandy Mucky Mineral (S1)Redox Depressions (F8)(LRR N, MLRA 147, 148)Iron-Manganese Masses (F12) (LRR N, MLRA 136)Sandy Gleyed Matrix (S4)Umbric Surface (F13) (MLRA 136, 122)Sandy Redox (S5)Piedmont Floodplain Soils (F19) (MLRA 147, 147)Adicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	ydric Soil	Indicators:						Indicators for	Problematic Hydric Soils:
Histisol (A1)Polyvalue Below Surface (S8)2 cm Muck (A10) (MLRA 147)Histic Epipedon (A2)(MLRA 147, 148)Coast Prairie Redox (A16) (MLRA 147, 14Black Histic (A3)Thin Dark Surface (S9)Piedmont Floodplain Soils (F19)Hydrogen Sulfide (A4)(MLRA 147, 148)(MLRA 136, 147)Stratified Layers (A5)Loamy Gleyed Matrix (F2)Very Shallow Dark Surface (TF12)2 cm Muck (A10) (LRR N)Depleted Matrix (F3)Other (Explain in Remarks)Depleted Below Dark Surface (A11)Redox Dark Surface (F6)Other (Explain in Remarks)Thick Dark Surface (A12)Depleted Dark Surface (F7)Redox Depressions (F8)Sandy Mucky Mineral (S1)Iron-Manganese Masses (F12) (LRR N, MLRA 136)Sandy Gleyed Matrix (S4)Umbric Surface (F13) (MLRA 136, 122)Sandy Redox (S5)Piedmont Floodplain Soils (F19) (MLRA 148)Stripped Matrix (S6)Red Parent Material (F21) (MLRA 127, 147)				Dark Sເ	urface (S	S7)			
Histic Epipedon (A2)(MLRA 147, 148)Coast Prairie Redox (A16) (MLRA 147, 14Black Histic (A3)Thin Dark Surface (S9)Piedmont Floodplain Soils (F19)Hydrogen Sulfide (A4)(MLRA 147, 148)(MLRA 136, 147)Stratified Layers (A5)Loamy Gleyed Matrix (F2)Very Shallow Dark Surface (TF12)2 cm Muck (A10) (LRR N)Depleted Matrix (F3)Other (Explain in Remarks)Depleted Below Dark Surface (A11)Redox Dark Surface (F6)Other (Explain in Remarks)Thick Dark Surface (A12)Depleted Dark Surface (F7)Redox Depressions (F8)(LRR N, MLRA 147, 148)Iron-Manganese Masses (F12) (LRR N, MLRA 136)Sandy Gleyed Matrix (S4)Umbric Surface (F13) (MLRA 136, 122)Sandy Redox (S5)Piedmont Floodplain Soils (F19) (MLRA 148)Stripped Matrix (S6)Red Parent Material (F21) (MLRA 127, 147)	Histisol	(A1)		Polyval	ue Belov	w Surfac	e (S8)	2 cm Muck	: (A10) (MLRA 147)
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Hydrogen Sulfide (A4)(MLRA 147, 148)(MLRA 136, 147)Stratified Layers (A5)Loamy Gleyed Matrix (F2)Very Shallow Dark Surface (TF12)2 cm Muck (A10) (LRR N)Depleted Matrix (F3)Other (Explain in Remarks)Depleted Below Dark Surface (A11)Redox Dark Surface (F6)Depleted Dark Surface (F7)Thick Dark Surface (A12)Depleted Dark Surface (F7)Redox Depressions (F8)(LRR N, MLRA 147, 148)Iron-Manganese Masses (F12) (LRR N, MLRA 136)Sandy Gleyed Matrix (S4)Umbric Surface (F13) (MLRA 136, 122)Sandy Redox (S5)Piedmont Floodplain Soils (F19) (MLRA 127, 147)Stripped Matrix (S6)Red Parent Material (F21) (MLRA 127, 147)	Black H	listic (A3)		Thin Da	irk Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)
Stratified Layers (A5)Loamy Gleyed Matrix (F2)Very Shallow Dark Surface (TF12)2 cm Muck (A10) (LRR N)Depleted Matrix (F3)Other (Explain in Remarks)Depleted Below Dark Surface (A11)Redox Dark Surface (F6)Depleted Dark Surface (F7)Thick Dark Surface (A12)Depleted Dark Surface (F7)Redox Depressions (F8)(LRR N, MLRA 147, 148)Iron-Manganese Masses (F12) (LRR N, MLRA 136)Sandy Gleyed Matrix (S4)Umbric Surface (F13) (MLRA 136, 122)Sandy Redox (S5)Piedmont Floodplain Soils (F19) (MLRA 148)Stripped Matrix (S6)Red Parent Material (F21) (MLRA 127, 147)	Hydrog	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 13	6, 147)
2 cm Muck (A10) (LRR N) Depleted Matrix (F3) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Depleted Dark Surface (F7) Thick Dark Surface (A12) Depleted Dark Surface (F7) Redox Depressions (F8) Sandy Mucky Mineral (S1) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147)	Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shall	ow Dark Surface (TF12)
Depleted Below Dark Surface (A11)Redox Dark Surface (F6)Thick Dark Surface (A12)Depleted Dark Surface (F7)Sandy Mucky Mineral (S1)Redox Depressions (F8)(LRR N, MLRA 147, 148)Iron-Manganese Masses (F12) (LRR N, MLRA 136)Sandy Gleyed Matrix (S4)Umbric Surface (F13) (MLRA 136, 122)Sandy Redox (S5)Piedmont Floodplain Soils (F19) (MLRA 148)Stripped Matrix (S6)Red Parent Material (F21) (MLRA 127, 147)ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	2 cm M	uck (A10) (LRR I	N)	Deplete	d Matrix	(F3)		Other (Exp	lain in Remarks)
Thick Dark Surface (A12)Depleted Dark Surface (F7)Sandy Mucky Mineral (S1)Redox Depressions (F8)(LRR N, MLRA 147, 148)Iron-Manganese Masses (F12) (LRR N, MLRA 136)Sandy Gleyed Matrix (S4)Umbric Surface (F13) (MLRA 136, 122)Sandy Redox (S5)Piedmont Floodplain Soils (F19) (MLRA 148)Stripped Matrix (S6)Red Parent Material (F21) (MLRA 127, 147)ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	Deplete	ed Below Dark Su	urface (A	(11) Redox I	Dark Su	rface (F6	6)		
Sandy Mucky Mineral (S1) Redox Depressions (F8) (LRR N, MLRA 147, 148) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface	(F7)		
(LRR N, MLRA 147, 148) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	Sandy I	Mucky Mineral (S	51)	Redox	Depress	ions (F8)		
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	(LRR N	, MLRA 147, 148	B)	Iron-Ma	inganes	e Masse	s (F12) (LRR N, MLRA 136)	
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	Sandy	Gleyed Matrix (Se	4)	Umbric	Surface	e (F13) (N	/LRA 13	86, 122)	
Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	Sandy I	Redox (S5)		Piedmo	nt Flood	lplain So	ils (F19)	(MLRA 148)	
ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	21) (MLR	A 127, 147)	
ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic									
	ndicators	of hydrophytic ve	getation	and wetland hy	drology	must be	present,	unless disturbed or pro	blematic
	estrictive l	Layer (if observe	d):						
estrictive Layer (if observed):	ype:							Hydric soil prese	ent? N
estrictive Layer (if observed): ype: Hydric soil present? N	epth (inch	es):				-			
estrictive Layer (if observed): ype: Hydric soil present? epth (inches):	• •	·				-			
estrictive Layer (if observed): ype: Hydric soil present? epth (inches):									
estrictive Layer (if observed): ype: epth (inches): emarks:	emarks:								
estrictive Layer (if observed): ype: epth (inches): emarks:	emarks:								
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estrictive Layer (if observed): ype: epth (inches): emarks:	emarks:								
estrictive Layer (if observed): /pe:	emarks:								

Project/Site: Holloway-Knox 138 kV Transmission I Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio; Jacobs Landform (hillslope, terrace, etc.): hillslope Subregion (LRR or MLRA): LRR N Soil Map Unit Name: CCE- Canfiled silt loam, 20 to 35 p Are climatic/hydrologic conditions of the site typical for Are vegetation , soil , or hydrology SUMMARY OF FINDINGS	Line City/County: State: Section Local relief (co at.: 40.8041 ercent slopes this time of the year?	Columbiana Ohio n, Township, Rang ncave, convex, no Long.: NWI Yes X y disturbed? roblematic?	Report Name: Sampling Date: Sampling Point e: T16N R5W S4 ne): concave -81.0416 Classification: No No (If no, e Are "normal circum present? (If needed, explain	Wetland KW-2 5/1/2018 w-mdt-5/01/2018-02 Slope (%): 2 Datum: NAD 83 ne (PEM) explain in remarks) stances" Yes any answers in remarks
Hydrophytic vegetation present?YesHydric soil present?YesWetland hydrology present?Yes	Is the sam	pled area within	a wetland? Y	′es
PEM wetland in routinely maintained ROW o	n gradual hillslope.	Hydrology appo	ears to originate	from seep.
Wetland Hydrology Indicators:		Seconda	ary Indicators (minir	num of two required)
Primary Indicators (minimum of one is required; check	all that apply)	Surfa	ace Soil Cracks (B6)	. ,
X Surface Water (A1) True	Aquatic Plants (B14)	Spar	selv Vegetated Con	cave Surface (B8)
X High Water Table (A2)	ogen Sulfide Odor (C1)	X Drain	nage Patterns (B10)	
X Saturation (A3)		<u> </u>	s Trim Lines (B16)	
Weter Merke (P1)	2ed Rhizospheres on Li	vingNos	S min Ellics (BTO)	(C2)
Sodiment Deposite (B2)	(C3)	Dry	fich Burrows (C8)	(02)
Drift Deposits (B3)	at Iron Reduction in Till	-4) <u> </u>	ration Visible on Aer	ial Imagery (C9)
Algal Mat or Crust (B4)	(C6)	Stun	ted or Stressed Plan	nts (D1)
Iron Deposits (B5)	Auck Surface (C7)	Geol	morphic Position (D2	2)
	(Explain in Remarks)		low Aquitard (D3)	-,
Inunuation Visible on AerialOther		Olia	otopographic Relief /	(D4)
Water-Stained Leaves (B9)		X FAC	-Neutral Test (D5)	
Aquatic Fauna (B13)		<u></u>		
		г		
Field Observations:	Donth (inchas)		Wotland	
Surface water present? Yes X No	Depth (inches)		bydrology	
Saturation present? Yes <u>A</u> NO _	Depth (inches)	4	nyurology	v
(includes capillary fringe)			hieselli	<u> </u>
Describe recorded data (stream gauge, monitoring well	, aerial photos, previo	us inspections), if a	available:	
Remarks:				
Saturated and inundated throughout; appears	s to originate from s	seep.		

VEGETATION - Us	e scientific names of	plants
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						Sampling Point:	w-mdt-5/01/2018-0
						50/20 Thresholds	
Tasa Ota 1		20 4 `	Absolute %	Dominant	Indicator		20% 50%
I ree Stratum	Plot Size (30 ft.)	Cover	Species	Status	Tree Stratum	0 0
1			00101	opeoloo	Clattic	Sapling/Shrub Stratum	0 0
2			·			Herb Stratum	19 48
3			·			Woody Vine Stratum	0 0
4			·			Woody vine of atal	0 0
5						Dominance Test Workshe	et
6			·			Number of Dominant	
7			·			Species that are OBI	
8			·			FACW or FAC	2 (A)
9			·			Total Number of Dominant	<u> </u>
10			·			Species Across all Strata	2 (B)
			0	Total Cover		Bergent of Deminent	<u> </u>
						Percent of Dominant	
O a m lim m (O h m th			A h = = h + t = 0/	Densinent	la dia atau	Species that are OBL,	400.000/ (A/D)
Sapling/Shrub	Plot Size (15 ft.)	Absolute %	Dominant	Indicator	FACW, or FAC:	<u>100.00%</u> (A/B)
Stratum	,	- /	Cover	Species	Status		
1						Prevalence Index Worksh	eet
2			·			Total % Cover of:	
3			·			OBL species 15 x 1	= 15
4			··			FACW species 80 x 2	2 = 160
5			·			FAC species 0 x 3	3 = 0
6			··			FACU species 0 x 4	l = 0
7			·			UPL species 0 x 5	5 = 0
8			·			Column totals 95 (A)) <u>175</u> (B)
9			··			Prevalence Index = B/A =	1.84
10			·				
			0 =	Total Cover			
						Hydrophytic Vegetation Ir	ndicators:
			Absolute %	Dominant	Indicator	X Rapid test for hydrophy	tic vegetation
Herb Stratum	Plot Size (5 ft.)	Cover	Species	Status	$\frac{1}{X}$ Dominance test is >50%	%
1 Juncus effusus			20	Y	FACW	X Prevalence index is ≤ 3	0*
2 Scirpus cyperin	115		30	<u> </u>	FACW	Morphological adaptatio	ons* (provide
3 Typha latifolia	45		10	N		supporting data in Rem	arks or on a
A Funhatorium ne	orfoliatum		5	<u> </u>		separate sheet)	
5 Onoclea sensib	ilie		15	<u> </u>		Problematic bydronbyti	c vegetation*
6 Poreioaria mag	1000		15	N	EACW	(ovplain)	e vegetation
	1103a		15		TACW		
/			·			*Indicators of hydric soil and wet	and hydrology must be
8						present, unless disturbed or prob	iematic
9 10						Definitions of Vegetation	Strata
10						Tree Weedy plants 2 in (7.6 am	Slidid.
10			·			broast beight (DBH), regardless of	f boight
12						bleast height (DBH), legardiess o	o neight.
13						Sapling/shrub - Woody plants le	ss than 3 in DBH and
14						greater than 3.28 ft (1 m) tall.	
15				T () 0		<u> </u>	
			95 =	 I otal Cover 		Herb - All herbaceous (non-wood	ly) plants, regardless of
				.		size, and woody plants less than	3.28 ft tall.
Woody Vine	Plot Size (30 ft.)	Absolute %	Dominant	Indicator		
Stratum		,	Cover	Species	Status	Woody vines - All woody vines g	reater than 3.28 ft in
1						height.	
2							
3							
4						Hydrophytic	
5						vegetation	
			0 =	Total Cover		present? V	
							_
emarks: (Include pho	to numbers her	e or on a senar	ate sheet)				
		5 51 511 a 56pai					

Sampling Point: w-mdt-5/01/2018-02

Depth	Matrix		Red	dox Fea	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-14	10YR 4/1	90	10YR 4/6	10	С	М	sandy clay	
								+
	oncontration D-	Doplatic	n PM-Poduoo	Motrix	<u> </u>	(orod or	Coated Sand Crains	
*I ocation	PI =Pore Lining	M=Matr	ix	i iviali iX,	03-00	vereu of	Coaled Salid Grains	
		ivi–iviati					ludiaatana far	Drahlamatia Undria Cailar
yunc soi	mulcators:		Dark Si	irface (S	37)		indicators for	Problematic Hydric Solis:
Histisol	(A1)		Polvval	ue Belo	w Surfac	e (S8)	2 cm Muc	< (A10) (MI RA 147)
Histic E	pipedon (A2)		(MLRA	147, 14	8)	- ()	Coast Pra	irie Redox (A16) (MLRA 147, 14
Black H	listic (A3)		Thin Da	ark Surfa	áce (S9)		Piedmont	Floodplain Soils (F19)
Hydrog	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 13	6, 147)
Stratifie	ed Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shall	ow Dark Surface (TF12)
2 cm M	uck (A10) (LRR I	N)	X Deplete	d Matrix	(F3)		Other (Exp	olain in Remarks)
Deplete	ed Below Dark Su	irface (A	(11) Redox	Dark Su	rface (F6	5) (F-7)		
	ark Surface (A12	<u>()</u>		o Dark	Surface ((F7)		
	MICKY MILIELAI (3	* ' <i>)</i> R)		Depress	a Massa) c (E12) (
Sandv	Gleved Matrix (Se	4)	Umbric	Surface	e (F13) (N	/LRA 13	6. 122)	
Sandy	Redox (S5)	•)	Piedmo	nt Flood	blain So	ils (F19)	(MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	, terial (F2	1) (MLR	A 127, 147)	
	. ,							
Indicators	of hydrophytic ve	getation	and wetland hy	drology	must be	present,	unless disturbed or pro	blematic
Restrictive	l aver (if observe	d):						
vne.							Hvdric soil pres	ent? Y
	es):				-		.,	
)epth (inch					-			
Depth (inch								
Depth (inch								
Depth (inch Remarks:								
Depth (inch								
epth (inch emarks:								

Project/Site: Holloway-Knox 138 k\/	Transmission Line	City/County:	Columbiana	Report Name: Sampling Date	Upland KW-2	
Applicant/Owner: FirstEnergy		State [.]	Ohio	Sampling Point	upl-mdt-5/01/2018-02	
Investigator(s): M Thomaver T Quali	o: Jacobs	Section	Township Range	T 16 N R 5 W S	3 4	
Landform (hillslope, terrace, etc.): hill	Islope	Local relief (cor	icave. convex. none	e): convex	Slope (%): 2-3%	
Subregion (LRR or MLRA): LRR N	Lat.:	40.803986359	Long.: -8	1.041709745	Datum: NAD 83	
Soil Map Unit Name: CcB - Canfield silt	loam, 2 to 6 percent sl	opes	NWIC	Classification: No	ne (Upland)	
Are climatic/hydrologic conditions of the	site typical for this tim	e of the year ∕	Yes X N	o(If no, e	explain in remarks)	
Are vegetation, soil	, or hydrology	significantly	disturbed? A	e "normal circum	stances" Yes	
Are vegetation, soil	_, or hydrology	naturally pr	oblematic? pr	esent?		
SUMMARY OF FINDINGS			(11	needed, explain	any answers in remarks	
Hydrophytic vegetation present?	No					
Hydric soil present?	No	Is the sam	pled area within a	wetland?	No	
Wetland hydrology present?	No					
) in				
Upland plot to PEM wetland (w-	mdt-05/01/2018-02) in maintaine	ed ROW.			
HYDROLOGY						
Wetland Hydrology Indicators:			Secondary	/ Indicators (minir	num of two required)	
Primary Indicators (minimum of one is re	equired: check all that	apply)	Surfac	e Soil Cracks (B6)	num of the required)	
Surface Water (A1)	Truo Aquatio	Diante (B14)	Canac	w Vogotatod Con	covo Surfaco (B8)	
Lich Water Table (A2)		Ifide Oder (C1)	Opaise	Drainage Patterns (B10)		
			Draina	ge Pallerns (B10)		
Saturation (A3)	Oxidized Rhi	zospheres on Liv	/ing	Irim Lines (B16)	(00)	
Water Marks (B1)	Roots (C3)		Dry-Se	eason Water Table	e (C2)	
Sediment Deposits (B2)	Presence of	Reduced Iron (C	4) Crayfis	sh Burrows (C8)	rial Imagen (CO)	
Dill Deposits (B3)	Soils (C6)		su Salura	d or Strossod Plan	tal imagery (C9)	
Aigai Mat of Crust (B4)	Joins (CO)	urfood(C7)	Sturite	u of Stresseu Flat		
			Geom		<u>~</u>)	
Inundation Visible on Aerial	Other (Expla	in in Remarks)		w Aquitard (D3)		
Imagery (B7)			Microte	opographic Relief	(D4)	
Water-Stained Leaves (B9)			FAC-N	ieutral Test (D5)		
Aquatic Fauna (B13)						
Field Observations:						
Surface water present? Yes	<u>No X</u>	Depth (inches):		Wetland		
Water table present? Yes	<u>No X</u>	Depth (inches):		hydrology		
Saturation present? Yes	No <u>X</u>	Depth (inches):		present?	<u>N</u>	
(includes capillary fringe)						
Describe recorded data (stream dauge	monitoring well aerial	nhotos previou	is inspections) if av	ailable.		
beschbe recorded data (stream gauge,		protos, previoe				
Remarks:						

VEGETATION - Use scientific names of plants

Sampling Point: upl-mdt-5/01/2018-02 50/20 Thresholds 20% 50%

Tree Stratum Plot Size (30 ft.) 1	Absolute % Cover	Dominant Species	Indicator Status	20%50%Tree Stratum00Sapling/Shrub Stratum00Herb Stratum2050Woody Vine Stratum00
4 5 6 7 7 8 9 9				Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 Total Number of Dominant Species Across all Strata; 3 Species Across all Strata; 3
Sapling/Shrub	=	Total Cover	Indicator	Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)
Plot Size (15 π.) 1	Cover	Species	Status	Prevalence Index WorksheetTotal % Cover of:OBL species 0 FACW species 0 $x 2 =$ 0 FAC species 0 $x 3 =$ 0 FACU species 100 $x 4 =$ 400 UPL species 0 $x 5 =$ 0 Column totals 100 A 400 Prevalence Index = B/A = 4.00
10	0 =	Total Cover		
Herb Stratum Plot Size (5 ft.) <i>Taraxacum officinale</i> <i>Rubus allegheniensis</i> <i>Poa pratensis</i> 4 5 6	Absolute % Cover 30 20 50	Dominant Species Y Y Y	Indicator Status FACU FACU FACU	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is <3.0*
7 8 9				*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
10				Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
15 14 15				Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
	100=	 Total Cover 		Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3 28 ft tall
Woody Vine Plot Size(30 ft.) Stratum 1 2	Absolute % Cover	Dominant Species	Indicator Status	Woody vines - All woody vines greater than 3.28 ft in height.
3 4 5				Hydrophytic vegetation
	=	 Total Cover 		present? <u>N</u>
Remarks: (Include photo numbers here or on a sepa	ırate sheet)			·

Sampling Point: upl-mdt-5/01/2018-02

Depin	Matrix		Redox Features				Texture	Remarks		
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Ternarks		
0-8	10YR 4/3	100					silt loam			
					1					
					1					
						I				
ype: C=C	oncentration, D=	Depletic	on, RM=Reduced	i Matrix,	CS=Cov	vered or	Coated Sand Grains			
Location:	PL=Pore Lining,	w=Matr	X							
ydric Soil	Indicators:						Indicators for	Problematic Hydric Soils:		
			Dark Su	urface (S	57)					
Histisol	(A1)		Polyval	ue Belov	w Surfac	e (S8)	2 cm Muc	k (A10) (MLRA 147)		
Histic E	pipedon (A2)			147, 14	·8)		Coast Pra	irie Redox (A16) (MLRA 147, 14		
Black H	istic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)		
Hydrogen Sulfide (A4) (MLRA 147, 148)						(MLRA 136, 147)				
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2) Very Shallow Dark Surface (TF12)				
2 cm M	uck (A10) (LRR	N)	Deplete	d Matrix	(F3)		Other (Exp	olain in Remarks)		
Deplete	d Below Dark Sເ	urface (A	.11) Redox I	Dark Su	rface (F6	5)				
Thick D	ark Surface (A12	<u>2)</u>	Deplete	d Dark	Surface ((F7)				
Sandy N	Aucky Mineral (S	51)	Redox I	Depress	ions (F8)				
LRR N	, MLRA 147, 14	B)	Iron-Ma	nganes	e Masse	s (F12) (LRR N, MLRA 136)			
Sandy (Gleyed Matrix (S	4)	Umbric	Surface	(F13) (N	ILRA 13	86, 122)			
Sandy F	Redox (S5)		Piedmo	nt Flood	Iplain So	ils (F19)	(MLRA 148)			
Stripped	d Matrix (S6)		Red Pa	rent Ma	terial (F2	21) (MLR	A 127, 147)			
ndicators of	of hydrophytic ve	getation	and wetland hy	drology	must be	present,	unless disturbed or pro	oblematic		
						r				
	/: f -	-1).								
	ayer (if observe	a):					l la seluta de la come e			
ype:) -				_		Hydric soll pres	ent? <u>N</u>		
eptn (inch	es):				-					
emarks:										

Project/Site: Holloway-Knox 138 kV Transmission	on Line _ City/County: State:	Columbiana	Report Name: Sampling Date: Sampling Point	Wetland KW-3 5/1/2018 w-mdt-5/01/2018-01			
Investigator(s): M. Thomaver, T. Qualio: Jacobs	Section	n. Township, Range	T16N R5W S4				
Landform (hillslope, terrace, etc.): terrace Subregion (LRR or MLRA): LRR N Soil Map Unit Name: CcB - Canfield silt loam, 2 to 6	Local relief (co Lat.: 40.8004 percent slopes	ncave, convex, none Long.: -8 NWI C	e): <u>concave</u> 1.0415 Classification: <u>No</u>	Slope (%): <u>1-2%</u> Datum: <u>NAD 83</u> ne (PEM)			
Are climatic/hydrologic conditions of the site typical	or this time of the year?	Yes X No	o (lf no, e	explain in remarks)			
Are vegetation, soil, or hydrol Are vegetation, soil, or hydrol	ogysignificantl ogynaturally p	y disturbed? Ar roblematic? pr (If	e "normal circum esent? needed, explain	stances" <u>Yes</u> any answers in remarks			
Hydrophytic vegetation present?YesHydric soil present?YesWetland hydrology present?Yes	Is the sam	pled area within a	wetland? Y	′es			
Remarks:							
PEM wetland in routinely maintained ROW	,						
Wetland Hydrology Indicators:		Secondary	/ Indicators (minir	num of two required)			
Primary Indicators (minimum of one is required; che	ck all that apply)	Surfac	Surface Soil Cracks (B6)				
X Surface Water (A1) Tr	ue Aquatic Plants (B14)	Sparse	ly Vegetated Concave Surface (B8)				
X High Water Table (A2)	drogen Sulfide Odor (C1)	 Draina	ge Patterns (B10)				
X Saturation (A3)	vidized Rhizospheres on Li	wing Moss	Trim Lines (B16)				
Water Marks (B1)	oots (C3)	Drv-Se	Season Water Table (C2)				
Sediment Deposits (B2)	esence of Reduced Iron (C	(4) Crayfis	Crayfish Burrows (C8)				
Drift Deposits (B3)	ecent Iron Reduction in Tille	ed Satura	Saturation Visible on Aerial Imagery (C9)				
Algal Mat or Crust (B4)So	vils (C6)	Stunte	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)	in Muck Surface (C7)	Geomo	orphic Position (D2	2)			
Inundation Visible on Aerial Ot	her (Explain in Remarks)	Shallov	w Aquitard (D3)				
Imagery (B7)		Microto	opographic Relief (D4)			
Water-Stained Leaves (B9)		X FAC-N	eutral Test (D5)				
Aquatic Fauna (B13)							
Field Observations:							
Surface water present? Yes X No	Depth (inches)	:	Wetland				
Water table present? Yes X No	Depth (inches)	: 4	hydrology				
Saturation present? Yes X No	Depth (inches)	:	present?	<u>Y</u>			
(includes capillary tringe)							
Describe recorded data (stream gauge, monitoring v	vell, aerial photos, previo	us inspections), if av	ailable:				
Remarks:							
Saturated throughout, pockets of inundation	n.						
		F	-			Sampling Point:	w-mdt-5/01/2018-01
------------------------	-----------------	------------------	---------------------	---------------------------------	---------------------	---	---
Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds	20% 50% 0 0
2						Sapling/Shrub Stratum	1 3
2						Medu Vine Stratum	20 50
3 4						Woody vine Stratum	0 0
5						Dominance Test Workshe	et
6						Number of Dominant	
7						Species that are OBL,	2 (A)
9						Total Number of Dominant	<u> </u>
10						Species Across all Strata:	3 (B)
			0 =	 Total Cover 		Percent of Dominant	
						Species that are OBL,	
Sapling/Shrub	Plot Size (15 ft.)	Absolute %	Dominant	Indicator	FACW, or FAC:	<u>100.00%</u> (A/B)
Stratum			Cover	Species	Status		
1 Rosa palustris			5	<u> </u>	OBL	Prevalence Index Worksh	eet
2						I otal % Cover of:	- 5
4						FACW species 100 x 2	$r = \frac{3}{200}$
5						FAC species 0 x 3	s = 0
6						FACU species 0 x 4	= 0
7						UPL species 0 x 5	b = 0
8						Column totals 105 (A)) <u>205</u> (B)
10						Flevalence index – D/A –	1.95
			5 =	Total Cover			
				Densinent	la dia atau	Hydrophytic Vegetation Ir	dicators:
Herb Stratum	Plot Size (5 ft.)	Absolute %	Species	Status	X Rapid test for hydrophy	tic vegetation
1 Juncus effusus			60	Y	FACW	$\frac{1}{X}$ Prevalence index is ≤ 3 .	0*
2 Phalaris arundi	inacea		40	Y	FACW	Morphological adaptation	ons* (provide
3						supporting data in Rem	arks or on a
4						separate sheet)	
5				·		(explain)	cvegetation
7						*Indicators of hydric soil and wet	and hydrology must be
8						present, unless disturbed or prob	lematic
9						•	
10						Definitions of Vegetation	Strata:
11						breast height (DBH) regardless of	i) or more in diameter at
13						2.00000	. noight
14						Sapling/shrub - Woody plants le	ss than 3 in. DBH and
15			100 =	Total Cover		groutor than 0.20 h (1 hr) tail.	
						Herb - All herbaceous (non-wood size, and woody plants less than	y) plants, regardless of 3.28 ft tall.
Woody Vine	Plot Size (30 ft)	Absolute %	Dominant	Indicator	olze, and weedy plants leee than	
Stratum	1 101 0120 (00 m.)	Cover	Species	Status	Woody vines - All woody vines g	reater than 3.28 ft in
1						height.	
3							
4						Hydrophytic	
5						vegetation	
			0 =	Total Cover		present? Y	_
Pomarke: (Include ab	oto numboro hor	e or on a concra	ate sheet)				
vernarks. (include pri		e or on a separa	ale Sheel)				

Sampling Point: w-mdt-5/01/2018-01

Depth	epth Matrix Redox Features						Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	TEXIULE	Remarks
0-8	10YR 2/1	100					sily clay	
8-14	10YR 6/2	95	10YR 5/6	5	С	М	clay	
Type: C=C	oncentration D=	Denletic	n RM=Reducer	Matrix	CS=Cov	vered or	Coated Sand Grains	
*I ocation:	PI =Pore Lining	M=Matri	ix	i iviauin,	00-00	vereu or	Coaled Salid Oralins	
	Indicators:						Indicators for I	Problematic Hydric Soils:
,			Dark Su	urface (S	S7)			·····
Histisol	(A1)		Polyval	ue Belo	w Surfac	e (S8)	2 cm Muck	(A10) (MLRA 147)
Histic E	pipedon (A2)		(MLRA	147, 14	8)		Coast Prair	ie Redox (A16) (MLRA 147, 148
Black H	listic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont F	loodplain Soils (F19)
Hydrog	en Sulfide (A4)			147, 14	8)		(MLRA 136	5, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shallo	w Dark Surface (TF12)
2 CIII IVI Deplete	uck (ATU) (LKK od Below Dark Si	IN) Irface (A	(11) Reday	Dark Su	(го) rface (Ff	3)		an in Remarks)
	ark Surface (A1)	2)	Deplete	d Dark	Surface	(F7)		
Sandy	Mucky Mineral (S	51)	Redox	Depress	ions (F8)		
(LRR N	, MLRA 147, 14	8)	Iron-Ma	Inganes	e Masse	, s (F12) (LRR N, MLRA 136)	
Sandy	Gleyed Matrix (S	4)	Umbric	Surface	e (F13) (N	/LRA 13	86, 122)	
Sandy	Redox (S5)		Piedmo	nt Flood	lplain So	ils (F19)	(MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	21) (MLR	A 127, 147)	
Indiantara	af huduan hutia ua			ماسمام مير	way wat he a		un la sa disturba dan mush	
indicators		getation	and wettand ny	urology	must be	present,	unless disturbed of proc	bematic
						1		
Restrictive	Layer (if observe	d):						
0000100100		-			_		Hydric soil prese	nt? Y
ype:	es).				-			
ype: Depth (inch	ee).				_			
ype: Depth (inch								
Type: Depth (inch								
Type: Depth (inch Remarks:								
Type: Depth (inch								
Ype:)epth (inch Remarks:								

Applicant/Owner: FirstEnergy State: Ohio Sampling Date: 51/2018 Investigator(s): M. Thomayer, T. Qualio; Jacobs Section, Township, Range: T 16 N R 5 W S 4 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0% Subregion (LRR or MLRA): LRR N Lat.: 40.800434340 Long.: -81.041615164 Datum: NAD 83 Soil Map Unit Name: CcB - Canfield silt loam, 2 to 6 percent slopes NWI Classification: None (upland) Are vegetation
Applicant/Owner: Firsterietgy State: Onio State: State: <td< td=""></td<>
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0% Subregion (LRR or MLRA): LRR N Lat.: 40.800434340 Long.: -81.041615164 Datum: NAD 83 Soil Map Unit Name: CCB - Canfield silt loam, 2 to 6 percent slopes NWI Classification: None (upland) Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks) Are vegetation , soil , or hydrology
Subregion (LRR or MLRA): LRR N Lat.: 40.800434340 Long.: -81.041615164 Datum: NAD 80 Soil Map Unit Name: CcB - Canfield silt loam, 2 to 6 percent slopes NWI Classification: None (upland) Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks) Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" Yes Are vegetation , soil , or hydrology
Soil Map Unit Name: CcB - Canfield silt loam, 2 to 6 percent slopes NWI Classification: None (upland) Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks) Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" Yes Are vegetation , soil , or hydrology naturally problematic? Present? (If no explain any answers in remarks)
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks) Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" Yes Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" Yes If no explain any answers in remarks
Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" Yes Are vegetation , soil , or hydrology naturally problematic? present? (If peeded explain any answers in rome) (If peeded explain any answers in rome)
Are vegetation, soil, or hydrologynaturally problematic? present?
o beeded explain any answers in tenna
SUMMARY OF FINDINGS
Hydrophytic vegetation present? No
Hydric soil present? No Is the sampled area within a wetland? No
Wetland hydrology present? No
Remarks:
Upland plot to PEM wetland (w-mdt-05/01/2018-01) in maintained ROW.
HYDROLOGY
Wetland Hydrology Indicators: Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living Moss Trim Lines (B16)
Water Marks (B1) Roots (C3) Dry-Season Water Table (C2)
Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8)
Drift Deposits (B3) Recent Iron Reduction in Tilled Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Soils (C6) Stunted or Stressed Plants (D1)
Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2)
Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3)
Imagery (B7) Microtopographic Relief (D4)
Water-Stained Leaves (B9) FAC-Neutral Test (D5)
Aquatic Fauna (B13)
Field Observations:
Surface water present? Yes No X Depth (inches): Wetland
Water table present? Yes No X Depth (inches): hydrology
Saturation present? Yes No X Depth (inches): present? N
(includes capillary fringe)
Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Pomarka

Sampling Point: upl-mdt-5/01/2018-01 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Plot Size (30 ft. Tree Stratum) Tree Stratum Cover Status 0 0 Species Sapling/Shrub Stratum 0 0 Herb Stratum 24 60 2 Woody Vine Stratum 0 0 3 4 Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: (A) 8 Total Number of Dominant 9 Species Across all Strata: 3 (B) 10 Total Cover 0 = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: <u>33.33%</u> (A/B) Plot Size (15 ft.) Stratum Cover Species Status **Prevalence Index Worksheet** Total % Cover of: 2 OBL species 3 x 1 = 0 FACW species x 2 = 30 60 4 5 FAC species 0 x 3 = 0 _x 4 = **FACU** species 90 360 6 UPL species 0 x 5 = 0 8 Column totals 120 (A) 420 (B) 9 Prevalence Index = B/A = 3.50 10 0 = Total Cover Hydrophytic Vegetation Indicators: Indicator Absolute % Dominant Rapid test for hydrophytic vegetation Herb Stratum Plot Size (5 ft.) Status Dominance test is >50% Cover Species Prevalence index is ≤3.0* FACW Juncus effusus 30 Y Rubus allegheniensis Morphological adaptations* (provide 30 FACU 2 supporting data in Remarks or on a 3 Poa pratensis 60 FACU separate sheet) 4 Problematic hydrophytic vegetation* 5 6 (explain) 7 *Indicators of hydric soil and wetland hydrology must be 8 present, unless disturbed or problematic q Definitions of Vegetation Strata: 10 11 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 120 Total Cover = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Absolute % Dominant Indicator Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in height. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Ν Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: upl-mdt-5/01/2018-01

Depui	epth Matrix Redox Features						Toyturo	Pomorko
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-10	10YR 4/3	100					silt loam	
								-
VDe: C=C	oncentration D=	Denletic	n RM-Reduced	Matrix		vered or	Coated Sand Grains	
Jocation I	PI =Pore Lining	M=Matr	iv	i waun,	00-00		Coaled Sand Oralins	
		W Wat					la dia sta na fan	Ducklassetia Usedaia Ocilas
yaric Soli	Indicators:		Dark C		77)		indicators for	Problematic Hydric Solis:
Listian	(1 1)		Dark St	unace (c	N Surfac	o (S8)	2 om Muel	
	(AI) ninodon (A2)		/MIDA		N Sunac 0)	e (30)		((A 10) (MLRA 147) iria Raday (A16) (MLRA 147, 1 4
Black H	$p_{1}p_{2}u_{0}(A_{2})$			ark Surfa	0) ace (S9)		Clast Fial	Floodplain Soils (F19)
	$\sin C(A3)$			147 14	8)		(MI PA 13	6 147)
Stratifie	$d Lavers (\Delta 5)$			Gloved I	0) Matriv (⊑	2)	Very Shall	ow Dark Surface (TE12)
-2 cm M	u Layers (A3)	NI)	Denlete	d Matrix		2)	Other (Evr	Jain in Remarks)
 Denlete	d Below Dark Si	Inface (A	(11) Redox l	Dark Su	rface (Ff	3)		Jain in Remarks)
Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface ((F7)		
Sandy N	Aucky Mineral (S	-, S1)	Redox	Depress	ions (F8)		
(LRR N	. MLRA 147. 14	B)	Iron-Ma	ndanes	e Masse	, s (F12) (LRR N. MLRA 136)	
Sandy (, Gleved Matrix (S	4)	Umbric	Surface	(F13) (N		6, 122)	
Sandy F	Redox (S5)	,	Piedmo	nt Flood	Iplain So	ils (F19)	(MLRA 148)	
Stripped	Matrix (S6)		Red Pa	rent Ma	, terial (F2	1) (MLR	A 127, 147)	
	· · ·				,	<i>,</i> ,	. ,	
ndicators o	of hydrophytic ve	getation	and wetland hy	drology	must be	present,	unless disturbed or pro	blematic
		•		•••				
estrictive L	ayer (if observe	d):						
/pe:					_		Hydric soil pres	ent? N
epth (inche	es):				_			
emarks:								

Project/Site: Holloway-Knox 138 kV Transmission Li	<u>ne</u> City/County: <u>C</u>	Columbiana	Report Name: Sampling Date:	Wetland KW-4 5/1/2018		
Applicant/Owner: FirstEnergy	State: O	Dhio	Sampling Point	: w-mdt-5/01/2018-06		
Investigator(s): M. Thomayer, T. Qualio; Jacobs	Section, T	Township, Range:	T16N R5W S16	6		
Landform (hillslope, terrace, etc.): floodplain Subregion (LRR or MLRA): LRR N Soil Map Unit Name: Zepernick silt loam, 0 to 2 pe	Local relief (conca t.: 40.7821 rcent slopes, occassiona	ave, convex, none Long.: <u>-8</u> ally floode(NWI C	e): <u>concave</u> 1.0416 classification: <u>PF</u>	Slope (%): <u>0-1%</u> Datum: <u>NAD 83</u> O1C		
Are climatic/hydrologic conditions of the site typical for the	is time of the year?	Yes X No) (lf no. e	explain in remarks)		
Are vegetetion	aignificantly di	isturbed? Ar	o "normal airaum	stanooo" Voo		
Are vegetation, soil, or hydrology	significantiy u	lomatic? Al	e normai circum	stances res		
		/iematic: pro	needed explain:	any answers in remarks		
SUMMARY OF FINDINGS	T	(
Hydrophytic vegetation present? Yes						
Hydric soil present? Yes	Is the sample	ed area within a v	wetland? Y	′es		
Wetland hydrology present? Yes						
Remarks:						
PEM wetland in routinely maintained ROW in t	floodplain.					
	•					
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary	Indicators (minin	num of two required)		
Primary Indicators (minimum of one is required; check al	l that apply)	Surface	e Soil Cracks (B6)			
X Surface Water (A1) True A	quatic Plants (B14)	Sparse	ly Vegetated Con	cave Surface (B8)		
X High Water Table (A2)	en Sulfide Odor (C1)	X Draina	ge Patterns (B10)			
X Ingit Water Table (A2)						
X Saturation (AS) Oxidize	ed Rhizospheres on Living	gNOSS I		(00)		
	(C3)	Dry-Se	ason water Table	(C2)		
Sediment Deposits (B2) Presen	ce of Reduced Iron (C4)		n Burrows (C8)	(0 0)		
Algel Met er Cruet (P4)		Satura	d or Stropped Dian	ta (D1)		
	.0) 	Sturite		its (DT)		
	uck Surface (C7)	X Geomo	orphic Position (D2	2)		
Inundation Visible on AerialOther (Explain in Remarks)	Shallov	w Aquitard (D3)			
Imagery (B7)		Microto	opographic Relief ((D4)		
Water-Stained Leaves (B9)		X FAC-N	eutral Test (D5)			
Aquatic Fauna (B13)						
Field Observations:						
Surface water present? Yes X No	Depth (inches) [.]	1	Wetland			
Water table present? Yes X No	Depth (inches):	4	hydrology			
Saturation present? Yes X No	Depth (inches)	0	present?	Y		
(includes capillary fringe)		<u> </u>	p	<u> </u>		
(
Describe recorded data (stream gauge, monitoring well,	aerial photos, previous i	inspections), if av	ailable:			
	. ,,	, ,,				
Remarks:						
Saturated throughout, pockets of inundation						

VEGETATION - Us	e scientific names of	plants
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Sampling Point: w-mdt-5/01/2018-06 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Tree Stratum Plot Size (30 ft.) Cover Species Status Tree Stratum 0 0 Sapling/Shrub Stratum 0 0 Herb Stratum 2 25 63 Woody Vine Stratum 0 0 3 4 Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: (A) 8 2 Total Number of Dominant 9 2 Species Across all Strata: (B) 10 Total Cover 0 = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: 100.00% (A/B) Plot Size (15 ft.) Stratum Cover Species Status **Prevalence Index Worksheet** Total % Cover of: 2 3 OBL species x 1 = FACW species x 2 = 4 120 2405 FAC species 0 x 3 = Ω x 4 = **FACU** species 0 6 0 UPL species 0 x 5 = 0 8 Column totals 125 (A) 245 (B) 9 Prevalence Index = B/A = 1 96 10 0 = Total Cover Hydrophytic Vegetation Indicators: Indicator Absolute % Dominant X Rapid test for hydrophytic vegetation Herb Stratum Plot Size (5 ft.) Status X Dominance test is >50% Cover Species X Prevalence index is ≤3.0* Scirpus cyperinus FACW 70 Υ Phalaris arundinacea FACW Morphological adaptations* (provide 30 Ν 2 supporting data in Remarks or on a 3 Onoclea sensibilis 10 Ν FACW FACW separate sheet) 4 Persicaria maculosa 10 Y Caltha palustris Problematic hydrophytic vegetation* 5 Ν OBL 5 6 (explain) 7 *Indicators of hydric soil and wetland hydrology must be 8 present, unless disturbed or problematic q 10 Definitions of Vegetation Strata: 11 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 125 Total Cover = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Absolute % Dominant Indicator Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in height. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Y Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: w-mdt-5/01/2018-06

Depth	epth Matrix Redox Features						Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	rexture	remarks
0-12	10YR 4/2	90	10YR 3/6	10	RM	М	silty clay loam	
				<u> </u>				+
	anoontration D	Dorlati			00-0-	lorod ar	Control Card Croins	
i ype: C=C *Location:	oncentration, D=		on, KIVI=Reduced	i Matrix,	05=00	vered or	Coated Sand Grains	
		w-wau	IX					
yaric Soi	Indicators:		Dark S	urfana (G	27)		Indicators to	r Problematic Hydric Solis:
Histicol	(A1)		Dark Si	unace (a ue Relo	or) w.Surfac	e (S8)	2 cm Muc	k (A10) (MI BA 147)
Histic F	(AT) Inipedon (A2)			147.14	8)	c (00)	2 cm Muc	nirie Redox (A16) (MI RA 147, 14 8
Black H	listic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)
Hydrog	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 1	36, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shal	low Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	X Deplete	d Matrix	(F3)		Other (Ex	plain in Remarks)
Deplete	ed Below Dark Su	urface (A	A11) Redox	Dark Su	rface (F6	5)		
Thick D	ark Surface (A12	<u>2)</u>	Deplete	d Dark	Surface ((F7)		
Sandy	Mucky Mineral (S	51)	Redox	Depress	sions (F8)		
	, MLKA 147, 14 Cloved Metrix (S	8) 4)	Iron-Ma	anganes		S(F12)(LRR N, MLRA 136)	
Sandy I	Bieyeu Matrix (S Redox (SS)	4)	Unblic Piedmo	Surface	: (F I 3) (II Inlain So	116 (E10)	(MI DA 1/18)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MI R	Δ 127 147)	
							A 1 2 1, 141)	
Indicators	of hvdrophytic ve	aetatior	n and wetland hv	droloav	must be	present.	unless disturbed or pr	oblematic
	, , ,	0	,	0,7				
Restrictive I	Layer (if observe	d):						
ype:					-		Hydric soil pres	ent? Y
epth (inch	es):				-			
cemarks:								

Project/Site: Holloway-Knox 138 kV Transmis	sion Line City/County: Co	Report Name: Upland KW-4 Sampling Date: 5/1/2018
Applicant/Owner: FirstEnergy	State: Or	Sampling Point: upl-mdt-5/01/2018-06
Investigator(s): M. Inomayer, I. Qualio; Jacobs		ownsnip, Range: 116N R5W S16
Landform (nillslope, terrace, etc.): <u>nillslope</u>		/e, convex, none): <u>convex</u> Slope (%): <u>4</u>
Soil Map Unit Name: HgF-Hazleton-Westmoreland	t channery loams, 40 to 70 perc	cent slope NWI Classification: None (upland)
Are climatic/hydrologic conditions of the site typica	al for this time of the year?	Yes X No (If no, explain in remarks)
Are vegetation , soil , or hydr	ology significantly dis	sturbed? Are "normal circumstances" Yes
Are vegetation, soil, or hydr	ology naturally proble	ematic? present?
SUMMARY OF FINDINGS		
Hydrophytic vegetation present? <u>No</u>		
Hydric soil present? No	Is the sampled	d area within a wetland? No
Wetland hydrology present? No		
Remarks:		
Upland plot to PEM wetland (w-mdt-05/0	1/2018-06) in maintained F	ROW on hillside above wetland.
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; cl	neck all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3)	Oxidized Rhizospheres on Living	Moss Trim Lines (B16)
Water Marks (B1)	Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Cravfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Soils (C6)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Thin Muck Surface (C7)	Geomorphic Position (D2)
Inundation Visible on Aerial	Other (Explain in Remarks)	Shallow Aquitard (D3)
Imagery (B7)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)
Aquatic Fauna (B13)		
Field Observations:		
Surface water present? Yes N	o X Depth (inches):	Wetland
Water table present? Yes N	o X Depth (inches):	hydrology
Saturation present? Yes N	o X Depth (inches):	present? N
(includes capillary fringe)		
Describe recorded data (stream gauge, monitorino	g well, aerial photos, previous ir	nspections), if available:
Demontor		
remarks:		

Sampling Point: upl-mdt-5/01/2018-06 Thresholds

				50/20 Thresholds
Tree Stratum Plot Size (30 ft.)	Absolute %	Dominant	Indicator	20% 50%
· · · · · · · · · · · · · · · · · · ·	Cover	Species	Status	I ree Stratum 0 0
1				Sapling/Shrub Stratum 0 0
2				Woody Vine Stratum 0 0
3				
4 5				Dominance Test Worksheet
6				Number of Dominant
7				Species that are OBL,
8				FACW, or FAC: 0 (A)
9				Total Number of Dominant
10				Species Across all Strata: 2 (B)
	=	 Total Cover 		Percent of Dominant
				Species that are OBL,
Sapling/Shrub Plot Size (15 ft)	Absolute %	Dominant	Indicator	FACW, or FAC: 0.00% (A/B)
Stratum	Cover	Species	Status	
1				Prevalence Index Worksheet
2				Total % Cover of:
3				OBL species $0 \times 1 = 0$
4				FACW species 0 x 2 = 0
5				FAC species 20 x 3 = 60
6				FACU species 90 x 4 = 360
7				UPL species $0 \times 5 = 0$
8				Column totals <u>110</u> (A) <u>420</u> (B)
9				Prevalence Index = $B/A = 3.82$
10		Tatal Osuan		
		= Total Cover		Hydronhytic Vegetation Indicatory
	Abcoluto %	Dominant	Indicator	Banid test for hydrophytic vegetation
Herb Stratum Plot Size (5 ft.)		Species	Status	Dominance test is >50%
1 Ruhus allegheniensis	70	V	FACIL	Prevalence index is <3.0*
2 Dichanthelium clandestinum	20	<u> </u>	FAC	Morphological adaptations* (provide
3 Solidago sp	20	<u> </u>	FACIL	supporting data in Remarks or on a
4		<u> </u>	17.00	separate sheet)
5				Problematic hydrophytic vegetation*
6				(explain)
7				*Indicators of hydric soil and wetland hydrology must be
8				present, unless disturbed or problematic
9				
10				Definitions of Vegetation Strata:
11				Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
12				breast height (DBH), regardless of height.
13				Sanling/shrub - Woody plants less than 3 in DBH and
14				greater than 3.28 ft (1 m) tall.
າວ	110 -	Total Cover		
	110	- rotar Cover		Herb - All herbaceous (non-woody) plants, regardless of
Woody Vine	Absolute %	Dominant	Indicator	size, and woody plants less than 3.28 ft tall.
Stratum Plot Size (30 ft.)	Cover	Species	Status	Woody vince All woody vines greater than 3.28 ft in
1	00101	opeoleo	olaldo	height.
2				5
3				
4				Hydrophytic
5				vegetation
	0 =	Total Cover		present? N
Remarks: (Include photo numbers here or on a separa	ate sheet)			•
•				

Sampling Point: upl-mdt-5/01/2018-06

Depin	Depth Matrix Redox Features						Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10YR 3/2	100					silt loam	
					1			1
	<u> </u>					I		
ype: C=C	oncentration, D=	Depletic	on, RM=Reduced	i Matrix,	CS=Co	vered or	Coated Sand Grains	
Location:	PL=Pore Lining,	M=Matr	X					
ydric Soil	Indicators:						Indicators for	Problematic Hydric Soils:
			Dark Su	urface (S	57)			
Histisol	(A1)		Polyval	ue Belov	w Surfac	e (S8)	2 cm Mucl	< (A10) (MLRA 147)
Histic E	pipedon (A2)			147, 14	·8)		Coast Pra	rie Redox (A16) (MLRA 147, 14
Black H	istic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)
Hydroge	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 13	6, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shall	ow Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	Deplete	d Matrix	(F3)		Other (Exp	olain in Remarks)
Deplete	d Below Dark Su	urface (A	.11) Redox I	Dark Su	rface (F6	5)		
Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface ((F7)		
Sandy I	Aucky Mineral (S	51)	Redox I	Depress	ions (F8)		
_(LRR N	, MLRA 147, 14	8)	Iron-Ma	inganes	e Masse	s (F12) (LRR N, MLRA 136)	
Sandy (Gleyed Matrix (S	4)	Umbric	Surface	e (F13) (N	ILRA 13	36, 122)	
Sandy I	Redox (S5)		Piedmo	nt Flood	Iplain So	ils (F19)	(MLRA 148)	
Stripped	d Matrix (S6)		Red Pa	rent Ma	terial (F2	21) (MLR	A 127, 147)	
ndicators of	of hydrophytic ve	egetation	and wetland hy	drology	must be	present,	unless disturbed or pro	oblematic
						r		
4		-1).						
estrictive L	ayer (if observe	a):						
ype:	\.				_		Hydric soli pres	
eptn (inch	es):				-			
emarks:								

Project/Site: Holloway-Knox 138 kV Transmission	Line City/County:	Columbiana	Report Name: Sampling Date:	Wetland KW-5 5/1/2018	
Applicant/Owner: FirstEnergy	State:	Ohio	Sampling Point:	w-mdt-5/01/2018-05	
Investigator(s): M. Thomayer, T. Qualio; Jacobs	Section	n, Township, Rar	ge: T16N R5W S16		
Landform (hillslope, terrace, etc.): <u>floodplain</u> Subregion (LRR or MLRA): <u>LRR N</u> Soil Map Unit Name: <u>ZeA-Zepernick silt loam, 0 to 2 pe</u>	Local relief (con Lat.: 40.7791 ercent slopes, occassio	ncave, convex, n Long.: nally flooded_NV	one): <u>concave</u> -81.0416 /I Classification: <u>Non</u>	Slope (%): <u>0-1%</u> Datum: <u>NAD 83</u> e (PEM)	
Are climatic/hydrologic conditions of the site typical for	this time of the year?	Yes X	No (lf no, ex	kplain in remarks)	
Are vegetation, soil, or hydrolog, soil, or hydrolog	ysignificantly ynaturally pr	y disturbed? roblematic?	Are "normal circumst present? (If needed, explain a	tances" <u>Yes</u> ny answers in remarks	
				1	
Hydrophytic vegetation present? Yes Hydric soil present? Yes Wetland hydrology present? Yes	Is the sam	pled area withir	n a wetland? Ye	<u>es</u>	
Remarks:	1				
PEM wetland in routinely maintained ROW HYDROLOGY					
Wetland Hydrology Indicators:		Second	lary Indicators (minim	um of two required)	
Primary Indicators (minimum of one is required; check	all that apply)	Su	face Soil Cracks (B6)	. ,	
X Surface Water (A1) True	Aquatic Plants (B14)	Sn:	arsely Vegetated Conca	ave Surface (B8)	
High Water Table (A2)	rogen Sulfide Odor (C1)	Opt	vinage Patterns (B10)		
$\frac{1}{2} = \frac{1}{2} $		·Mo	Moss Trim Lines (B16)		
Water Marka (B1)	ized Rhizospheres on Li	vingNO	ss min Lines (D10) • Seesen Water Table ((00)	
Sodiment Deposite (P2)	s (U3) anao of Roduced Iron (C	Dry Crg	-Season water Table ((02)	
Drift Deposits (B3)	ence of Reduced from (C	,4)01a adSat	uration Visible on Aeria	al Imagery (C9)	
Algal Mat or Crust (B4)			nted or Stressed Plants	s (D1)	
Iron Denosits (B5)	Muck Surface (C7)	0	omorphic Position (D2)	3 (01)	
	r (Evaleia in Demorke)		low Aquitard (D3)		
Inundation Visible on AerialOthe	(Explain in Remarks)				
Imagery (B7)			rotopographic Relief (L	04)	
			S-Meutral Test (DS)		
			•		
Field Observations:					
Surface water present? Yes X No	Depth (inches):	:	Wetland		
Water table present? Yes No	X Depth (inches):		hydrology		
Saturation present? Yes X No	Depth (inches):	: 0	present?	Y	
(includes capillary fringe)					
Describe recorded data (stream gauge, monitoring we	ll, aerial photos, previou	us inspections), i	f available:		
Remarks:					
Saturated throughout, pockets of inundation					

VEGETATION - Us	e scientific names of	plants
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						Sampling Point:	w-mdt-5/01/2018-05
						50/20 Thresholds	
			Absolute %	Dominant	Indicator		20% 50%
Tree Stratum	Plot Size (30 ft.)	Cover	Species	Status	Tree Stratum	0 0
1			Cover	Opecies	Status	Sopling/Shrub Stratum	0 0
່າ			·			Sapility/Strub Stratum	20 50
2							20 50
3						Woody Vine Stratum	0 0
4							
5						Dominance Test Workshe	et
6						Number of Dominant	
7						Species that are OBL,	
8						FACW, or FAC:	2 (A)
9						Total Number of Dominant	
10						Species Across all Strata:	2 (B)
			0 =	 Total Cover 		Percent of Dominant	. ,
						Species that are OBI	
Sapling/Shrub			Absolute %	Dominant	Indicator	EACW or EAC:	100.00% (A/P)
Saping/Shirub	Plot Size (15 ft.)		Dominant		FACW, OF FAC.	100.00% (A/B)
Stratum			Cover	Species	Status		
1						Prevalence Index Worksh	eet
2						Total % Cover of	
3						OBI species 5 v 1	= 5
4						FACW species 90 v 2	$= \frac{180}{180}$
5						FAC species 0 v 3	= 0
6							- 20
7						LIDI appoint	- 20
/						UPL species <u>0 x 5</u>	$b = \frac{0}{005}$ (B)
8						Column totals 100 (A)	<u>205</u> (B)
9						Prevalence Index = B/A =	2.05
10							
				 Total Cover 			
						Hydrophytic Vegetation In	dicators:
Horb Stratum	Diet Size (F #)	Absolute %	Dominant	Indicator	X Rapid test for hydrophy	tic vegetation
Helb Stratum	FIOL SIZE (эн.)	Cover	Species	Status	X Dominance test is >50%	6
1 Scirpus cyper	inus		40	Ý	FACW	X Prevalence index is ≤3.	0*
2 Caltha palustr	ris		5	N	OBI	Morphological adaptation	ons* (provide
3 Juncus effusu	S		10	N	FACW	supporting data in Rem	arks or on a
4 Persicaria ma	culosa		40	<u> </u>	FACW	separate sheet)	
5 Rubus alleghe	nionsis		5		FACIL	Problematic hydrophytic	vegetation*
S Rubus allegrie	2111011313				TACO	(ovplain)	vegetation
0						(explain)	
1						*Indicators of hydric soil and wetla	and hydrology must be
8						present, unless disturbed or probl	ematic
9							
10						Definitions of Vegetation	Strata:
11						Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
12						breast height (DBH), regardless of	of height.
13							
14						Sapling/shrub - Woody plants les	ss than 3 in. DBH and
15						greater than 3.28 ft (1 m) tall.	
-			100 =	Total Cover			.
						Herb - All herbaceous (non-wood	y) plants, regardless of
Woody Vine			Absolute %	Dominant	Indicator	size, and woody plants less than	3.28 ft tall.
	Plot Size (30 ft.)		Dominant			
Stratum			Cover	Species	Status	Woody vines - All woody vines g	reater than 3.28 ft in
1						height.	
۲ <u>ــــــــــــــــــــــــــــــــــــ</u>							
3						1	
4						Hydrophytic	
5						vegetation	
-				Total Covor		procent? V	
							-
Domorkov (Include -	hoto numbers here	or on a same	to chect)			1	
xemarks: (Include p	noto numbers here	e or on a separa	ile sneet)				

Sampling Point: w-mdt-5/01/2018-05

Depth	Matrix		Red	dox Fea	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-14	10YR 4/1	90	10YR 3/6	10	RM	М	clay loam	
				<u> </u>				
				<u> </u>				
	an contration D	Denlati		Antoine	00-0-1		Castad Cand Crains	
ype: C=C	Uncentration, D=		on, Kivi=Keaucea iv	a iviatrix,	5=00	verea or	Coaled Sand Grains	
		ivi-iviau					1. P	
yaric Soli	Indicators:		Dark Si	urface (9	27)		indicators to	r Problematic Hydric Solis:
Histisol	(Δ1)		Dark St Polyval	ue Belo	v Surfac	e (S8)	2 cm Muc	k (A10) (MI RA 147)
Histic F	pipedon (A2)		(MLRA	147.14	.8)	0 (00)	Coast Pra	airie Redox (A16) (MLRA 147, 14
Black H	istic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)
- Hydroge	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 1	36, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shal	llow Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	X Deplete	ed Matrix	(F3)		Other (Ex	plain in Remarks)
_ Deplete	d Below Dark Su	urface (A	A11) Redox	Dark Su	rface (F6	5)		
	ark Surface (A12	2)	Deplete	ed Dark	Surface ((F7)		
Sandy		51) DV	Redox	Depress	sions (F8) - (E40) (
_ (LKK N	, IVILKA 147, 140 Cloved Matrix (S	0) 4)		Surface		S(FIZ)(11 PA 13	LKK N, WILKA 130)	
_Sandy F	Redox (S5)		Onbrid Piedmo	ourrace	Inlain So	ils (F19)	(MI RA 148)	
Stripped	d Matrix (S6)		Red Pa	rent Ma	terial (F2	(1) (MLR	A 127. 147)	
							,	
ndicators (of hydrophytic ve	getatior	n and wetland hy	drology	must be	present,	unless disturbed or pr	oblematic
		-	-			-	-	
	<i></i>							
estrictive L	ayer (if observe	d):						10
/pe: anth (in ab.					-		Hydric soll pres	sent? Y
spin (inche	es):				-			
omarke:								
sina As.								

Project/Site: Holloway Know 1	129 kV/Transmission Line	City/County:	Columbiana	Report Name:	Upland KW-5
Applicant/Owner: EirstEnergy		<u>Stata</u>	Obio	_ Sampling Date:	$\frac{5/1}{2010}$
Applicant/Owner. FirstEnergy	Qualia: Jacobs	State.	Township Pange:		<u>upi-mut-5/01/2016-05</u>
Landform (hillslope terrace etc.):	· hillslone	Local relief (co	n, rownsnip, range.	1101010000000000000000000000000000000	Slone (%): 4
Subregion (I RR or MI RA) ⁻ I RR	N lat	40 779270872		1 041 <u>630834</u>	Olope (70). 4 Datum: NAD 83
Soil Map Unit Name: KnD - Kensi	ngton silt loam, 15 to 25 p	percent slopes	NWI C	lassification: No	ne (upland)
Are climatic/hydrologic conditions	of the site typical for this	time of the year?	Yes <u>X</u> No	o(lf no, e	explain in remarks)
Are vegetation, soil	, or hydrology	significantly	y disturbed? Ar	e "normal circum	stances" Yes
Are vegetation, soil	, or hydrology	naturally pr	oblematic? pre	esent? needed. explain	anv answers in remarks
SUMMARY OF FINDINGS			X	, ,	,
Hydrophytic vegetation present?	No				
Hydric soil present?	No	Is the sam	pled area within a v	wetland?	No
Wetland hydrology present?	No				
Remarks:					
Lipland plot to DEM wotion	d (w mdt 05/01/2019	05) in maintaine	d POW on billoid	la abova watla	nd
	ia (w-mat-05/01/2016	-05) in maintaine		le above wella	nu.
HIDROLOGI Wetland Hydrology Indicators			Secondary	Indicators (minir	num of two required)
Primary Indicators (minimum of or	no is required: check all t	hat apply)	Surface		num or two required)
					0 (() 0)
Surface Water (A1)	Irue Aqu	atic Plants (B14)	Sparse	ly Vegetated Con	cave Surface (B8)
High Water Table (A2)	Hydroger	n Sulfide Odor (C1)	Draina	ge Patterns (B10)	
Saturation (A3)	Oxidized	Rhizospheres on Liv	vingMoss T	rim Lines (B16)	
Water Marks (B1)	Roots (C	3)	Dry-Se	ason Water Table	(C2)
Sediment Deposits (B2)	Presence	e of Reduced Iron (C	(4) Crayfis	h Burrows (C8)	
Drift Deposits (B3)	Recent Ir	on Reduction in Tille	ed Satural	tion Visible on Aer	ial Imagery (C9)
Algal Mat or Crust (B4)	Soils (C6)	Stunted	d or Stressed Plan	nts (D1)
Iron Deposits (B5)	Thin Muc	k Surface (C7)	Geomo	orphic Position (D2	2)
Inundation Visible on Aerial	Other (E)	plain in Remarks)	Shallov	v Aquitard (D3)	
Imagery (B7)			Microto	pographic Relief ((D4)
Water-Stained Leaves (B9)			FAC-N	eutral Test (D5)	
Aquatic Fauna (B13)					
Field Observations:					
Surface water present? Ye	es <u>No X</u>	Depth (inches):	·	Wetland	
Water table present? Ye	es <u>No X</u>	Depth (inches):	·	hydrology	
Saturation present? Ye	es <u>No X</u>	Depth (inches):	·	present?	<u>N</u>
(includes capillary fringe)					
Describe recorded data (stream g	auge, monitoring well, ae	erial photos, previou	us inspections), if av	ailable:	
Remarks:					

Sampling Point: upl-mdt-5/01/2018-05

Tree Stratum Plot Size (30 ft.) 1	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum00Sapling/Shrub Stratum00Herb Stratum2460Woody Vine Stratum00Dominance Test WorksheetNumber of Dominant5pecies that are OBL,FACW, or FAC:0(A)Total Number of Dominant5pecies Across all Strata:3Species that are OBL,FACW, or FAC:0Percent of Dominant5pecies that are OBL,FACW, or FAC:0.00%(A/B)
1 2 3 4 5 6 7 8 9 10		Total Cover		Prevalence Index WorksheetTotal % Cover of:OBL species 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 120 x 4 = 480 UPL species 0 Column totals 120 (A) 480 Prevalence Index = $B/A =$
Herb Stratum Plot Size (5 ft.) 1 Rubus allegheniensis 2 Poa pretensis 3 Solidago sp 4	Absolute % Cover 60 30 30 	Dominant Species Y Y Y	Indicator Status FACU FACU FACU	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
10		Total Cover		 Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Woody Vine Plot Size(30 ft.) Stratum	Absolute % Cover	Dominant Species	Indicator Status	 Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 4 5	0 =	Total Cover		Hydrophytic vegetation present? <u>N</u>
Remarks: (Include photo numbers here or on a separa	te sheet)			

Sampling Point: upl-mdt-5/01/2018-05

	pth Matrix Redox Features						Toxturo	Bomorko
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	rexture	Remarks
0-10	10YR 4/4	100					silt loam	
								-
Type: C=C	oncentration, D=	Depletic	n, RM=Reduced	Matrix,	CS=Cov	vered or	Coated Sand Grains	
Location: I	PL=Pore Lining,	M=Matr	ix	,				
vdric Soil	Indicators:						Indicators for	Problematic Hydric Soils:
,			Dark Su	urface (S	67)			· · · · · · · · · · · · · · · · · · ·
Histisol	(A1)		Polyval	ue Belò	<i>»</i> Surfac	e (S8)	2 cm Mucl	(A10) (MLRA 147)
Histic E	pipedon (A2)		(MLRA	147, 14	8)		Coast Prai	irie Redox (A16) (MLRA 147, 14
Black H	istic (A3)		Thin Da	ark Surfa	ice (S9)		Piedmont	Floodplain Soils (F19)
Hydroge	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 13	6, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shall	ow Dark Surface (TF12)
2 cm Mi	uck (A10) (LRR	N)	Deplete	d Matrix	(F3)		Other (Exp	olain in Remarks)
Deplete	d Below Dark Su	urface (A	(11) Redox I	Dark Su	rface (F6	5)		
_ Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface ((F7)		
Sandy	Nucky Mineral (S	51) 0)		Depress	ions (F8) - (E40) (
	, WILKA 147, 140	8) 4)	Iron-Ivia	Surface		S(F1Z)(LKK N, MLKA 136)	
Sandy E	Bieyeu Matrix (S Podox (S5)	4)	Unblic Piedmo	Surface	(FI3) (N Inlain Sa	ile (E10)	MIDA 148	
Strinner	Matrix (S6)		Piedillo Red Pa	rent Mat	torial (E2	1) (MI P	(WERA 140) A 127 1/7)	
							A 121, 141)	
ndicators o	of hydrophytic ve	enetation	and wetland hv	drology	must he	nresent	unless disturbed or pro	blematic
		gotation	and worlding hys	arology		procent,		
estrictive L	ayer (if observe	d):						
ype:		-					Hydric soil prese	ent? N
epth (inche	es):				-			
					-			
emarks:								

Project/Site: Holloway-Knox 138 kV Transmission L Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio; Jacobs Landform (hillslope, terrace, etc.): floodplain Subregion (LRR or MLRA): LRR N Soil Map Unit Name: ZeA - Zepernick silt loam, 0 to 2 period	ne City/County: Columbiana Sampling Da State: Ohio Sampling Da Section, Township, Range: T16N R5W S Local relief (concave, convex, none): concave t.: 40.7758 Long.: -81.0415 rcent slopes, ocassionally flooded NWI Classification: 1	e: Wetland KW-6E ate: 5/1/2018 int: w-mdt-5/01/2018-04a S16 Slope (%): 0-1% Datum: NAD 83 PSS1/EM1C
Are climatic/hydrologic conditions of the site typical for the Are vegetation, soil, or hydrology Are vegetation, soil, or hydrology	his time of the year? Yes X No (If no significantly disturbed? Are "normal circu naturally problematic? present?	o, explain in remarks) ımstances" <u>Yes</u>
SUMMARY OF FINDINGS	(If needed, expla	in any answers in remarks)
Hydrophytic vegetation present? Yes Hydric soil present? Yes Wetland hydrology present? Yes	Is the sampled area within a wetland?	Yes
Remarks: PEM wetland in routinely maintained ROW in wetland.	floodplain. Part of larger wetland complex. Strea	am flows through

Wetland Hydrology Indica	tors:		Second	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum	of one is	Su	Surface Soil Cracks (B6)						
X Surface Water (A1)			X True A	Aquatic Plants (B14)	Spa	arsely Vegetated Concave	Surface (B8)		
X High Water Table (A2)			X Dra	X Drainage Patterns (B10)					
X Saturation (A3)		Mo	Moss Trim Lines (B16)						
Water Marks (B1)			Roots	(C3)	Dry	Dry-Season Water Table (C2)			
Sediment Deposits (B2)			Prese	nce of Reduced Iron (C4)	4) Crayfish Burrows (C8)				
Drift Deposits (B3)			Recer	t Iron Reduction in Tilled	Sat	uration Visible on Aerial Im	agery (C9)		
Algal Mat or Crust (B4) Soils (C6)						nted or Stressed Plants (D	1)		
Iron Deposits (B5)			Thin N	luck Surface (C7)	<u> </u>	omorphic Position (D2)			
Inundation Visible on AerialOther (Explain in Remarks)						allow Aquitard (D3)			
X Imagery (B7)					<u> </u>	rotopographic Relief (D4)			
Water-Stained Leaves (B))				X FA	C-Neutral Test (D5)			
X Aquatic Fauna (B13)									
Field Observations:									
Surface water present?	Yes	Х	No	Depth (inches):	6	Wetland			
Water table present?	Yes	Х	No	Depth (inches):	5	hydrology			
Saturation present?	Yes	Х	No	Depth (inches):	0	present?	(
(includes capillary fringe)									
Describe recorded data (atra		o moni		aarial photos, provious ir	enantione) i	available:			
Describe recorded data (stre	am gaug	e, moni	uning weil,	aeriai priotos, previous ir	ispections), i	avallable.			
Remarks:									
Saturated and inundate	ed thro	ughout	Perenni	al stream flows throug	gh wetland.	Northern portion of w	etland has		
water > 12" deep.									

Sampling Point: w-mdt-5/01/2018-04 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Plot Size (30 ft. Tree Stratum) Tree Stratum Cover Species Status 0 0 Sapling/Shrub Stratum 0 0 Herb Stratum 2 22 55 Woody Vine Stratum 0 0 3 4 Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: (A) 8 2 Total Number of Dominant 9 2 Species Across all Strata: (B) 10 0 Total Cover = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: 100.00% (A/B) Plot Size (15 ft.) Stratum Cover Species Status **Prevalence Index Worksheet** Total % Cover of: 2 OBL species 3 x 1 = FACW species x 2 = 110 4 5 FAC species 0 x 3 = x 4 = **FACU** species 0 6 0 UPL species 0 x 5 = 0 8 Column totals 110 (A) 220 (B) Prevalence Index = B/A = 9 2 00 10 0 = Total Cover Hydrophytic Vegetation Indicators: Indicator X Rapid test for hydrophytic vegetation Absolute % Dominant Herb Stratum Plot Size (5 ft.) Species Status X Dominance test is >50% Cover X Prevalence index is ≤3.0* Phalaris arundinacea FACW 60 Y 1 Juncus effusus FACW Morphological adaptations* (provide 30 γ 2 supporting data in Remarks or on a 3 Scirpus cyperinus 20 Ν FACW separate sheet) 4 Problematic hydrophytic vegetation* 5 6 (explain) 7 *Indicators of hydric soil and wetland hydrology must be 8 present, unless disturbed or problematic q Definitions of Vegetation Strata: 10 11 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 110 Total Cover = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Absolute % Dominant Indicator Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in heiaht. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Y Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: w-mdt-5/01/2018-04a

nches)	Color (moist)	0/					Texture	Pomarka
0-12		%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-12	10YR 4/1	90	10YR 3/3	10	RM	М	silty clay	
vpe: C=C	oncentration, D=	Depletic	on, RM=Reduced	Matrix,	CS=Cov	vered or	Coated Sand Grains	
ocation: I	PL=Pore Lining,	M=Matr	ix					
dric Soil	Indicators:						Indicators for	Problematic Hydric Soils:
Histic E Black H Hydroge Stratifie 2 cm Mu Deplete Thick Da Sandy M (LRR N Sandy C Sandy F Stripped	pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) uck (A10) (LRR d Below Dark Su ark Surface (A12 Aucky Mineral (S , MLRA 147, 14 Gleyed Matrix (S Redox (S5) d Matrix (S6)	N) urface (A 2) 31) 8) 4) egetation	(MLRA Thin Da (MLRA Loamy + X Deplete Redox I Piedmo Piedmo Red Pa	147, 14 rk Surfa 147, 14 Gleyed I d Matrix Dark Su d Dark S Depress nganes Surface nt Flooc rent Ma drology	8) ace (S9) 8) Matrix (F (F3) rface (F6 Surface (ions (F8) e Masses (F13) (N dplain So terial (F2 must be	2) (F7)) s (F12) (/ILRA 13 ills (F19) il) (MLR present,	Coast Pra Piedmont (MLRA 13 Very Shall Other (Exp (MLRA 136) (MLRA 148) A 127, 147) unless disturbed or pro	rite Redox (A16) (MLRA 147, 14 Floodplain Soils (F19) 6, 147) ow Dark Surface (TF12) olain in Remarks)
strictive L be: pth (inche	.ayer (if observe es):	d):			-		Hydric soil pres	ent? Y
marks:						-		

Project/Site: Holloway-Knox 138 kV Transmission Lin Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio; Jacobs Landform (hillslope, terrace, etc.): floodplain Subregion (LRR or MLRA): LRR N Soil Map Unit Name: FnC2 - Fredericktown gravelly loam Are climatic/hydrologic conditions of the site typical for thi Are vegetation , soil , or hydrology	Local relief (cond 40.7758 6 to 15 percent slope is time of the year? significantly naturally pro	Columbiana Ohio Township, Range cave, convex, non Long.: -{ es NWI Yes X N disturbed? A bblematic? p	Report Name: Sampling Date: Sampling Point E: T16N R5W S16 e): concave B1.0415 Classification: PS lo(If no, e are "normal circum: resent? If needed, explain	Wetland KW-6S 5/1/2018 : w-mdt-5/01/2018-04b Slope (%): 0-1% Datum: NAD 83 S1/EM1C explain in remarks) stances" Yes any answers in remarks
Hydrophytic vegetation present? Yes Hydric soil present? Yes Wetland hydrology present? Yes	Is the samp	oled area within a	wetland? Y	<u>′es</u>
PSS wetland in ROW in floodplain. Part of larg	ger wetland comple	ex. Stream flow	s through wetla	nd.
Wetland Hydrology Indicators:	that any hi	Secondar	ry Indicators (minir	num of two required)
Primary Indicators (minimum of one is required; check all	that apply)	Surfac	ce Soil Cracks (B6)	
X Surface Water (A1)	juatic Plants (B14)	Spars	ely Vegetated Con	cave Surface (B8)
X High Water Table (A2) Hydroge	en Sulfide Odor (C1)	<u>X</u> Draina	age Patterns (B10)	
X Saturation (A3) Oxidize	d Rhizospheres on Livi	ing <u>M</u> oss	Trim Lines (B16)	
Water Marks (B1)Roots (C3)	Dry-S	eason Water Table	(C2)
Sediment Deposits (B2) Presence	ce of Reduced Iron (C4) Crayf	ish Burrows (C8)	
Drift Deposits (B3)	Iron Reduction in Tillec	d Satur	ation Visible on Aer	ial Imagery (C9)
Algal Mat or Crust (B4) Soils (C	(6)	Stunte	ed or Stressed Plan	ts (D1)
Iron Deposits (B5)	uck Surface (C7)	X Geom	orphic Position (D2	2)
Inundation Visible on Aerial Other (E	Explain in Remarks)	Shallo	ow Aquitard (D3)	
Imagery (B7)		X Micro	topographic Relief (D4)
Water-Stained Leaves (B9)		X FAC-I	Neutral Test (D5)	
Aquatic Fauna (B13)				
Field Observations:				
Surface water present? Yes X No	Depth (inches):	6	Wetland	
Water table present? Yes X No	Depth (inches):	5	hydrology	
Saturation present? Yes X No	Depth (inches):	0	present?	Y
(includes capillary fringe)				
Describe recorded data (stream gauge, monitoring well, a	aerial photos, previous	s inspections), if a	vailable:	
Remarks:				
Saturated and inundated throughout. Perennia	l stream overflows	into wetland.		

Sampling Point: w-mdt-5/01/2018-04 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Plot Size (30 ft. Tree Stratum) Tree Stratum Cover Species Status 0 0 Sapling/Shrub Stratum 12 30 Herb Stratum 20 2 8 Woody Vine Stratum 0 0 3 4 Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: (A) 8 4 Total Number of Dominant 9 Species Across all Strata: 4 (B) 10 0 Total Cover = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: 100.00% (A/B) Plot Size (15 ft.) Stratum Cover Species Status Cornus sericea 40 FACW **Prevalence Index Worksheet** γ 2 Salix nigra 20 OBL Total % Cover of: OBL species 3 20 x 1 = 20 FACW species x 2 = 4 80 160 5 FAC species 0 x 3 = 0 x 4 = **FACU** species 6 0 0 UPL species 0 x 5 = 0 8 Column totals 100 (A) 180 (B) 9 Prevalence Index = B/A = 1 80 10 60 = Total Cover Hydrophytic Vegetation Indicators: Indicator X Rapid test for hydrophytic vegetation Absolute % Dominant Herb Stratum Plot Size (5 ft.) Species Status X Dominance test is >50% Cover X Prevalence index is ≤3.0* FACW Phalaris arundinacea 10 Y Spirea tomentosa FACW Morphological adaptations* (provide 30 2 supporting data in Remarks or on a 3 separate sheet) 4 Problematic hydrophytic vegetation* 5 6 (explain) 7 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic 8 q Definitions of Vegetation Strata: 10 11 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 40 Total Cover = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Absolute % Dominant Indicator Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in heiaht. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Y Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: w-mdt-5/01/2018-04b

Dopui	Matrix		Red	lox Feat	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	TEXICIE	Ttemanta
0-12	10YR 3/2	90	10YR 4/6	10	С	М	silty clay	
					-			
					 			
					ļ			
Iype: C=C	oncentration, D=	Depletio	n, RM=Reduced	i Matrix,	CS=Cov	ered or	Coated Sand Grains	
Location:	PL=Pore Lining,	M=Matri	x					
ydric Soil	Indicators:						Indicators for	Problematic Hydric Soils:
	()		Dark St	urtace (S	37) 	- (00)	0 M I	
Histisol	(A1)		Polyval		w Surrac	e (58)	2 cm Muck	(A10) (MLRA 147) ia Daday (A10) (ML DA 147, 14
	pipedon (AZ)		(IVILRA Thin Da	147, 14 ork Surfs	(0)		Coast Prair	le Redox (A16) (IVILRA 147, 14 Joodplain Soils (E19)
Hvdrog	en Sulfide ($\Delta 4$)		(MIRA	147 14	8)		(MI RA 136	147)
Stratifie	d Lavers (A5)			Gleved	Matrix (F	2)	Very Shallo	w Dark Surface (TE12)
2 cm M	uck (A10) (LRR	N)	X Deplete	d Matrix	(F3)	<i>_</i>)	Other (Expl	ain in Remarks)
Deplete	d Below Dark Su	urface (A	11) Redox I	Dark Su	rface (F6	5)		
 Thick D	ark Surface (A12	<u>2)</u>	Deplete	d Dark	Surface (, F7)		
Sandy	Mucky Mineral (S	51)	Redox	Depress	ions (F8)		
(LRR N	, MLRA 147, 14	B)	Iron-Ma	inganes	e Masse	s (F12) (LRR N, MLRA 136)	
Sandy	Gleyed Matrix (S	4)	Umbric	Surface	e (F13) (N	ILRA 13	86, 122)	
Sandy I	Redox (S5)		Piedmo	nt Flood	lplain So	ils (F19)	(MLRA 148)	
Strinno	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 147)	
Suippe				-l				- I +! -
		gelation	and wetland nyo	arology	must be	present,	unless disturbed or proc	Demalic
ndicators	of hydrophytic ve							
Indicators	ot nydropnytic ve							
Indicators	of hydrophytic ve Laver (if observe	d):						
Indicators	af nydropnytic ve Layer (if observe	d):					Hydric soil prese	nt? Y
Indicators	Layer (if observe	d):			_		Hydric soil prese	nt? <u>Y</u>
Indicators	Layer (if observe	d):			-		Hydric soil prese	nt? <u>Y</u>
Indicators Restrictive I ype: Pepth (inch	ayer (if observe	d):			-		Hydric soil prese	nt? <u>Y</u>
Indicators Restrictive I ype: Pepth (inch	ayer (if observe	d):			-		Hydric soil prese	nt? <u>Y</u>
Indicators Restrictive ype:)epth (inch ?emarks:	Layer (if observe	d):			-		Hydric soil prese	nt? <u>Y</u>
estrictive ype: epth (inch emarks:	Layer (if observe	d):			-		Hydric soil prese	nt? <u>Y</u>

Proiect/Site: Hollowav-Knox	x 138 kV Transmission Line	e Citv/Countv:	Columbiana	Report Name: Sampling Date:	Upland KW-6 5/1/2018
Applicant/Owner FirstEnergy	V	State:	Ohio	Sampling Point	upl-mdt-5/01/2018-04
Investigator(s): M. Thomaver.	, T. Qualio: Jacobs	Section	n. Township, Range:		6
Landform (hillslope, terrace, etc.	.): terrace	Local relief (cor	ncave, convex, none	e): convex	Slope (%): 0-1%
Subregion (LRR or MLRA): LR	RN Lat.:	40.775487327	Long.: <u>-8</u>	1.041751683	Datum: NAD 83
Are climatic/hydrologic condition	ns of the site typical for this	time of the year?	Yes X No) (If no e	explain in remarks)
Are vegetation	or bydrology	cignificantly	v disturbod? Ar	e "normal circum	stances" Vee
Are vegetation, soil	, or hydrology	significanti naturally pr	roblematic? nr	esent?	stances res
, con	, or nyarology	natarany pr	(If	needed, explain	any answers in remarks
SUMMARY OF FINDINGS				-	-
Hydrophytic vegetation present?	? No				
Hydric soil present?	No	Is the sam	pled area within a	wetland?	No
Wetland hydrology present?	No				
Remarks:					
i temarka.					
Lipland plot to PEM/PSS	wetland (w-mdt-05/01/	2018-04a/h) in n	naintained ROW		
	wettand (w-mdt-05/01/	2010-044/0/1111			
HYDROLOGY					
Wetland Hydrology Indicato	rs:		Secondary	 Indicators (minir 	num of two required)
Primary Indicators (minimum of	one is required; check all t	hat apply)	Surfac	e Soil Cracks (B6)	
Surface Water (A1)	True Aqu	atic Plants (B14)	Sparse	ely Vegetated Con	cave Surface (B8)
High Water Table (A2)	Hydroger	n Sulfide Odor (C1)	Draina	ge Patterns (B10)	
Saturation (A3)	Oxidized	Rhizospheres on Liv	ving Moss 1	Frim Lines (B16)	
Water Marks (B1)	Roots (C	3)	Drv-Se	ason Water Table	(C2)
Sediment Deposits (B2)	Presence	e of Reduced Iron (C	(4) Cravfis	h Burrows (C8)	()
Drift Deposits (B3)	Recent Ir	on Reduction in Tille	ed Satura	tion Visible on Aer	ial Imagery (C9)
Algal Mat or Crust (B4)	Soils (C6)	Stunte	d or Stressed Plan	nts (D1)
Iron Deposits (B5)	Thin Muc	k Surface (C7)	Geomo	orphic Position (D2	2)
Inundation Visible on Aerial	Other (Ex	(plain in Remarks)	Shallov	v Aquitard (D3)	
Imagery (B7)			Microto	pographic Relief ((D4)
Water-Stained Leaves (B9)			FAC-N	eutral Test (D5)	× ,
Aquatic Fauna (B13)					
Field Observations:					
Surface water present?	(es No X	Depth (inches)		Wetland	
Water table present?	res No X	Depth (inches):		hvdrology	
Saturation present?	res No X	Depth (inches):		present?	Ν
(includes capillary fringe)				•	
Describe recorded data (stream	gauge, monitoring well, ae	erial photos, previou	us inspections), if av	ailable:	
Remarks:					
i ternarite.					

Sampling Point: upl-mdt-5/01/2018-04

Tree Stratum Plot Size (30 ft.) 1	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum000Sapling/Shrub Stratum000Herb Stratum20500Woody Vine Stratum000Dominance Test WorksheetNumber of DominantSpecies that are OBL,FACW, or FAC:00(A)Total Number of DominantSpecies Across all Strata:33(B)Percent of DominantSpecies that are OBL,FACW, or FAC:0.00%(A/B)
1 2 3 4 5 6 7 8 9 10		Total Cover		Prevalence Index WorksheetTotal % Cover of:OBL species 0 FACW species 0 2 0 FAC species 0 3 $=$ 0 3 FAC species 0 4 400 UPL species 0 5 0 Column totals 100 100 (A) 4.00 Prevalence Index = B/A
Herb Stratum Plot Size (5 ft.) 1 Taraxacum officinale 2 Trifolium repens 3 Triticum aestivum 4	Absolute % Cover 20 20 60 	Dominant Species Y Y Y	Indicator Status FACU FACU FACU	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
12 13 14 15				breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Woody Vine Plot Size(30 ft.) Stratum 2	Absolute % Cover	Dominant Species	Indicator Status	 Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 4 5	=	Total Cover		Hydrophytic vegetation present? <u>N</u>
Remarks: (Include photo numbers here or on a separa	te sheet)			

Sampling Point: upl-mdt-5/01/2018-04

Depui	Depth Matrix Redox Features						Toxturo	Pomorko
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-10	10YR 4/2	100					silt loam	
vpe: C=C	oncentration D=	Depletic	n RM=Reduced	Matrix	CS=Cov	vered or	Coated Sand Grains	
Location: I	PL=Pore Lining.	M=Matr	ix	, maan,	00 00			
udria Sail	Indicatoro:						Indicators for	Problematic Hydric Soile:
yune son	mulcators.		Dark Si	irface (S	37)		indicators for	Froblematic Hydric Solis.
Histisol	(Δ1)		Polyval	ue Belov	v Surfac	e (S8)	2 cm Muc	k (A10) (MI RA 147)
Histic F	ninedon (A2)		(MI RA	147.14	8)	0 (00)	Coast Pra	irie Redox (A16) (MI RA 147, 14
Black H	istic (A3)		Thin Da	ark Surfa	o, ace (S9)		Piedmont	Floodplain Soils (F19)
Hvdroae	en Sulfide (A4)		(MLRA	147.14	8)		(MLRA 13	36. 147)
Stratifie	d Lavers (A5)			Gleved	⊂, Matrix (F	2)	Verv Shall	low Dark Surface (TF12)
2 cm Mi	uck (A10) (LRR	N)	Deplete	d Matrix	(F3)	_/	Other (Ex	plain in Remarks)
Deplete	d Below Dark Su	urface (A	(11) Redox	Dark Su	rface (F6	5)		
 Thick Da	ark Surface (A12	2)	Deplete	d Dark	Surface (, (F7)		
Sandy N	/lucky Mineral (S	sí)	 Redox I	Depress	ions (F8)		
(LRR N	, MLRA 147, 14	8)	Iron-Ma	inganes	e Masse	, s (F12) (LRR N, MLRA 136)	
Sandy C	Sleyed Matrix (S	4)	Umbric	Surface	(F13) (N	ILRA 13	86, 122)	
Sandy F	Redox (S5)		Piedmo	nt Flood	Iplain So	ils (F19)	(MLRA 148)	
Stripped	Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 147)	
ndicators o	of hydrophytic ve	getation	and wetland hy	drology	must be	present,	unless disturbed or pro	oblematic
estrictive L	ayer (if observe.	d):						
/pe:					-		Hydric soil pres	ent? <u>N</u>
epth (inche	es):				-			
emarks:								

		Report Name: <u>Wetland KW-007</u>
Project/Site: Holloway-Knox 138 kV Transmission Line Ci	y/County: Columbia	ana Sampling Date: 5/2/2018
Applicant/Owner: FirstEnergy	State: Ohio	Sampling Point: w-tmq-05/02/2018-02
Investigator(s): M. Thomayer, T. Qualio; Jacobs	Section, Townshi	p, Range: T16N R5W S16 & S21
Landform (hillslope, terrace, etc.): riverine Lo	cal relief (concave, con	ivex, none): <u>concave</u> Slope (%): <u>0-2%</u>
Subregion (LRR or MLRA): LRR N Lat.: 40	.7722 L	.ong.: -81.0415 Datum: NAD83
Soil Map Unit Name: FeA-Fluvaquents, silty, 0 to 1 percent slope	s, frequently flooded	NWI Classification: PSS1/EM1C
Are climatic/hydrologic conditions of the site typical for this time	of the year? Yes	X No (If no, explain in remarks)
Are vegetation , soil , or hydrology	significantly disturbed	? Are "normal circumstances" Yes
Are vegetation , soil , or hydrology	naturally problematic	? present?
		(If needed, explain any answers in remarks)
SUMMARY OF FINDINGS		
Hydrophytic vegetation present? Yes		
Hydric soil present? Yes	Is the sampled area	within a wetland? Yes
Wetland hydrology present? Yes		
Remarks:		
PEM wetland in routinely maintained ROW, large we	land complex with p	oond and PSS portion outside ROW/survey
area		
HYDROLOGY		
Wetland Hydrology Indicators:	S	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: check all that an	olv)	Surface Soil Cracks (B6)
X Surface Water (A1)		Sparsely Vegetated Concave Surface (B8)
Ligh Weter Table (A2)	and $(D14)$	Operately Vegetated Concave Surface (B0)
High Water Table (A2) Hydrogen Suillo		
X Saturation (A3) Oxidized Rhizo	pheres on Living	Moss Trim Lines (B16)
Water Marks (B1) Roots (C3)		Dry-Season Water Table (C2)
Sediment Deposits (B2) Presence of Re	duced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3) Recent Iron Re	luction in Tilled	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Soils (C6)	_	Stunted or Stressed Plants (D1)
X Iron Deposits (B5) Thin Muck Surf	ace (C7)	X Geomorphic Position (D2)
Inundation Visible on Aerial Other (Explain	n Remarks)	Shallow Aquitard (D3)
Imagery (B7)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)
Aquatic Fauna (B13)		
Field Observations:		
Surface water present? Yes X No De	oth (inches): 4"	Wetland
Water table present? Yes No X De	pth (inches):	hvdrology
Saturation present? Yes X No De	pth (inches): 0-6"	present? Y
(includes capillary fringe)		
\		
Describe recorded data (stream gauge, monitoring well, aerial pl	otos, previous inspecti	ions), if available:
Demoster		
Remarks:		
Saturated due to standing water from surrounding po	nd and stream.	

				Sampling Point: w-tmq-05/02/2018-02
				50/20 Thresholds
	Absolute %	Dominant	Indicator	20% 50%
Tree Stratum Plot Size(30 ft.)	Cover	Species	Statuc	Tree Stratum
1	Cover	Opecies	Status	Senling/Shrub Stratum 2 5
1				
2				Herb Stratum 38 96
3				Woody Vine Stratum 0 0
4				
5				Dominance Test Worksheet
6				Number of Dominant
7				Species that are OBI
0				EACW or EAC : 2 (A)
8				Total Number of Dominant
9				
10				Species Across all Strata: <u>3</u> (B)
	0 =	I otal Cover		Percent of Dominant
				Species that are OBL.
Sanling/Shrub	Absolute %	Dominant	Indicator	FACW or FAC: 100.00% (A/B)
Stratum Plot Size (15 ft.)	Cover	Species	Statua	
Stratum	Cover	Species	Status	
1 Cornus amomum	10	Y	FACW	Prevalence Index Worksheet
2				Total % Cover of:
2				$OPL \text{ approximation} \qquad 75 \text{v1} = -75$
3				OBL species $75 \times 1 = 75$
4				FACW species $100 \times 2 = 200$
5				FAC species $27 \times 3 = 81$
6				FACU species 0 x 4 = 0
7				UPL species 0 x 5 = 0
8				Column totals 202 (A) 356 (B)
9				Prevalence Index = $B/A = 1.76$
10				
	10	Total Cover		
				I hadron ha die Menstediene India et and
		D · · ·		Hydrophytic vegetation indicators:
Herb Stratum Plot Size (5 ft)	Absolute %	Dominant	Indicator	X Rapid test for hydrophytic vegetation
	Cover	Species	Status	X Dominance test is >50%
1 Typha angustifolia	60	Y	OBL	X Prevalence index is ≤3.0*
2 Phalaris arundinacea	40	Y	FACW	
3 Impatiens capensis	15	N	FACW	Morphological adaptations* (provide supporting data in
4 Symplocarous foetidus	15	N	OBL	Remarks or on a senarate sheet)
5 Onoclea sensibilis	15		EACW/	
	10			Duckless stic burden ab stic on a static with (combring)
6 Juncus enusus	10	<u> </u>	FACW	Problematic hydrophytic vegetation" (explain)
7 Ranunculus repens	10	N	FAC	*Indicators of hydric soil and wetland hydrology must be present, unless
8 Rumex altissimus	10	N	FACW	disturbed or problematic
9 Dichanthelium clandestinum	10	N	FAC	
10 Solidago rugosa	5	N	FAC	Definitions of Vegetation Strata:
11 Clavtonia virginica	2	N	FAC	
12				Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height
12				(DBH), regardless of height.
				(,,gg
14				Sapling/shrub - Woody plants less than 3 in. DBH and greater than
15				3 28 ft (1 m) tall
	192 =	 Total Cover 	_	
				Herb - All berbaceous (non-woody) plants regardless of size and
Woody Vine	Absolute %	Dominant	Indicator	woody plants less than 3 28 ft tall
Stratum	Cover	Species	Status	hoody plante loop and long it and
1	0010	openice	olaluo	Woody vines - All woody vines greater than 3 28 ft in height
2				Toody Theo - An woody Theo greater than 5.20 it in height.
2				
<u>ی</u>				
4				Hydrophytic
5				vegetation
		Total Cause		
		- Total Cover		present? <u>r</u>
Remarks: (Include photo numbers here or on a separat	te sheet			

Sampling Point: w-tmq-05/02/2018-02

-	Matrix		Rec	lox Feat	ures		Terreturn	Der l						
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	l'exture	Remarks						
0-10	10 YR 3/1	80	7.5 YR 5/6	10	С	М	silt loam clay							
10-12	10 YR 3/1	70	7.5 YR 5/6	30	С	М	silt loam clay							
Type: C=C	Concentration, D=	Depleti	on, RM=Reduced	Matrix,	CS=Co	vered or	Coated Sand Grains							
*Location:	PL=Pore Lining,	M=Mat	ix											
lydric Soi	I Indicators:						Indicators for P	roblematic Hydric Soils:						
Histo L Histo L Hydrog Stratifie 2 cm M Deplete Thick D Sandy (LRR N Sandy Sandy Strippe Indicators	Alistic (A3) en Sulfide (A4) ed Layers (A5) luck (A10) (LRR ed Below Dark Su Dark Surface (A1) Mucky Mineral (S I, MLRA 147, 14 Gleyed Matrix (S Redox (S5) d Matrix (S6) of hydrophytic ve	N) urface (/ 2) 51) 8) 4) egetatior	Thin Da (MLRA Loamy X Deplete A11) Redox I Deplete Redox I Iron-Ma Umbric Piedmo Red Pa n and wetland hy	rrk Surfa 147, 14 Gleyed d Matrix Dark Su d Dark Su Depress nganes Surface nt Flooc rent Ma drology	Acce (S9) Adatrix (F (F3) rface (F1) Surface Massee (F13) (I plain So terial (F2) must be	F2) 6) (F7) 9) 95 (F12) (MLRA 13 0ils (F19) 21) (MLR present,	LRR N, MLRA 136) (MLRA 136) (MLRA 136) (MLRA 148) (MLRA 148) (A 127, 147) unless disturbed or probl	lematic						
	Layer (if observe	ed):			-		Hydric soil presen	t? <u>Y</u>						
Restrictive Гуре: Depth (inch	nes):													
Restrictive ſype: ⊃epth (inch Remarks:	nes):													
Restrictive Type: Depth (inch Remarks:	les):				-									
Restrictive Type: Depth (inch Remarks:	les):													

Project/Site: Holloway-Knox 138 kV Transfer Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualic; Jaco Landform (hillslope, terrace, etc.): hillslope Subregion (LRR or MLRA): LRR N Soil Map Unit Name: BtA- Bogart silt loam, 0 to Are climatic/hydrologic conditions of the site ty Are vegetation , soil , or h Are vegetation , soil , or h	mission Line City/County: State: bbs Section Local relief (con Lat.: 40.7678 2 percent slopes pical for this time of the year? hydrology significantly hydrology naturally p	Columbiana Ohio n, Township, Range: ncave, convex, none): Long.: -81. NWI Cla Yes X No disturbed? Are oblematic? pres	Report Name: Sampling Date: Sampling Point: T16N R5W S21 concave 0416 ssification: PSS (If no, e "normal circums sent?	Wetland KW-008 5/2/2018 w-tmq-05/02/2018-01 Slope (%): 2-5% Datum: NAD 83 S1/EM1C S1/EM1C xplain in remarks) stances"
		(IT N	eeded, explain a	any answers in remarks)
Hydrophytic vegetation present? Yes Hydric soil present? Yes Wetland hydrology present? Yes	Is the sam	pled area within a w	etland? Ye	es
PEM wetland in routinely maintained F	ROW			
Wetland Hydrology Indicators:		Secondary I	ndicators (minim	num of two required)
Primary Indicators (minimum of one is required	l; check all that apply)	Surface	Soil Cracks (B6)	
X Surface Water (A1)	True Aquatic Plants (B14)	Sparsely	Vegetated Conc	ave Surface (B8)
X High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Drainage	e Patterns (B10)	
X Saturation (A3)	Oxidized Rhizospheres on Li	ving Moss Tri	m Lines (B16)	
Water Marks (B1)	X Roots (C3)	Dry-Sea	son Water Table	(C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C	4) Crayfish	Burrows (C8)	
Drift Deposits (B3)	Recent Iron Reduction in Tille	ed Saturation	on Visible on Aeri	al Imagery (C9)
Algal Mat or Crust (B4)	Soils (C6)	Stunted	or Stressed Plant	ts (D1)
Iron Deposits (B5)	Thin Muck Surface (C7)	X Geomor	phic Position (D2))
Inundation Visible on Aerial	Other (Explain in Remarks)	Shallow	Aquitard (D3)	
Imagery (B7)		Microtop	ographic Relief (I	D4)
Water-Stained Leaves (B9)		FAC-Nei	utral Test (D5)	
Aquatic Fauna (B13)				
Field Observations:				
Surface water present? Yes X	NoDepth (inches):	2"	Wetland	
vvater table present? Yes X	No Depth (inches):	10"	nyarology	V
Jaturation present? Yes X	Depth (Inches):		present?	Ĭ
(includes capillary initge)				
Describe recorded data (stream gauge, monito	ring well, aerial photos, previo	us inspections), if ava	ilable:	
Remarks:				
Saturated throughout, pockets of inun	dation.			

			Sampling Point: w-tmq-05/02/2018-01
Tree Stratum Plot Size(30 ft.) 1 2	Absolute % Dominant Cover Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum0Sapling/Shrub Stratum0Herb Stratum37930Woody Vine Stratum0Dominance Test Worksheet
6 7 8 9 10 Sapling/Shrub Stratum Plot Size(15 ft.)	0 = Total Cover Absolute % Dominant Cover Species	Indicator Status	Number of DominantSpecies that are OBL,FACW, or FAC:3Total Number of DominantSpecies Across all Strata:4BPercent of DominantSpecies that are OBL,FACW, or FAC:75.00%(A/B)
1 2 3 4 5 6 7 8 9 10			Prevalence Index WorksheetTotal % Cover of:OBL species 45 X 1 = 45 FACW species 100 X 2 = 200 FAC species 0 X 3 = 0 FACU species 40 VPL species 0 X 5 = 0 Column totals 185 (A) 405 Prevalence Index = $B/A =$ 2.19
Herb Stratum Plot Size (5 ft.) 1 Phalaris arundinacea 2 Poa pratensis 3 Juncus effusus 4 Carex lurida 5 Cornus sericea 6 Salix nigra 7 Spiraea tomentosa 8 Typha angustifolia 9 scirpus cyperinus	0 - Fitter Cover Absolute % Dominant Cover Species 50 Y 40 Y 20 Y 20 Y 15 N 15 N 10 N 5 N	Indicator Status FACW FACU FACW OBL FACW OBL FACW OBL FACW	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetatior X Dominance test is >50% X Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Definitions of Vegetation Strata:
11 12 13 14 15 Woody Vine Stratum 1 2	185 = Total Cover Absolute % Dominant Cover Species	Indicator Status	 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 4 5 Remarks: (Include photo numbers here or on a separate	0 = Total Cover		Hydrophytic vegetation present? Y

Sampling Point: w-tmq-05/02/2018-01

Depth	Matrix		Rec	lox Feat		Indicator							
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks					
0-4	2.5 Y 4/1	70	7.5 YR 4/6	30	C	PL/M	PL/M silt loam						
4-12	10 YR 5/2	80	7.5 YR 4/6	20	С	М	silt loam						
*Type: C=C **Location:	oncentration, D= PL=Pore Lining,	Depleti M=Mati	on, RM=Reduced rix	d Matrix,	CS=Co	vered or	Coated Sand Grains						
Hydric Soil	Indicators:						Indicators for	Problematic Hydric Soils:					
Dark Surface (S7) Histisol (A1) Polyvalue Below Surface (S8) Histic Epipedon (A2) (MLRA 147, 148) Black Histic (A3) Thin Dark Surface (S9) Hydrogen Sulfide (A4) (MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) 2 cm Muck (A10) (LRR N) X Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1) Iron-Manganese Masses (F12) (LRR N, MLRA 136) (LRR N, MLRA 147, 148) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 147) *Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic													
Restrictive I Type: Depth (inch	_ayer (if observe es):	ed):					Hydric soil prese	nt? <u>Y</u>					
n emarks.													

Project/Site: Holloway-Knox 138 kV Transmission Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio; Jacobs Landform (hillslope, terrace, etc.): plain Subregion (LRR or MLRA): LRR N Soil Map Unit Name: BtA-Bogart silt loam, 0 to 2 percertain Are climatic/hydrologic conditions of the site typical for Are vegetation , soil X, or hydrologic SUMMARY OF FINDINGS	Line City/County: State: Section Local relief (cor Lat.: 40.76823 ent slope r this time of the year? gysignificantly gynaturally pr	Columbiana Ohio , Township, Range: ncave, convex, none) Long.: -81 NWI Cl. Yes X No disturbed? Are oblematic? pre (If r	Report Name: Upland KW-07_08 Sampling Date: 5/2/2018 Sampling Point: upl-tmq-05/02/2018-01_02 T16N R5W S21 1 : none Slope (%): 0 .041553 Datum: NAD 83 assification: None (Upland)		
Hydrophytic vegetation present? No Hydric soil present? No Wetland hydrology present? No	Is the sam	pled area within a w	vetland? <u>No</u>		
Upland point corresponding to Wetland KW-	-07_08				
Wetland Hydrology Indicators:		Secondary	Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; check	c all that apply)	Surface	Soil Cracks (B6)		
Surface Water (A1) True	Aquatic Plants (B14)	Sparsel	v Vegetated Concave Surface (B8)		
High Water Table (A2)	rogen Sulfide Odor (C1)	Drainad	ige Patterns (B10)		
Saturation (A3)	lized Rhizospheres on Liv	ving Moss Ti	Trim Lines (B16)		
Water Marks (B1)	ts (C3)	Drv-Sea	ason Water Table (C2)		
Sediment Deposits (B2)	sence of Reduced Iron (C	4) Cravfish	Burrows (C8)		
Drift Deposits (B3)	ent Iron Reduction in Tille	d Saturati	ation Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4) Soils	s (C6)	Stunted	ed or Stressed Plants (D1)		
Iron Deposits (B5)	Muck Surface (C7)	Geomo	norphic Position (D2)		
Inundation Visible on Aerial Othe	er (Explain in Remarks)	Shallow	ow Aquitard (D3)		
Imagery (B7)		Microto	pographic Relief (D4)		
Water-Stained Leaves (B9)		FAC-Ne	eutral Test (D5)		
Aquatic Fauna (B13)					
Field Observations:					
Surface water present? Yes No	X Depth (inches):		Wetland		
Water table present? Yes <u>No</u>	X Depth (inches):		hydrology		
Saturation present? Yes <u>No</u>	X Depth (inches):		present? <u>N</u>		
(Includes capillary fringe)					
Describe recorded data (stream gauge, monitoring we	ell, aerial photos, previou	us inspections), if ava	ailable:		
Remarks:					

-		1				Sampling Point: upl-tmq-05/02/2018-01_02
Tree Stratum	Plot Size (30 ft.) Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds 20% 50% Tree Stratum 0 0
1						Sapling/Shrub Stratum 10 25
2						Herb Stratum 21 53
3						Woody Vine Stratum 0 0
5 6						Dominance Test Worksheet Number of Dominant
7						Species that are OBL,
8						FACW, or FAC: 0 (A)
9						Total Number of Dominant
10				- Total Cover		Species Across all Strata: <u>3</u> (B)
			0			Percent of Dominant
Sopling/Shrub			Abaaluta 9/	Dominant	Indicator	Species that are OBL,
Sapiing/Shrub	Plot Size (15 ft.) Absolute %	Dominant	Statua	FACW, of FAC: 0.00% (A/B)
			Cover	Species	Status	
1 Rosa multifiora			50	<u>Y</u>	FACU	Prevalence Index Worksheet
2				·		lotal % Cover of:
3				·	·	OBL species 0 x 1 = 0
5				·		FAC species $0 \times 3 = 0$
6						FACU species $155 \times 4 = 620$
7						UPL species $0 \times 5 = 0$
8						Column totals 155 (A) 620 (B)
9						Prevalence Index = $B/A = 4.00$
10			50	- Total Covor		
						Hydrophytic Vegetation Indicators:
		- 0	、 Absolute %	Dominant	Indicator	Rapid test for hydrophytic vegetation
Herb Stratum	Plot Size (5 ft.) Cover	Species	Status	Dominance test is >50%
1 Poa pratensis			50	Ý	FACU	Prevalence index is ≤3.0*
2 Solidago rugos	a		30	Y	FACU	
3 Apocynum cani	nabinum		20	<u>N</u>	FACU	Morphological adaptations* (provide supporting
4 Andropogon Vir	ginicus		5	<u>N</u>	FACU	data in Remarks or on a separate sheet)
5				·		Problematic hydrophytic vegetation* (explain)
7				·		*Indicators of hydric soil and wetland hydrology must be present
8				·		unless disturbed or problematic
9						
10 11						Definitions of Vegetation Strata:
12 13					·	Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
14						Sapling/shrub - Woody plants less than 3 in DRH and greater than
15			405	- Total Criss		3.28 ft (1 m) tall.
			105	= Total Cover		
Woody Vine			Absolute %	Dominant	Indicator	Herb - All herbaceous (non-woody) plants, regardless of size, and
Stratum	Plot Size (30 ft.) Cover	Species	Status	woody plants less than 5.26 it tail.
1						Woody vines - All woody vines greater than 3.28 ft in height.
2						
3				·		
4				·		Hydrophytic
5				·		vegetation
			0	= Total Cover		present? <u>N</u>
Remarks: (Include pho	oto numbers her	e or on a se	parate sheet)			
(

Sampling Point: upl-tmq-05/02/2018-01_0.

Depth Matrix Redox Features							Toyturo	Pomarka				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks				
0-6	10 YR 6/1	50	10 YR 5/6	30			sandy loam	significantly disturbed				
			10 YR 4/4	20			fill material					
6-12	10 YR 5/6	100					sandy loam					
Type: C=C	Concentration D:	- Denleti	n RM=Reduce	d Matrix	CS=Co	vered or	Coated Sand Grains					
*Location	PI =Pore Lining	M=Matr	ix		, 00-00	vereu or	Coaled Gand Grains					
	l Indicators:	W Wat					Indicators fo	r Problematic Hydric Soils:				
yune oor	marcators.		Dark S	urface (S	37)		indicators to	r roblematic rigane cons.				
Histisol	(A1)		Polyval	ue Belov	w Surfac	e (S8)	2 cm Muc	k (A10) (MLRA 147)				
Histic E	pipedon (A2)		(MLRA	147, 14	8)	. ,	Coast Pra	airie Redox (A16) (MLRA 147, 148				
Black H	listic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)				
Hydrog	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 13	36, 147)				
Stratifie	d Layers (A5)	•••	Loamy	Gleyed	Matrix (F	-2)	Very Shal	llow Dark Surface (TF12)				
2 cm IVI	uck (A10) (LKK	N) urface (/	(11) Deplete	Dark Su	((F3) rface (Fi	6)	Other (Ex	plain in Remarks)				
Thick D	ark Surface (A1	2)	Deplete	ed Dark	Surface	(F7)						
Sandy	Mucky Mineral (51)	Redox	Depress	ions (F8	(17)						
(LRR N	, MLRA 147, 14	8)	Iron-Ma	anganes	e Masse	, s (F12) (LRR N, MLRA 136)					
Sandy	Gleyed Matrix (S	á)	Umbric	Surface	(F13) (I	MLRA 13	86, 122)					
Sandy	Redox (S5)		Piedmo	ont Flood	lplain So	oils (F19)	(MLRA 148)					
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	21) (MLR	A 127, 147)					
											
Indicators	of nyaropnytic ve	egetation	n and wetland ny	arology	must be	present,	uniess disturbed or pr	roblematic				
						1						
Restrictive	Laver (if observe	ed):										
ype:	, ,	,					Hydric soil pres	ent? N				
epth (inch	es):				_							
					_							
lemarks:												
soil in th	ne upper 6" ap	pears o	listurbed									

			Report Name:	Wetland KW-009
Project/Site: Holloway-Knox 138 kV Transmission Line	City/County:	Columbiana	Sampling Date:	5/2/2018
Applicant/Owner: FirstEnergy	State:	Ohio	Sampling Point:	w-tmq-05/02/2018-04
Investigator(s): M. Thomayer, T. Qualio; Jacobs	Section	, Township, Range	e: T16N R5W S28	<u> </u>
Landform (hillslope, terrace, etc.): depression	Local relief (con	icave, convex, non	ie): <u>concave</u>	Slope (%): <u>0-1%</u>
Soil Man Unit Name: EdA-Fitchville silt loam 0 to 2 percent	40.1009	LONGc	01.0422 Classification: PEM	
Are climatic/hydrologic conditions of the site typical for this	time of the year?	Yes <u>X</u> IN	lo (it no, ex	plain in remarks)
Are vegetation, soil, or hydrology _	significantly	disturbed? A	re "normal circumst	ances" Yes
Are vegetation, soil, or hydrology _	naturally pro	oblematic? p	resent?	
SUMMARY OF FINDINGS		u U	T Neeueu, explain a	ny answers in remarks)
Underschutig vegetation present? Veg				
Hydrophytic vegetation present? res Hydric soil present? Yes	Is the same	nled area within a	wetland? Ye	e
Wotland hydrology present?	13 110 3411			5
Remarks:				
PEM wetland in routinely maintained ROW and	grazing horse pa	asture, depressio	onal feature satu	rated by high water
table.		· •		, .
HYDROLOGY				
Wetland Hydrology Indicators:		Secondar	y Indicators (minim	um of two required)
Primary Indicators (minimum of one is required; check all the	hat apply)	Surfa	ce Soil Cracks (B6)	
X Surface Water (A1) True Aqu	atic Plants (B14)	Spars	ely Vegetated Conca	ave Surface (B8)
X High Water Table (A2) Hydrogen	1 Sulfide Odor (C1)	Drain	age Patterns (B10)	•
X Saturation (A3)	Rhizospheres on Liv	ving Moss	Trim Lines (B16)	
Water Marks (B1) Roots (C	3)	Dry-S	eason Water Table (C2)
Sediment Deposits (B2) Presence	e of Reduced Iron (C	4) Crayfi	ish Burrows (C8)	/
Drift Deposits (B3)	on Reduction in Tille	d Satura	ation Visible on Aeria	I Imagery (C9)
Algal Mat or Crust (B4) Soils (C6))	Stunte	ed or Stressed Plants	s (D1)
Iron Deposits (B5) Thin Muc	k Surface (C7)	X Geom	norphic Position (D2)	
Inundation Visible on Aerial Other (Ex	plain in Remarks)	Shallo	ow Aquitard (D3)	
Imagery (B7)		Micro	topographic Relief (D	04)
Water-Stained Leaves (B9)		FAC-I	Neutral Test (D5)	
Aquatic Fauna (B13)				
Field Observations:				
Surface water present? Yes X No	Depth (inches):	1"	Wetland	
Water table present? Yes X No	Depth (inches):	10"	hydrology	
Saturation present? Yes X No	Depth (inches):	0"	present?	Y
(includes capillary fringe)				
Describe recorded data (stream gauge, monitoring well, as		:= increations) if c		
Describe recorded data (stream gauge, monitoring weil, ae	mai priotos, previot	is inspections), if a		
Remarks:				
Saturation throughout				
Tree Stratum Plot Size(30 ft.) 1 2	Absolute % Cover	Dominant	Indicator	50/20 Thresholds 20% 50%
---	--	---	--	--
3			Status	Tree Stratum00Sapling/Shrub Stratum00Herb Stratum2973Woody Vine Stratum00
5 6 7 8 9 10 Sapling/Shrub Stratum Plot Size(15 ft.)	0 = 7 Absolute % Cover	Fotal Cover Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across all Strata: 3 (B) Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)
1 2 3 4 5 6 7 7 8 9 10				Prevalence index WorksheetTotal % Cover of:OBL species15X 1 =15FACW species80X 2 =160FAC species0X 3 =0FACU species50X 4 =200UPL species0X 5 =0Column totals145Idex145Prevalence Index = B/A =2.59
Herb Stratum Plot Size (5 ft.) 1 Poa palustris 2 Poa prantensis 3 Juncus effusus 4 Festuca rubra 5 Lysimachia nummularia 6 Carex lurida 7	0 = T Absolute % Cover 35 30 25 20 20 15 	Fotal Cover Dominant Species Y Y Y N N N N	Indicator Status FACW FACU FACW FACU FACW OBL	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetatior X Dominance test is >50% X Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Definitions of Vegetation Strata:
11 12 13 14 15 Woody Vine Plot Size (30 ft.) 1 2 3	= T Absolute % Cover	Fotal Cover Dominant Species	Indicator Status	 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
45	= T	Fotal Cover		Hydrophytic vegetation present? Y

(Inches)	pth Matrix Redox Features				ures		Texture	Remarks	
(inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**			
0-12	10 YR 4/1	70	5 YR 5/6	30	С	М	clay loam		
Гуре: C=C 'Location:	L oncentration, D= PL=Pore Lining,	Depletio M=Matr	on, RM=Reduced N ix	/latrix,	CS=Cov	vered or	Coated Sand Grains		
Histisol Histic E Black H Hydroge Stratifie 2 cm Mi Deplete Thick D Sandy N (LRR N Sandy C Sandy F Sandy C	(A1) pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) uck (A10) (LRR d Below Dark Sr ark Surface (A12 Mucky Mineral (S , MLRA 147, 14 Gleyed Matrix (S Redox (S5) d Matrix (S6)	N) urface (<i>A</i> 2) 31) 8) 4) egetatior	Dark Surf: Polyvalue (MLRA 14 Thin Dark (MLRA 14 Loamy Gl X Depleted Redox Da Depleted Iron-Mang Umbric Su Piedmont Red Paren	ace (S Belov 17, 14 Surfa Surfa 17, 14 eyed I Matrix rk Sur Dark S press janese Janese Janese Janese Flood nt Mat	37) v Surface 8) ce (S9) 8) Matrix (F (F3) face (F6 Surface (ions (F8 e Massee (F13) (N plain So erial (F2 must be	e (S8) 2) (F7) s (F12) (/I.RA 1 3 ils (F19) 1) (MLR present,	2 cm Muck (Coast Prairie Piedmont Flo (MLRA 136, Very Shallow Other (Expla LRR N, MLRA 136) 36, 122) (MLRA 148) A 127, 147) unless disturbed or prob	A10) (MLRA 147) e Redox (A16) (MLRA 147, 148 bodplain Soils (F19) 147) v Dark Surface (TF12) in in Remarks)	
estrictive L	∟ayer (if observe es):	:d):					Hydric soil presen	t? <u>Y</u>	

Project/Site: Holloway-Knox 138 kV Trans Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio; Jaco Landform (hillslope, terrace, etc.): plain Subregion (LRR or MLRA): LRR N Soil Map Unit Name: FdA- Fitchville silt loam, (Are climatic/hydrologic conditions of the site ty Are vegetation X, soil X, or here	mission Line City/C	County: <u>C</u> State: <u>C</u> Section, I relief (conc 50405835 he year? ignificantly cont	Columbiana Dhio Township, Rang ave, convex, noi Long.: NWI Yes X N disturbed? //	Report Name: Sampling Date: Sampling Point: e: T16N R5W S28 ne): none 81.042134783 Classification: Nor No(If no, e Are "normal circums present?	Upland KW-9 5/2/2018 upl-tmq-05/02/2018-04 Slope (%): 0 Datum: NAD 83 ne (Upland) explain in remarks) stances" Yes		
, or in, or in, or in		latarany proc	(If needed, explain a	any answers in remarks)		
SUMMARY OF FINDINGS							
Hydrophytic vegetation present? No Hydric soil present? No Wetland hydrology present? No	Is	s the sampl	ed area within a	a wetland?	<u>lo</u>		
vegetation/soil disturbed by horse pas	sture, Upland point	t correspoi	nding to Wetla	nd KW-9			
Wetland Hydrology Indicators:			Seconda	rv Indicators (minin	num of two required)		
Primary Indicators (minimum of one is required	d; check all that apply	()	Surfa	ice Soil Cracks (B6)			
Surface Water (A1)	True Aquatic Plant	atic Plants (B14) Sparsely Vegetated Concave Surface (B8)					
High Water Table (A2)	Hydrogen Sulfide C	Sulfide Odor (C1) Drainage Patterns (B10)					
Saturation (A3)	Oxidized Rhizosph	neres on Livir	ng Moss	s Trim Lines (B16)			
Water Marks (B1)	Roots (C3)		.s Dry-S	Season Water Table (C2)			
Sediment Deposits (B2)	Presence of Reduc	ced Iron (C4)) Cray	ayfish Burrows (C8)			
Drift Deposits (B3)	Recent Iron Reduc	ction in Tilled	Satu	turation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)	Soils (C6)		Stuni	ited or Stressed Plants (D1)			
Iron Deposits (B5)	Thin Muck Surface	e (C7)	Geor	pmorphic Position (D2)			
Inundation Visible on Aerial	Other (Explain in R	Remarks)	Shall	ow Aquitard (D3)	5.0		
Imagery (B7)				Noutral Tast (D5)	D4)		
Aquatic Fauna (B13)				Neutral Test (D3)			
			r				
Surface water present? Ves	No X Denth	h (inches):		Wetland			
Water table present? Yes	No X Dept	h (inches):		hydrology			
Saturation present? Yes	No X Depth	h (inches):		present?	Ν		
(includes capillary fringe)		· · · –					
Departible reported date (atream apure manifi	pring woll corial phate		increations) if	available:			
Describe recorded data (stream gauge, monit	oning well, aeriai priote	os, previous	inspections), in				
Remarks:							

						Sampling Point: upl-tmq-05/02/2018-04
Tree Stratum 1 2	Plot Size (30 ft.) Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum0Sapling/Shrub Stratum0Herb Stratum20Stratum0Woody Vine Stratum0
5 6 7 8 9 10 Sapling/Shrub Stratum	Plot Size (15 ft.	0 Absolute % Cover	= Total Cover Dominant Species	Indicator	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 (A) Total Number of Dominant Species Across all Strata: 2 (B) Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)
1 2 3 4 5 6 7 8 9 10				= Total Cover		Prevalence Index WorksheetTotal % Cover of:OBL species $0 \times 1 = 0$ FACW species $0 \times 2 = 0$ FAC species $0 \times 3 = 0$ FACU species $100 \times 4 = 400$ UPL species $0 \times 5 = 0$ Column totals $100 (A) = 400$ Prevalence Index = B/A = 4.00
Herb Stratum 1	Plot Size (5 ft.) Absolute % Cover 60 40 	Dominant Species Y Y	Indicator Status FACU FACU	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Definitions of Vegetation Strata:
11 12 13 14 15 Woody Vine Stratum 1 2	Plot Size (30 ft.	100) Absolute % Cover	= Total Cover Dominant Species	Indicator Status	 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 4 5 Remarks: (Include pho	oto numbers he	re or on a se	0	= Total Cover		Hydrophytic vegetation present? N
	Grass spec	cies within	horse pasture, s	some species	hard to ident	tify

Sampling Point: upl-tmq-05/02/2018-04

Depth Matrix Redox Features							Toxturo	Domorko		
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks		
0-12	10 YR 4/3	65								
	7.5 YR 4/4	30	5 YR 4/6	5	С	М	silt loam	disturbed soils		
				 	 					
.										
Type: C=C	oncentration, D=	Depletio	on, RM=Reduce	d Matrix,	CS=Cov	/ered or	Coated Sand Grains			
Location:	PL=Pore Lining,	w=wau	IX					-		
ydric Soil	Indicators:		D 0		771		Indicators fo	r Problematic Hydric Soils:		
Listiaal	(11)		Dark Si	unace (a	57) W Surfac	o (S8)	2 om Mus			
HISUSOI	(AI) ninedon (A2)			147 14	w Sunac 9)	e (30)		K (ATU) (MLKA 147) pirio Rodov (A16) (MLDA 147, 14)		
Black H	istic (A3)			ark Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)		
Hvdrog	en Sulfide (A4)		(MLRA	147.14	8)		(MLRA 1	36. 147)		
Stratifie	d Layers (À5)		Loamy	Gleved	Matrix (F	F2) Very Shallow Dark Surface (TF12)				
2 cm M	uck (A10) (LRR I	N)	Deplete	d Matrix	(F3) `	,	Other (Ex	plain in Remarks)		
Deplete	d Below Dark Su	urface (A	A11) Redox	Dark Su	rface (F6	5)				
Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface ((F7)				
Sandy I	Mucky Mineral (S	51)	Redox	Depress	ions (F8)				
	, MLRA 147, 148	3)	Iron-Ma	anganes	e Masse	s(⊢12)(LRR N, MLRA 136)			
Sandy (Beyed Matrix (Se	4)	Umbric Diadma	Surface	e (F13) (N Anlain Sa	/ILRA 13	(MI DA 449)			
Strippe	Aedux (SS) A Matrix (S6)		Pleand	rent Ma	ipiain So torial (E2	115 (F19)	(WILKA 140) A 127 1/7)			
							A 127, 147)			
Indicators	of hydrophytic ve	detation	and wetland hv	droloav	must be	present	unless disturbed or pr	oblematic		
		geraner				p ,				
lestrictive l	_ayer (if observe	d):								
ype: re	efusal - rock				-		Hydric soil pres	sent? N		
epth (inch	es): <u>8+</u>				_					
emarks:										

		Report Name: <u>Wetland KW-010</u>				
Project/Site: Holloway-Knox 138 kV Transm	nission Line City/County: Col	Iumbiana Sampling Date: 5/2/2018				
Applicant/Owner: FirstEnergy	State: Ohi	io Sampling Point: w-tmq-05/02/2018-03				
Investigator(s): M. Thomayer, T. Qualio; Jacob	os Section, To	wnship, Range: T16N R5W S28				
Landform (hillslope, terrace, etc.): riverine	Local relief (concav	re, convex, none): <u>concave</u> Slope (%): <u>0-2%</u>				
Subregion (LRR or MLRA): LRR N	Lat.: 40.7494	Long.: -81.0423 Datum: NAD 83				
Soil Map Unit Name: ZeA-Zepernick silt loam, 0	to 2 percent slopes, occasionally	flooded NWI Classification: R5UBH				
Are climatic/hydrologic conditions of the site typi	ical for this time of the year? Y	es X No (If no, explain in remarks)				
Are vegetation, soil, or hy	drologysignificantly dist	turbed? Are "normal circumstances" Yes				
Are vegetation, soil, or hy-	drologynaturally proble	matic? present?				
		(If needed, explain any answers in remarks)				
SUMMARY OF FINDINGS						
Hydrophytic vegetation present? Yes						
Hydric soil present? Yes	Is the sampled	I area within a wetland? Yes				
Wetland hydrology present? Yes						
Remarks:	I					
PEM wetland in routinely maintained R	OW significantly disturbed fr	om runoff to the south at the industrial truck				
helding facility						
noiding facility						
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required;	check all that apply)	Surface Soil Cracks (B6)				
Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)				
High Water Table (A2)	Hydrogon Sulfido Odor (C1)	X Drainage Batterns (B10)				
		Mooo Trim Linoo (B16)				
	Oxidized Rhizospheres on Living	Noss Trim Lines (BT6)				
Water Marks (B1)	_Roots (C3)	Dry-Season Water Table (C2)				
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)				
Drift Deposits (B3)		Saturation Visible on Aerial Imagery (C9)				
		Stunted or Stressed Plants (D1)				
Iron Deposits (B5)	Thin Muck Surface (C7)	X Geomorphic Position (D2)				
Inundation Visible on Aerial	Other (Explain in Remarks)	Shallow Aquitard (D3)				
Imagery (B7)		Microtopographic Relief (D4)				
Water-Stained Leaves (B9)		X FAC-Neutral Test (D5)				
Aquatic Fauna (B13)						
Field Observations:						
Surface water present? Yes	No X Depth (inches):	Wetland				
Water table present? Yes	No X Depth (inches):	hvdrology				
Saturation present? Yes	No X Depth (inches):	present? Y				
(includes capillary fringe)						
(
Describe recorded data (stream gauge, monitori	ing well, aerial photos, previous in	spections), if available:				
Remarks:						
No primary indicators present						

			Sampling Point: w-tmq-05/02/2018-03
Tree Stratum Plot Size(30 ft.)	Absolute % Dominant	Indicator Status	50/20 Thresholds 20% 50% Tree Stratum 0 0
1	00001 000000	Oldido	Sapling/Shrub Stratum 0 0
2			Herb Stratum 20 50
3			Woody Vine Stratum 0 0
4			Dominanco Tost Workshoot
6			Number of Dominant
7			Species that are OBL,
8			FACW, or FAC: <u>1</u> (A)
9			Total Number of Dominant
10			Species Across all Strata: <u>1</u> (B)
			Percent of Dominant
Sanling/Shrub	Absolute % Dominant	Indicator	Species that are OBL, $EACW$ or EAC : 100.00% (A/B)
Stratum Plot Size (15 ft.)	Cover Species	Status	FACW, 01 FAC. <u>100.00%</u> (A/B)
1		Oldido	Provalance Index Workshoot
2			Total % Cover of:
3			OBL species $5 \times 1 = 5$
4			FACW species $90 \times 2 = 180$
5			FAC species $5 \times 3 = 15$
6			FACU species $0 \times 4 = 0$
/			$\begin{array}{c} \text{UPL species} 0 x \text{ 5 = } 0 \\ \text{Column totals} 100 (A) 200 (B) \end{array}$
o			$\frac{100}{\text{Prevalence Index} = B/A} = \frac{200}{200}$
10			
	0 = Total Cover		
			Hydrophytic Vegetation Indicators:
Herb Stratum Plot Size(5ft.)	Absolute % Dominant	Indicator	X Rapid test for hydrophytic vegetation
1 Phalaris arundinacea	Cover Species	Status	$\frac{X}{X}$ Dominance test is >50%
2 Symplocarpus foetidus	<u> </u>	OBI	
3 Ranunculus repens	<u> </u>	FAC	Morphological adaptations* (provide supporting data in
4			Remarks or on a separate sheet)
5			
6			Problematic hydrophytic vegetation* (explain)
/			*Indicators of hydric soil and wetland hydrology must be present, unless
9			
10			Definitions of Vegetation Strata:
11			
12			Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height
13			(DDH), regardless of height.
15			Sapling/shrub - Woody plants less than 3 in. DBH and greater than
	100 = Total Cover		3.28 ft (1 m) tall.
			Herb - All herbaceous (non-woody) plants, regardless of size, and
Woody Vine Plot Size (30 ft.)	Absolute % Dominant	Indicator	woody plants less than 3.28 ft tall.
Stratum	Cover Species	Status	
2			Woody vines - All woody vines greater than 3.28 ft in height.
3			
4			Hydrophytic
5			vegetation
	0 = Total Cover		present? Y
			· · · · · · · · · · · · · · · · · · ·
Remarks: (Include photo numbers here or on a separate	e sheet)		

Depth	Matrix		Red	dox Feat	ures		Texture		Bomorko		
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Loc**				
0-4	10 YR 3/2	100					loam				
4-12	10 YR 4/2	60	7.5 YR 4/4	40	С	М	loam				
Гуре: С=С	oncentration, D=	Depletio	on, RM=Reduce	d Matrix,	, CS=Co	overed or	Coated	Sand Grains			
Location:	PL=Pore Lining,	M=Matr	ix								
ydric Soi	Indicators:							Indicators for	Problematic Hydric Soils:		
11:-4:1	(• 4)		Dark Si	urface (S	S7) v Surfor	(59)		0 M			
	(A1) Eninodon (A2)				N Sunac o	æ (58)	-	2 cm Muci	K (A10) (MLRA 147) iria Raday (A16) (MLRA 147, 14 9		
Black H	listic (Δ 3)			ark Surfa	o) ace (S9)		-	Clast Fia	Floodplain Soils (F19)		
Hvdrog	en Sulfide (A4)			147 14	.00 (00) .8)			(MI RA 13	6 147)		
Stratifie	d Lavers (A5)			Gleved	⊙) Matrix (F	-2)	-	Verv Shall	ow Dark Surface (TF12)		
2 cm M	uck (A10) (LRR	N)	X Deplete	ed Matrix	(F3)	_/	-	X Other (Ex	plain in Remarks)		
Deplete	ed Below Dark S	, urface (A	(11) Redox	Dark Su	rface (F	6)	-		,		
Thick D	ark Surface (A1	2)	Deplete	d Dark	Surface	(F7)					
Sandy	Mucky Mineral (S	S1)	Redox	Depress	ions (F8	3)					
_(LRR N	l, MLRA 147, 14	8)	Iron-Ma	anganes	e Masse	es (F12) ((LRR N, I	MLRA 136)			
Sandy	Gleyed Matrix (S	4)	Umbric	Surface	(F13) (I	MLRA 13	36, 122)				
Sandy	Redox (S5)		Piedmo	ont Flood	Iplain So	oils (F19)	(MLRA	148)			
Strippe	d Matrix (S6)		Red Pa	irent Ma	terial (F2	21) (MLR	RA 127, 1	47)			
ndiaatara	of hydrophytic yr	actation	and watland by	drology	must be	nragant	unlogo	diaturbad ar pr	ablamatic		
nuicators		gelation	i anu wetianu ny	urology	must be	present	, uniess c		oblematic		
estrictive	Layer (if observe	d):									
уре:					_		Hy	dric soil pres	ent? Y		
epth (inch	es):				-						
emarks'											
omanto.											
omano.											

Project/Site: Holloway-Knox 138 kV Tra Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio; Ja Landform (hillslope, terrace, etc.): hillslope Subregion (LRR or MLRA): LRR N Soil Map Unit Name: ZeA-Zepernick silt loar Are climatic/hydrologic conditions of the site Are vegetation , soil , o SUMMARY OF FINDINGS	nsmission Line acobs be Lat.: n, 0 to 2 percent typical for this ti r hydrology r hydrology	City/County: State: Sectior Local relief (cor 40.749334385 slopes, occassio me of the year? significantly naturally pr	Columbiana Ohio , Township, Rang hcave, convex, no Long.: nally flooded NW Yes X oblematic?	Report Name: Sampling Date Sampling Point ge: <u>T16N R5W S28</u> -81.042224142 Classification: <u>Up</u> No (If no, e Are "normal circum present? (If needed, explain	Upland KW-10 : 5/2/2018 : upl-tmq-05/02/2018-03 B Slope (%): 3 Datum: NAD 83 Iand (None) explain in remarks) stances" Yes any answers in remarks)		
Hydrophytic vegetation present?NoHydric soil present?NoWetland hydrology present?No	-	Is the sam	pled area within	a wetland?	No		
Remarks: Upland point corresponding to Weth	and KW-10						
Wetland Hydrology Indicators			0				
Wetland Hydrology Indicators:		- t b -)	Seconda	ary indicators (minir	mum of two required)		
Primary Indicators (minimum of one is requi		атарріу)	Surf	ace Soil Cracks (B6))		
Surface Water (A1)	True Aquat	ic Plants (B14)	Spa	rsely Vegetated Con	cave Surface (B8)		
High Water Table (A2)	Hydrogen S	Sulfide Odor (C1)	Drai	nage Patterns (B10)	ge Patterns (B10)		
Saturation (A3)	Oxidized R	hizospheres on Liv	/ingMos	s Trim Lines (B16)			
Water Marks (B1)	Roots (C3)		Dry-	Season Water Table	e (C2)		
Sediment Deposits (B2)	Presence of	of Reduced Iron (C	4) Cray	/fish Burrows (C8)			
Drift Deposits (B3)	Recent Iror	n Reduction in Tille	ed Satu	ation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)	Soils (C6)		Stur	ed or Stressed Plants (D1)			
Iron Deposits (B5)	Thin Muck	Surface (C7)	Geo	morphic Position (D2)			
Inundation Visible on Aerial	Other (Exp	lain in Remarks)	Sha	Illow Aquitard (D3)			
Imagery (B7)			Micr	otopographic Relief	(D4)		
Water-Stained Leaves (B9)			FAC	-Neutral Test (D5)			
Aquatic Fauna (B13)							
Field Observations:							
Surface water present? Yes	No X	Depth (inches):		Wetland			
Water table present? Yes	No X	Depth (inches):		hydrology			
Saturation present? Yes	No X	Depth (inches):		present?	N		
(includes capillary fringe)							
Describe recorded data (stream dauge mor	nitoring well aeri	al photos, previo	is inspections) if	available.			
	ittering wen, den						
Demenden							
Remarks:							

EGETATION - (Jse scientific n	ames of p	plants	>			Sampling Point: upl-tmq-05/02/2018-03
Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum0Sapling/Shrub Stratum0Herb Stratum22Stratum0Woody Vine Stratum0
Sapling/Shrub	Plot Size (15 ft.)	= 	Total Cover Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 1 Total Number of Dominant Species Across all Strata: 2 Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A)
							Prevalence Index WorksheetTotal % Cover of:OBL species 0 X 1 = 0 FACW species 40 X 2 = 80 FAC species 0 X 3 = 0 FACU species 70 X 4 = 280 UPL species 0 X 5 = 0 Column totals 110 (A) 360 Prevalence Index = B/A = 3.27
Herb Stratum Phalaris arunc Cirsium vulga Apocynum cai Arctium minus	Plot Size (dinacea re nnabinum	5 ft.)	0 = Absolute % Cover 40 30 20 20	Total Cover Dominant Species Y Y N N N	Indicator Status FACW FACU FACU FACU	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic
2							Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater
Woody Vine Stratum	Plot Size (30 ft.)	110 = Absolute % Cover	Total Cover Dominant Species	Indicator Status	than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, an woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 					Total Cover		Hydrophytic vegetation present? <u>N</u>

Sampling Point: upl-tmq-05/02/2018-03

Depth	Matrix		Red	lox Feat	tures		Toxturo	Bemerke
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10 YR 2/1	100					sandy gravel	fill material
8+	Refusal							soil saturated with oil
								_
.								
Type: C=C	oncentration, D=	Depletic	on, RM=Reduced	i Matrix,	CS=Co	vered or	Coated Sand Grains	
Location.	PL-Pore Lining,	w-wau	IX					
ydric Soil	Indicators:		Dork S	urface (C	27)		Indicators to	r Problematic Hydric Soils:
Histicol	(A1)		Dark St	unace (c	or) MSurfac	e (S8)	2 cm Mur	NK (A10) (MI DA 147)
Histic F	ninedon (A2)			147 14	.8)	0(00)	Coast Pra	airie Redox (A16) (MI RA 147 14
Black H	listic (A3)		Thin Da	irk Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)
Hydrog	en Sulfide (A4)		(MLRA	147, 14	8) ໌໌		(MLRA 1	36, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed I	Matrix (F	2)	Very Sha	llow Dark Surface (TF12)
2 cm M	uck (A10) (LRR I	N)	Deplete	d Matrix	(F3)		Other (Ex	plain in Remarks)
Deplete	d Below Dark Su	urface (A	(11) Redox	Dark Su	rface (F6	6)		
Thick D	ark Surface (A12	<u>2)</u>	Deplete	d Dark	Surface	(F7)		
Sandy	Mucky Mineral (S	51) D	Redox	Depress	ions (F8) - (E40) (
	, MLRA 147, 148	5)		nganes		S(F12)(LRR N, MLRA 136)	
Sandy I	Sieyeu Malinx (S	4)	Unibric Piedmo	ourrace	: (F 13) (1 Inlain So	/ILKA 13	(MI DA 1/18)	
Strippe	d Matrix (S6)		Red Pa	rent Mat	terial (F2	1) (MI R	A 127, 147)	
				i one ma			,	
ndicators	of hvdrophvtic ve	aetation	and wetland hv	droloav	must be	present.	unless disturbed or pr	oblematic
	, , ,	0	,	0,		• •		
Restrictive I	_ayer (if observe	d):						
ype: <u>r</u>	efusal - rock				_		Hydric soil pres	sent? <u>N</u>
epth (inch	es): <u>8+</u>				-			
lemarks:								

		Report Name: Wetland KW-011			
Project/Site: Holloway-Knox 138 kV Transmission Lin	e City/County: Columb	Diana Sampling Date: 5/2/2018			
Applicant/Owner: FirstEnergy	State: Ohio	Sampling Point: w-tmq-05/02/2018-05			
Investigator(s): <u>M. Thomayer, T. Qualio; Jacobs</u>	Section, Towns	hip, Range: T16N R5W S28			
Landform (Inilisiope, terrace, etc.): depression		onvex, none): <u>concave</u> Slope (%): <u>0-1%</u>			
Subregion (LRR of MLRA): LRR N Lat.	t slopes occasionally floor	Long.: -61.0423 Datum: NAD 63			
Soli Map Onit Name. ZEA-Zepernick Sittloam, 0 to 2 perce	ent slopes, occasionally hoo				
Are climatic/hydrologic conditions of the site typical for this	s time of the year? Yes	X No (If no, explain in remarks)			
Are vegetation , soil , or hydrology	significantly disturb	ed? Are "normal circumstances" Yes			
Are vegetation, soil, or hydrology	naturally problemat	ic? present?			
		(If needed, explain any answers in remarks)			
SUMMARY OF FINDINGS					
Hydrophytic vegetation present? Ves					
Hydrophytic vegetation present?	is the sampled are	a within a wetland? Yes			
Wetland bydrology present?	is the sampled are				
venand hydrology present?					
Remarks:					
PEM wetland in routinely maintained ROW, bet	ween railroad tracks and	d perennial stream, depressional feature			
saturated by high water table.					
HYDROLOGY					
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)			
Primary Indicators (minimum of one is required; check all	that apply)	Surface Soil Cracks (B6)			
X Surface Water (A1) True Aqu	uatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)			
X High Water Table (A2)	n Sulfide Odor (C1)	Drainage Patterns (B10)			
X Saturation (A3)	Phizosphoros on Living	Moss Trim Lines (B16)			
Water Marks (B1) X Roots (C		Dry-Season Water Table (C2)			
Sediment Deposits (B2)	e of Reduced Iron (C4)	Cravfish Burrows (C8)			
Drift Deposits (B3)	ron Reduction in Tilled	Saturation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4) Soils (C6	6)	Stunted or Stressed Plants (D1)			
Iron Deposits (B5)	, ck Surface (C7)	X Geomorphic Position (D2)			
Inundation Visible on Aprial	xplain in Remarks)	Shallow Aquitard (D3)			
Inditidation visible on Aeriai		Microtopographic Belief (D4)			
Water-Stained Leaves (B9)		EAC-Neutral Test (D5)			
Aquetio Ecupe (P12)					
Field Observations:		Matland			
Surface water present? Yes X No	Depth (inches): 3"	wetiand			
Seturation present? Yes X No	Depth (inches): 5				
(includes capillary fringe)	Deptil (inches).				
(includes capillary infige)					
Describe recorded data (stream gauge, monitoring well. a	erial photos, previous inspe	ctions), if available:			
		,,			
Remarks:					
Saturation throughout					

		iannee ei pian				Sampling Point: w-tmq-05/02/2018-05
Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum0Sapling/Shrub Stratum0Herb Stratum20Woody Vine Stratum0
5 5 7 9 9			0	= Total Cover		Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 1 (A) Total Number of Dominant Species Across all Strata: 1 (B) Percent of Dominant
Sapling/Shrub Stratum	Plot Size (15 ft.)	Absolute % Cover	Dominant Species	Indicator Status	Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1 2 3 4 5 5 7 7 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3						Prevalence Index WorksheetTotal % Cover of:OBL species 0 x 1 = 0 FACW species 100 x 2 = 200 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 0 Column totals 100 IO(A)Prevalence Index = B/A = 2.00
Herb Stratum <u>Phalaris arunc</u> <u>Scirpus cyperi</u>	Plot Size (dinacea inus	5 ft.)	0 Absolute % Cover 90 10	= Total Cover Dominant Species Y N	Indicator Status FACW FACW	Hydrophytic Vegetation Indicators: X Rapid test for hydrophytic vegetation X Dominance test is >50% X Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
						Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
2 						Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater the plant of the ball.
Woody Vine Stratum	Plot Size (30 ft.)	100 Absolute % Cover	= Total Cover Dominant Species	Indicator Status	 Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 4 5				= Total Cover		Hydrophytic vegetation present? Y

Profile Desc	ription: (Descrit	e to the	depth needed to	o docum	ent the i	ndicator	or confirm the absence	of indicators.)
Depth	Matrix		Rec	lox Feat	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Reillarks
0-10	10 YR 3/1	80	10 YR 5/6	20	С	PL/M	silt clay loam	
10+	refusal							
*Type: C=C **Location:	oncentration, D= PI =Pore Lining	Depletio M=Matr	on, RM=Reduced	d Matrix	, CS=Co	vered or	Coated Sand Grains	
Hydric Soil	Indicators:	in maa					Indicators for	Problematic Hydric Soils:
Hydric Soil Indicators: Dark Surface (S7) Histisol (A1) Polyvalue Below Surface (S8) Histic Epipedon (A2) (MLRA 147, 148) Black Histic (A3) Thin Dark Surface (S9) Hydrogen Sulfide (A4) (MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) 2 cm Muck (A10) (LRR N) X Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1) Redox Depressions (F8) (LRR N, MLRA 147, 148) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 147, 147)								(A10) (MLRA 147) ie Redox (A16) (MLRA 147, 148) ioodplain Soils (F19) 5, 147) w Dark Surface (TF12) ain in Remarks)
Restrictive L Type: <u>re</u> Depth (inch Remarks:	ayer (if observe sfusal - rock es): 10"	d):			-		Hydric soil prese	nt? <u>Y</u>

Project/Site: Holloway-Knox 138 kV Tran	smission l ine	City/County:	Columbiana	Report Name: Sampling Date:	Upland KW-11 5/2/2018		
Applicant/Owner: FirstEnergy		_ Oity/ Ocarity: State:	Obio	_ Sampling Point:	upl_tmg_05/02/2018_5		
Investigator(s): M Thomaver T Qualio: Jac	cobs	Section	Townshin Range	T16N R5W S28	upi-tinq-03/02/2010-3		
Landform (hillslope, terrace, etc.): plain		Local relief (cor	ncave, convex, none	e): none	Slope (%): 0		
Subregion (LRR or MLRA): LRR N	Lat.:	40.747408559	Long.: -8	1.042307701	Datum: NAD 83		
Soil Map Unit Name: ZeA- Zepernick silt loam	n, 0 to 2 percent	t slopes, occasior	nally flooded NWI C	Classification: Nor	ne (Upland)		
Are climatic/hydrologic conditions of the site t	typical for this ti	me of the year?	Yes <u>X</u> N	o(If no, e	explain in remarks)		
Are vegetation, soil, or	hydrology	significantly	/ disturbed?		Yes		
Are vegetation, soil, or	hydrology	naturally pr	oblematic? _()2			
SUMMARY OF FINDINGS			(11	needed, explain a	any answers in remarks)		
Hydrophytic vegetation present? No							
Hydric soil present? No	•	Is the sam	pled area within a	wetland?	lo		
Wetland hydrology present? No	•						
	-						
Remarks:							
Linland point corresponding to Matic	nd 1/11/11						
Opland point corresponding to wetla							
wetland Hydrology indicators:			Secondary	y Indicators (minin	num of two required)		
Primary Indicators (minimum of one is require	ed; check all tha	at apply)	Surfac	e Soil Cracks (B6)			
Surface Water (A1)	True Aquat	ic Plants (B14)	Sparse	ely Vegetated Conc	cave Surface (B8)		
High Water Table (A2)	Hydrogen S	Sulfide Odor (C1)	Draina	Drainage Patterns (B10)			
Saturation (A3)	Oxidized R	hizospheres on Liv	vingMoss [·]	Moss Trim Lines (B16)			
Water Marks (B1)	Roots (C3)		Dry-Se	Dry-Season Water Table (C2)			
Sediment Deposits (B2)	Presence of	of Reduced Iron (C	4) Crayfis	sh Burrows (C8)	h Burrows (C8)		
Drift Deposits (B3)	Recent Iror	n Reduction in Tille	ed Satura	ion Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)	Soils (C6)		Stunte	l or Stressed Plants (D1)			
Iron Deposits (B5)	Thin Muck	Surface (C7)	Geom	rphic Position (D2)			
Inundation Visible on Aerial	Other (Exp	lain in Remarks)	Shallo	v Aquitard (D3)			
Imagery (B7)			Microt	opographic Relief (D4)		
Water-Stained Leaves (B9)			FAC-N	leutral Test (D5)			
Aquatic Fauna (B13)							
Field Observations:							
Surface water present? Yes	No X	Depth (inches):		Wetland			
Water table present? Yes	No X	Depth (inches):		hydrology			
Saturation present? Yes	No X	Depth (inches):		present?	Ν		
(includes capillary fringe)	·	,		•			
Describe recorded data (stream gauge, moni	toring well, aeri	al photos, previo	us inspections), if a	vailable:			
Pomarks:							
nemarks.							

			lants			Sampling Point: upl-tmq-05/02/2018-5
Tree Stratum	Plot Size (30 ft.) Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds 20% 50% Tree Stratum 0 0 Sapling/Shrub Stratum 0 0 Herb Stratum 16 40 Woody Vine Stratum 0 0
Sapling/Shrub	Plot Size (15 ft.		= Total Cover		Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 (A) Total Number of Dominant Species Across all Strata: 2 (B) Percent of Dominant Species that are OBL, FACW, or FAC: 0 (A) Output Output Total Number of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)
						Prevalence Index WorksheetTotal % Cover of:OBL species 0 $x \ 1 =$ 0 FACW species 0 $x \ 2 =$ 0 FAC species 0 $x \ 3 =$ 0 FACU species 0 $x \ 4 =$ 320 UPL species 0 $x \ 5 =$ 0 Column totals 80 (A) 320 Prevalence Index = B/A = 4.00
Herb Stratum Solidago cana Rubus alleger Taraxacum of Cardamine pa	Plot Size (adensis niensis ficinale nviflora	5 ft.) Absolute % Cover 30 30 10 10	= Total Cover Dominant Species Y Y N N N	Indicator Status FACU FACU FACU FACU	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic
2 						Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3 28 ft (1 m) tail
Woody Vine Stratum	Plot Size (30 ft.) Absolute %) Cover	Total Cover Dominant Species	Indicator Status	 Herb - All herbaceous (non-woody) plants, regardless of size, ar woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 1 5			0	= Total Cover		Hydrophytic vegetation present? <u>N</u>

Sampling Point: upl-tmq-05/02/2018-5

Inches) 0-12	Color (moist)	• /							Bamarke
0-12		%	Color (moist)	%	Type*	Loc**	I	exture	Remarks
	10 YR 3/2	100					loam		
									1
	properties D-	Doplatia	n DM-Doduoo	Motrix	<u> </u>	larad ar	Costod S	and Craina	
ype. C=C0	Dicentration, D=	M=Matr	in, Rivi-Reaucea	i watrix,	US=U0	relea or	Coaled Sa	and Grains	
		W-Wat						diastans for	Ducklamatic Undria Cailer
and som	indicators:		Dark Si	urface (9	37)			idicators for	Problematic Hydric Solis:
Histisol	(A1)		Dark St	ue Belo	w Surfac	e (S8)		2 cm Muck	(A10) (MI RA 147)
Histic Er	bipedon (A2)		(MLRA	147.14	8)	- ()	_	Coast Prai	rie Redox (A16) (MLRA 147. 14
Black Hi	istic (A3)		Thin Da	irk Surfa	ace (S9)			Piedmont F	Floodplain Soils (F19)
Hydroge	en Sulfide (A4)		(MLRA	147, 14	8)			(MLRA 13	6, 147)
Stratified	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)		Very Shallo	ow Dark Surface (TF12)
2 cm Mu	uck (A10) (LRR I	N)	Deplete	d Matrix	(F3)		_	Other (Exp	lain in Remarks)
_ Depleted	d Below Dark Su	urface (A	(11) Redox	Dark Su	rface (F6	<u>5)</u>			
_ I hick Da	ark Surface (A12	<u>2)</u>	Deplete	d Dark	Surface (F7)			
		91) BN		Depress	o Masso) ⊳ (⊑12) (I DA 136)	
Sandy (Gleved Matrix (Se	4)	IImbric	Surface	e masse (F13) (N	AIRA 13	122 (11, 10)	LKA 130)	
Sandy F	Redox (S5)	-,	Piedmo	nt Flood	blain So	ils (F19)	(MLRA 14	18)	
Stripped	Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 14	7)	
	()				,	,,		,	
idicators o	of hydrophytic ve	getation	and wetland hy	drology	must be	present,	unless dis	sturbed or pro	blematic
						-			
Strictive L	ayer (if observe	a):							
pe: poth (inch:	20):				-		нуа	ric soli prese	
spin (inche					-				
-marks									

Project/Site: Holloway-Knox 138 kV Transmission Line	Citv/Countv:	Carroll	Report Name: Sampling Date:	Wetland KW-12 5/3/2018		
Applicant/Owner FirstEnergy	State:	Ohio	Sampling Point:	w-mdt-5/03/2018-02		
Investigator(s): M Thomaver T Qualio: Jacobs	Section	Township Ran	ne: S9T15NR5\	W mat 0/00/2010 02		
Landform (hillslope, terrace, etc.): floodplain	Local relief (cor	ncave. convex. no	one): concave	Slope (%):		
Subregion (LRR or MLRA): LRR N Lat.:	40.7045	Lona.:	-81.0387	Datum: NAD 83		
Soil Map Unit Name: FcB: Fitchville silt loam, 3 to 8 percen	t slopes	ŇW	I Classification: R5L	JBH		
Are climatic/hydrologic conditions of the site typical for this	time of the year?	Yes X	No(If no, ex	xplain in remarks)		
Are vegetation, soil, or hydrology _	significantly	/ disturbed?	Are "normal circums	tances" Yes		
Are vegetation, soil, or hydrology _	naturally pr	oblematic?	present? (If needed, explain a	any answers in remarks		
SUMMARY OF FINDINGS						
Hydrophytic vegetation present? Yes						
Hydric soil present? Yes	Is the sam	pled area within	a wetland? Ye	es		
Wetland hydrology present? Yes						
Remarks:						
DEM watland between too of alone and personal	al atraam in rauti	in alv maintaina				
PEW wetland between toe of slope and perennia	al stream in routi	inely maintaine	a ROW.			
HYDROLOGY						
Wetland Hydrology Indicators:		Second	ary Indicators (minim	num of two required)		
Primary Indicators (minimum of one is required: check all th	nat annly)	Sur	ary Indicators (Infiniti face Soil Cracks (B6)			
				0 ((D0)		
X Surface Water (A1)	atic Plants (B14)	Spa				
High Water Table (A2) X Hydrogen	Sulfide Odor (C1)	<u> </u>	nage Patterns (B10)	age Patterns (B10)		
X Saturation (A3) Oxidized	Rhizospheres on Liv	ving Mos	s Trim Lines (B16)			
Water Marks (B1) Roots (C3	3)	Dry-	Season Water Table	(C2)		
Sediment Deposits (B2) Presence	of Reduced Iron (C	4)Cra	yfish Burrows (C8)			
Drift Deposits (B3) Recent Ire	on Reduction in Tille	ed Satu	uration Visible on Aeria	al Imagery (C9)		
Algal Mat or Crust (B4) Soils (C6))	Stur	nted or Stressed Plant	s (D1)		
Iron Deposits (B5) Thin Muc	k Surface (C7)	X Geo	morphic Position (D2)	orphic Position (D2)		
Inundation Visible on Aerial Other (Ex	plain in Remarks)	Sha	llow Aquitard (D3)			
Imagery (B7)		X Mici	otopographic Relief (I	D4)		
Water-Stained Leaves (B9)		X FAC	C-Neutral Test (D5)	,		
Aquatic Fauna (B13)						
Field Observations:						
Surface water present? Ves X No	Denth (inches)	1	Wetland			
Water table present? Ves No X	Depth (inches):	I	hydrology			
Saturation present? Yes X No	Depth (inches):		present?	Y		
(includes capillary fringe)			p. 00011(1	<u> </u>		
Describe recorded data (stream gauge, monitoring well, ae	rial photos, previou	us inspections), if	available:			
	, ,,	. ,,				
Remarks:						
Saturated throughout, pockets of inundation						

VEGETATION - Us	e scientific names of	plants
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Sampling Point: w-mdt-5/03/2018-02 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Tree Stratum Plot Size (30 ft.) Cover Species Status Tree Stratum 0 0 Sapling/Shrub Stratum 0 0 Herb Stratum 2 21 53 3 Woody Vine Stratum 0 0 4 Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: (A) 8 2 Total Number of Dominant 9 2 Species Across all Strata: (B) 10 Total Cover 0 = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: 100.00% (A/B) Plot Size (15 ft.) Stratum Cover Species Status **Prevalence Index Worksheet** Total % Cover of: 2 3 OBL species x 1 = _x 2 = FACW species 4 105 2105 FAC species 0 x 3 = Ω FACU species 6 x 4 = 0 0 UPL species 0 x 5 = 0 7 Column totals 8 105 (A) 210 (B) Prevalence Index = B/A = 9 2 00 10 0 = Total Cover Hydrophytic Vegetation Indicators: Indicator X Rapid test for hydrophytic vegetation Absolute % Dominant Herb Stratum Plot Size (5 ft.) Status X Dominance test is >50% Cover Species X Prevalence index is ≤3.0* FACW Juncus effusus 25 Υ 1 Phalaris arundinacea FACW Morphological adaptations* (provide 70 γ 2 supporting data in Remarks or on a 3 Verbena hastata 5 Ν FACW Eupatorium perfoliatum FACW separate sheet) 4 5 Ν Problematic hydrophytic vegetation* 5 6 (explain) 7 *Indicators of hydric soil and wetland hydrology must be 8 present, unless disturbed or problematic q 10 Definitions of Vegetation Strata: 11 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 105 Total Cover = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Absolute % Dominant Indicator Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in heiaht. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Y Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: w-mdt-5/03/2018-02

0-14	Color (moist) 10YR 7/1	% 85	Color (moist)	%	- +			
0-14	10YR 7/1	85		70	Type^	Loc**		
			10YR 5/6	15	С	М	silty clay	
 								1
	neestation D-	Denlatio		Actuit	00-00		Castad Cand Crains	
ype: C=C0	Dicentration, D=		iv, KIVI=Keaucea	i iviatrix,	5=00	verea or	Coaled Sand Grains	
		wi–wau	IA					
aric Soli i	indicators:		Dark Si	urface (9	27)		indicators for	Problematic Hydric Solis:
Histisol (Δ1)		Dark St Polyval	ue Belo	v Surfac	e (S8)	2 cm Muck	(A10) (MI RA 147)
Histic Fn	pipedon (A2)		(MLRA	147.14	.8)	0 (00)	Coast Prai	rie Redox (A16) (MLRA 147, 14
Black His	stic (A3)		Thin Da	irk Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)
Hydroge	n Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 13	6, 147)
Stratified	Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shall	ow Dark Surface (TF12)
2 cm Mu	ck (A10) (LRR I	N)	X Deplete	d Matrix	(F3)		Other (Exp	olain in Remarks)
Depleted	Below Dark Su	urface (A	A11)Redox	Dark Su	rface (F6	5)		
Thick Da	ark Surface (A12	2)	Deplete	d Dark	Surface ((F7)		
		51) DV	Redox	Depress	sions (F8) - (E10) (
_ (LKK N, Sandy G	WILKA 147, 140	0) 4)		Surface		S(FIZ)(11 PA 13	LKK N, WILKA 130)	
_Sandy R	edox (S5)		Onbrid Piedmo	nt Floor	Inlain So	ils (F19)	(MI RΔ 148)	
_Stripped	Matrix (S6)		Red Pa	rent Ma	terial (F2	(1) (MLR	A 127. 147)	
							,	
idicators of	f hydrophytic ve	getatior	and wetland hy	drology	must be	present,	unless disturbed or pro	blematic
		-	-			-	-	
estrictive La	ayer (if observe	d):						(0)) (
pe: 	-				-		Hydric soll prese	ent? <u>Y</u>
spin (inche	s):				-			
marke								
inano.								

Project/Site: Holloway-Knox 138 kV Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio Landform (hillslope, terrace, etc.): hills Subregion (LRR or MLRA): LRR N Soil Map Unit Name GeB-Glenford silt lo Are climatic/hydrologic conditions of the , soil Are vegetation , soil SUMMARY OF FINDINGS Summary of the solution of the solu	Transmission Lin ; Jacobs lope Lat.: am, 2 to 6 perce site typical for thi , or hydrology , or hydrology	e City/County: State: Sectio Local relief (co 40.705222 nt slopes s time of the year significant naturally p	Carroll Ohio n, Townshi oncave, cor L ? Yes _ y disturbed roblematic	ip, Range: nvex, none ong.: -81 NWI C NWI C X No 1? Are ? circ (If I	Report Name: Sampling Date: Sampling Point S 9 T 15 N R 5 convex .038866 assification: N/A (If no, e normal cumstances" pres needed, explain a	Upland KW-12 5/3/2018 upl-mdt-5/03/2018-02 W Slope (%): 2 Datum: NAD 83 xplain in remarks) Yes sent? any answers in remarks	
Hydrophytic vegetation present? N Hydric soil present? N Wetland hydrology present? N	0 0 0	Is the san	npled area	within a	wetland? N	<u>o</u>	
Upland plot to PEM wetland (w-n	ndt-05/03/2018	3-02) in maintai	ned ROW	Ι.			
HYDROLOGY							
Wetland Hydrology Indicators:			S	Secondarv	Indicators (minin	num of two required)	
Primary Indicators (minimum of one is re	quired; check all	that apply)		Surface	Soil Cracks (B6)	. ,	
Surface Water (A1)	True Aau	atic Plants (B14)	_	Sparse	v Vegetated Cond	cave Surface (B8)	
High Water Table (A2)	Hvdroae	n Sulfide Odor (C1)		Drainage Patterns (B10)			
Saturation (A3)		Phizophorop on I	iving —	Moss T	rim Lines (B16)		
Water Marks (B1)	Roots (C	3)	.iving	Drv-Se	ason Water Table	(C2)	
Sediment Deposits (B2)	Presence	e of Reduced Iron (C4) —	Crayfish Burrows (C8)			
Drift Deposits (B3)	Recent Ir	ron Reduction in Tilled		Saturat	ion Visible on Aeri	al Imagery (C9)	
Algal Mat or Crust (B4)	Soils (C6	5)	_	Stunted	l or Stressed Plan	ts (D1)	
Iron Deposits (B5)	Thin Muc	k Surface (C7)		Geomo	rphic Position (D2)	
Inundation Visible on Aerial	Other (Ex	xplain in Remarks)		Shallow	low Aquitard (D3)		
Imagery (B7)				Microto	pographic Relief (D4)	
Water-Stained Leaves (B9)				FAC-Ne	eutral Test (D5)		
Aquatic Fauna (B13)							
Field Observations:							
Surface water present? Yes	No X	Depth (inches):		Wetland		
Water table present? Yes	No X	Depth (inches):		hydrology		
Saturation present? Yes	No X	Depth (inches):	_	present?	N	
(includes capillary fringe)							
Describe recorded data (stream gauge, r	monitoring well, a	aerial photos, prev	ious inspec	ctions), if a	available:		
Remarks:							
i comanto.							
1							

Sampling Point: upl-mdt-5/03/2018-02

Tree Stratum	Plot Size (30 ft)	Absolute	Dominant	Indicator	50/20 Thresholds 20% 50%
	1.010.20 (, oo na	% Cover	Species	Status	Tree Stratum 0 0
1						Sapling/Shrub Stratum 0 0
2						Herb Stratum 20 50
3						Woody Vine Stratum 0 0
45						Dominance Test Worksheet
6						Number of Dominant
7						Species that are OBL,
8						FACW, or FAC: 0 (A)
9						Total Number of Dominant
10						Species Across all Strata: 3 (B)
			0	 Total Cover 		Percent of Dominant
						Species that are OBL,
Sapling/Shrub	Plot Sizo (15.ff)	Absolute	Dominant	Indicator	FACW, or FAC: 0.00% (A/B)
Stratum	PIOL SIZE (15 IL.)	% Cover	Species	Status	
1						Prevalence Index Worksheet
2						Total % Cover of
3						OBL species $0 \times 1 = 0$
4						FACW species 0 x 2 = 0
5						FAC species $0 \times 3 = 0$
6						FACU species $100 \times 4 = 400$
7						UPL species $0 \times 5 = 0$
8						Column totals 100 (A) 400 (B)
9						Prevalence Index = B/A = 4.00
10						
			0	 Total Cover 		
						Hydrophytic Vegetation Indicators:
Herb Stratum	Plot Size (5 ft.)	Absolute	Dominant	Indicator	Rapid test for hydrophytic vegetation
		,	% Cover	Species	Status	Dominance test is >50%
1 Rosa multiflora			5	<u>Y</u>	FACU	Prevalence index is $\leq 3.0^*$
2 Solidago sp.			25	Y	FACU	Morphological adaptations* (provide
3 Poa pratensis			70	<u> </u>	FACU	supporting data in Remarks or on a separate
4						Sileel)
5						
7						(explain)
8						naicators of hydric soil and wetland hydrology must be
9						
10						Definitions of Vegetation Strata:
11						
12						Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height
13						breast height (bbh), regardless of height.
14						Sapling/shrub - Woody plants less than 3 in. DBH and
15						greater than 3.28 ft (1 m) tall.
			100	= Total Cover		Herb - All herbaceous (non-woody) plants, regardless of
						size, and woody plants less than 3.28 ft tall.
Woody Vine	Plot Size (30 ft.)	Absolute	Dominant	Indicator	
Stratum	,	,	% Cover	Species	Status	Woody vines - All woody vines greater than 3.28 ft in
1						height.
2						
J						
4						Hydrophytic
5						vegetation
			0	= Total Cover		present? N
Remarks: (Include abot	o numbers bo		arate sheet)			
nomarka. (include prior		ie or on a sep				

	Depth Matrix Redox Featu						Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10YR 3/2	100					silty clay	
Гуре: С=С	Concentration, D	=Deplet	ion, RM=Reduce	ed Matri	x, CS=C	overed o	or Coated Sand Grains	
Location:	PL=Pore Lining	, M=Mat	rix					
ydric Soi	I Indicators:						Indicators for P	roblematic Hydric Soils:
Black H Hydrog Stratifie 2 cm N Deplete Thick D Sandy (LRR N Sandy Sandy Strippe	listic (A3) en Sulfide (A4) ed Layers (A5) luck (A10) (LRR ed Below Dark S Dark Surface (A1 Mucky Mineral (S I, MLRA 147, 14 Gleyed Matrix (S Redox (S5) d Matrix (S6) of hydrophytic ve	N) urface (2) S1) 8) S4) egetatio	Thin Da (MLRA Deplete A11) Redox I Redox I Iron-Ma Umbric Piedmo Red Pa	ark Surfa 147, 14 Gleyed ad Matrix Dark Su ad Dark Depress Inganes Surface nt Flood rent Ma ydrolog	x (F3) Matrix (I x (F3) Irface (F Surface (F Surface e (F13) (dplain So terial (F; y must b	F2) 6) (F7) 3) es (F12) MLRA 1 bils (F19 21) (MLF e preser	Piedmont Flo (MLRA 136, Very Shallow Other (Expla (LRR N, MLRA 136) 36, 122)) (MLRA 148) RA 127, 147) nt, unless disturbed or pro	oodplain Soils (F19) 147) / Dark Surface (TF12) in in Remarks)
estrictive ype: pepth (inch	Layer (if observe nes):	ed):			-		Hydric soil present	t? <u>N</u>
emarks:								

Project/Site: Holloway-Knox 138 kV Transmission Lin	e City/County:	Carroll	Report Name: Sampling Date:	Wetland KW-13		
Applicant/Owper: FirstEnergy	<u>State</u>	Ohio	Sampling Point	w-mdt-5/03/2018-01		
Investigator(s): M Thomaver T Qualio: Jacobs	Section	Townshin Ran		W		
andform (hillslope terrace etc.): floodplain	Local relief (cor	n, rownsnip, ran ncave convex n	one): concave	Slope (%)		
Subregion (I RR or MI RA) ⁻ I RR N	40,7033		-81.0388	Datum: NAD 83		
Soil Map Unit Name: GfB: Glenford silt loam, 3 to 8 percent	nt slopes	NW	/I Classification: R5	UBH		
Are climatic/hydrologic conditions of the site typical for this	s time of the year?	Yes X	No(If no, e	explain in remarks)		
Are vegetation , soil , or hydrology	significantly	/ disturbed?	Are "normal circum	stances" Yes		
Are vegetation, soil, or hydrology	naturally pr	oblematic?	present? (If needed, explain a	any answers in remarks		
SUMMARY OF FINDINGS				-		
Hydrophytic vegetation present? Yes						
Hydric soil present? Yes	Is the sam	pled area withir	a wetland? Y	es		
Wetland hydrology present? Yes						
Remarks:						
PEM wetland between toe of slope and perenn	ial stream in routi	inely maintaine	ed ROW.			
HYDROLOGY						
Wetland Hydrology Indicators:		Second	lary Indicators (minin	num of two required)		
Primary Indicators (minimum of one is required; check all	that apply)	Sur	face Soil Cracks (B6)			
X Surface Water (A1) True Aq	uatic Plants (B14)	Spa	arsely Vegetated Cond	cave Surface (B8)		
X High Water Table (A2) X Hydroge	en Sulfide Odor (C1)	Odor (C1) X Drainage Patterns (B10)				
X Saturation (A3) Oxidized	d Rhizospheres on Liv	ospheres on Living Moss Trim Lines (B16)				
Water Marks (B1) Roots (C	C3)	Drv	-Season Water Table	season Water Table (C2)		
Sediment Deposits (B2) Presence	e of Reduced Iron (C	4) Cra	yfish Burrows (C8)	()		
Drift Deposits (B3)	Iron Reduction in Tille	ed Sat	uration Visible on Aer	ial Imagery (C9)		
Algal Mat or Crust (B4) Soils (C	6)	Stu	nted or Stressed Plan	ts (D1)		
Iron Deposits (B5) Thin Mu	ck Surface (C7)	X Ge	omorphic Position (D2	2)		
Inundation Visible on Aerial Other (E	Explain in Remarks)	Sha	allow Aquitard (D3)			
Imagery (B7)	. ,	X Mic	rotopographic Relief (D4)		
Water-Stained Leaves (B9)		X FA	C-Neutral Test (D5)	,		
Aquatic Fauna (B13)						
Field Observations:						
Surface water present? Yes X No	Depth (inches):	2	Wetland			
Water table present? Yes X No	Depth (inches):	4	hydrology			
Saturation present? Yes X No	Depth (inches):	0	present?	Y		
(includes capillary fringe)						
Describe recorded data (stream gauge, monitoring well, a	erial photos, previou	us inspections), if	f available:			
Remarks:						
Saturated throughout, pockets of inundation. W	ater in pit at 4"					

VEGETATION - Us	e scientific names of plants
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				Sampling Point:	w-mdt-5/03/2018-01
				50/20 Thresholds	
	Absolute %	Dominant	Indicator		20% 50%
Tree Stratum Plot Size (30 ft.)		Species	Statuc	Tree Stratum	
4	Cover	Species	Status		0 0
1				Sapiing/Shrub Stratum	0 0
2				Herb Stratum	27 68
3				Woody Vine Stratum	0 0
4					
5				Dominance Test Workshee	ət
6				Number of Dominant	
7				Species that are OBL,	
8				FACW, or FAC:	2 (A)
9				Total Number of Dominant	
10				Species Across all Strata:	2 (B)
	0 =	 Total Cover 		Percent of Dominant	
				Species that are OBI	
Sopling/Shrub	Abcoluto %	Dominant	Indicator	EACW or EAC:	100.00% (A/P)
Plot Size (15 ft.)	Absolute //	Dominant		FACW, OF FAC.	100.00% (A/B)
Stratum	Cover	Species	Status		
1				Prevalence Index Workshe	et
2				Total % Cover of:	
3				OBL species 0 x 1	= 0
4				FACW species 135 x 2	= 270
5				FAC species 0 × 3	= 0
6				EACIL species 0 x 4	- 0
7				LIPL species 0 x 5	= <u>0</u> - <u>0</u>
/				$\frac{0}{125} = \frac{1}{125} $	= <u>0</u> 270 (P)
°				Column totals 135 (A)	<u>270</u> (B)
9				Prevalence index = B/A =	2.00
10					
	=	 Total Cover 			
				Hydrophytic Vegetation In	dicators:
Herb Stratum Plot Size (5 ft)	Absolute %	Dominant	Indicator	X Rapid test for hydrophyt	ic vegetation
	Cover	Species	Status	X Dominance test is >50%)
1 Juncus effusus	40	Y	FACW	X Prevalence index is ≤3.0)*
2 Phalaris arundinacea	60	Y	FACW	Morphological adaptatio	ns* (provide
3 Verbena hastata	15	N	FACW	supporting data in Rema	arks or on a
4 Eupatorium perfoliatum	10	N	FACW	separate sheet)	
5 Spirea tomentosa	10	N	FACW	Problematic hydrophytic	vegetation*
6				(explain)	0
7				*Indianters of hydric coil and wetla	nd bydrology myst bo
8				present unless disturbed or proble	nu nyurology must be
0				present, unless disturbed of proble	emalic
9				Definitions of Vegetation 9	Strata
10				Tree Weedy plants 2 in (7.6 am)	or more in diameter et
10				broast beight (DPH) regardless of	for more in ulameter at
12				breast height (DDFI), regardless of	neight.
13				Sapling/shrub - Woody plante les	s than 3 in DBH and
14				greater than 3.28 ft (1 m) tall	
15					
	135 =	 Fotal Cover 		Herb - All herbaceous (non-wood)) plants, regardless of
				size, and woody plants less than 3	3.28 ft tall.
Woody Vine Plot Size (30 ft)	Absolute %	Dominant	Indicator		
Stratum	Cover	Species	Status	Woody vines - All woody vines gr	eater than 3.28 ft in
1		-		height.	
2					
3					
4				Hydronbytic	
 E					
ບ				vegetation	
		 I otal Cover 		present? Y	-
				1	
Remarks: (Include photo numbers here or on a separate	te sheet)				

Sampling Point: w-mdt-5/03/2018-01

Dopai	Matrix		Rec	lox Feat	ures		Toxtura	Bomarka
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10YR 4/1	95	10YR 4/6	5	С	М	silty clay	
8-14	10YR 5/1	90	10YR 5/8	10	С	М	silty clay	
		-						
Type: C=C	oncentration, D=	Depletic	on, RM=Reduced	I Matrix,	CS=Cov	vered or	Coated Sand Grains	
'Location:	PL=Pore Lining,	M=Matr	ix					
ydric Soil	Indicators:						Indicators for P	roblematic Hydric Soils:
Histisol Histic E Black H Hydroge	(A1) pipedon (A2) listic (A3) en Sulfide (A4)		(MLRA (MLRA (MLRA)	147, 14 Irk Surfa 147, 14	w Sunac 8) ace (S9) 8)	e (58)	2 cm Muck (Coast Prairie Piedmont Flo (MLRA 136,	A10) (MLRA 147) Redox (A16) (MLRA 147, 14 podplain Soils (F19) 147)
2 cm M Deplete Thick D	d Layers (A5) uck (A10) (LRR d Below Dark Su ark Surface (A1)	N) urface (A 2)	X Deplete X11) Redox I Deplete	Gleyed d Matrix Dark Su d Dark S	Matrix (F (F3) rface (F6 Surface (2) 6) (F7)	Very Shallow Other (Expla	/ Dark Surface (TF12) in in Remarks)
Sandy I (LRR N Sandy (Sandy I	Mucky Mineral (S , MLRA 147, 14 Gleyed Matrix (S Redox (S5)	51) 8) 4)	Redox I Iron-Ma Umbric Piedmo	Depress nganes Surface nt Flooc	ions (F8 e Masse (F13) (N Iplain So) s (F12) (/ILRA 13 ills (F19)	(LRR N, MLRA 136) 36, 122) (MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	21) (MLR	A 127, 147)	
ndicators	of hydrophytic ve	egetation	and wetland hy	drology	must be	present,	unless disturbed or proble	ematic
estrictive I	_ayer (if observe	d):					Hydric soil present	1 2 V
epth (inch	es):				-		nyune son presen	
emarks:								
emarks:								
emarks:								
emarks:								

Project/Site: Holloway-Kno	ov 138 kV Transmis	sion Line	City/County:	Carroll	Report Name:	Upland KW-13	
Applicant/Owner: FirstEner			State	Ohio	Sampling Point	t: upl-mdt-5/03/2018-01	
Investigator(s): M Thomaver	<u>yy</u> T Qualio: Jacobs		Section	Township Rai		W	
Landform (hillslope, terrace, et	tc.): hillslope		Local relief (co	ncave. convex. r	ione): convex	Slope (%): 2	
Subregion (LRR or MLRA): L	_RŔ N	Lat.:	40.70273778	Long.:	-81.038 <u>66234</u>	Datum: NAD 83	
Soil Map Unit Name: GfB: Glei	nford silt loam, 3 to	8 percent sl	opes	ŇV	VI Classification: No	ne (upland)	
Are climatic/hydrologic condition	ons of the site typica	al for this tin	ne of the year ∕	Yes X	No(If no, o	explain in remarks)	
Are vegetation, soil	, or hydr	ology	significantl	y disturbed?	Are "normal circum	stances" Yes	
Are vegetation, soil	, or hydr	ology	naturally p	roblematic?	present?		
SUMMARY OF FINDING	S				(If needed, explain	any answers in remarks	
Hvdrophytic vegetation presen	nt? No						
Hydric soil present?	No		Is the sam	pled area withi	n a wetland?	No	
Wetland hydrology present?	No			•			
Remarks:							
Upland plot to PEM wet	land (w-mdt-05/0	3/2018-01	l) in maintaine	ed ROW.			
	,		,				
HYDROLOGY							
Wetland Hydrology Indicat	ors:			Secon	dary Indicators (minin	mum of two required)	
Primary Indicators (minimum c	of one is required; c	heck all that	apply)	Su	rface Soil Cracks (B6)		
Surface Water (A1)		True Aquatio	c Plants (B14)	Sp	arselv Vegetated Con	cave Surface (B8)	
High Water Table (A2)		Hydrogen Si	ulfide Odor (C1)	' Dra	inage Patterns (B10)		
Saturation (A3)			innuo ouor (or)	Mc	unage Faterio (210) ss Trim Lines (816)		
Water Marke (P1)		Oxidized Rn	izospheres on Li		(Seesen Water Table	(02)	
Sodimont Doposite (B2)		Proconco of	Poducod Iron (C	Dr	y-Season water Table	: (02)	
Drift Deposits (B3)		Recent Iron	Reduction in Till	-4)Cia	turation Visible on Aer	ial Imageny (CQ)	
Algal Mat or Crust (B4)		Soils (C6)			inted or Stressed Plar	nai illiagery (C9)	
		Thin Muck S	Surface (C7)	0	anteu or Stresseu i lai		
				Ge		<u>~</u>)	
Inundation Visible on Aeria	I	Other (Expla	ain in Remarks)	Sh	allow Aquitard (D3)		
Imagery (B7)				Mi	crotopographic Relief	(D4)	
Water-Stained Leaves (B9)	1			FA	C-Neutral Test (D5)		
Aquatic Fauna (B13)							
Field Observations:							
Surface water present?	Yes N	o X	Depth (inches)		Wetland		
Water table present?	Yes N	0 X	Depth (inches)	:	hydrology		
Saturation present?	Yes N	0 X	Depth (inches)	:	present?	Ν	
(includes capillarv fringe)							
Describe recorded data (streat	m gauge, monitorin	g well, aeria	l photos, previo	us inspections), i	f available:		
	-			- /·			
Remarks:							

7

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Sampling Point: upl-mdt-5/03/2018-01 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Plot Size (30 ft. Tree Stratum) 0 0 Cover Status Tree Stratum Species Sapling/Shrub Stratum 0 0 Herb Stratum 20 2 50 3 Woody Vine Stratum 0 0 Λ Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, FACW, or FAC: (A) 8 0 Total Number of Dominant 9 Species Across all Strata: 3 (B) 10 Total Cover 0 = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: 0.00% (A/B) Plot Size (15 ft.) Stratum Cover Species Status **Prevalence Index Worksheet** Total % Cover of: 2 OBL species 3 0 x 1 = 0 FACW species 0 x 2 = 0 4 5 FAC species 0 x 3 = 0 FACU species 6 100 x 4 = 400 UPL species 0 x 5 = 0 Column totals 8 100 (A) 400 (B) Prevalence Index = B/A = 9 4.00 10 0 = Total Cover Hydrophytic Vegetation Indicators: Indicator Rapid test for hydrophytic vegetation Absolute % Dominant Herb Stratum Plot Size (5 ft.) Status Dominance test is >50% Cover Species Prevalence index is ≤3.0* FACU Schizachyrium scoparium 10 Y Rubus allegheniensis FACU Morphological adaptations* (provide 2 20 Poa pratensis supporting data in Remarks or on a 3 70 FACU separate sheet) Problematic hydrophytic vegetation* 5 6 (explain) *Indicators of hydric soil and wetland hydrology must be 8 present, unless disturbed or problematic q Definitions of Vegetation Strata: 10 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 100 Total Cover = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Indicator Absolute % Dominant Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in height. 2 3 Hydrophytic vegetation 0 = Total Cover present? Ν Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: upl-mdt-5/03/2018-01

Bopan	Matrix		Red	lox Feat	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	TEXICIE	T Cilians
0-8	10YR 3/2	100					silt loam	
					ļ			
					<u> </u>			
Type: C=C	oncentration, D=	Depletic	n, RM=Reduced	Matrix.	CS=Cov	vered or	Coated Sand Grains	-
Location:	PL=Pore Lining.	M=Matr	ix	,				
vdric Sail	Indicatore						Indicators for	Problematic Hydric Soile
yune oon	mulcators.		Dark Si	irface (S	37)		indicators for	ribblematic Hydric Solis.
Histicol	(Δ1)		Polyval	ue Belov	v Surfac	e (S8)	2 cm Mucl	(A10) (MI PA 147)
Histic E	(A1)			147 14	Q)	0 (00)		(A10) (WERA 147)
Black H	pipedon(A2)			rk Surfs	0) ace (SQ)		Clast Fia	Floodplain Soils (F19)
	islic (A3)			447 44	o)			
				147, 14	•O) Matulia / E	· ^ \		0 , 147
	d Layers (A5)		Loamy	Gleyed	Maunx (F	2)	very Shall	ow Dark Sunace (TFT2)
_2 cm Mi	uck (A10) (LRR	N)	Deplete	d Matrix	(F3)		Other (Exp	blain in Remarks)
	d Below Dark St	urtace (A	(11)Redox I	Jark Su	mace (Fb) (
I hick Da	ark Surface (A12	<u>2)</u>	Deplete	d Dark	Surface ((+7)		
Sandy N	/lucky Mineral (S	51)	Redox I	Jepress	ions (F8)		
(LRR N	, MLRA 147, 14	B)	Iron-Ma	nganes	e Masse	s (F12) (LRR N, MLRA 136)	
Sandy C	Gleyed Matrix (S	4)	Umbric	Surface	(F13) (N	ILRA 13	36, 122)	
Sandy F	Redox (S5)		Piedmo	nt Flood	Iplain So	ils (F19)	(MLRA 148)	
Strippec	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 147)	
ndicators c	of hydrophytic ve	getation	and wetland hy	drology	must be	present,	unless disturbed or pro	blematic
estrictive L	ayer (if observe	d):						
ype:							Hydric soil pres	ent? N
epth (inche	es):				-			
					-			
emarks:								

Project/Site: Holloway-Knox 138 kV Transmission Lin Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio; Jacobs Landform (hillslope, terrace, etc.): floodplain Subregion (LRR or MLRA): LRR N Soil Map Unit Name: Sb: Sebring silt loam Are climatic/hydrologic conditions of the site typical for thi Are vegetation , soil , or hydrology Are vegetation , soil , or hydrology SUMMARY OF FINDINGS Summary of the site typical for things	e City/County: Carr State: Ohio Section, Tov Local relief (concave : 40.6727 s time of the year? Ye significantly distunnaturally problem	roll Report Name: Sampling Date: o Sampling Point: vnship, Range: S 21 T 15 N R 5 vnship, Range: S 21 T 15 N R 5 vnship, Range: S 21 T 15 N R 5 vnship, Range: S 21 T 15 N R 5 vnship, Range: S 21 T 15 N R 5 vnship, Range: S 21 T 15 N R 5 vnship, Range: S 21 T 15 N R 5 Long.: -81.0405 NVI Classification: R50 es X No urbed? Are "normal circums natic? natic? present? (If needed, explain a	Wetland KW-14 5/3/2018 w-mdt-5/03/2018-03 W Slope (%): Datum: NAD 83 UBH explain in remarks) stances" Yes any answers in remarks
Hydrophytic vegetation present? Yes Hydric soil present? Yes Wetland hydrology present? Yes	Is the sampled	area within a wetland? Y	es
PEM/PSS (70/30) wetland between toe of slop routinely maintained ROW.	e and soybean field. V	Vetland bisected by perenn	ial stream in
			
Wetland Hydrology Indicators:		Secondary Indicators (minin	num of two required)
Primary Indicators (minimum of one is required; check all	that apply)	Surface Soil Cracks (B6)	
X Surface Water (A1) True Aq	uatic Plants (B14)	Sparsely Vegetated Cond	ave Surface (B8)
High Water Table (A2) Hydroge	en Sulfide Odor (C1)	X Drainage Patterns (B10)	
X Saturation (A3)	d Rhizospheres on Living	Moss Trim Lines (B16)	
Water Marks (B1) Roots (C3)	Drv-Season Water Table	(C2)
Sediment Deposits (B2)	ce of Reduced Iron (C4)	Cravfish Burrows (C8)	
Drift Deposits (B3)	Iron Reduction in Tilled	Saturation Visible on Aeri	al Imagery (C9)
Algal Mat or Crust (B4) Soils (C	6)	Stunted or Stressed Plan	ts (D1)
Iron Deposits (B5)	ick Surface (C7)	X Geomorphic Position (D2)
Inundation Visible on Aprial	Explain in Remarks)	Shallow Aquitard (D3)	/
Inditidation visible on Aerian		X Microtopographic Belief (D4)
Water-Stained Leaves (B9)		X EAC-Neutral Test (D5)	D4)
Aquatic Found (B13)			
Field Observations:			
Surface water present? Yes X No	Depth (inches):	2 Wetland	
Water table present? Yes No	X Depth (inches):	hydrology	
Saturation present? Yes X No	Depth (inches):	0 present?	Y
(includes capillary fringe)			
Describe recorded data (stream gauge, monitoring well, a	erial photos, previous ins	pections), if available:	
Remarks:			
Saturated throughout, pockets of inundation.			

Sampling Point: w-mdt-5/03/2018-03 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Plot Size (30 ft. Tree Stratum) Cover Species Status Tree Stratum 0 0 Sapling/Shrub Stratum 6 15 Herb Stratum 20 2 50 3 Woody Vine Stratum 0 0 Λ Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: (A) 8 3 Total Number of Dominant 9 Species Across all Strata: 3 (B) 10 0 Total Cover = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: 100.00% (A/B) Plot Size (15 ft.) Stratum Cover Species Status Cornus sericea 30 Υ FACW **Prevalence Index Worksheet** Total % Cover of: 2 OBL species 3 10 x 1 = 10 FACW species x 2 = 4 120 240 5 FAC species 0 x 3 = 0 FACU species 6 x 4 = 0 0 UPL species 0 x 5 = 0 7 Column totals 8 130 (A) 250 (B) Prevalence Index = B/A = 9 1 92 10 30 = Total Cover Hydrophytic Vegetation Indicators: Indicator X Rapid test for hydrophytic vegetation Absolute % Dominant Herb Stratum Plot Size (5 ft.) Status X Dominance test is >50% Cover Species X Prevalence index is ≤3.0* Juncus effusus FACW 20 Y Phalaris arundinacea Morphological adaptations* (provide 70 γ FACW 2 supporting data in Remarks or on a 3 Symplocarpus foetidus 10 N OBL separate sheet) 4 Problematic hydrophytic vegetation* 5 6 (explain) 7 *Indicators of hydric soil and wetland hydrology must be 8 present, unless disturbed or problematic q Definitions of Vegetation Strata: 10 11 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 Total Cover 100 = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Absolute % Dominant Indicator Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in heiaht. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Y Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: w-mdt-5/03/2018-03

Depin	Matrix		Rec	lox Feat	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textule	Remarks
0-14	10YR 5/1	90	10YR 5/6	10	С	М	clay	
T 0 0						I		
i ype: C=C	oncentration, D=	Depletio	n, KM=Reduced	i Matrix,	CS=Cov	/ered or	Coated Sand Grains	
Location:	PL=Pore Lining,	M=Matri	X					
ydric Soi	Indicators:						Indicators for	r Problematic Hydric Soils:
			Dark Su	urface (S	57)	(0.0)		
Histisol	(A1)		Polyval	ue Belov	w Surfac	e (S8)	2 cm Muo	ck (A10) (MLRA 147)
Histic E	pipedon (A2)			147, 14	8)		Coast Pra	airie Redox (A16) (MLRA 147, 14
Black H	listic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmon	t Floodplain Soils (F19)
Hydrog	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 1	36, 147)
Stratifie	ed Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Sha	llow Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	X Deplete	d Matrix	(F3)		Other (E>	(plain in Remarks)
Deplete	ed Below Dark Su	urface (A	.11) Redox I	Dark Su	rface (F6	5)		
Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface ((F7)		
Sandy	Mucky Mineral (S	51)	Redox I	Depress	ions (F8)		
(LRR N	, MLRA 147, 14	8)	Iron-Ma	inganes	e Masse	s (F12) ((LRR N, MLRA 136)	
Sandy	Gleyed Matrix (S	4)		Surface	e (F13) (N	ILRA 13	36, 122)	
Sandy	Redox (S5)		Piedmo	nt Flood	Iplain So	ils (F19)	(MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 147)	
Indicators	of hydrophytic ve	egetation	and wetland hy	drology	must be	present,	unless disturbed or pr	oblematic
						1		
		-1).						
	l aver lit onserve	a):						
Restrictive					_		Hydric soli pres	
Restrictive								
Restrictive ype: Depth (inch	es):				-			
Restrictive ype:)epth (inch	es):				-			
Restrictive ype: Depth (inch Remarks:	es):				_			
Restrictive Type: Depth (inch Remarks:	es):				-			
Restrictive ype: Depth (inch Remarks:	es):				-			
estrictive ype: epth (inch emarks:	es):				-			

Project/Site: Holloway-Knox 138 kV Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Quality Landform (hillslope, terrace, etc.): hill Subregion (LRR or MLRA): LRR N Soil Map Unit Name: Sb: Sebring silt load Are climatic/hydrologic conditions of the Are vegetation , soil Are vegetation , soil	Transmission Line c; Jacobs Islope Lat.: m site typical for this ti _, or hydrology _, or hydrology	City/County: State: Sectior Local relief (cou 40.673593532	Carroll Ohio n, Township, Ran ncave, convex, r Long.: NV Yes X y disturbed? roblematic?	Report Name: Sampling Date Sampling Point nge: S 21 T 15 N R one): convex -81.040291861 VI Classification: No No (If no, o Are "normal circum present? (If needed, explain	Upland KW-14 : 5/3/2018 : upl-mdt-5/03/2018-03 5 W Slope (%): 1 Datum: NAD 83 ne (upland) explain in remarks) stances" Yes any answers in remarks	
Hydrophytic vegetation present? Hydric soil present? Wetland hydrology present?	No No No	Is the sam	pled area withi	n a wetland?	No	
Upland plot to PEM/PSS wetlan	d (w-mdt-05/03/2	018-03) in maiı	ntained soybe	an field.		
Wetland Hydrology Indicators:			Secon	dary Indicators (minir	num of two required)	
Primary Indicators (minimum of one is re	equired: check all the	at apply)	Su	rface Soil Cracks (B6)		
Surface Water (A1)	True Aqua	tic Plants (B14)	Sn	arsely Vegetated Con	cave Surface (B8)	
High Water Table (A2)		Sulfide Oder (C1)	Op	Drainage Patterns (B10)		
Ceturation (A2)			Di	anaye Fallenis (DTU)		
Saturation (A3)	Oxidized R	thizospheres on Liv	ving	SS Trim Lines (B16)	(00)	
Water Marks (B1)	Roots (C3)		Dr	y-Season Water Table	e (C2)	
Sediment Deposits (B2)	Presence of December 1700	of Reduced Iron (C	(4) <u> </u>	ayrish Burrows (C8)	rial Imagent (CO)	
Algal Mat or Crust (B4)	Soils (C6)			inted or Stressed Plan	at intagery (C9)	
Iron Donosito (B5)	Obis (CO)	Surface (C7)	0	anteu or Stresseu i lai		
			Ge		<u>~</u>)	
Inundation Visible on Aerial	Other (Exp	iain in Remarks)		allow Aquitard (D3)		
Imagery (B7)			Mi	crotopographic Relief	(D4)	
Water-Stained Leaves (B9)			FA	C-meutral rest (D5)		
Field Observations:						
Surface water present? Yes	NoX	Depth (inches):	. <u></u>	Wetland		
Water table present? Yes	No <u></u> X	Depth (inches):	: <u></u>	hydrology		
Saturation present? Yes	No <u></u>	Depth (inches):	:	present?	<u>N</u>	
(includes capillary fringe)						
Describe recorded data (stream gauge,	monitoring well, aeri	al photos, previou	us inspections), i	f available:		
Remarks:						

Sampling Point: upl-mdt-5/03/2018-03 50/20 Thresholds

						50/20 Thresholds
Tree Strature	Dist Size (20 #	、 Absolute %	Dominant	Indicator	20% 50%
Tree Stratum	Piot Size (30 II.) Cover	Species	Status	Tree Stratum 0 0
1						Sapling/Shrub Stratum 0 0
2						Herb Stratum 20 50
3						Woody Vine Stratum 0 0
4						
5						Dominance Lest Worksheet
6						Number of Dominant
/						Species that are ODL, (A)
0 0						Total Number of Dominant
10						Species Across all Strata: 1 (B)
				Total Cover		Percent of Dominant
						Species that are OBI
Sapling/Shrub			Absolute %	Dominant	Indicator	FACW or FAC: 0.00% (A/B)
Stratum	Plot Size (15 ft.) Cover	Species	Status	
1				•		Prevalence Index Worksheet
່ <u>.</u>						
3						OBI species 0 x 1 = 0
4						FACW species $0 \times 2 = 0$
5						FAC species $0 \times 3 = 0$
6						FACU species $100 \times 4 = 400$
7						UPL species $0 \times 5 = 0$
8						Column totals 100 (A) 400 (B)
9						Prevalence Index = B/A = 4.00
10						
				 Total Cover 		
			Abaaluta 0/	Deminent	Indicator	Hydrophytic Vegetation Indicators:
Herb Stratum	Plot Size (5 ft.) Absolute %	Dominant	Indicator	Rapid test for hydrophytic vegetation
1 Clucino may			100	Species	Status	$\frac{1}{2} Dominance test is >50\%$
2 Giycine max			100	I	FACU	Morphological adaptations* (provide
3						supporting data in Remarks or on a
4						separate sheet)
5						Problematic hydrophytic vegetation*
6						(explain)
7						*Indicators of hydric soil and wetland hydrology must be
8						present, unless disturbed or problematic
9						
10						Definitions of Vegetation Strata:
11						Tree - Woody plants 3 in. (7.6 cm) or more in diameter at
12						breast height (DDH), regardless of height.
13						Sapling/shrub - Woody plants less than 3 in. DBH and
15						greater than 3.28 ft (1 m) tall.
			100 =	Total Cover		
			100			Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall
Woody Vine	Plot Size (20 #	、 Absolute %	Dominant	Indicator	Sizo, and woody plants icss that 3.20 it tall.
Stratum	PIOL SIZE (30 II.	/ Cover	Species	Status	Woody vines - All woody vines greater than 3.28 ft in
1				-		height.
2						
3						
4						Hydrophytic
5						vegetation
			0 =	Total Cover	_	present? N
Remarks: (Include ph	oto numbers her	e or on a se	parate sheet)			

Sampling Point: upl-mdt-5/03/2018-03

Depth	Matrix		Red	lox Fea	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	TEXIULE	Remarks
0-8	10YR 4/2	98	10YR 3/4	2	RM	М	silty clay	
					-			
Type: C=C	oncentration, D=	Depletic	n, RM=Reduced	Matrix.	CS=Cov	vered or	Coated Sand Grains	•
Location:	PL=Pore Lining,	M=Matri	x					
vdric Soi	Indicators:						Indicators for	Problematic Hydric Soils:
			Dark Su	urface (S	S7)			-
Histisol	(A1)		Polyval	ue Belo	w Surfac	e (S8)	2 cm Mucł	< (A10) (MLRA 147)
Histic E	pipedon (A2)		(MLRA	147, 14	8)		Coast Prai	rie Redox (A16) (MLRA 147, 1 4
Black H	listic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)
Hydrog	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 13	6, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shall	ow Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	Deplete	d Matrix	k (F3)		Other (Exp	olain in Remarks)
Deplete	ed Below Dark Su	urface (A	.11) Redox I	Dark Su	rface (F6	<u>5)</u>		
I hick D	ark Surface (A12	2)	Deplete	d Dark	Surface ((⊢7)		
Sandy	VIUCKY MINERAL (S	51) 0)		Depress	sions (F8) - (E40) (
	, WILKA 147, 140 Cloved Metrix (S	8) 4)		nganes		S (F12) ((LKK N, MLKA 136)	
Sandy	Bieyeu Matrix (S Dodox (SE)	4)	Unblic	Surface	+ (F I 3) (II Anlain Sa	ILKA 1	00, 122) (MI DA 140)	
Strippe	d Matrix (S6)		Fiedino	rent Ma	torial (E2	1) (MI P	(101 ± 1.47)	
							$(\mathbf{z}_i, \mathbf{z}_i)$	
ndicators	of hydrophytic ve	edetation	and wetland hve	droloav	must be	present	unless disturbed or pro	blematic
		J	,			- ,		
						1		
actrictiva	Layer (if observe	d):						
Configure					_		Hydric soil prese	ent? N
ype:	es):				_			
ype: epth (inch	,				-			
ype: epth (inch	,							
ype: epth (inch emarks:	, <u> </u>							
ype: epth (inch	, <u> </u>							
ype: epth (inch emarks:	, <u> </u>							
estrictive / pe: epth (inch emarks:	, <u> </u>							

Project/Site: Holloway-Knox 138 kV Transmission Line	e City/County:	Carroll	Report Name: Sampling Date:	Wetland KW-15 5/3/2018			
Applicant/Owner: FirstEnergy	State:	Ohio	Sampling Point	: w-mdt-5/03/2018-04			
Investigator(s): M. Thomaver, T. Qualio: Jacobs	Section	n. Township, Rand	ae: S 28 T 15 N R	5 W			
Landform (hillslope, terrace, etc.): floodplain	Local relief (cor	ncave, convex, no	ne): concave	Slope (%):			
Subregion (LRR or MLRA): LRR N Lat.	40.6662	Long.:	-81.041	Datum: NAD 83			
Soil Map Unit Name: FcA: Fitchville silt loam, 0 to 3 percer	nt slopes	NW	Classification: PF	O1C, PSS1/EM1A, R5L			
Are climatic/hydrologic conditions of the site typical for this	time of the year?	Yes X	No(If no, e	explain in remarks)			
Are vegetation, soil, or hydrology	significantly	y disturbed?	Are "normal circum	stances" Yes			
Are vegetation, soil, or hydrology	naturally pr	oblematic?	present?				
SUMMARY OF FINDINGS			(If needed, explain	any answers in remarks			
Hydrophytic vegetation present? Yes							
Hydric soil present? Yes	Is the sam	pled area within	a wetland? Y	′es			
Wetland hydrology present? Yes							
Remarks:							
PEM wetland in floodplain of Still Fork (perennia	al stream) in rout	inely maintaine	d ROW.				
HYDROLOGY							
Wetland Hydrology Indicators:		Seconda	ary Indicators (minir	num of two required)			
Primary Indicators (minimum of one is required; check all t	that apply)	Surf	ace Soil Cracks (B6)				
X Surface Water (A1) True Aqu	uatic Plants (B14)	Spa	rsely Vegetated Con	cave Surface (B8)			
X High Water Table (A2) X Hydroge	n Sulfide Odor (C1)	X Drai	nade Patterns (B10)	(<i>'</i> ,			
X Saturation (A3)	Dhiman bana an li	Mos	s Trim Lines (B16)				
Weter Marke (P1)	Rhizospheres on Liv	ving Mes	Socoon Water Table	(C2)			
Sodiment Deposite (P2)	o of Roduced Iren (C		fich Burrows (C9)	(02)			
Drift Deposite (B2)	ron Reduced II off (C	-4) <u> </u>	ration Visible on Aer	ial Imagony (CO)			
Algal Mat or Crust (B4)		su <u> </u>	itation visible on Aer	nar innagery (C9)			
Aigai Mat of Crust (D4) Solis (Ct) als Surface (C7)		membia Desition (DC				
				<u>(</u>)			
Inundation Visible on AerialOther (E	xplain in Remarks)	Sha	llow Aquitard (D3)				
Imagery (B7)		X Micr	otopographic Relief ((D4)			
X Water-Stained Leaves (B9)		X FAC	-Neutral Test (D5)				
Aquatic Fauna (B13)							
Field Observations:							
Surface water present? Yes X No	Depth (inches):	4	Wetland				
Water table present? Yes X No	Depth (inches):	4	hydrology				
Saturation present? Yes X No	Depth (inches):	0	present?	Y			
(includes capillary fringe)							
· ····································							
Describe recorded data (stream gauge, monitoring well, a	erial photos, previou	us inspections), if	available:				
		. ,					
Remarks:							
Saturated throughout, pockets of inundation. W	ater in pit for sou	thern portion o	f wetland.				
с , рсисти							
						Samping Form. w-mut-5/	J3/2010-0
---	--	-------------	--	--	---	--	---------------------------------------
Tree Stratum 1 2 3	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%Tree Stratum0Sapling/Shrub Stratum0Herb Stratum23Woody Vine Stratum0	50% 0 0 58 0
4 5 6 7 8 9 0 5 8 9 0 5 8 8 9 0 5 5 8 9 5 5 8 9 5 7 8 9 9 5 7 8 9 9 5 7 8 9 7 8 9 9 5 7 8 9 7 8 8 9 9 7 8 8 9 9 7 8 8 8 9 8 8 9 9 7 8 9 9 8 8 9 9 9 7 8 9 9 7 8 9 9 8 8 8 9 9 8 8 8 9 8 8 8 9 8 8 8 9 8 8 8 8 9 8 8 8 9 8 8 8 8 8 8 8 8 9 8	Plot Size (15 ft.)		Total Cover Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 1 Total Number of Dominant Species Across all Strata: 1 Percent of Dominant Species that are OBL, FACW, or FAC: 1 Dominant Species that are OBL, FACW, or FAC: 100.009	(A) (B) <u>%_</u> (A/B)
1 2 3 4 5 6 7 8 9 0						Prevalence Index WorksheetTotal % Cover of:OBL species $25 \times 1 = 25$ FACW species $90 \times 2 = 180$ FAC species $0 \times 3 = 0$ FACU species $0 \times 4 = 0$ UPL species $0 \times 5 = 0$ Column totals $115 (A) = 203$ Prevalence Index = B/A = 1.78) 5(B)
Herb Stratum Juncus effusus Phalaris arund Symplocarpus Typha angustin 6 7 8	Plot Size (s linacea foetidus folia	5 ft.)	0 = Absolute % Cover 10 80 10 15 	Total Cover Dominant Species N Y N N	Indicator Status FACW FACW OBL OBL	Hydrophytic Vegetation Indicators: X Rapid test for hydrophytic vegetation X Dominance test is >50% X Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on separate sheet) Problematic hydrophytic vegetation (explain) *Indicators of hydric soil and wetland hydrolog present, unless disturbed or problematic	ion de a n* y must be
9 0 1 2 3 4 5 Woody Vine	Plot Size (30 ft.)		Total Cover Dominant	Indicator	Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in 6 breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, reg size, and woody plants less than 3.28 ft tall.	Jiameter at DBH and jardless of
Stratum 1 2 3		3υ π.) 	Cover	Species	Status	Woody vines - All woody vines greater than 3 height. Hydrophytic vegetation	.28 ft in

Sampling Point: w-mdt-5/03/2018-04

Color (moist) % Color (moist) % Type* Loc** Total of the second	(Inches) Color (moist) % Type* Loc** Total to the second	Depth	Matrix		Red	dox Fea	tures			Toyturo	Pemarka	
0-14 10YR 4/1 100 clay 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <td< th=""><th>0-14 10YR 4/1 100 </th><th>(Inches)</th><th>Color (moist)</th><th>%</th><th>Color (moist)</th><th>%</th><th>Type*</th><th>Loc**</th><th></th><th>Texture</th><th>T Cinanto</th></td<>	0-14 10YR 4/1 100	(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		Texture	T Cinanto	
Image: Stratified Layers (A5) Dark Surface (S7) Histisol (A1) MLRA 147, 148) Histic Epipedon (A2) MLRA 147, 148) Stratified Layers (A5) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Thick Dark Surface (A12) Depleted Matrix (F2) Stratified Layers (A5) Depleted Matrix (F2) Stratified Layers (A5) Depleted Matrix (F2) Thick Dark Surface (S7) Fiedmont Floodplain Soils (F19) Thick Dark Surface (S7) Fiedmont Floodplain Soils (F12) Hydrogen Suffied (A4) MLRA 147, 148) Stratified Layers (A5) Depleted Matrix (F2) Stratified Layers (A5) Depleted Matrix (F2) Sandy Gleyed Matrix (S4) MLRA 147, 148) (MLRA 147, 148) Thior Dark Surface (TF12) Sandy Gleyed Matrix (S4) Piedmont Floodplain Soils (F19) Sandy Gleyed Matrix (S4) Umbric Surface (F12) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ycation: PL=Pore Lining, M=Matrix yrei: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ycation: PL=Pore Lining, M=Matrix yrei: C=Concentration, PL=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ycation: PL=Pore Lining, M=Matrix ydric Soil Indicators:	0-14	10YR 4/1	100					clay			
Image: Solution of the second state	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains yrdir Soil Indicators:											
Image: Section 2010 Sectio	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduce (S8)											
Image: Section of the section of th	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduce (F6) ype: C=Concentration, CS) Depletion Dark Surface (F1) ype: C=Concentratic (S1) Redox Dark Surface (F13) (MLRA 143, 148) Sandy Redox (S5) <td></td>											
Image: Stratified Layers (A10) Image: Composition of the strate (A10) Image: Composition of the strate (A11) Image: Composition of the strate (A12) Image: Composition of the strate (A11) Image: Composition of the strate (A12) Image: Composition of the	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix ydric Soil Indicators:											
Image: Stratified Layers (A1) Image: Comparison of the comparis of the comparison of the comparison of the comparison of the com	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains											
Image: Solution of the system of the syst	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location; PL=Pore Lining, M=Matrix ydric Soil Indicators:											
Image: Construction of the system of the	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix ydric Soil Indicators:						-					
Image: Construction of the system of the	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix ydric Soil Indicators:											
Image: Construction of the system of the	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix ydric Soil Indicators: Histisol (A1)										_	
Image: Carconcentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix ydric Soil Indicators: Indicators for Problematic Hydric Soils: Histisol (A1) Dark Surface (S7) Histic Epipedon (A2) (MLRA 147, 148) Coast Prairie Redox (A16) (MLRA 147, 147, 148) Black Histic (A3) Thin Dark Surface (S9) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) (MLRA 147, 148) (MLRA 136, 147) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Very Shallow Dark Surface (TF12) 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) X Other (Explain in Remarks) Depleted Below Dark Surface (A11) Redox Depressions (F8) Umbric Surface (F12) (LRR N, MLRA 136) Sandy Mucky Mineral (S1) Redox Depressions (F8) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 147, 147) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix ydric Soil Indicators: Histisol (A1)						<u> </u>					
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estrictive Layer (if observed): ype: epth (inches): temarks: Soil determined to be naturally problematic from routine ooding/sedimentation												
estrictive Layer (if observed): ype: epth (inches): temarks: Soil determined to be naturally problematic from routine ooding/sedimentation												
estrictive Layer (if observed): ype: epth (inches): temarks: Soil determined to be naturally problematic from routine		looding/sec	limentation									

Project/Site: Holloway Know	x 129 kV/Transmission Ling		Corroll	Report Name:	Upland KW-15	
Applicant/Owner FirstEnerg		<u>s</u> City/County.	Ohio	_ Sampling Date	$\frac{3/3/2010}{10}$	
Applicant/Owner. FirstErlerg	y T. Qualio: Jacobs	State.	Unio Townshin Pange		5 W	
Landform (hillslope terrace etc): hillslope	Local relief (co	ncave convex none	e). convex	Slone (%): 1	
Subregion (LRR or MLRA): LF	RN Lat.	40.66353617	Long.: -8	1.04103902	Olope (70). <u>1</u>	
Soil Map Unit Name: GfB: Glent	ford silt loam, 3 to 8 percer	it slopes	NWI C	Classification: No	ne (upland)	
Are climatic/hydrologic condition	ns of the site typical for this	time of the year?	Yes <u>X</u> N	o(lf no, e	explain in remarks)	
Are vegetation , soil	, or hydrology	significantly	y disturbed? A	re "normal circum	stances" Yes	
Are vegetation, soil	, or hydrology	naturally pr	roblematic? pr	esent?	any answers in remarks	
SUMMARY OF FINDINGS	;		("			
Hydrophytic vegetation present	? <u>No</u>					
Hydric soil present?	No	Is the sam	pled area within a	wetland?	No	
Wetland hydrology present?	No					
Remarks:						
		0 (1):				
Upland plot to PEM wetla	and (w-mdt-05/03/2018	-04) in maintaine	ed ROW.			
HYDROLOGY						
Wetland Hydrology Indicato	rs:		Secondar	y Indicators (minir	mum of two required)	
Primary Indicators (minimum of	one is required; check all t	hat apply)	Surfac	e Soil Cracks (B6)		
Surface Water (A1)	True Aqu	uatic Plants (B14)	Sparse	ely Vegetated Con	cave Surface (B8)	
High Water Table (A2)	Hydroge	n Sulfide Odor (C1)	Draina	age Patterns (B10)		
Saturation (A3)	Oxidized	Rhizospheres on Liv	ving Moss	Trim Lines (B16)		
Water Marks (B1)	Roots (C	3)	Dry-Se	eason Water Table	e (C2)	
Sediment Deposits (B2)	Presence	e of Reduced Iron (C	(4) Crayfis	sh Burrows (C8)		
Drift Deposits (B3)	Recent In	ron Reduction in Tille	ed Satura	Saturation Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4)	Soils (C6	5)	Stunte	Stunted or Stressed Plants (D1)		
Iron Deposits (B5)	Thin Muc	ck Surface (C7)	Geom	orphic Position (D2	2)	
Inundation Visible on Aerial	Other (E:	xplain in Remarks)	Shallo	w Aquitard (D3)		
Imagery (B7)			Microt	opographic Relief	(D4)	
Water-Stained Leaves (B9)			FAC-N	leutral Test (D5)		
Aquatic Fauna (B13)						
Field Observations:						
Surface water present?	Yes <u>No X</u>	C Depth (inches):		Wetland		
Water table present?	Yes <u>No X</u>	C Depth (inches):	·	hydrology		
Saturation present?	Yes <u>No X</u>	C Depth (inches):	:	present?	N	
(includes capillary fringe)						
Describe recorded data (stream	n gauge, monitoring well, a	erial photos, previou	us inspections), if av	/ailable:		
Remarks:						

Sampling Point: upl-mdt-5/03/2018-04

Tree Stratum Plot Size (30 ft.) 1	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds 20% 50% Tree Stratum 0 0 Sapling/Shrub Stratum 0 0 Herb Stratum 22 55 Woody Vine Stratum 0 0 Dominance Test Worksheet 0 0 Number of Dominant Species that are OBL, FACW, or FAC: 1 (A) Total Number of Dominant 5 1 (A)
10	0	Total Cover		Species Across all Strata: 2 (B) Percent of Dominant Species that are OBL,
Sapling/Shrub Plot Size (15 ft.) 1	Absolute % Cover	Dominant Species	Indicator Status	FACW, or FAC: 50.00% (A/B)Prevalence Index WorksheetTotal % Cover of:OBL species 0 X 1 = 0 FACW species 0 X 2 = 0 FAC species 20 X 3 = 60 FACU species 90 X 4 = 360 UPL species 0 Column totals 110 (A) 420 Prevalence Index = B/A = 3.82
Herb Stratum Plot Size (5 ft.) 1 Rubus pensilvanicus 2 Poa pratensis 3	Absolute % Cover 20 90	Dominant Species Y Y	Indicator Status FAC FACU	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Definitions of Vegetation Strata:
11 12 13 14 15				 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Woody Vine Plot Size(30 ft.) Stratum	Absolute % Cover	Dominant Species	Indicator Status	 Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 4 5		Total Cover		Hydrophytic vegetation present? <u>N</u>
Remarks: (Include photo numbers here or on a separa	te sheet)			

Sampling Point: upl-mdt-5/03/2018-04

Depth	Matrix		Rec	lox Feat	tures		Toxturo	Bemarka
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10YR 4/3	100					silt loam	
Type: C=C	oncentration D=	Depletic	n RM=Reduced	Matrix	CS=Cov	vered or	Coated Sand Grains	L
Jocation	DI = Pore Lining	M=Matr	iv	i iviauix,	03-00		Coaled Salid Grains	
		wi–wau						//
yaric Soil	Indicators:				771		indicators for	Problematic Hydric Solis:
Listian	()		Dark St	inace (c	or) NSurfoo	o (SO)	O are Musel	(4.4.0) (84) D.4.447)
	(A1) Iminodon (A2)		Polyvan			e (30)	2 cm Muck	(A10) (MLRA 147)
	lictic (A2)		(IVILKA	147, 14 ork Surfs	• 0) 200 (SQ)			Ie Redox (ATO) (MILKA 147, 14
	IISUC (A3)			447 44	ace (39)			
Hydrog	en Suilide (A4)			147, 14 Clavia du	∙ð) Materis(/⊑	2		(147)
	a Layers (A5)		Loamy	Gleyea	Matrix (F	2)	Very Shalld	bw Dark Surface (TFT2)
2 Cm IVI	uck (AIU) (LKK I d Rolow Dork Si	N) Infoco (A	(11) Deplete		((F3) rfaaa (F6		Other (Exp	iain in Remarks)
	ork Surface (A1	111ace (F		d Dork	Surface (FC	7) (EZ)		
Sandy I	Mucky Minoral (S	2) 21)	Depiete	Dark		(F7) \		
		91) 91		Depiess	o Masso	/ c (⊑12) (
Sandv (Cleved Matrix (S	4)		Surface	(E13) (N	5 (1 12) (11 PA 13	26 122)	
Sandy I	Peday (S5)		Ombrid	nt Floor	Inlain So	ile (E10)	(MI DA 1/18)	
Strinner	d Matrix (S6)		Red Pa	rent Mat	torial (E2	1) (MI P	(112)	
							A 121, 141)	
ndicatore	of hydrophytic yc	actation	and wotland by	drology	must bo	nrocont	unless disturbed or prol	alematic
nuicators		getation	and wettand hy	liology	must be	present,	unless disturbed of prof	Jemaic
estrictive l	aver (if observe	d):						
vpe:	, (,					Hvdric soil prese	nt? N
epth (inch	es):				-			
					-			
emarks:								
emarks:								
lemarks:								
emarks:								
emarks:								

Project/Site: Holloway-Knox 138 kV Transmission Li	ne City/County:	Carroll	Report Name: Sampling Date	Wetland KW-16 : 5/3/2018			
Applicant/Owner: FirstEnergy	State:	Ohio	Sampling Poin	t: w-mdt-5/03/2018-05			
Investigator(s): M. Thomayer, T. Qualio; Jacobs	Section	, Township, Ran	ge: S33 T15N R5V	V			
Landform (hillslope, terrace, etc.): terrace	Local relief (con	icave, convex, n	one): <u>concave</u>	Slope (%):			
Subregion (LRR or MLRA): LRR N La	it.: 40.6525	Long.:	-81.0414	Datum: NAD 83			
Soil Map Unit Name: CoB: Coshocton-Keene silt loams,	3 to 8 percent slopes	NW	/I Classification: PE	M			
Are climatic/hydrologic conditions of the site typical for the	his time of the year?	Yes X	No(If no,	explain in remarks)			
Are vegetation, soil, or hydrology	significantly	disturbed?	Are "normal circum	istances" Yes			
Are vegetation, soil, or hydrology	naturally pro	oblematic?	present?				
SUMMARY OF FINDINGS			(If needed, explain	any answers in remarks			
Hydrophytic vegetation present? Yes							
Hydric soil present? Yes	Is the same	pled area within	a wetland?	Yes			
Wetland hydrology present? Yes							
Remarks:							
PEM wetland in routinely maintained ROW.							
HYDROLOGY							
Wetland Hydrology Indicators:		Second	lany Indicators (mini	mum of two required)			
Primary Indicators (minimum of ano is required: check a	ll that apply)	Second	face Seil Creeke (DG)				
Primary indicators (minimum of one is required, check a	ii that apply)	Sur	Tace Soll Cracks (Bo				
X Surface Water (A1) True A	X Surface Water (A1) I'rue Aquatic Plants (B14)						
X High Water Table (A2) X Hydrog	gen Sulfide Odor (C1)	X Dra	inage Patterns (B10)				
X Saturation (A3) Oxidize	ed Rhizospheres on Liv	ring Mo	ss Trim Lines (B16)				
Water Marks (B1) Roots	(C3)	Dry	-Season Water Table	e (C2)			
Sediment Deposits (B2) Preser	nce of Reduced Iron (C4	4) <u>C</u> ra	yfish Burrows (C8)				
Drift Deposits (B3) Recent	t Iron Reduction in Tille	d Sat	uration Visible on Ae	rial Imagery (C9)			
Algal Mat or Crust (B4) Soils (C6)	Stu	nted or Stressed Plar	nts (D1)			
Iron Deposits (B5) Thin M	uck Surface (C7)	X Geo	omorphic Position (D	2)			
Inundation Visible on Aerial Other	(Explain in Remarks)	Sha	allow Aguitard (D3)				
Imagery (B7)	,	X Mic	rotopographic Relief	(D4)			
Water-Stained Leaves (B9)		X FA	C-Neutral Test (D5)	(= .)			
Aquatic Fauna (B13)							
rield Upservations:		0	Watland				
Surface water present? Yes X No	Depth (inches):	2	wetland				
Water table present? Yes X No	Depth (inches):	8	hydrology				
Saturation present? Yes X No	Depth (inches):	0	present?	<u>Y</u>			
(includes capillary fringe)							
Describe recorded data (atream acura, manitaring well	aarial photos proview	a increations) :	available:				
Describe recorded data (stream gauge, monitoring well,	aeriai priotos, previou	is inspections), if	avaliable:				
Remarks:							
Saturated throughout pockate of inundation 1	Natar in nit						
Saturated infoughout, pockets of inundation. V	water in pit.						

VEGETATION - Us	e scientific names of	plants
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Sampling Point: w-mdt-5/03/2018-05 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Plot Size (30 ft. Tree Stratum) Species Status Tree Stratum 0 Cover 0 Sapling/Shrub Stratum 0 0 Herb Stratum 2 25 63 3 Woody Vine Stratum 0 0 4 Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: (A) 8 2 Total Number of Dominant 9 2 Species Across all Strata: (B) 10 Total Cover 0 = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: 100.00% (A/B) Plot Size (15 ft.) Stratum Cover Species Status **Prevalence Index Worksheet** Total % Cover of: 2 3 OBL species x 1 = _x 2 = FACW species 4 125 2505 FAC species 0 x 3 = Ω FACU species 6 0 x 4 = 0 UPL species 0 x 5 = 0 7 8 Column totals 125 (A) 250 (B) Prevalence Index = B/A = 9 2 00 10 0 = Total Cover Hydrophytic Vegetation Indicators: Indicator X Rapid test for hydrophytic vegetation Absolute % Dominant Herb Stratum Plot Size (5 ft.) Status X Dominance test is >50% Cover Species X Prevalence index is ≤3.0* FACW Juncus effusus 40 Υ 1 Phalaris arundinacea FACW Morphological adaptations* (provide 70 γ 2 supporting data in Remarks or on a 3 Verbena hastata 5 Ν FACW Ludwigia alternifolia 10 FACW separate sheet) 4 Ν Problematic hydrophytic vegetation* 5 6 (explain) 7 *Indicators of hydric soil and wetland hydrology must be 8 present, unless disturbed or problematic q 10 Definitions of Vegetation Strata: 11 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 125 Total Cover = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Absolute % Dominant Indicator Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in height. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Y Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: w-mdt-5/03/2018-05

Dopui	Matrix		Red	dox Fea	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-14	10YR 4/2	95	10YR 4/8	5	С	М	silty clay loam	
			}	<u> </u>				
								l
	oncontration D-	Doplati	DN-Doduce	Motrix	<u> </u>	lorod or	Control Sand Crains	
1 ype: C=C *Location:	PI =Pore Lining	M=Matr	iv. Rivi–Reaucea	i watrix,	US=U0	vered of	Coaled Sand Grains	
	l la dia atawas	wi–wau	IA				la dia stana fan I	
yaric Soi	indicators:		Dark Si	urface (9	27)		indicators for h	Problematic Hydric Solis:
Histisol	(A 1)		Dark 30	ue Belo	w Surfac	e (S8)	2 cm Muck	(A10) (MI RA 147)
Histic E	pipedon (A2)		(MLRA	147.14	8)	0 (00)	Coast Prairi	e Redox (A16) (MLRA 147, 14
Black H	listic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont F	loodplain Soils (F19)
Hydrog	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 136	, 147)
Stratifie	ed Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shallo	w Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	X Deplete	d Matrix	(F3)		Other (Expl	ain in Remarks)
Deplete	ed Below Dark Su	urface (A	(11) Redox	Dark Su	rface (F6	<u>5)</u>		
Thick D	ark Surface (A12	<u>2)</u>	Deplete	ed Dark	Surface ((F7)		
Sandy	Mucky Mineral (S	51) BN	Redox	Depress	ions (F8) ~ (E10) (I		
Sandv	Gloved Matrix (S) 4)		Surface	e Masse	S(FIZ)(I AI PA 13	LKK N, WILKA 130)	
Sandy	Redox (S5)	4)	Ombric Piedmo	out Floor	Inlain So	ils (F19)	(MI RA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	(1) (MLR	A 127. 147)	
						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,	
	of hydrophytic ve	getatior	n and wetland hy	drology	must be	present,	unless disturbed or prob	lematic
Indicators		-	-			-	-	
Indicators								
Indicators								
Indicators Restrictive	Layer (if observe	d):					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10 V/
Indicators Restrictive ype:	Layer (if observe	d):			_		Hydric soil prese	nt? <u>Y</u>
Indicators Restrictive ype: Depth (inch	Layer (if observe es):	d):			-		Hydric soil preser	nt? <u>Y</u>
Indicators Restrictive ype: epth (inch	Layer (if observe es):	d):			-		Hydric soil prese	nt? <u>Y</u>
Indicators Restrictive ype: Depth (inch Remarks:	Layer (if observe es):	d):			-		Hydric soil prese	nt? <u>Y</u>
Indicators Restrictive ype: Depth (inch Remarks:	Layer (if observe es):	d):			-		Hydric soil prese	nt? <u>Y</u>
Indicators Lestrictive ype: hepth (inch lemarks:	Layer (if observe es):	d):			-		Hydric soil prese	nt? <u>Y</u>

Project/Site: Holloway-Knov 1	38 kV/ Transmission Line	City/County:	Carroll	Report Name:	Upland KW-16
Applicant/Owner: FirstEnergy		State	Ohio	Sampling Point	: upl-mdt-5/03/2018-05
Investigator(s): M Thomaver T	Qualio: Jacobs	Section	Townshin Rang	Sampling Form	5 W
Landform (hillslope terrace etc.)	terrace	Local relief (cor	n, rownship, roung	ne): convex	Slope (%):
Subregion (LRR or MLRA): LRR	N Lat.:	40.65219152	Long.: -	81.041 <u>33886</u>	Datum: NAD 83
Soil Map Unit Name: CoB: Coshoc	ton-Keene silt loams, 3 to	8 percent slopes	ŇWĪ	Classification: No	ne (upland)
Are climatic/hydrologic conditions	of the site typical for this ti	me of the year?	Yes X	No(If no, e	explain in remarks)
Are vegetation, soil	, or hydrology	significantly	/ disturbed?	Are "normal circum	stances" Yes
Are vegetation, soil	, or hydrology	naturally pr	oblematic? p	present?	
SUMMARY OF FINDINGS			(If needed, explain	any answers in remarks
Hydrophytic vegetation present?	No				
Hydric soil present?	No	Is the sam	pled area within a	a wetland?	No
Wetland hydrology present?	No				
Weitalia Hydrology procent:					
Remarks:					
Upland plot to PEM wetland	d (w-mdt-05/03/2018-0	4) in maintaine	ed ROW.		
HYDROLOGY					
wetland Hydrology Indicators:			Seconda	ry Indicators (minir	num of two required)
Primary Indicators (minimum of on	e is required; check all tha	t apply)	Surfa	ace Soil Cracks (B6)	
Surface Water (A1)	True Aquat	ic Plants (B14)	Spar	sely Vegetated Con	cave Surface (B8)
High Water Table (A2)	Hydrogen S	Sulfide Odor (C1)	Drain	nage Patterns (B10)	
Saturation (A3)	Oxidized R	hizospheres on Liv	ving Moss	s Trim Lines (B16)	
Water Marks (B1)	Roots (C3)		Dry-S	Season Water Table	(C2)
Sediment Deposits (B2)	Presence o	f Reduced Iron (C	4) Cray	fish Burrows (C8)	
Drift Deposits (B3)	Recent Iror	Reduction in Tille	ed Satur	Saturation Visible on Aerial Imagery (C9)	
Algal Mat or Crust (B4)	Soils (C6)		Stunt	Stunted or Stressed Plants (D1)	
Iron Deposits (B5)	Thin Muck	Surface (C7)	Geor	morphic Position (D2	2)
Inundation Visible on Aerial	Other (Expl	ain in Remarks)	Shall	ow Aquitard (D3)	
Imagery (B7)			Micro	otopographic Relief	(D4)
Water-Stained Leaves (B9)			FAC-	Neutral Test (D5)	
Aquatic Fauna (B13)					
Field Observations:			I		
Surface water present? Yes	s No X	Depth (inches):		Wetland	
Water table present? Yes		Depth (inches):		hvdroloav	
Saturation present? Yes	s No X	Depth (inches):		present?	Ν
(includes capillary fringe)					
Describe recorded data (stream ga	auge, monitoring well, aeria	al photos, previou	us inspections), if a	available:	
Remarks:					
1					

Sampling Point: upl-mdt-5/03/2018-05

Tree Stratum Plot Size (30 ft.) 1	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds 20% 50% Tree Stratum 0 0 Sapling/Shrub Stratum 0 0 Herb Stratum 22 55 Woody Vine Stratum 0 0 Dominance Test Worksheet 0 0 Number of Dominant Species that are OBL, FACW, or FAC: 1 FACW, or FAC: 1 (A) (A) Total Number of Dominant Species Across all Strata: 3 (B) Percent of Dominant Species that are OBL, FACW or FAC: 33.33% (A/B)
Stratum Plot Size (15 ft.) 1	Cover	Species Species	Status	Prevalence Index WorksheetTotal % Cover of:OBL species 0 FACW species 0 x 2 = 0 FAC species 60 x 3 = 180 FACU species 0 x 5 = 0 UPL species 0 110 (A)A80Prevalence Index = B/A = 3.45
Herb Stratum Plot Size (5 ft.) 1 Rosa multiflora 2 Poa pratensis 3 Solidago sp. 4	Absolute % Cover 20 30 60 	Dominant Species Y Y Y	Indicator Status FACU FACU FAC	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
13 14 15 Woody Vine Stratum Plot Size (30 ft.) 1 2	= Absolute % Cover	Total Cover Dominant Species	Indicator Status	 Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 4 5 Remarks: (Include photo numbers here or on a separa	= 	Total Cover		Hydrophytic vegetation present? <u>N</u>

Sampling Point: upl-mdt-5/03/2018-05

Depui	Matrix		Rec	lox Feat	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-10	10YR 4/3	100					silt loam	
								-
	on contration D	Dorlet		Matuit	00-0-	l orod ar	Control Cond Croim-	
i ype: C=C	Discentration, D=		n, Kivi=Keaucea	i iviatrix,	US=U0\	verea or	Coaled Sand Grains	
Location:	PL=Pore Lining,	m=matr	X					
ydric Soil	Indicators:						Indicators for	Problematic Hydric Soils:
			Dark Su	urface (S	57)	(00)		
Histisol	(A1)		Polyval	ue Belov	w Surfac	e (S8)	2 cm Mucl	(A10) (MLRA 147)
Histic E	pipedon (A2)			147, 14	· 8)		Coast Prai	rie Redox (A16) (MLRA 147, 14
Black H	istic (A3)		Thin Da	irk Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)
Hydroge	en Sulfide (A4)			147, 14	8)		(MLRA 13	6, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shall	ow Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	Deplete	d Matrix	(F3)		Other (Exp	olain in Remarks)
Deplete	d Below Dark Su	urtace (A	(11) Redox I	Dark Su	rface (F6	5) 		
Thick D	ark Surface (A12	2)	Deplete	d Dark :	Surface ((F7)		
Sandy M	Aucky Mineral (S	51)	Redox I	Depress	ions (F8)		
_(LRR N	, MLRA 147, 14	B)	Iron-Ma	inganes	e Masse	s (F12) (LRR N, MLRA 136)	
_Sandy (Sleyed Matrix (S	4)		Surface	e (⊢13) (N	ILRA 13	36, 122)	
Sandy H	Redox (S5)		Piedmo	nt Flood	Iplain So	ils (F19)	(MLRA 148)	
Stripped	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 147)	
ndicators of	of hydrophytic ve	getation	and wetland hy	drology	must be	present,	unless disturbed or pro	blematic
o otriotivo I	aver (if abaar ia	۹)،						
	ayer (il observe	u).						
ype: onth (inch					-		Hydric soli prese	
eptn (inch	es):				-			
a ma a ni ca c								
emarks.								

Project/Site: Holloway-Kn. Applicant/Owner: FirstEner Investigator(s): M. Thomayer Landform (hillslope, terrace, e Subregion (LRR or MLRA): L Soil Map Unit Name: WkD: We Are climatic/hydrologic conditi Are vegetation, soil Are vegetation, soil	<u>ox 138 kV Tra</u> <u>'gy</u> r, T. Qualio; J. tc.): <u>depre</u> <u>.RR N</u> <u>estmoreland s</u> ons of the site	ansmission Line acobs ssional /hillslope Lat.: illt loam, 15 to 25 typical for this to pr hydrology	City/County: State: Sectior Local relief (con 40.6488 percent slopes ime of the year? significantly naturally pr	Carroll Ohio n, Township, Ra ncave, convex, r Long.: Yes X Yes X disturbed?	Report Name: Sampling Date Sampling Point nge: S33 T15N R5V sone): concave -81.0413 WI Classification: PE No (If no, 4 Are "normal circum present? (If needed, explain	Wetland KW-17 : 5/4/2018 t: w-tmq-05/04/2018-04 V	
Hydrophytic vegetation preser Hydric soil present? Wetland hydrology present?	nt? Yes Yes Yes	-	Is the sam	pled area withi	n a wetland?	/es	
PEM wetland in routinel s-tmq-05042018-04 HYDROLOGY	y maintaine	ed ROW, depre	essional wetlan	d fed by unde	erground seep forr	ns defined stream	
	ors:	iradi abaali all th	at apply)	Secon	dary indicators (minii	mum of two required)	
Primary indicators (minimum o	one is requi		al apply)	SI	Intace Soll Cracks (B6)) 	
Surface Water (AT)			LIC Plants (B14)		aisery vegetated Con	cave Sunace (Bo)	
A High Water Table (A2)		Hydrogen		Di	ainage Patterns (BTU)		
			chizospheres on Liv	ving		(00)	
Vvater Marks (B1)		X Roots (C3)) of Doduced Iren (C	Dr	y-Season Water Table	e (C2)	
Drift Deposits (B3)		Presence (n Reduction in Tille	4) <u> </u>	aylish burlows (Co)	ration Visible on Aerial Imagery (C9)	
Algal Mat or Crust (B4)		Soils (C6)			unted or Stressed Plar	ed or Stressed Plants (D1)	
X Iron Deposits (B5)		Thin Muck	Surface (C7)	XG	eomorphic Position (D2	norphic Position (D2)	
Inundation Visible on Aeria	J	Other (Exp	lain in Remarks)	X Sh	allow Aquitard (D3)	,	
Imagery (B7)		、.	,	Mi	crotopographic Relief	(D4)	
Water-Stained Leaves (B9)			XFA	C-Neutral Test (D5)	· · /	
Aquatic Fauna (B13)							
Field Observations:							
Surface water present?	Yes X	No	Depth (inches):	1"	Wetland		
Water table present?	Yes X	No	 Depth (inches):	8"	hydrology		
Saturation present?	Yes X	No	Depth (inches):	0"	present?	Y	
(includes capillary fringe)							

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No primary indicators only secondary

VEGETATION - Us	e scientific names of	plants
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Sampling Point: w-tmq-05/04/2018-0 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Plot Size (30 ft. Tree Stratum) Status Tree Stratum 0 Cover Species 0 Sapling/Shrub Stratum 0 0 Herb Stratum 2 32 80 Woody Vine Stratum 0 0 3 4 Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: 8 6 (A) Total Number of Dominant 9 Species Across all Strata: 6 (B) 10 Total Cover 0 = Percent of Dominant Species that are OBL, Sapling/Shrub 100.0<u>0%</u> (A/B) Absolute % Dominant Indicator FACW, or FAC: Plot Size (15 ft.) Stratum Cover Species Status **Prevalence Index Worksheet** Total % Cover of: 2 OBL species 3 30 x 1 = 30 _x 2 = FACW species 115 230 4 5 FAC species 15 x 3 = 45 **FACU** species _x 4 = 6 0 0 UPL species 0 x 5 = 0 8 Column totals 160 (A) 305 (B) 9 Prevalence Index = B/A = 1 91 10 0 = Total Cover Hydrophytic Vegetation Indicators: Indicator Absolute % Dominant Rapid test for hydrophytic vegetation Herb Stratum Plot Size (5 ft.) X Dominance test is >50% Cover Species Status FACW X Prevalence index is ≤3.0* Phalaris arundinacea 35 γ 1 Morphological adaptations* (provide Impatiens capensis 20 γ FACW 2 supporting data in Remarks or on a 3 Dichanthelium scoparium 20 γ FACW FACW separate sheet) 4 Persicaria pensylvanica 15 Y Problematic hydrophytic vegetation* 5 Carex lurida 15 Y OBL 6 Rumex crispus 15 γ FAC (explain) 7 Epilobium coloratum 10 Ν FACW *Indicators of hydric soil and wetland hydrology must be OBL Symplocarpus foetidus 10 Ν 8 present, unless disturbed or problematic q Onoclea sensibilis 10 Ν FACW Definitions of Vegetation Strata: 10 Scirpus cyperinus Ν FACW 5 11 Cardamine pensylvanica 5 Ν OBL Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 Total Cover 160 = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Dominant Indicator Absolute % Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in heiaht. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Y Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: w-tmq-05/04/2018-04

Inches Color (moist) % Color (moist) % Type* Loc** TALLES Texture Text	Depth	Matrix		Rec	lox Feat	tures		Texture	Remarks
0-1 10 YR 2/1 100 organic layer 1-3 10 YR 3/1 85 5 YR 5/6 15 C PL mucky sill loam 3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam 3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam 3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam 3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam 3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam 1	(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
1-3 10 YR 3/1 85 5 YR 5/6 15 C PL mucky silt loam 3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam	0-1	10 YR 2/1	100					organic layer	
3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam 3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam 3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam 3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam 3-12 10 YR 5/1 80 10 YR 4/6 20 C PL/M sandy loam 3-12 10 YR 5/1 80 10 YR 4/6 10 YR 4/6 <td>1-3</td> <td>10 YR 3/1</td> <td>85</td> <td>5 YR 5/6</td> <td>15</td> <td>С</td> <td>PL</td> <td>mucky silt loam</td> <td></td>	1-3	10 YR 3/1	85	5 YR 5/6	15	С	PL	mucky silt loam	
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix ydric Soil Indicators: Histisol (A1) Polyvalue Below Surface (S7) Histisol (A2) Histisol (A3) Stratified Layers (A5) Locany Gleyed Matrix (F2) 2 cm Muck (A10) (MLRA 147, 148) Stratified Layers (A5) Locany Gleyed Matrix (F2) 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) Depleted Matrix (S4) Jumbric Surface (F13) Muck (A10) (LRR N) Sandy Gleyed Matrix (S4) Stripped Matrix (S4) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 147, 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 147, 147) vidicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic strictive Layer (if observed): rpe: park marks:	3-12	10 YR 5/1	80	10 YR 4/6	20	С	PL/M	sandy loam	
image: space of the system									
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix yrdric Soil Indicators: Histisc (A1) Histisc (A2) Black Histic (A3) Stratified Layers (A5) Locaty Output: Depleted Below Surface (A1) Network (A10) (LRR N) Very Shallow Dark Surface (A1) Depleted Bolow Dark Surface (A1) Depleted Bolow Dark Surface (A1) Sandy Gleyed Matrix (S4) Uttrike (S5) Sandy Gleyed Matrix (S4) Uttrike (S6) Redox Depressions (F8) Stripted Matrix (S6) Red Parent Material (F21) (MLRA 147, 148) Stripted Matrix (S6) Red Parent Material (F21) (MLRA 147, 148) Stripted Matrix (S6) Red Parent Material (F21) (MLRA 148) Stripted Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) rdicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic marks:									
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vgdric Soil Indicators:	l ocation.	PI =Pore Lining	M=Matr	in, Rivi-Reduced	i Maurix,	05-00	vered or	Coaled Sand Grains	
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Thick Dark Surface (A12) Depleted Dark Surface (F7)	Deplete	ed Below Dark Su	urface (A	11) <u>X</u> Redox I	Dark Su	rface (F6	6)		
Sandy Mucky Mineral (S1)	Thick D	ark Surface (A12	2)	Deplete	d Dark :	Surface	(F7)		
(LKK N, MLKA 147, 140) Itori-Marganese Masses (F12) (LKK N, MLKA 136) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic estrictive Layer (if observed):			o)	Redox I	Depress	ions (F8) ~ (E10) (
Sandy Redox (S5)		Gloved Matrix (S	0) 4)		Surface	e Masse (F13) /N	S(FIZ)(11 PA 13	LKK N, WILKA 130)	
Stripped Matrix (S6)Red Parent Material (F21) (MLRA 127, 147) ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic estrictive Layer (if observed): /pe: apth (inches): estrictive Layer (if observed): /pe:	Sandy I	Redox (S5)	-,	Oindhe Piedmo	nt Floor	Inlain So	ils (F19)	(MI RA 148)	
ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic estrictive Layer (if observed): /pe:	Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	21) (MLR	A 127, 147)	
estrictive Layer (if observed): /pe:		(-)				,	/(, ,	
estrictive Layer (if observed): /pe: epth (inches): emarks:	ndicators	of hydrophytic ve	egetatior	and wetland hy	drology	must be	present,	unless disturbed or prob	lematic
estrictive Layer (if observed): /pe: epth (inches): emarks:			-	-			-		
estrictive Layer (if observed): /pe: epth (inches): emarks:									
pe:	lestrictive l	Layer (if observe	d):						
epin (incres):	ype:					_		Hydric soil presei	nt? <u>Y</u>
emarks:	eptn (inch	es):				-			
	omarke:								
	onai No.								

				Report Name:	Upland KW-17
Project/Site: Holloway-Knox 13	88 kV Transmission Line	City/County:	Carroll	Sampling Date:	5/4/2018
Applicant/Owner: FirstEnergy		State:	Ohio	Sampling Point:	up-tmq-05042018-04
Investigator(s): <u>M. Thomayer, T. C</u>	Qualio; Jacobs	Section	, Township, Range	: <u>S33 T15N R5W</u>	
Landform (hillslope, terrace, etc.):	hillslope	_Local relief (cor	icave, convex, none	e): <u>convex</u>	Slope (%): <u>3-5%</u>
Subregion (LRR or MLRA): LRR I	N Lat.:	40.649043294	Long.: -8	1.041408495	Datum: NAD 83
Soil Map Unit Name: WKD: Westmo	breiand slit loam, 15 to 25	percent slopes		lassification: <u>INOR</u>	ne (upland)
Are climatic/hydrologic conditions of	of the site typical for this ti	me of the year?	Yes <u>X</u> No	o(If no, e	xplain in remarks)
Are vegetation , soil	, or hydrology	significantly	disturbed? Ar	e "normal circums	stances" Yes
Are vegetation, soil	, or hydrology	naturally pr	oblematic? pr	esent?	
			(If	needed, explain a	any answers in remarks)
SUMMARY OF FINDINGS					
Hvdrophytic vegetation present?	No				
Hydric soil present?	No	Is the sam	pled area within a	wetland?	lo
Wetland hydrology present?	No				
, , , , , , , , , , , , , , , , , , , ,					
Remarks:					
I laland a sint componenting	to watered KIAL 17				
Upland point corresponding	to wetland KW-17				
HYDROLOGY					
Wetland Hydrology Indicators:			Secondary	/ Indicators (minin	num of two required)
Primary Indicators (minimum of one	e is required; check all tha	at apply)	Surfac	e Soil Cracks (B6)	
Surface Water (A1)	True Aquat	ic Plants (B14)	Sparse	ely Vegetated Cond	ave Surface (B8)
High Water Table (A2)	Hydrogen S	Sulfide Odor (C1)	Draina	ge Patterns (B10)	
Saturation (A3)	Oxidized R	hizospheres on Liv	/ing Moss]	Trim Lines (B16)	
Water Marks (B1)	Roots (C3)		Drv-Se	eason Water Table	(C2)
Sediment Deposits (B2)	Presence o	f Reduced Iron (C	4) Cravfis	sh Burrows (C8)	(-)
Drift Deposits (B3)	Recent Iron	Reduction in Tille	d Satura	tion Visible on Aeri	al Imagery (C9)
Algal Mat or Crust (B4)	Soils (C6)		Stunte	d or Stressed Plan	ts (D1)
Iron Deposits (B5)	Thin Muck	Surface (C7)	Geomo	orphic Position (D2)
Inundation Visible on Aerial	Other (Expl	ain in Remarks)	Shallov	w Aquitard (D3)	,
Imagery (B7)	、 .	,	Microto	, opographic Relief (D4)
Water-Stained Leaves (B9)			FAC-N	leutral Test (D5)	/
Aquatic Fauna (B13)					
Field Observations:					
Surface water present? Ves	No X	Depth (inches):		Wetland	
Water table present? Yes		Depth (inches):		hydrology	
Saturation present? Yes		Depth (inches):		present?	Ν
(includes capillary fringe)				procentri	
(
Describe recorded data (stream ga	uge, monitoring well, aeri	al photos, previou	us inspections), if a	/ailable:	
Demerke					
Remarks:					
L					

							Samping Fom. up-unq-05042016-04
Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum000Sapling/Shrub Stratum102513Herb Stratum1333Woody Vine Stratum00
							Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 Total Number of Dominant Species Across all Strata: 3 (B)
Sapling/Shrub Stratum	Plot Size (15 ft.)	0 = Absolute % Cover	 Total Cover Dominant Species 	Indicator Status	Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)
Rosa multiflora					Y	FACU	Prevalence Index WorksheetTotal % Cover of:OBL species $0 \times 1 = 0$ FACW species $5 \times 2 = 10$ FAC species $0 \times 3 = 0$ FACU species $110 \times 4 = 440$ UPL species $0 \times 5 = 0$ Column totals 115 (A)Prevalence Index = B/A = 3.91
Herb Stratum Poa pratensis Solidago cana Juncus effusus	Plot Size (densis	5 ft.)	50 = Absolute % Cover 45 15 5	Total Cover Dominant Species Y Y N N	Indicator Status FACU FACU FACW	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
							Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be prese unless disturbed or problematic
			_				Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at brea height (DBH), regardless of height.
			_	65 =	- Total Cover		Sapling/shrub - Woody plants less than 3 in. DBH and greate than 3.28 ft (1 m) tall.
Woody Vine Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	 Herb - All herbaceous (non-woody) plants, regardless of size, woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
			_				Hydrophytic vegetation
				0 -	Total Cover		present? N

Sampling Point: up-tmq-05042018-04

	Matrix		Rec	lox ⊦ea	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	i churc	Romanto
0-12	10 YR 5/3	100					silt loam	
Type: C=C	oncentration, D=	Depletio	on, RM=Reduced	l Matrix,	CS=Cov	/ered or	Coated Sand Grains	
Location: I	PL=Pore Lining,	M=Matr	ix					
ydric Soil	Indicators:						Indicators for	Problematic Hydric Soils:
-			Dark Su	urface (S	S7)			-
Histisol	(A1)		Polyval	ue Belov	w Surfac	e (S8)	2 cm Muck	(A10) (MLRA 147)
Histic E	oipedon (A2)		(MLRA	147, 14	8)		Coast Prai	rie Redox (A16) (MLRA 147, 14
Black H	istic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)
Hydroge	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 13	6, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shall	ow Dark Surface (TF12)
2 cm Mi	uck (A10) (LRR I	N)	Deplete	d Matrix	(F3)		Other (Exp	olain in Remarks)
Deplete	d Below Dark Su	urface (A	(11) Redox I	Dark Su	rface (F6	5)		
	ark Surface (A12	2)	Deplete	d Dark	Surface	(F7)		
Sandy N	/lucky Mineral (S	51)	Redox I	Depress	sions (F8)		
	MLRA 147, 148	B)	Iron-Ma	inganes		s(⊢12)(LRR N, MLRA 136)	
	Dedex (SE)	4)	Diadma	Surface	e (F 13) (1 Intein Se		$(M \mid DA \ 140)$	
Sanuy F	Matrix (SS)			ront Ma	upiaili 50 torial (E2	115 (F19)	(WILKA 140)	
Suipper					ienai (P2		$\pi (2i, 14i)$	
ndicators o	of hydrophytic ve	aetation	and wetland hv	drology	must he	nresent	unless disturbed or pro	blematic
		getation		arology	mustbe	present,		biematie
estrictive L	ayer (if observe	d):						
ype:		,					Hydric soil prese	ent? N
epth (inche	es):				-			
					-			
emarks:								

Project/Site: Holloway-Knox 138 kV Tra	nsmission Line City/County:	Report Name: Wetland KW-18 Carroll Sampling Date: 5/4/2018
Applicant/Owner: FirstEnergy	State:	Ohio Sampling Point: w-tmq-05/04/2018-03
Investigator(s): M. Thomayer, T. Qualio; Ja	acobs Sectio	n, Township, Range: S33 T15N R5W
Landform (hillslope, terrace, etc.): riverin	e Local relief (co	ncave, convex, none): <u>concave</u> Slope (%): <u>1-2%</u>
Subregion (LRR or MLRA): LRR N Soil Map Unit Name: GfB: Glenford silt loam	Lat.: <u>40.6476</u> , 3 to 8 percent slopes	Long.: <u>-81.0412</u> Datum: <u>NAD 83</u> NWI Classification: <u>PEM</u>
Are climatic/hydrologic conditions of the site	typical for this time of the year?	Yes X No (If no, explain in remarks)
Are vegetation soil of	or hydrology significant	v disturbed? Are "normal circumstances" Yes
Are vegetation, soil, c	or hydrologynaturally p	roblematic? present?
SUMMARY OF FINDINGS		
Hydrophytic vegetation present? Yes Hydric soil present? Yes	Is the san	npled area within a wetland? Yes
Wetland hydrology present? Yes	_	
Remarks: PEM wetland in routinely maintaine	d ROW, floodplain wetland o	connected to s-tmq-05042018-04
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is requi	red; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	X Drainage Patterns (B10)
Saturation (A3)	Oxidized Rhizospheres on L	iving Moss Trim Lines (B16)
Water Marks (B1)	Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (0	C4) Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Till	ed Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Soils (C6)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Thin Muck Surface (C7)	X Geomorphic Position (D2)
Inundation Visible on Aerial	Other (Explain in Remarks)	Shallow Aquitard (D3)
Imagery (B7)		Microtopographic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)
Aquatic Fauna (B13)		
Field Observations:		
Surface water present? Yes	No X Depth (inches)	: Wetland
Water table present? Yes	No X Depth (inches)	hydrology
Saturation present? Yes	No X Depth (inches)	present? Y
(includes capillary fringe)		
Describe recorded data (stream gauge, mor	nitoring well, aerial photos, previo	us inspections), if available:
Remarks:		
No primary indicators only seconda	ry	

VEGETATION - U	Ise scientific names	of plants
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Sampling Point: w-tmq-05/04/2018-0 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Plot Size (30 ft. Tree Stratum) Status Tree Stratum 0 Cover Species 0 Sapling/Shrub Stratum 0 0 Herb Stratum 2 23 58 Woody Vine Stratum 0 0 3 4 Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: (A) 8 2 Total Number of Dominant 9 Species Across all Strata: 3 (B) 10 Total Cover 0 = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: <u>66.67%</u> (A/B) Plot Size (15 ft.) Stratum Cover Species Status **Prevalence Index Worksheet** Total % Cover of: 2 OBL species 3 15 x 1 = 15 _x 2 = FACW species 30 15 4 5 FAC species 55 x 3 = 165 **FACU** species 30 x 4 = 120 6 UPL species 0 x 5 = 0 8 Column totals 115 (A) 330 (B) 9 Prevalence Index = B/A = 287 10 0 = Total Cover Hydrophytic Vegetation Indicators: Indicator Absolute % Dominant Rapid test for hydrophytic vegetation Herb Stratum Plot Size (5 ft.) X Dominance test is >50% Cover Species Status X Prevalence index is ≤3.0* FACU Poa pratensis 30 γ 1 Morphological adaptations* (provide Solidago rugosa 20 γ FAC 2 supporting data in Remarks or on a 3 Juncus tenuis 20 γ FAC 15 FAC separate sheet) 4 Rumex crispus Ν Carex lurida Problematic hydrophytic vegetation* 5 OBL 15 Ν 6 Juncus effusus 10 Ν FACW (explain) 7 Boehmeria cylindrica 5 Ν FACW *Indicators of hydric soil and wetland hydrology must be 8 present, unless disturbed or problematic q Definitions of Vegetation Strata: 10 11 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 115 Total Cover = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Absolute % Dominant Indicator Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in height. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Y Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: w-tmq-05/04/2018-03

Depth	Matrix		Red	dox Feat	tures		Toxturo	Pemerka
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10 YR 5/1	75	7.5 YR 4/6	25	С	PL/M	silt loam	
8-12	2.5 Y 6/2	65	7.5 YR 5/8	35	С	PL/M	silt loam	
*Type: C=C	oncentration, D=	Depletio	on, RM=Reduced	d Matrix,	CS=Co	vered or	Coated Sand Grains	
*Location:	PL=Pore Lining,	M=Matr	IX					
Hydric Soi	Indicators:						Indicators for	Problematic Hydric Soils:
	<i>(</i> , <i>)</i>		Dark Si	urface (S	S7)	(00)		/····
Histisol	(A1)		Polyval	ue Belo	w Surfac	e (S8)	2 cm Muck	(A10) (MLRA 147)
Histic E	pipedon (A2)			147, 14 Surfe	8)		Coast Prair	le Redox (A16) (MLRA 147, 148) Jeodaleia Seile (E10)
Black F	ISTIC (A3)			ark Suria	ace (59)			
Hyarog	en Suifide (A4)			147, 14 Olaviadu	·ð) Matuis//E	-0)		$(\mathbf{T} \mathbf{F} 1 2)$
	a Layers (A5)	NI)	Loamy	Gleyea I	Matrix (F	-2)	Very Shallo	oin in Romarka)
Z CITI IVI Doplate	uck (A10) (LKK I d Bolow Dark Si	in) urface (/	(11) Depiete	Dark Su	(FJ) rface (Ef	3)		all in Remarks)
Depiete	ark Surface (A1)	2) ace (7	(11) <u> </u>	d Dark	Surface	7) (E7)		
Sandy	Mucky Mineral (S	-) S1)	Depiete Redox	Denress	ions (F8)		
(LRR N	. MLRA 147. 14	8)	Iron-Ma	andanes	e Masse	, s (F12) (LRR N. MLRA 136)	
Sandv	Gleved Matrix (S	4)	Umbric	Surface	(F13) (I	/LRA 13	6. 122)	
Sandy	Redox (S5)	,	Piedmo	nt Flood	Iplain Sc	ils (F19)	(MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	21) (MLŔ	A 127, 147)	
*Indicators	of hydrophytic ve	egetatior	n and wetland hy	drology	must be	present,	unless disturbed or prot	blematic
						-		
Restrictive	_ayer (if observe	d):						
Type:					-		Hydric soil prese	nt? <u>Y</u>
	es):				-			
Depth (inch								
Depth (inch								
Depth (inch Remarks:								
Depth (inch Remarks:								
Depth (inch Remarks:								
Depth (inch Remarks:								

Projectistic Samping Date: <u>OriFouries</u> Applicant/Owner: FirstEnergy State: <u>Ohio</u> Samping Date: <u>OriFouries</u> Landform (hildsop, Errace, etc.): hildsope Samping Date: <u>OriFouries</u> State: <u>Ohio</u> Samping Date: <u>OriFouries</u> Sold Map Unit Name: <u>GBF</u> Cleanford sill loam, 3 to 8 percent slopes NMI Classification: None (upland) Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No
Application Writel. Institute of the print optimic optimization of the state. State. Onto Sate.
Investigato(s), with the problem of the set standorm (humship), range. 303 Hold NURSW Slope (%): 3-5% Subregion (LRR or MLRA): LRR N Lat:: 40.647625074 Long:: -81.041279658 Datum: NAD 83 Solid Map Unit Name; GB: Glenford sill loam, 3 to 8 percent slopes NWI Classification: None (upland) NWI Classification: None (upland) Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks) Are vegetation _, soil _, or hydrology significantly disturbed? Are "normal circumstances" Yes Are vegetation _, soil _, or hydrology maturally problematic? Are "normal circumstances" Yes SUMMARY OF FINDINGS Hydrophytic vegetation present? No Is the sampled area within a wetland? No Wetland hydrology present? No Is the sampled area within a wetland? No Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Sutrate Vater (A1)
Extension (IRR or MLRA), etc.) Interpre Lat: 40.647625074 Long:: -e1.0412279558 Datum: NAD 83 Soli Map Unit Name:GB: Glenford silt loam, 3 to 8 percent slopes NWI Classification: None (upland) Are climatic/hydrologic conditions of the site typical for this time of the year? Yes
Soil Map Unit Name: GB: Genford site loan: A to 8 percent slopes NWI Classification: None (upland) Are elimatic/hydrologic conditions of the site typical for this time of the year? Yes No (If no, explain in remarks) Are elimatic/hydrologic conditions of the site typical for this time of the year? Yes No (If no, explain in remarks) Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" Yes SUMMARY OF FINDINGS Hydrophytic vegetation present? No Is the sampled area within a wetland? No Wetland hydrology present? No Is the sampled area within a wetland? No Wetland hydrology Indicators: No Surface Water (A1) Surface Soil Cracks (B6) Surface Water (A1) True Aquic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Suffice Odor (C1) Drainage Patterns (B10) Saduration (A3) Oxidized Rhizospheres on Living Moss Trim Lines (B16) Water Marks (B1) Recent for Reduced fron (C4) Crayfish Burrows (C8) Sufface (A3) Presence of Reduced fron (C4) Crayfish Burrows (C8) Statuation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3)
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (ff no, explain in remarks) No (ff no, explain in remarks) Are vegetation , soil , or hydrology maturally problematic? Are "normal circumstances" Yes present? (ff needed, explain any answers in remarks) SUMMARY OF FINDINGS Is the sampled area within a wetland? No Hydric soil present? No Hydric soil present?? No Hydric soil present? No Wetland hydrology present? No Remarks: Upland point corresponding to wetland KW-17 Wetland Hydrology Indicators: Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Recent Iron Reduction in Tilled Sediment Deposits (B2) Presence of Reduced Iron (C4) Drift Deposits (B3) Thin Muck Surface (C7) Adael Mat or Crust (B4) Soils (C6) Adael M
Are vegetation , soil , or hydrology significantly disturbed? naturally problematic? Are "normal circumstances" Yes present? (If needed, explain any answers in remarks; SUMMARY OF FINDINGS Is the sampled area within a wetland? No Hydric soil present? No Is the sampled area within a wetland? No Wetland hydrology present? No Is the sampled area within a wetland? No Remarks: Upland point corresponding to wetland KW-17 Secondary Indicators (minimum of two required) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B6) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B6) Water Marks (B1) Roots (C3) Dividized Rhizospheres on Living Moss Trim Lines (B16) Water Marks (B1) Recent Iron Reduction in Tilled Sturation visible on Aerial Dividized (C7) Orid Deposits (B2) Presence of Reduced Iron (C4) Sturation Visible on Aerial Imagery (C9) Sturation Visible on Aerial Imagery (C9) Adael Mat or Crust (B4) Thin Muck Surface (C7) Geomorphic Position (D2) Shallow Aquitard (C3) Imagery (B7) Water Fance (B13) Other (Explain in Remarks) Shallow Aquitard (C3)
Are vegetation , soil , or hydrology naturally problematic? present? (If needed, explain any answers in remarks) SUMMARY OF FINDINGS Hydrophytic vegetation present? No Is the sampled area within a wetland? No Wetland hydrology present? No Is the sampled area within a wetland? No Remarks: Upland point corresponding to wetland KW-17 Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Moss Trim Lines (B16) Water Marks (B1) Roots (C3) Dry-Season Water Table (C2) Sediment Deposits (B2) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Adjadi Mat or Crus (B4) Soils (C6) Stunted or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Mager Mater -Stained Leaves (B9)
SUMMARY OF FINDINGS Hydrophytic vegetation present? No No Is the sampled area within a wetland? No Wetland hydrology present? No Is the sampled area within a wetland? No Remarks: Upland point corresponding to wetland KW-17 Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Sufface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Moss Trim Lines (B16) Sediment Deposits (B2) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Saturation Visible on Aerial Imagery (C9) Magal Mat or Crust (B4) Soils (C6) Stunted or Stressed Plants (D1) Stundet or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Shallow Aquitard (D3) Imagery (B7) Water-Stained Leaves (B9) Microtopographic Relief (D4) FAC-Neutral Test (D5) Aquatic Fauna (B13) FAC-Neutral Test (D5) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Hydrophytic vegetation present? No Is the sampled area within a wetland? No Wetland hydrology present? No Is the sampled area within a wetland? No Remarks: Upland point corresponding to wetland KW-17 Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Vater (A1) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Moss Trim Lines (B16) Water Marks (B1) Roots (C3) Dry-Season Water Table (C2) Sediment Deposits (B2) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Soils (C6) Stuned or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geemorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Water-Stained Leaves (B9) Microtopographic Relief (D4) FAC-Neutral Test (D5) Aquatic Fauna (B13) FAC-Neutral Test (D5) Microtopographic Relief (D4)
Hydric soil present? No Is the sampled area within a wetland? No Wetland hydrology present? No No No Remarks: Upland point corresponding to wetland KW-17 Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Moss Trim Lines (B16) Water Marks (B1) Roots (C3) Dry-Season Water Table (C2) Sediment Deposits (B2) Presence of Reduced Iron (C4) Sturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Soils (C6) Sturated or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Imagery (B7) Microtopographic Relief (D4) FAC-Neutral Test (D5) Aquatic Fauna (B13) Aquatic Fauna (B13) Microtopographic Relief (D4)
Wetland hydrology present? No Remarks: Upland point corresponding to wetland KW-17 HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Darinage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Moss Tim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2) Sediment Deposits (B3) Recent Iron Reduction in Tilled Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Soils (C6) Stanted or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Imagery (B7) Water-Stained Leaves (B9) FAC-Neutral Test (D5) Aquatic Fauna (B13) FAC-Neutral Test (D5)
Remarks: Upland point corresponding to wetland KW-17 HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Roots (C3) Drift Deposits (B2) Presence of Reduced Iron (C4) Algal Mat or Crust (B4) Soils (C6) Algal Mat or Crust (B4) Soils (C6) Iron Deposits (B5) Thin Muck Surface (C7) Inundation Visible on Aerial Other (Explain in Remarks) Imagery (B7) Microtopographic Relief (D4) Water-Stained Leaves (B9) Aquatic Fauna (B13)
Upland point corresponding to wetland KW-17 HYDROLOGY Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Moss Trim Lines (B16) Water Marks (B1) Roots (C3) Dry-Season Water Table (C2) Sediment Deposits (B3) Recent Iron Reductor in Tilled Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Soils (C6) Sturation Visible on Aerial Imagery (C9) Innudation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Imagery (B7) Microtopographic Relief (D4) FAC-Neutral Test (D5) Aquatic Fauna (B13) Sature Cana (B13) Sature Cana (B13)
Upland point corresponding to wetland KW-17 HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Roots (C3) Drift Deposits (B2) Presence of Reduced Iron (C4) Algal Mat or Crust (B4) Soils (C6) Iron Deposits (B5) Thin Muck Surface (C7) Inundation Visible on Aerial Other (Explain in Remarks) Imagery (B7) Mater-Stained Leaves (B9) Aquatic Fauna (B13) FAC-Neutral Test (D5)
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HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) True Aquatic Plants (B14) Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Moss Trim Lines (B16) Water Marks (B1) Roots (C3) Dry-Season Water Table (C2) Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Soils (C6) Stunted or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Imagery (B7) Microtopographic Relief (D4) FAC-Neutral Test (D5) Aquatic Fauna (B13) Aquatic Fauna (B13) FAC-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Surface Secondary Indicators (minimum of two required) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Moss Trim Lines (B16) Water Marks (B1) Roots (C3) Dry-Season Water Table (C2) Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Soils (C6) Stunted or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Imagery (B7) Microtopographic Relief (D4) FAC-Neutral Test (D5) Aquatic Fauna (B13) Aquatic Fauna (B13) FAC-Neutral Test (D5)
Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) True Aquatic Plants (B14) Surface Soil Cracks (B6) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Drainage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Moss Trim Lines (B16) Dry-Season Water Table (C2) Water Marks (B1) Roots (C3) Dry-Season Water Table (C2) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Soils (C6) Stunted or Stressed Plants (D1) Inon Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Imagery (B7) Water-Stained Leaves (B9) FAC-Neutral Test (D5) Aquatic Fauna (B13) Fauna (B13) Fauna (B13)
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Saturation (A3) Oxidized Rhizospheres on Living Moss Trim Lines (B16) Water Marks (B1) Roots (C3) Dry-Season Water Table (C2) Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Soils (C6) Stunted or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Water-Stained Leaves (B9) FAC-Neutral Test (D5) FAC-Neutral Test (D5)
Water Marks (B1) Roots (C3) Dry-Season Water Table (C2) Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Soils (C6) Stunted or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Water-Stained Leaves (B9) FAC-Neutral Test (D5)
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Drift Deposits (B3) Recent Iron Reduction in Tilled Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Soils (C6) Stunted or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Imagery (B7) Microtopographic Relief (D4) Aquatic Fauna (B13) FAC-Neutral Test (D5)
Algal Mat or Crust (B4) Solis (C6) Stunted or Stressed Plants (D1) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Imagery (B7) Microtopographic Relief (D4) Water-Stained Leaves (B9) FAC-Neutral Test (D5)
Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Imagery (B7) Microtopographic Relief (D4) Water-Stained Leaves (B9) FAC-Neutral Test (D5) Aquatic Fauna (B13) Action (D2)
Inundation Visible on Aerial Other (Explain in Remarks) Shallow Aquitard (D3) Imagery (B7) Microtopographic Relief (D4) Water-Stained Leaves (B9) FAC-Neutral Test (D5) Aquatic Fauna (B13) Accomparison
Imagery (B7) Microtopographic Relief (D4) Water-Stained Leaves (B9) FAC-Neutral Test (D5) Aquatic Fauna (B13) FAC-Neutral Test (D5)
Water-Stained Leaves (B9) FAC-Neutral Test (D5)
Aquatic Fauna (B13)
Field Observations:
Surface water present? Yes No X Depth (inches): Wetland
Water table present? Yes No X Depth (inches): hydrology
Saturation present? Yes <u>No X</u> Depth (inches): present? <u>N</u>
(includes capillary fringe)
Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Pomarka

							Samping Form. up-unq-05042018-05
Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum000Sapling/Shrub Stratum41013Herb Stratum1333Woody Vine Stratum00
							Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 Total Number of Dominant Species Across all Strata: 3 (B)
Sapling/Shrub Stratum	Plot Size (15 ft.)	0 = Absolute % Cover	 Total Cover Dominant Species 	Indicator Status	Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)
Rosa multiflora	3				Y		Prevalence Index WorksheetTotal % Cover of:OBL species $0 \times 1 = 0$ FACW species $5 \times 2 = 10$ FAC species $0 \times 3 = 0$ FACU species $80 \times 4 = 320$ UPL species $0 \times 5 = 0$ Column totals $85 (A) 330$ Prevalence Index = B/A = 3.88
Herb Stratum Poa pratensis Solidago cana Juncus effusus	Plot Size (densis	5 ft.)	20 = Absolute % Cover 45 15 5	Total Cover Dominant Species Y N N	Indicator Status FACU FACU FACW	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
							Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be preser unless disturbed or problematic
							Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breas height (DBH), regardless of height.
			_	65=	Total Cover		Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Woody Vine Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	 Herb - All herbaceous (non-woody) plants, regardless of size, a woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
							Hydrophytic vegetation
					- Total Cover		nresent?

Sampling Point: up-tmq-05042018-03

Depth	Matrix		Rec	lox Feat	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	TEALUIE	
0-12	10 YR 5/3	100					silt loam	
Type: C=C	oncentration, D=	Depletic	on, RM=Reduced	l Matrix,	CS=Cov	vered or	Coated Sand Grains	3
Location:	PL=Pore Lining,	M=Matr	ix					
ydric Soil	Indicators:						Indicators	for Problematic Hydric Soils:
			Dark Su	urface (S	57)	(0.0)		
Histisol	(A1)		Polyval	ue Belov	w Surfac	e (S8)	2 cm M	uck (A10) (MLRA 147)
Histic E	pipedon (A2)			147, 14	·8)		Coast F	Prairie Redox (A16) (MLRA 147, 14
Black H	listic (A3)				ace (59)			ant Floodplain Solis (F19)
Hyarog	en Suitide (A4)			147, 14 Claved	·δ) Materia (Γ	2)		136, 147)
	a Layers (A5)	NI)	Loamy	Gleyea	Matrix (F	2)	Very Sr	Tallow Dark Surface (TFT2)
Z CITI IVI Denlete	d Below Dark Si	irface (A	(11) Depiete	Dark Su	rface (Fr	;)		
	ark Surface (A12	2) 2)	Deplete	d Dark	Surface i	/) (F7)		
Sandy I	Mucky Mineral (S	-) 61)	Redox	Depress	ions (F8)		
(LRR N	. MLRA 147. 14	8)	Iron-Ma	ndanes	e Masse	, s (F12) ((LRR N. MLRA 136)	
Sandy	, Gleyed Matrix (S	4)	Umbric	Surface	(F13) (ILRA 13	36, 122)	
Sandy I	Redox (S5)		Piedmo	nt Flood	Iplain So	ils (F19)	(MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 147)	
ndicators	of hydrophytic ve	egetation	and wetland hy	drology	must be	present,	, unless disturbed or	problematic
						1		
a a fui a fiu a d	ever (if choom is	. (ام						
estrictive	Layer (II observe	a):					Uvdria aail ar	acout?
ype. Jonth (inch	oc):				-		Hydric soli pr	
epui (inch					-			
emarks								
emarks:								
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emarks:								
emarks:								

Project/Site: Holloway-Knox 138 kV Transmission	Line City/County: 0	Carroll	Report Name: Sampling Date	Wetland KW-19 5/4/2018
Applicant/Owner: FirstEnergy	State: 0	Ohio	Sampling Point	: w-tmg-05/04/2018-02
Investigator(s): M. Thomayer, T. Qualio; Jacobs	Section,	Township, Range:	S24 T14N R5V	/
Landform (hillslope, terrace, etc.): riverine	Local relief (conc	ave, convex, none): concave	Slope (%): 1-2%
Subregion (LRR or MLRA): LRR N	.at.: 40.6453	Long.: <u>-8</u> 2	1.0415	Datum: NAD 83
Soil Map Unit Name: Sb: Sebring silt loam		NWI C	lassification: <u>R5</u>	UBH
Are climatic/hydrologic conditions of the site typical for	this time of the year?	Yes X No	o(If no, e	explain in remarks)
Are vegetation, soil, or hydrology	significantly of the significant	disturbed? Are	e "normal circum	stances" Yes
Are vegetation, soil, or hydrology	<pre>/naturally prot</pre>	blematic? pre	esent?	
SUMMARY OF FINDINGS		(11	needed, explain	any answers in remarks
Hydrophytic vegetation present? Yes				
Hydric soil present? Yes	Is the samp	ed area within a v	wetland?	′es
Wetland hydrology present? Yes				
· · · · · · · · · · · · · · · · · · ·				
Remarks:				
PEM wetland in routinely maintained ROW, f	loodplain wetland co	nnected to s-tmo	q-05042018-02	2 and 03
HYDROLOGY				
Wetland Hydrology Indicators:		Secondary	Indicators (minir	mum of two required)
Primary Indicators (minimum of one is required; check	all that apply)	Surface	e Soil Cracks (B6)	
X Surface Water (A1) True	Aquatic Plants (B14)	Sparse	ly Vegetated Con	cave Surface (B8)
X High Water Table (A2) Hvdro	ogen Sulfide Odor (C1)	X Draina	pe Patterns (B10)	ζ, γ
X Saturation (A3)	zed Rhizospheres on Livir	Moss T	rim Lines (B16)	
Water Marks (B1) Boots		Drv-Se	ason Water Table	(C2)
Sediment Deposits (B2)	ence of Reduced Iron (C4)	Cravfis	h Burrows (C8)	(02)
Drift Deposits (B3)	nt Iron Reduction in Tilled	Saturat	ion Visible on Aer	ial Imagery (C9)
Algal Mat or Crust (B4) Soils	(C6)	Stunted	d or Stressed Plar	nts (D1)
X Iron Deposits (B5)	Muck Surface (C7)	X Geomo	orphic Position (D2	2)
Inundation Visible on Aprial	(Explain in Remarks)	Shallov	v Aquitard (D3)	/
Imagery (B7)	()	Microto	nographic Relief	(D4)
X Water-Stained Leaves (B9)		FAC-N	eutral Test (D5)	(04)
Aquatic Fauna (B13)				
Field Observations:		0"	Motion -	
Surface water present? Yes X No	Depth (inches):	2"	wetland	
vvater table present? Yes X No	Depth (inches):	10	nyarology	N .
Saturation present? Yes X No	Depth (inches):	U	present?	<u>Y</u>
(includes capillary fringe)				
Describe recorded data (stream gauge, monitoring wel	, aerial photos, previous	inspections), if ava	ailable:	
Remarks:				
saturation through due to standing water and	high water table			

VEGETATION - Us	e scientific names of	plants
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						Sampling Point:	w-tmq-05/04/2018-0
						50/20 Thresholds	
			Absolute %	Dominant	Indicator		20% 50%
Tree Stratum	Plot Size (30 ft.)	Covor	Species	Statuc	Troo Stratum	0 0
4			Cover	Species	Status	Capling/Chruh Stratum	0 0
						Sapling/Shrub Stratum	0 0
2						Herb Stratum	31 78
3						Woody Vine Stratum	0 0
4							
5						Dominance Test Workshe	et
6						Number of Dominant	
7						Species that are OBL,	
8						FACW or FAC	3 (A)
9 <u> </u>						Total Number of Dominant	(/,)
10						Species Across all Strata:	4 (B)
10				Total Covor		Species Across an Strata.	(D)
						Percent of Dominant	
						Species that are OBL,	
Sapling/Shrub	Plot Sizo (15.ft)	Absolute %	Dominant	Indicator	FACW, or FAC:	<u>75.00%</u> (A/B)
Stratum	FIOL SIZE (15 IL.)	Cover	Species	Status		
1				·		Brovalanca Indax Warksh	aat
<u></u>							661
2						Iotal % Cover of:	
3						OBL species 40 x 1	= 40
4						FACW species 80 x 2	2 = 160
5						FAC species 15 x 3	3 = 45
6						FACU species 20 x 4	= 80
7						UPL species 0 x F	$\dot{b} = 0$
8						Column totals 155 (A)) <u>325</u> (B)
٥			·······		·	$\frac{1}{2} = \frac{1}{2} $	$\frac{020}{210}$
10						T Tevalence Index - D/A -	2.10
10				Tatal Oaver			
				= Total Cover			
						Hydrophytic Vegetation In	idicators:
Herh Stratum	Plot Size (5.ft)	Absolute %	Dominant	Indicator	Rapid test for hydrophy	tic vegetation
noib olididin	1 101 0120 (011.)	Cover	Species	Status	X Dominance test is >50%	6
1 Juncus effusu	S		30	Y	FACW	X Prevalence index is ≤3.	.0*
2 Carex lurida			25	Y	OBL	Morphological adaptation	ons* (provide
3 Poa pratensis			20	Ý	FACU	supporting data in Rem	arks or on a
4 Phalaris aruno	linacea		20	Ý	FACW	separate sheet)	
5 Impatiens can	ansis		15	N	EACW/	Problematic hydrophytic	c vegetation*
			15				5 Vegetation
6 Persicaria sag	แลเล		15	<u> </u>		(explain)	
7 Solidago rugo	sa		15	N	FAC	*Indicators of hydric soil and wetle	and hydrology must be
8 Spiraea tomer	ntosa		10	<u> </u>	FACW	present, unless disturbed or prob	lematic
9 Scirpus cyperi	inus		5	N	FACW		
10						Definitions of Vegetation	Strata:
11						Tree - Woody plants 3 in. (7.6 cm	ı) or more in diameter at
12						breast height (DBH), regardless of	of height.
13							
14						Sapling/shrub - Woody plants le	ss than 3 in. DBH and
15						greater than 3.28 ft (1 m) tall.	
10			155 -	- Total Covor			
			100			Herb - All herbaceous (non-wood	y) plants, regardless of
$\lambda A = - b \lambda C$				Demi' (la dia 1	size, and woody plants less than	3.28 ft tall.
woody Vine	Plot Size (30 ft.)	Absolute %	Dominant	Indicator		
Stratum			Cover	Species	Status	Woody vines - All woody vines g	reater than 3.28 ft in
1						height.	
2							
3							
4						Hydrophytic	
·						riyuropriyuc	
ບ						vegetation	
				 Total Cover 		present? Y	_
Remarks: (Include pl	hoto numbers her	e or on a separa	ate sheet)				
· ·							
	<u>.</u>			<u> </u>			

Sampling Point: w-tmq-05/04/2018-02

Depth	Matrix		Red	lox Feat	tures		Texture	Remarks		
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture			
0-10	10 YR 5/1	75	10 YR 5/6	25	С	PL/M	silt clay			
10-12	2.5 YR 7/1	80	10 YR 5/6	20	С	М	silt clay			
T		Denlatio			00.0					
i ype: C=C	Discentration, D=		n, KIVI=Keaucea iv	i iviatrix,	US=U0	verea or	Coaled Sand Grains			
		w-wau	IA							
yaric Soli	indicators:		Dork S	urface (S	27)		indicators for	Problematic Hydric Solis:		
Histisol	(A1)		Polyval	ue Belov	or) w Surfac	e (S8)	2 cm Muck	(A10) (MI PA 147)		
Histic F	(AT) pipedon (A2)		(MI RA	147.14	8)	.0 (00)	Coast Prai	rie Redox (A16) (MI RA 147, 14		
Black H	listic (A3)		Thin Da	irk Surfa	ace (S9)		Piedmont I	Floodplain Soils (F19)		
Hydrog	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 13	6, 147)		
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shall	ow Dark Surface (TF12)		
2 cm M	uck (A10) (LRR	N)	X Deplete	d Matrix	(F3)		Other (Exp	lain in Remarks)		
Deplete	d Below Dark Su	urface (A	(11) Redox	Dark Su	rface (F6	5)				
Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface	(F7)				
Sandy I	Mucky Mineral (S	51) •	Redox	Depress	sions (F8) - (E40) (
(LKK N	, MLKA 147, 14 Cloved Metrix (S	8)		Surface		S(F12)(LKK N, MLKA 136)			
Sandy I	Redox (S5)	4)	Onblic Piedmo	nt Floor	hlain Sc	ile (F19)	$(MI R \Delta 148)$			
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	21) (MLR	A 127, 147)			
							,,			
ndicators	of hydrophytic ve	egetatior	and wetland hy	drology	must be	present,	unless disturbed or pro	blematic		
		-	-			-				
lestrictive	_ayer (if observe	ed):						10 X		
ype:					_		Hydric soil prese	ent? <u>Y</u>		
eptn (inch	es):				-					
omarke:										
omano.										

Project/Site: Holloway-Knoy 138 kV Tran	smission Line	City/County:	Carroll	Report Name: Sampling Date	Upland KW-19		
Applicant/Owner: FirstEnergy		State:	Ohio	Sampling Poin	t: up_tmg_050/2018_02		
Investigator(s): M Thomaver T Qualio: Jac	cobs	Section	Township, Ra	ange: S33 T14N R5V	V		
Landform (hillslope, terrace, etc.): plain		Local relief (cor	icave. convex.	none): none	Slope (%): 0		
Subregion (LRR or MLRA): LRR N	Lat.:	40.645414008	Long.	: -81.041364201	Datum: NAD 83		
Soil Map Unit Name: Sb: Sebring silt loam			Ň	WI Classification: No	one (upland)		
Are climatic/hydrologic conditions of the site t	typical for this tim	ne of the year?	Yes X	No(If no,	explain in remarks)		
Are vegetation, soil, or	hydrology	significantly	disturbed?	Are "normal circum	istances" Yes		
Are vegetation, soil, or	hydrology	naturally pr	oblematic?	present? (If needed, explain	any answers in remarks)		
SUMMARY OF FINDINGS							
Hydrophytic vegetation present? No							
Hydric soil present? No		Is the sam	pled area with	in a wetland?	No		
Wetland hydrology present? No							
Remarks:	I						
Upland point corresponding to wetlar	nd KW-18						
HYDROLOGY							
Wetland Hydrology Indicators:			Seco	ndary Indicators (mini	mum of two required)		
Primary Indicators (minimum of one is require	ed; check all that	apply)	S	urface Soil Cracks (B6)		
Surface Water (A1)	True Aquatio	Plants (B14)	s	parsely Vegetated Con	icave Surface (B8)		
High Water Table (A2)	Hydrogen Su	ulfide Odor (C1)	D	Drainage Patterns (B10)			
Saturation (A3)	Oxidized Rhi	izospheres on Liv	vina N	Moss Trim Lines (B16)			
Water Marks (B1)	Roots (C3)		D	Dry-Season Water Table (C2)			
Sediment Deposits (B2)	Presence of	Reduced Iron (C	4) <u> </u>	rayfish Burrows (C8)	()		
Drift Deposits (B3)	Recent Iron	Reduction in Tille	d S	aturation Visible on Ae	ation Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4)	Soils (C6)		s	tunted or Stressed Pla	ed or Stressed Plants (D1)		
Iron Deposits (B5)	Thin Muck S	urface (C7)	G	eomorphic Position (D	orphic Position (D2)		
Inundation Visible on Aerial	Other (Expla	in in Remarks)	S	hallow Aquitard (D3)			
Imagery (B7)			N	licrotopographic Relief	(D4)		
Water-Stained Leaves (B9)			E	AC-Neutral Test (D5)			
Aquatic Fauna (B13)							
Field Observations:							
Surface water present? Yes	No X	Depth (inches):		Wetland			
Water table present? Yes	No X	Depth (inches):		hydrology			
Saturation present? Yes	No <u>X</u>	Depth (inches):		present?	<u>N</u>		
(includes capillary fringe)							
Describe recorded data (stream gauge, moni	toring well, aeria	l photos, previou	is inspections)	, if available:			
Remarks:							
L							

			Лана	5			Sampling Point: up-tmq-05042018-02
Tree Stratum 1 2 3	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum0Sapling/Shrub Stratum0Herb Stratum2563Woody Vine Stratum
Sapling/Shrub	Plot Size (15 ft.)		Total Cover		Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 Total Number of Dominant Species Across all Strata: 2 Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A)
3 4 5 7 3 4 5 5 6 7 6 7 6 7 6 7 6 7 6 7 1							Prevalence Index WorksheetTotal % Cover of:OBL species 0 X 1 = 0 FACW species 20 X 2 = 40 FAC species 0 X 3 = 0 FAC species 105 X 4 = 420 UPL species 0 X 5 = 0 Column totals 125 (A) 460 Prevalence Index = B/A = 3.68
Herb Stratum <u>Poa pratensis</u> <u>Dichanthelium</u> Rubus alleghe <u>Dichanthelium</u> <u>Solildago cana</u> <u>Podophyllum p</u>	Plot Size (clandestinum miensis scoparium adensis peltantum	5 ft.)	0 = Absolute % Cover 30 20 20 15 10	Total Cover Dominant Species Y N N N N N	Indicator Status FACU FACU FACU FACW FACU FACU	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
2 2 3 4 5				425			Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Woody Vine Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	 Herb - All herbaceous (non-woody) plants, regardless of size, ar woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 4 5			_	0 =	Total Cover		Hydrophytic vegetation present? <u>N</u>

Sampling Point: up-tmq-05042018-02

Depth	Matrix		Rec	lox Fea	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	TOXIUIO	i temarto
0-6	10 YR 5/3	100					silt clay loam	
6-12	10 YR 5/3	70	10 YR 5/6	30	С	М	silt loam	
Type: C=C	oncentration, D=	Depletic	on, RM=Reduced	I Matrix,	CS=Cov	vered or	Coated Sand Grains	
*Location:	PL=Pore Lining,	M=Matr	X					
lydric Soi	Indicators:						Indicators for	Problematic Hydric Soils:
	<i></i>		Dark Su	urface (S	57)	(00)		/ · / · · · · · · · · · · · · · · · · ·
Histisol	(A1)		Polyval	ue Belo	w Surfac	e (S8)	2 cm Muck	(A10) (MLRA 147)
HISTIC E	pipedon (A2)			147, 14 rk Surfe	8)		Coast Prail	1e Redox (A16) (MLRA 147, 148 Elegandria Soile (E10)
Black F	IISTIC (A3)			447 44	ace (39)			
Hyurog	en Sunde (A4)			147, 14 Cloved	• 0) Motrix (E	2)		o, 147) wy Dark Surface (TE12)
Ou a une	u Layers (AJ)	NI)	Loaniy	d Matrix	(E3)	2)	Other (Eve	lain in Pomarka)
2 cm m	d Below Dark Si	urface (A	(11) Redox I	Dark Su	rface (Ff	3)		
Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface ((F7)		
Sandy	Mucky Mineral (S	-, 51)	Redox	Depress	ions (F8)		
(LRR N	, MLRA 147, 14	8)	Iron-Ma	inganes	e Masse	, s (F12) (LRR N, MLRA 136)	
Sandy	Gleyed Matrix (S	4)	Umbric	Surface	e (F13) (N	ILRA 13	86, 122)	
Sandy	Redox (S5)		Piedmo	nt Flood	dplain So	ils (F19)	(MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 147)	
Indicators	of hydrophytic ve	egetation	and wetland hy	drology	must be	present,	unless disturbed or pro	blematic
						1		
Destrictive	over (if cheer ve	d).						
	Layer (II observe	a).					Hydria cail proce	nt2 N
)enth (inch	ec).				-		nyune son prese	
Jepui (inch					-			
Remarks:								
Remarks:								
Remarks:								
Remarks:								
Remarks:								

Project/Site: Holloway-Knox 138 kV Transmission Line Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio; Jacobs Landform (hillslope, terrace, etc.): depression Subregion (LRR or MLRA): LRR N Soil Map Unit Name: WkD: Westmoreland silt loam, 15 to 2 Are climatic/hydrologic conditions of the site typical for this Are vegetation , soil	E City/County: State: Section Local relief (con 40.6439 25 percent slopes time of the year? significantly naturally pro	Carroll Ohio , Township, Rai cave, convex, r Long.: NV Yes X disturbed?	Report Name: Sampling Date: Sampling Point: nge: S24 T14N R5W one): concave -81.0416 VI Classification: PEN No (If no, e: Are "normal circums present?	Wetland KW-20 5/4/2018 w-tmq-05/04/2018-01 Slope (%): 2-5% Datum: NAD 83 M xplain in remarks) tances" Yes	
	naturally pre	bolomato.	(If needed, explain a	ny answers in remarks	
SUMMARY OF FINDINGS					
Hydrophytic vegetation present? Yes Hydric soil present? Yes Wetland hydrology present? Yes	Is the samp	oled area within	n a wetland? Ye	es	
tmq-05042018-02 HYDROLOGY Wetland Hydrology Indicators:		Secon	dany Indicators (minim	num of two required)	
Primary Indicators (minimum of one is required: check all t	that apply)	Su	rface Soil Cracks (B6)		
X Surface Water (A1) True Ag	uatic Plants (B14)	0u	arsely Vegetated Conc	ave Surface (B8)	
X High Water Table (A2) Hydroge	n Sulfide Odor (C1)	X Dr	ainage Patterns (B10)		
X Saturation (A3)	Rhizospheres on Livi	ing Mc	ss Trim Lines (B16)		
Water Marks (B1) Roots (C		Dr	ry-Season Water Table (C2)		
Sediment Deposits (B2) Presence	e of Reduced Iron (C4	4) Cra	ayfish Burrows (C8)	(-)	
Drift Deposits (B3) Recent l	ron Reduction in Tilleo	d Sa	turation Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4) Soils (C6	6)	Stu	unted or Stressed Plants (D1)		
Iron Deposits (B5) Thin Muc	ck Surface (C7)	X Ge	omorphic Position (D2)		
Inundation Visible on AerialOther (E	xplain in Remarks)	Sh	allow Aquitard (D3)	2.0	
Mater Stained Leaves (B0)			C Noutral Tast (D5)	J4)	
Aguatic Fauna (B13)			C-Neutral Test (D3)		
Field Observations:			Γ		
Surface water present? Yes X No	Depth (inches):	1	Wetland		
Water table present? Yes X No	Depth (inches):	10	hydrology		
Saturation present? Yes X No	Depth (inches):	0	present?	Y	
(includes capillary fringe)					
Describe recorded data (stream gauge, monitoring well, a	erial photos, previou	s inspections), i	f available:		
Remarks:					

VEGETATION - Us	e scientific names of	plants
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Sampling Point: w-tmq-05/04/2018-0 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Plot Size (30 ft. Tree Stratum) Status Tree Stratum 0 Cover Species 0 Sapling/Shrub Stratum 0 0 Herb Stratum 2 33 84 Woody Vine Stratum 0 0 3 4 Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: (A) 8 2 Total Number of Dominant 9 2 Species Across all Strata: (B) 10 Total Cover 0 = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: 100.00% (A/B) Plot Size (15 ft.) Stratum Cover Species Status **Prevalence Index Worksheet** Total % Cover of: 2 OBL species 3 52 x 1 = 52 _x 2 = FACW species 60 120 4 5 FAC species 40 x 3 = 120 _x 4 = **FACU** species 60 6 15 UPL species 0 x 5 = 0 8 Column totals 167 (A) 352 (B) 9 Prevalence Index = B/A = 2 11 10 0 = Total Cover Hydrophytic Vegetation Indicators: Indicator Absolute % Dominant Rapid test for hydrophytic vegetation Herb Stratum Plot Size (5 ft.) Status X Dominance test is >50% Cover Species X Prevalence index is ≤3.0* Dichanthelium clandestinum 40 Υ FAC 1 Juncus effusus FACW Morphological adaptations* (provide 35 γ 2 supporting data in Remarks or on a 3 Carex lurida 30 Ν OBL 25 FACW separate sheet) 4 Impatiens capensis Ν Symplocarpus foetidus Problematic hydrophytic vegetation* 5 20 Ν OBL 6 Poa pratensis 15 Ν FACU (explain) 7 Cardamine pensylvanica 2 Ν OBL *Indicators of hydric soil and wetland hydrology must be 8 present, unless disturbed or problematic q Definitions of Vegetation Strata: 10 11 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. 12 13 Sapling/shrub - Woody plants less than 3 in. DBH and 14 greater than 3.28 ft (1 m) tall. 15 Total Cover 167 = Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine Absolute % Dominant Indicator Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in heiaht. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Y Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: w-tmq-05/04/2018-01

Depth Matrix Redox Features							Taxtura	Domentic
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	l'exture	Remarks
0-4	10 YR 4/1	85	7.5 YR 5/6	15	С	М	silt clay loam	
4-12	10 YR 6/2	70	7.5 YR 5/6	30	С	М	silt loam	
Type: C=C	oncentration D=	Denletic	n RM=Reducer	Matrix	CS=Cov	/ered or	Coated Sand Grains	
*I ocation:	PI =Pore Lining	M=Matr	ix	i iviauin,	00-00		Coaled Gaild Grains	
lydric Soi	Indicators:						Indicators for P	cohlematic Hydric Soils:
yane oon	malcators.		Dark Si	urface (S	57)			oblematic riyane cons.
Histisol	(A1)		Polyval	ue Belo	w Surfac	e (S8)	2 cm Muck (A	A10) (MLRA 147)
Histic E	pipedon (A2)		(MLRA	147, 14	8)	. ,	Coast Prairie	Redox (A16) (MLRA 147, 14
Black H	listic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont Flo	odplain Soils (F19)
Hydrog	en Sulfide (A4)			147, 14	8)		(MLRA 136,	147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shallow	Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	X Deplete	ed Matrix	(F3)		Other (Explai	n in Remarks)
Depiete	ork Surface (A1	unace (P	ATT)Redox Doplete	Dark Su	nace (Fo)) (EZ)		
Sandv	Mucky Mineral (S	2) S1)	Depiete	Denress	surface ((<i>Г1)</i>)		
(LRR N	. MLRA 147. 14	8)	Iron-Ma	indanes	e Masse	, s (F12) ((LRR N. MLRA 136)	
Sandy	Gleyed Matrix (S	4)	Umbric	Surface	e (F13) (N	ILRA 13	36, 122)	
Sandy	Redox (S5)	,	Piedmo	nt Flood	dplain So	ils (F19)	(MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 147)	
Indicators	of hydrophytic ve	egetation	and wetland hy	drology	must be	present,	unless disturbed or proble	ematic
Pestrictive	aver (if observe	q).						
vne.		ч).					Hydric soil present	2 Y
Depth (inch	es):				-			<u> </u>
					-			
Remarks:								
Remarks:								
Remarks:								
emarks:								

Project/Site: Holloway Kno	v 129 k\/ Trans	mission Lino	City/County:	Carroll	Report Name:	Upland KW-20		
Applicant/Ourser FirstFrom			_City/County.	Ohio	Sampling Date.	0/4/2010		
Applicant/Owner: FirstEnerg	yy T. Ouglig: Jaco	be	State:	Unio Township Bon		up-unq-05042018-01		
Landform (hillslope terrace et		105		i, ruwnsnip, ran	$\frac{324}{2000}$	Slope (%): 0		
Subregion (LRR or MLRA).	RRN	Lat ·	40 643585631		-81 041 <u>515126</u>	Oope (70). 0		
Soil Map Unit Name: WkD: We	stmoreland silt l	oam, 15 to 25	percent slopes	NW	I Classification: No	ne (upland		
Are climatic/hydrologic condition	ons of the site ty	pical for this ti	me of the year?	Yes X	No(If no, e	explain in remarks)		
Are vegetation , soil	, or h	ydrology	significantly	/ disturbed?	Are "normal circum	stances" Yes		
Are vegetation, soil	, or h	ydrology	naturally pr	oblematic?	present? (If needed, explain	any answers in remarks)		
SUMMARY OF FINDINGS	6	I						
Hydrophytic vegetation presen	t? <u>No</u>							
Hydric soil present?	No		Is the sam	pled area within	a wetland?	lo		
Wetland hydrology present?	No							
Remarks:								
Upland point correspond	ling to wetland	4 KW-19						
	ing to wettand							
HYDROLOGY								
Wetland Hydrology Indicate	ors:			Second	ary Indicators (minir	num of two required)		
Primary Indicators (minimum o	f one is required	; check all that	at apply)	Sur	face Soil Cracks (B6)	. ,		
Surface Water (A1)	•	True Aquat	ic Plants (B14)	Spa	rselv Vegetated Con	cave Surface (B8)		
High Water Table (A2)	_	Hydrogen S	Sulfide Odor (C1)	Drai	inage Patterns (B10)			
Saturation (A3)	-		hizosphoros on Liv	wing Mos	s Trim Lines (B16)			
Water Marks (B1)		Roots (C3)		ning Nice	Season Water Table	(C2)		
Sediment Deposits (B2)	_	Presence of	f Reduced Iron (C	(4) Cra	vfish Burrows (C8)	(02)		
Drift Deposits (B3)	-	Recent Iror	Reduction in Tille	ed Sati	Saturation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)		Soils (C6)		Stur	Stunted or Stressed Plants (D1)			
Iron Deposits (B5)	—	Thin Muck	Surface (C7)	Geo	Geomorphic Position (D2)			
Inundation Visible on Aerial	_	Other (Exp	lain in Remarks)	Sha	Shallow Aquitard (D3)			
Imagery (B7)	_			Mici	rotopographic Relief (D4)		
Water-Stained Leaves (B9)				FAC	C-Neutral Test (D5)	,		
Aquatic Fauna (B13)								
Field Observations:								
Surface water present?	Yes	No X	Depth (inches):		Wetland			
Water table present?	Yes	No X	Depth (inches):		hydrology			
Saturation present?	Yes	No X	Depth (inches):		present?	Ν		
(includes capillary fringe)			_					
Describe recorded data (stroor	n daude monito	vring well oori	al photos previo	us inspections) if	available:			
Describe recorded data (silear	n gauge, monito	ning weil, aen	ai priotos, previo	us inspections), il	avaliable.			
Remarks:								

		·				Sampling Point: up-tmq-05042018-01
Tree Stratum	Plot Size (30 ft.) Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum0Sapling/Shrub Stratum2Herb Stratum20Woody Vine Stratum0
						Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 (A) Total Number of Dominant Species Across all Strata: 4 (B)
Sapling/Shrub Stratum	Plot Size (15 ft.) Absolute %) Cover	Dominant Species	Indicator Status	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
Rosa multiflora	3			Y		Prevalence Index WorksheetTotal % Cover of:OBL species 0 X 1 = 0 FACW species 0 X 2 = 0 FAC species 0 X 3 = 0 FACU species 110 X 4 = 440 UPL species 0 Column totals 110 (A) 440 Prevalence Index = $B/A =$ 4.00
Herb Stratum Poa pratensis Rubus alleghe Festuca rubra	Plot Size (niensis	5 ft.	10 = Absolute % Cover 50 30 20	Total Cover Dominant Species Y Y Y Y	Indicator Status FACU FACU FACU	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
			= <u> </u>			Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be preser unless disturbed or problematic
						Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breas height (DBH), regardless of height.
				= Total Cover		Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Woody Vine Stratum	Plot Size (30 ft.) Absolute % Cover	Dominant Species	Indicator Status	 Herb - All herbaceous (non-woody) plants, regardless of size, a woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
					<u> </u>	Hydrophytic vegetation
			0 =	 Total Cover 		present? N

Sampling Point: up-tmq-05042018-01

Depth	Matrix		Red	dox Feat	tures		Toyturo	Pomorko
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-2	10 YR 4/1	100					silt clay loam	
2-12	10 YR 6/3	100					loam silt	
								+
								+
Type: C=C	oncentration, D=	Depletic	on, RM=Reduced	d Matrix,	CS=Cov	/ered or	Coated Sand Grains	
Location:	PL=Pore Lining,	M=Matr	ix					
ydric Soil	Indicators:						Indicators for	Problematic Hydric Soils:
			Dark Su	urface (S	57)			
Histisol	(A1)		Polyval	ue Belov	w Surfac	e (S8)	2 cm Mucl	k (A10) (MLRA 147)
Histic E	pipedon (A2)			147, 14	·8)		Coast Pra	irie Redox (A16) (MLRA 147, 14
Black H	istic (A3)		Thin Da	ark Surfa	ace (S9)		Pledmont	Floodplain Solis (F19)
Hydrog	en Sulfide (A4)			147, 14	·8) Matuita (E	· 0 \	(MLRA 13	(5, 147)
	d Layers (A5)		Loamy	Gleyea	Matrix (F	2)	Very Shall	ow Dark Surface (TF12)
2 Cm IVI	uck (ATU) (LKK od Bolow Dark Si	N) urface (A	(11) Depiete	Dork Su	((F3) rface (E6	:)		Dain in Remarks)
	ark Surface (A1	unace (F 2)	(TT) Redux	d Dark	Surface (7) (F7)		
Sandy I	Mucky Mineral (S	51)	Bedox	Depress	ions (F8)		
(LRR N	. MLRA 147. 14	8)	Iron-Ma	indanes	e Masse	, s (F12) (LRR N. MLRA 136)	
Sandy (Gleved Matrix (S	(4)	Umbric	Surface	(F13) (N	/LRA 13	36, 122)	
 Sandy I	Redox (S5)	,	Piedmo	nt Flood	Iplain So	ils (F19)	(MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MLR	A 127, 147)	
ndicators	of hydrophytic ve	egetation	and wetland hy	drology	must be	present,	unless disturbed or pro	blematic
	<i></i>							
lestrictive l	_ayer (if observe	ed):						
ype: (in ab					-		Hydric soil pres	ent? <u>N</u>
epin (inch	es):				-			
omarke:								
oniai No.								

Project/Site: Holloway-Knox 138 kV Transmission Line Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio; Jacobs Landform (hillslope, terrace, etc.): depressional Subregion (LRR or MLRA): LRR N Soil Map Unit Name: GfB: Glenford silt loam, 3 to 8 percer Are climatic/hydrologic conditions of the site typical for this Are vegetation , soil , or hydrology Are vegetation , soil , or hydrology SUMMARY OF FINDINGS SUMMARY OF FINDINGS	E City/County: State: Section Local relief (con 40.6321 tt slopes time of the year? significantly naturally pro	Carroll Ohio , Township, Ran cave, convex, n Long.: NW Yes X disturbed? oblematic?	Report Name: Sampling Date: Sampling Point ge: S24 T14N R5W one): <u>concave</u> -81.0422 /I Classification: <u>PE</u> No(If no, e Are "normal circums present? (If needed, explain a	Wetland KW-21 5/4/2018 w-tmq-05/04/2018-06 / Slope (%): 0-2% Datum: NAD 83 M1A, PUBG explain in remarks) stances" Yes any answers in remarks
Hydrophytic vegetation present?YesHydric soil present?YesWetland hydrology present?Yes	Is the sam	oled area within	a wetland? Y	es
PEM wetland in routinely maintained ROW, large depressional wetland separated by gravel driveway/berm from pond p-tmq-05042018-01				
HYDROLOGY				
Primary Indicators (minimum of one is required; check all t X Surface Water (A1) True Aqu X High Water Table (A2) Hydroge X Saturation (A3) Oxidized Water Marks (B1) Roots (C Sediment Deposits (B2) Presence Drift Deposits (B3) Recent In Algal Mat or Crust (B4) Soils (C6 X Iron Deposits (B5) Thin Muc Inundation Visible on Aerial Other (E	that apply) uatic Plants (B14) n Sulfide Odor (C1) Rhizospheres on Liv 3) e of Reduced Iron (C4 ron Reduction in Tille 5) ck Surface (C7) xplain in Remarks)		Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) X Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) X Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)	
Water-Stained Leaves (B9)			-Neutral Test (D5)	
Aquatic Fauna (B13)				
Field Observations: Surface water present? Yes X No Water table present? Yes X No Saturation present? Yes X No (includes capillary fringe) Describe recorded data (stream gauge, monitoring well, additional stream gauge)	Depth (inches): Depth (inches): Depth (inches): erial photos, previou	2" 8" 0" s inspections), if	Wetland hydrology present?	<u> </u>
Remarks:				
VEGETATION - Use scientific names of plants

				-			Sampling Point: w-tmq-05/04/2018-06
Tree Stratum 1 <u>Salix nigra</u> 233	Plot Size (30 ft.)	Absolute % Cover 2	Dominant Species Y	Indicator Status OBL	50/20 Thresholds20%50%Tree Stratum0Sapling/Shrub Stratum3Herb Stratum2563Woody Vine Stratum00
5 6 7 8 9 10 Sapling/Shrub Stratum	Plot Size (15 ft.)		Total Cover Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 4 Total Number of Dominant Species Across all Strata: 4 Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A)
1 <u>Salix nigra</u> 2 <u>3</u> 4 <u>5</u> 6 <u>7</u> 7 <u>8</u> 9 <u>9</u> 10 <u>9</u>				15 	Y		Prevalence Index WorksheetTotal % Cover of:OBL species 42 FACW species 95 x 2 =190FAC species 5 x 3 =15FACU species 0 x 4 = 0 UPL species 0 x 5 = 0 Column totals 142 HA2 (A) Prevalence Index = $B/A =$ 1.74
Herb Stratum Phalaris aruno Persicaria per Carex lurida Acorus calamu Juncus effusu Juncus tenuis 7 8 9	Plot Size (dinacea nsylvanica us s	5 ft.)	Absolute % Cover 45 40 15 10 10 5	Dominant Species Y N N N N N	Indicator Status FACW FACW OBL OBL FACW FAC	Hydrophytic Vegetation Indicators: X Rapid test for hydrophytic vegetation X Dominance test is >50% X Prevalence index is <3.0*
10	Plot Size (30 ft.)	125 = Absolute % Cover	Total Cover Dominant Species	Indicator Status	Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
23 45 Remarks: (Include p	hoto numbers her	re or on a s	eparat		- Total Cover		Hydrophytic vegetation present? Y
			-	,			

Sampling Point: w-tmq-05/04/2018-06

Depth	Matrix		Rec	lox Feat	tures		Teyture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-12	10 YR 4/1	75	10 YR 4/6	25	С	М	silt loam clay	
	oncontration D-	Doplatia	n DM-Doducoo	Motrix	<u> </u>	vorod or	Coated Sand Crains	
l ocation	PI =Pore Lining	M=Matri		i watrix,	03-00		Coaled Sand Grains	
		W-Wau	^				Indiantara far	Duchlamatic Unduis Cailer
yaric Soi	i indicators:		Dark Si	irface (S	37)		indicators for	Problematic Hydric Solis:
Histisol	(A1)		Polyval	ue Belov	w Surface	e (S8)	2 cm Muck	(A10) (MI RA 147)
Histic F	pipedon (A2)		(MLRA	147.14	8)	0 (00)	Coast Prair	ie Redox (A16) (MLRA 147, 14
Black H	listic (A3)		Thin Da	irk Surfa	ace (S9)		Piedmont F	loodplain Soils (F19)
Hydrog	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 136	5, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shallo	w Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	X Deplete	d Matrix	(F3)		Other (Expl	lain in Remarks)
Deplete	ed Below Dark Su	urface (A	.11)Redox I	Dark Su	rface (F6	5)		
Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface ((F7)		
Sandy	Mucky Mineral (S	51)	Redox I	Depress	ions (F8)		
	I, MLRA 147, 14	8)	Iron-Ma	inganes		s (F12) (LRR N, MLRA 136)	
Sandy	Gleyed Matrix (S	4)	Umbric	Surface	: (F 13) (N Inlain Sa	1 LKA 13 ilo (E10)	(MI DA 149)	
Sanuy	d Matrix (S6)		Fleamo	rent Mat	ipiain 30 torial (E2	1) (MI P	(WILKA 140) A 127 147)	
							A 121, 141)	
ndicators	of hydrophytic ve	edetation	and wetland hve	droloav	must be	present	unless disturbed or prot	olematic
		J	,			,		
	Layer (if observe	d):						
Restrictive					_		Hydric soil prese	nt? <u>Y</u>
Restrictive					_			
estrictive ype: opth (inch	es):							
Restrictive ype: epth (inch	es):							
Restrictive ype: Depth (inch Remarks:	es):							
Restrictive ype: Depth (inch Remarks:	es):							
Restrictive ype: vepth (inch Remarks:	es):							
estrictive ype: epth (inch emarks:	es):							

SOIL

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualio; Jacobs Landform (hillslope, terrace, etc.): plain	Lc	State: Section	Ohio		Sampling Point					
Investigator(s): <u>M. Thomayer, T. Qualio; Jacobs</u> Landform (hillslope, terrace, etc.): <u>plain</u>	Lc	Section				up-tmq-05042018-06				
Landform (nillslope, terrace, etc.): plain	LC	1. 6 /	, Townsh	ip, Range:	S24 T14N R5W					
Cubragian (IDD or MIDA), IDD N	Lat. 10	ocal reliet (con	icave, co	nvex, none): none	Slope (%): <u>0-2%</u>				
Soil Man Unit Name: GfB: Glenford silt loam 3 to 8 n	ercent slope	D.032470000		Long.: <u>-81</u> NWLCI	.04 196 1570 assification: Nor	ne (upland)				
Are climatic/hydrologic conditions of the site typical for	or this time	of the year?	Yes	<u> </u>	(If no, e	explain in remarks)				
Are vegetation . soil . or hydrolo	av	significantly	disturbe	d? Are	"normal circum	stances" Yes				
Are vegetation, soil, or hydrolo	ду	naturally pro	oblematio	;? pre (If r	sent? needed, explain a	any answers in remarks)				
SUMMARY OF FINDINGS										
Hydrophytic vegetation present? No										
Hydric soil present? No		Is the sampled area within a wetland? No								
Wetland hydrology present? No										
Remarks: Upland point corresponding to wetland KW	-20									
HYDROLOGY										
Wetland Hydrology Indicators:				Secondary	Indicators (minin	num of two required)				
Primary Indicators (minimum of one is required; chec	k all that ap	oply)		Surface	Soil Cracks (B6)					
Surface Water (A1) Tru	e Aquatic Pl	lants (B14)	-	Sparsel	y Vegetated Cond	cave Surface (B8)				
High Water Table (A2)	drogen Sulfie	de Odor (C1)	-	 Drainag	e Patterns (B10)	· · · ·				
Saturation (A3)	dized Rhizo	spheres on Liv	/ina	Moss T	rim Lines (B16)					
Water Marks (B1)	ots (C3)			Drv-Sea	ason Water Table	(C2)				
Sediment Deposits (B2)	sence of Re	educed Iron (C4	4) -	 Crayfish	n Burrows (C8)					
Drift Deposits (B3)	cent Iron Re	duction in Tille	d	Saturation Visible on Aerial Imagery (C9)						
Algal Mat or Crust (B4) Soi	ls (C6)		-	Stunted or Stressed Plants (D1)						
Iron Deposits (B5)	n Muck Surf	face (C7)	_	Geomorphic Position (D2)						
Inundation Visible on AerialOth	ier (Explain i	in Remarks)	_	Shallow Aquitard (D3)						
Imagery (B7)				Microto	pographic Relief (D4)				
Water-Stained Leaves (B9)				FAC-Ne	eutral Test (D5)					
Aquatic Fauna (B13)			-							
Field Observations:										
Surface water present? Yes No	<u> </u>	epth (inches):			Wetland					
Water table present? Yes No		epth (inches):		_	hydrology					
Saturation present? Yes <u>No</u>	<u> </u>	epth (inches):		_	present?	<u>N</u>				
(includes capillary fringe)										
Describe recorded data (stream gauge, monitoring w	ell, aerial p	hotos, previou	is inspec	tions), if ava	ailable:					
Remarks:										

VEGETATION - Use scientific names of plants

	-	<u> </u>				Sampling Point: up-tmq-05042018-06
Tree Stratum	Plot Size (30 ft.) Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum0Sapling/Shrub Stratum0Herb Stratum3178Woody Vine Stratum0
				= Total Cover		Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 (A) Total Number of Dominant Species Across all Strata: 2 (B) Percent of Dominant
Sapling/Shrub Stratum	Plot Size (15 ft.) Absolute %) Cover	Dominant Species	Indicator Status	Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
						Prevalence Index WorksheetTotal % Cover of:OBL species 0 X 1 = 0 FACW species 0 X 2 = 0 FAC species 0 X 3 = 0 FACU species 125 X 4 = 500 UPL species 0 0 $x 5 =$ Column totals 125 (A) 500 Prevalence Index = $B/A =$
Herb Stratum Rubus alleghe Solidago cana Rumex crispu Poa pratensis	Plot Size (eniensis idensis s	5 ft.) Absolute % Cover 60 35 30 30 30	= Total Cover Dominant Species Y Y N N N	Indicator Status FACU FAC FAC FACU	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be preser unless disturbed or problematic
						Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breas height (DBH), regardless of height.
			 	= Total Cover		Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Woody Vine Stratum	Plot Size (30 ft.) Absolute % Cover	Dominant Species	Indicator Status	 Herb - All herbaceous (non-woody) plants, regardless of size, a woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
				= Total Cover		Hydrophytic vegetation present? <u>N</u>

Sampling Point: up-tmq-05042018-06

Depth	Matrix		Red	lox Feat	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	TEXIUIE	i ciliai no
0-10	10 YR 4/3	100					silt loam	
								_
								+
T		Devileti		1. 0.4 - 4	00.0.			
Type: C=C	Discontration, D=		n, KIVI=Keaucea	i iviatrix,	US=U0	verea or	Coaled Sand Grains	
		w-wau	IX					
ydric Soil	Indicators:		David		רדי		Indicators for	Problematic Hydric Soils:
Histical	(A1)		Dark St	unace (a ue Beloi	N Surfac	o (S8)	2 om Muo	(() 1 () (MI BA 117)
Histic F	(AT)		(MIRA	147 14	8)	e (00)	2 cm Muc	(ΑΤΟ) (ΜΕΚΑ 147) irie Redox (Δ16) (ΜΙ ΒΔ 147 14
Black H	listic (A3)		Thin Da	ark Surfa	ace (S9)		Piedmont	Floodplain Soils (F19)
Hvdrog	en Sulfide (A4)		(MLRA	147.14	.8)		(MLRA 13	6. 147)
Stratifie	d Lavers (A5)		Loamy	Gleved	Matrix (F	2)	Very Shal	ow Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	Deplete	d Matrix	(F3)	,	Other (Ex	plain in Remarks)
Deplete	ed Below Dark Su	urface (A	(11) Redox	Dark Su	rface (F6	5)		
Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface	(F7)		
Sandy I	Mucky Mineral (S	51)	Redox	Depress	ions (F8)		
(LRR N	, MLRA 147, 14	8)	Iron-Ma	inganes	e Masse	s (F12) ((LRR N, MLRA 136)	
Sandy	Gleyed Matrix (S	4)		Surface	(⊢13) (N		36, 122)	
Sandy I	Redox (S5)				iplain So	IIS (F19)	(MLRA 148)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	teriai (F2		A 127, 147)	
Indicators	of hydrophytic ye	actation	and wetland by	drology	must bo	procont	unless disturbed or pr	blomatic
nuicators		getation	and wettand my	arology	must be	present,		blematic
Restrictive I	Layer (if observe	d):						
ype:	•	,					Hydric soil pres	ent? N
epth (inch	es):				-			
, op (or.								
Remarks:								
Remarks:								
Remarks:								
emarks:								

SOIL

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Hollowav-Knox 138 kV Transmission Line	e Citv/Countv:	Carroll	Report Name: Sampling Date:	Wetland KW-22a 5/4/2018	
Applicant/Owner: FirstEnergy	State:	Ohio	Sampling Point:	: w-tma-05/04/2018-05A	
Investigator(s): M. Thomayer, T. Qualio; Jacobs	Section	n, Township, R	ange: S23 T14N R5W	/	
Landform (hillslope, terrace, etc.): depressional /rivering	 Local relief (cor 	ncave, convex,	none): concave	Slope (%): 0-2%	
Subregion (LRR or MLRA): LRR N Lat.:	40.629	Long	.: <u>-81.0423</u>	Datum: NAD 83	
Soil Map Unit Name: Sb: Sebring silt loam		N	IWI Classification: PEI	M1C, PUBG	
Are climatic/hydrologic conditions of the site typical for this	s time of the year?	Yes X	No(If no, e	explain in remarks)	
Are vegetation, soil, or hydrology _	significantly	/ disturbed?	Are "normal	Yes	
Are vegetation, soil, or hydrology _	naturally pr	oblematic?	circumstances" pres	sent?	
SUMMARY OF FINDINGS			(If needed, explain a	any answers in remarks)	
Hydronhytic vegetation present? Ves					
Hydric soil present? Yes	Is the sam	pled area with	nin a wetland? Ye	es	
Wetland hydrology present? Yes					
Remarks:					
PEM wetland in routinely maintained ROW, large	ge depressional	wetland with	stream s-tmq-0504	12018-05A running	
throughout.					
HYDROLOGY				1	
Wetland Hydrology Indicators:		Seco	ndary Indicators (minin	num of two required)	
Primary Indicators (minimum of one is required; check all	that apply)	s	urface Soil Cracks (B6)		
X Surface Water (A1) True Aqu	uatic Plants (B14)	s	parsely Vegetated Conc	cave Surface (B8)	
X High Water Table (A2) Hydroger	n Sulfide Odor (C1)	<u> </u>	rainage Patterns (B10)		
X Saturation (A3) Oxidized	Rhizospheres on Li	vingN	loss Trim Lines (B16)		
Water Marks (B1) Roots (C	3)	C	ry-Season Water Table	(C2)	
Sediment Deposits (B2) Presence	e of Reduced Iron (C	4) <u> </u>	rayfish Burrows (C8)		
X Drift Deposits (B3) Recent Ir	on Reduction in Tille	ed S	aturation Visible on Aeri	Jration Visible on Aerial Imagery (C9)	
) 0 ((07)	s	tunted or Stressed Plan	amernhia Desition (D2)	
		<u></u> G	eomorphic Position (D2	horphic Position (D2)	
Inundation Visible on AerialOther (E)	xplain in Remarks)	s	nallow Aquitard (D3)	5.0	
X Imagery (B7)		N	licrotopographic Relief (D4)	
X Water-Stained Leaves (B9)		<u> </u>	AC-Neutral Test (D5)		
Field Observations:					
Surface water present? Yes X No	Depth (inches):	2"	wetland		
Seturation present? Yes X No	Depth (inches):		nyurology	V	
(includes canillary fringe)	Depth (inches):		present?	<u> </u>	
Describe recorded data (stream gauge, monitoring well, a	erial photos, previo	us inspections), if available:		
Pomorko:					

VEGETATION - Use scientific names of plants

Sampling Point: w-tmq-05/04/2018-05A 50/20 Thresholds Absolute % Dominant Indicator 20% 50% Plot Size (30 ft. Tree Stratum) Cover Status Tree Stratum 0 Species 1 Salix nigra 2 Υ OBL Sapling/Shrub Stratum 3 8 Herb Stratum 2 39 98 3 Woody Vine Stratum 0 0 4 Dominance Test Worksheet 5 Number of Dominant 6 Species that are OBL, 7 FACW, or FAC: 8 5 (A) Total Number of Dominant 9 Species Across all Strata: 5 (B) 10 Total Cover 2 = Percent of Dominant Species that are OBL, Sapling/Shrub Absolute % Dominant Indicator FACW, or FAC: 100.00% (A/B) Plot Size (15 ft.) Stratum Cover Species Status Salix nigra 15 Υ OBL **Prevalence Index Worksheet** Total % Cover of: 2 OBL species 3 37 x 1 = 37 x 2 = 4 FACW species 170 340 15 5 FAC species 5 x 3 = **FACU** species 0 _x 4 = 6 0 UPL species 0 x 5 = 0 8 Column totals 212 (A) 392 (B) 9 Prevalence Index = B/A = 1 85 10 15 = Total Cover Hydrophytic Vegetation Indicators: Indicator Absolute % Dominant X Rapid test for hydrophytic vegetation Herb Stratum Plot Size (5 ft.) X Dominance test is >50% Cover Species Status Spiraea tomentosa FACW 45 γ X Prevalence index is ≤3.0* Phalaris arundinacea 40 γ FACW 2 Morphological adaptations* (provide supporting 3 Typha angustifolia 35 γ FACW FACW data in Remarks or on a separate sheet) 4 Persicaria pensylvanica 15 Ν 5 Boehmeria cylindrica 15 Ν FACW 6 Scirpus cyperinus 10 Ν FACW Problematic hydrophytic vegetation* (explain) 7 Symplocarpus foetidus 10 Ν OBL *Indicators of hydric soil and wetland hydrology must be present, OBL Asclepias incarnata 10 Ν 8 unless disturbed or problematic q Onoclea sensibilis 10 Ν FACW 10 Ranunculus repens Ν FAC **Definitions of Vegetation Strata:** 5 11 Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast 12 height (DBH), regardless of height. 13 14 Sapling/shrub - Woody plants less than 3 in. DBH and greater 15 than 3.28 ft (1 m) tall. 195 Total Cover = Herb - All herbaceous (non-woody) plants, regardless of size, and Woody Vine Dominant Indicator Absolute % woody plants less than 3.28 ft tall. Plot Size (30 ft.) Stratum Cover Species Status Woody vines - All woody vines greater than 3.28 ft in height. 2 3 Hydrophytic 5 vegetation 0 = Total Cover present? Υ Remarks: (Include photo numbers here or on a separate sheet)

Sampling Point: w-tmq-05/04/2018-05A

(Inches) Color (moist) % Type* Loc** Texture 0-12 2.5 Y 5/1 80 10 YR 4/6 20 C M loam clay	
0-12 2.5 Y 5/1 80 10 YR 4/6 20 C M loam clay Image: Constraint of the system of the	
Image: state of the state	
Image: state of the state	
Image: state of the state	
Image: state of the state	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains	
Location: PL=Pore Lining, M=Matrix	
ydric Soil Indicators: Indicators for Problemati	c Hydric Soils:
Dark Surface (S7)	
Histisol (A1) Polyvalue Below Surface (S8) 2 cm Muck (A10) (MLF	RA 147)
Histic Epipedon (A2) (MLRA 147, 148) Coast Prairie Redox (A	(16) (MLRA 147, 14
Black Histic (A3) Thin Dark Surface (S9) Piedmont Floodplain S	oils (F19)
Hydrogen Sulfide (A4) (MLRA 147, 148) (MLRA 136, 147)	
Stratified Layers (A5) Loamy Gleyed Matrix (F2) Very Shallow Dark Sur	face (TF12)
2 cm Muck (A10) (LRR N) X Depleted Matrix (F3) Other (Explain in Rema	arks)
Depleted Below Dark Surface (A11) Redox Dark Surface (F6)	
Thick Dark Surface (A12)Depleted Dark Surface (F7)	
Sandy Mucky Mineral (S1) Redox Depressions (F8)	
(LRR N, MLRA 147, 148) Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
Sandy Gleyed Matrix (S4)Umbric Surface (F13) (MLRA 136, 122)	
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148)	
Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147)	
ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	
estrictive Layer (if observed):	
ype: Hydric soil present? Y	_

SOIL

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Holloway-Knox 138 kV Transmission Applicant/Owner: FirstEnergy Investigator(s): M. Thomayer, T. Qualic; Jacobs Landform (hillslope, terrace, etc.): depressional /riv Subregion (LRR or MLRA): LRR N Soil Map Unit Name: Sb: Sebring silt loam Are climatic/hydrologic conditions of the site typical for Are vegetation , soil , or hydrologic Are vegetation , soil , or hydrologic Stumma BX OF EINDINCS Standard Standard	Line City/County: State: Section, erine Local relief (con Lat.: 40.6249	Carroll Ohio , Township, Ran cave, convex, n Long.: NW Yes X disturbed? oblematic?	Report Name: Sampling Date: Sampling Point ge: S23 T14N R5W one): concave -81.0425 I Classification: PE No (If no, e Are "normal circum present? (If needed, explain	Wetland KW-22b 5/4/2018 : w-tmq-05/04/2018-05 /
Hydrophytic vegetation present? Yes Hydric soil present? Yes Wetland hydrology present? Yes	Is the samp	bled area within	a wetland?	<u>′es</u>
PEM wetland in routinely maintained ROW, throughout. HYDROLOGY Wetland Hydrology Indicators:	large depressional w	etland with st	ream s-tmq-0504	2018-05 running num of two required)
Primary Indicators (minimum of one is required; check X Surface Water (A1)	all that apply) Aquatic Plants (B14) rogen Sulfide Odor (C1) lized Rhizospheres on Livits (C3) sence of Reduced Iron (C4 ent Iron Reduction in Tilled s (C6) Muck Surface (C7) er (Explain in Remarks)	Sur Spa Nor Dry Cra dSat Stu Stu Sha Sha KFAC	face Soil Cracks (B6) insely Vegetated Con- inage Patterns (B10) is Trim Lines (B16) -Season Water Table yfish Burrows (C8) uration Visible on Aer inted or Stressed Plan pomorphic Position (D2 illow Aquitard (D3) rotopographic Relief (C-Neutral Test (D5)	cave Surface (B8) (C2) ial Imagery (C9) its (D1) ?) (D4)
Field Observations:Surface water present?YesXNoWater table present?YesXNoSaturation present?YesXNo	Depth (inches): Depth (inches): Depth (inches):	2" 11" 0"	Wetland hydrology present?	Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

(includes capillary fringe)

VEGETATION - Use scientific names of plants

				-			Sampling Point: w-tmq-05/04/2018-05
Tree Stratum 1 <u>Salix nigra</u> 2 3 4	Plot Size (30 ft.)	Absolute % Cover 2	Dominant Species Y	Indicator Status OBL	50/20 Thresholds20%50%Tree Stratum01Sapling/Shrub Stratum38Herb Stratum3998Woody Vine Stratum00
5 6 7 8 9 10 Sapling/Shrub Stratum	Plot Size (15 ft.)		Total Cover Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 5 (A) Total Number of Dominant Species Across all Strata: 5 (B) Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)
1 <u>Salix nigra</u> 2 3 4 5 6 7 8 9 10					Y	OBL	Prevalence Index WorksheetTotal % Cover of:OBL species 37 X 1 = 37 FACW species 170 X 2 = 340 FAC species 5 X 3 = 15 FACU species 0 VPL species 0 X 5 = 0 Column totals 212 (A) 392 Prevalence Index = $B/A =$ 1.85
Herb Stratum 1 Spiraea tome 2 Phalaris arun 3 Typha angust 4 Persicaria pei 5 Boehmeria cy 6 Scirpus cyper 7 Symplocarpus 8 Asclepias inca 9 Onoclea sens 11 12 13 13	Plot Size (ntosa dinacea tifolia nsylvanica vlindrica rinus s foetidus arnata sibilis epens	5 ft.)	Absolute % Cover 45 40 35 15 15 10 10 10 10 5 5	Dominant Species Y Y N N N N N N N N	Indicator Status FACW FACW FACW FACW FACW OBL OBL OBL FACW FAC	Hydrophytic Vegetation Indicators: X Rapid test for hydrophytic vegetation X Dominance test is >50% X Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
14 15 Woody Vine Stratum 1 2	Plot Size (30 ft.)	<u> </u>	Total Cover Dominant Species	Indicator Status	 Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
3 4 5	bata wasta d				- Total Cover		Hydrophytic vegetation present? Y
rtemarks: (include p	nuto numbers hei	ie or on a s	epara	ie sneet)			

Sampling Point: w-tmq-05/04/2018-05

Depth	Matrix		Rec	lox Fea	tures		Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-12	2.5 Y 5/1	80	10 YR 4/6	20	С	М	loam clay	
Гуре: С=С	oncentration, D=	Depletic	n, RM=Reduced	Matrix,	CS=Cov	vered or	Coated Sand Grains	
Location:	PL=Pore Lining,	M=Matr	ix					
vdric Soi	Indicators:						Indicators for	Problematic Hydric Soils:
-			Dark Su	urface (S	57)			-
Histisol	(A1)		Polyvalı	ue Belo	w Surfac	e (S8)	2 cm Muck	(A10) (MLRA 147)
Histic E	pipedon (A2)		(MLRA	147, 14	8)		Coast Prair	ie Redox (A16) (MLRA 147, 14
Black H	istic (A3)		Thin Da	irk Surfa	ace (S9)		Piedmont F	loodplain Soils (F19)
Hydrog	en Sulfide (A4)		(MLRA	147, 14	8)		(MLRA 136	6, 147)
Stratifie	d Layers (A5)		Loamy	Gleyed	Matrix (F	2)	Very Shallo	w Dark Surface (TF12)
2 cm M	uck (A10) (LRR	N)	X Deplete	d Matrix	(F3)		Other (Exp	lain in Remarks)
Deplete	d Below Dark Su	urface (A	.11) Redox I	Dark Su	rface (F6	5)		
Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface	(F7)		
Sandy	Mucky Mineral (S	51)	Redox I	Depress	ions (F8)		
	, MLRA 147, 14	8)	Iron-Ma	nganes	e Masse	s(⊢12)(LRR N, MLRA 136)	
Sandy	Beyed Matrix (S	4)	Umbric	Surface	e (F13) (N dialatia Ca		36, 122)	
Sandy	Redox (SS)		Pleamo	ni Fiooc	ipiain So torial (E2	1) (MID	(IVILKA 148)	
Suppe			Reu Pa	rent wa	tenai (F2		A 127, 147)	
ndiaatara	of budrophytic va	actotion	and watland by	drology	must he	propert	unloss disturbed or prol	alomatia
nuicators		gelation	and wettand hy	liology	must be	present,	uniess disturbed of pro	Jenale
						1		
estrictive	aver (if observe	d):						
							Hydric soil prese	nt? Y
vpe:	es):				-			<u> </u>
ype: epth (inch	/.				-			
ype: epth (inch								
ype: epth (inch emarks:								
ype: epth (inch emarks:								
ype: pepth (inch emarks:								
ype: epth (inch emarks:								
ype: epth (inch emarks:								

SOIL

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Holloway-Knox 138 kV Tra	nsmission I ine	City/County:	Carroll	Report Name: Sampling Date:	Upland KW-22 5/4/2018					
Applicant/Owner: FirstEnergy		State	Ohio	Sampling Point	: up-tmg-05042018-05					
Investigator(s): M. Thomaver, T. Qualio: Ja	cobs	Section	Township, Rand	e: S23 T14N R5W						
Landform (hillslope, terrace, etc.): hillslop	e	Local relief (cor	ncave, convex, no	ne): convex	Slope (%): 5-7%					
Subregion (LRR or MLRA): LRR N	Lat.:	40.625683079	Long.:	-81.042434634	Datum: NAD 83					
Soil Map Unit Name: Sb: Sebring silt loam			NWI	Classification: No	ne (upland					
Are climatic/hydrologic conditions of the site	typical for this ti	me of the year?	Yes X	No(If no, e	explain in remarks)					
Are vegetation, soil, o	r hydrology	significantly	disturbed?	Are "normal circum	stances" <u>Yes</u>					
Are vegetation, soil, o	r hydrology	naturally pr	oblematic?	present? (If needed, explain	any answers in remarks)					
SUMMARY OF FINDINGS										
Hydrophytic vegetation present? No										
Hydric soil present? No		Is the sampled area within a wetland? No								
Wetland hydrology present? No	_									
Remarks:										
Upland point corresponding to wetla	ind KW-21/22									
HYDROLOGY										
Wetland Hydrology Indicators:			Seconda	ary Indicators (minir	num of two required)					
Primary Indicators (minimum of one is require	red; check all tha	at apply)	Surfa	ace Soil Cracks (B6)						
Surface Water (A1)	True Aquat	ic Plants (B14)	Spar	sely Vegetated Con	cave Surface (B8)					
High Water Table (A2)	Hydrogen S	Sulfide Odor (C1)	 Draiı	nage Patterns (B10)	()					
Saturation (A3)	Ovidized R	hizosnheres on Li	ving Mos	s Trim Lines (B16)						
Water Marks (B1)	Roots (C3)		Drv-	Season Water Table	(C2)					
Sediment Deposits (B2)	Presence o	f Reduced Iron (C	4) Crav	fish Burrows (C8)	(02)					
Drift Deposits (B3)	Recent Iror	Reduction in Tille	ed Satu	Saturation Visible on Aerial Imagery (C9)						
Algal Mat or Crust (B4)	Soils (C6)		Stun	Stunted or Stressed Plants (D1)						
Iron Deposits (B5)	Thin Muck	Surface (C7)	Geo	Geomorphic Position (D2)						
Inundation Visible on Aerial	Other (Exp	lain in Remarks)	Shal	Shallow Aguitard (D3)						
Imagery (B7)		/	Micro	Microtopographic Relief (D4)						
Water-Stained Leaves (B9)			FAC	-Neutral Test (D5)	()					
Aquatic Fauna (B13)										
Field Observations:			ſ							
Surface water present? Yes	No X	Denth (inches)		Wetland						
Water table present? Yes	- No $-$ X	_ Depth (inches): Depth (inches):		hydrology						
Saturation present? Yes		Depth (inches):		present?	Ν					
(includes capillary fringe)				p						
Describe recorded data (stream gauge, mon	itoring well, aeri	al photos, previo	us inspections), if	available:						
Remarks:										

VEGETATION - Use scientific names of plants

			P.0				Sampling Point: up-tmq-05042018-05
Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	50/20 Thresholds20%50%Tree Stratum0Sapling/Shrub Stratum8Herb Stratum1743Woody Vine Stratum0
							Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 Total Number of Dominant Species Across all Strata: 4 (B)
Sapling/Shrub Stratum	Plot Size (15 ft.)	0 = Absolute % Cover	 Total Cover Dominant Species 	Indicator Status	Percent of Dominant Species that are OBL, FACW, or FAC:0.00% (A/B)
Rosa multiflora	3				Y	FACU	Prevalence Index WorksheetTotal % Cover of:OBL species 0 X 1 = 0 FACW species 0 X 2 = 0 FAC species 0 X 3 = 0 FACU species 100 X 4 = 400 UPL species 0 Column totals 100 (A) 400 Prevalence Index = B/A = 4.00
Herb Stratum Andropogon vi Poa pratensis Dichathelium o	Plot Size (irginicus clandestinum	5 ft.)	40 = Absolute % Cover 30 30 25	Total Cover Dominant Species Y Y Y Y	Indicator Status FACU FACU FAC	Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
3							Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be prese unless disturbed or problematic
					\equiv		Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at brea height (DBH), regardless of height.
5				85 =	Total Cover		Sapling/shrub - Woody plants less than 3 in. DBH and greate than 3.28 ft (1 m) tall.
Woody Vine Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status	woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
							Hydrophytic vegetation
5				0	T-+-1 0		

Sampling Point: up-tmq-05042018-05

Depth	Matrix		Red	tures		Texture		Pomorko	
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		exture	Remarks
0-10	10 YR 3/2	100					loam		
Type: C-C	oncentration D-	Depletic	n RM=Reducer	Matrix	1 (S=Ca)	l vered or	Costed S	and Grains	l
i ype. 0–0 *Location:	PI =Pore Lining	M=Matr	ix	i iviau IX,	03-00		Coaled S	and Grains	
	ledicatore:	wi–wau						ndiaatana fan l	Drahlamatia Undria Cailar
iyuric Soli	mulcators:		Dark Si	urface (S	37)		I	nuicators for	Problematic Hydric Solis:
Histisol	(A1)		Polvval	ue Belov	w Surfac	e (S8)		2 cm Muck	(A10) (MI RA 147)
Histic E	pipedon (A2)		(MLRA	147.14	8)	- ()	-	Coast Prair	ie Redox (A16) (MLRA 147. 14
Black H	listic (A3)		Thin Da	irk Surfa	ace (S9)		-	Piedmont F	loodplain Soils (F19)
Hydrogen Sulfide (A4) (MLRA 147, 148)								(MLRA 136	5, 147)
Stratified Layers (A5) Loamy Gleyed Matrix (2) Very Shallow Dark Surface (TF12)			
2 cm M	uck (A10) (LRR	N)	Deplete	d Matrix	(F3)		_	Other (Expl	ain in Remarks)
Deplete	ed Below Dark Su	urface (A	(11) Redox	Dark Su	rface (F6	5)			
Thick D	ark Surface (A12	2)	Deplete	d Dark	Surface	(F7)			
Sandy I	Mucky Mineral (S	51) •\	Redox	Depress	ions (F8) - (E40) (
	, MLKA 147, 146 Cloved Metrix (S	8) 4)		Surface		S(F12)(LKK N, N	ILRA 136)	
Sandy I	Bedox (S5)	4)	Onblic Piedmo	ourrace	: (F 13) (1 Inlain So	ile (E10)	MI PA 1	18)	
Strippe	d Matrix (S6)		Red Pa	rent Ma	terial (F2	1) (MI R	A 127.14	40) [7]	
				i one ma				,	
Indicators	of hydrophytic ve	egetation	and wetland hy	drology	must be	present,	unless di	sturbed or prot	olematic
	, , ,	0		0,				•	
Restrictive I	Layer (if observe	d):							
ype:					-		Нус	dric soil prese	nt? <u>N</u>
epth (inch	es):				-				
omarke.									
Remarks:									
Remarks:									
Remarks:									
emarks:									

SOIL

Appendix B OEPA ORAM Datasheets







46 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

3

Present in moderate or greater amounts



clearcutting

1

selective cutting

toxic pollutants

woody debris removal

sedimentation

nutrient enrichment

dredging

farming

36

Recent or no recovery (1)



Category Modified 2

38 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

2

3

of marginal quality

and of highest quality

Present in moderate amounts, but not of highest

quality or in small amounts of highest quality

Present in moderate or greater amounts





Category 1 or 2 Gray Zone

30 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

1

2

3

Present very small amounts or if more common

Present in moderate amounts, but not of highest

quality or in small amounts of highest quality

Present in moderate or greater amounts

of marginal quality

2

max 6 pts.

2

subtotal

Wetland KW-4





Category Modified 2

41 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jim

2

3

Present in moderate amounts, but not of highest guality or in small amounts of highest guality

Present in moderate or greater amounts

2

max 6 pts.

2

subtotal



<0.1 acres (0.04ha) (0 pts) 13 15 Metric 2. Upland buffers and surrounding land use. 2a. Calculate average buffer width. Select only one and assign score. Do not double check. subtotal max 14 pts WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrubland, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) 11.5 26.5 Metric 3. Hydrology. max 30 pts 3a. Sources of Water. Score all that apply. subtotal 3b. Connectivity. Score all that apply. High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1) Precipitation (1) Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3d. Duration inundation/saturation. Score one or dbl check. 3c. Maximum water depth. Select only one and assign score. Semi- to permanently inundated/saturated (4) >0.7 (27.6in) (3) Regularly inundated/saturated (3) 0.4 to 0.7m (15.7 to 27.6in) (2) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) ✓ <0.4m (<15.7in) (1) 7 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed Recovered (7) ditch point source (nonstormwater) filling/grading Recovering (3) tile 1 Recent or no recovery (1) dike road bed/RR track weir dredging stormwater input other 35 8.5 Metric 4. Habitat Alteration and Development. max 20 nts subtotal 4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Habitat development. Select only one and assign score. 4b. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed Recovered (6) shrub/sapling removal mowing 1 ./ \checkmark Recovering (3) grazing herbaceous/aquatic bed removal

clearcutting

1

selective cutting

toxic pollutants

woody debris removal

√

sedimentation

nutrient enrichment

dredging

farming

Recent or no recovery (1)



Category Modified 2



Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jim

2

3

of marginal guality

and of highest quality

Present in moderate amounts, but not of highest

quality or in small amounts of highest quality

Present in moderate or greater amounts



woody debris removal

toxic pollutants

farming

nutrient enrichment

38.5



Category Modified 2

44.5 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

2

3

of marginal guality

and of highest quality

Present in moderate amounts, but not of highest

quality or in small amounts of highest quality

Present in moderate or greater amounts

Site: FirstEnergy Holloway-Knox 138kV







Site: FirstEnergy Holloway-Knox 138kV Rater(s): M. Thomayer, T. Qualio

Wetland KW-7



41 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

3

Present in moderate or greater amounts

Site: FirstEnergy Holloway-Knox 138kV Rater(s): M. Thomayer, T. Qualio Date: 5/02/2018 w-tmq-5/02/2018-01 2 2 Metric 1. Wetland Area (size). Select one size class and assign score. max 6 pts. subtotal >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts) 9 11 Metric 2. Upland buffers and surrounding land use. 2a. Calculate average buffer width. Select only one and assign score. Do not double check. subtotal max 14 pts WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrubland, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) 12 23 Metric 3. Hydrology. 3a. Sources of Water. Score all that apply. max 30 pts subtotal 3b. Connectivity. Score all that apply. High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1) Precipitation (1) 1 Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3d. Duration inundation/saturation. Score one or dbl check. 3c. Maximum water depth. Select only one and assign score. Semi- to permanently inundated/saturated (4) >0.7 (27.6in) (3) Regularly inundated/saturated (3) 0.4 to 0.7m (15.7 to 27.6in) (2) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) ✓ <0.4m (<15.7in) (1) 1 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed Recovered (7) ditch point source (nonstormwater) 1 filling/grading Recovering (3) tile 1 Recent or no recovery (1) dike road bed/RR track weir dredaina stormwater input other 8 31 Metric 4. Habitat Alteration and Development. max 20 pts subtotal 4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Habitat development. Select only one and assign score. 4b. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed Recovered (6) shrub/sapling removal mowing ./ Recovering (3) grazing herbaceous/aquatic bed removal Recent or no recovery (1) clearcutting sedimentation selective cutting dredging 1 31 woody debris removal farming

toxic pollutants

nutrient enrichment

subtotal this page

Site: FirstEnergy Holloway-Knox 138kV Rater(s): M. Thomayer, T. Qualio

Wetland KW-8 Date: 5/02/2018



29 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm



subtotal this page



Category 1

23 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

1

2

3

Present very small amounts or if more common

Present in moderate amounts, but not of highest

quality or in small amounts of highest quality

Present in moderate or greater amounts

of marginal quality



woody debris removal

toxic pollutants

1

farming

nutrient enrichment

9



Date: 5/02/2018

w-tmq-5/02/2018-03



15 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm



last revised 1 February 2001 jjm


Date: 5/02/2018

w-tmq-5/02/2018-05



Category 1

21.5 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

3

Present in moderate or greater amounts



last revised 1 February 2001 jjm



Modified 2

39 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

1

2

3

Present very small amounts or if more common

Present in moderate amounts, but not of highest guality or in small amounts of highest guality

Present in moderate or greater amounts

of marginal quality

Date: 5/03/2018





Modified 2

41 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

1

2

3

Present very small amounts or if more common

Present in moderate amounts, but not of highest

quality or in small amounts of highest quality

Present in moderate or greater amounts

of marginal quality





1 or 2 gray zone

33 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

2

3

of marginal guality

and of highest quality

Present in moderate amounts, but not of highest

quality or in small amounts of highest quality

Site: FirstEnergy Holloway-Knox 138kV

Date: 5/03/2018





Rater(s): M. Thomayer, T. Qualio

last revised 1 February 2001 jjm



Modified 2

40 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

2

3

Present in moderate amounts, but not of highest

quality or in small amounts of highest quality

Present in moderate or greater amounts









last revised 1 February 2001 jjm



Category 1

21 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

2

3

of marginal quality

and of highest quality

Present in moderate amounts, but not of highest

quality or in small amounts of highest quality



toxic pollutants

nutrient enrichment

subtotal this page



1 or 2 gray zone

33 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

2

3

of marginal quality

and of highest quality

Present in moderate amounts, but not of highest guality or in small amounts of highest guality



toxic pollutants

nutrient enrichment



Category 1

24 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

2

3

of marginal quality

and of highest quality

Present in moderate amounts, but not of highest guality or in small amounts of highest guality





Category 1

29 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

2

3

of marginal quality

and of highest quality

Present in moderate amounts, but not of highest quality or in small amounts of highest quality





1 or 2 gray zone

34 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

2

3

of marginal quality

and of highest quality

Present in moderate amounts, but not of highest guality or in small amounts of highest guality

ORAM v. 5.0 Field Form Quantitative Rating Site: FirstEnergy Holloway-Knox 138kV Rater(s): M. Thomayer, T. Qualio Date: 5/04/2018 w-tmq-5/04/2018-06 2 2 Metric 1. Wetland Area (size). Select one size class and assign score. max 6 pts. subtotal >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts) 4 6 Metric 2. Upland buffers and surrounding land use. 2a. Calculate average buffer width. Select only one and assign score. Do not double check. subtotal max 14 pts WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrubland, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) 13 19 Metric 3. Hydrology. 3a. Sources of Water. Score all that apply. max 30 pts subtotal 3b. Connectivity. Score all that apply. High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) 1 Part of wetland/upland (e.g. forest), complex (1) Precipitation (1) 1 Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3d. Duration inundation/saturation. Score one or dbl check. 3c. Maximum water depth. Select only one and assign score. Semi- to permanently inundated/saturated (4) >0.7 (27.6in) (3) Regularly inundated/saturated (3) 0.4 to 0.7m (15.7 to 27.6in) (2) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) ✓ <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed Recovered (7) ditch point source (nonstormwater) filling/grading Recovering (3) tile Recent or no recovery (1) dike road bed/RR track weir dredaina stormwater input other 29 10 Metric 4. Habitat Alteration and Development. max 20 nts subtotal 4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) 1 Recovered (3) Recovering (2) Recent or no recovery (1) Habitat development. Select only one and assign score. 4b. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)

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





Category 1

29 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

2

3

of marginal quality

and of highest quality

Present in moderate amounts, but not of highest quality or in small amounts of highest quality





Date: 5/04/2018

w-tmq-5/04/2018-05



55 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html last revised 1 February 2001 jjm

Appendix C OEPA QHEI Datasheets

		Strea	m KW-014	Fair
ChieEPA	Qualitative Habitat E and Use Assessme	valuation Index nt Field Sheet	QHEI Score	47.25
Stream & Location: Conser Run	Holloway-Knox 138kV Transmission	Line R	RM:Date:	05 03 18
<u>qh-tmq-05/02/2018-03</u>	Scorers Fu	II Name & Affiliation: <u>M.</u>	Thomayer, T.Qualio-Cl	H2M HILL Office verified —
11 SUBSTRATE Check ONLY Two	Substrate TYPE BOXES	D 83 - decimal °) <u> </u>	/8	location 🗹
I J SOBSTRATE Show Control in the estimate % or note % o	e every type present CTHER TYPES POOL RIF HARDPAN [4] DETRITUS [3] DETRITUS [3] C SILT [2] O 10 ARTIFICIAL [0] (Score natural substrates; ig 4 or more [2] sludge from point-sour 3 or less [0]	Check ONE ORIGIN LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] Cress LACUSTURINE [0] SHALE [-1] COAL FINES [-2]	E (Or 2 & average) QUAL HEAVY [- SILT MODERA SILT NORMAL FREE [1] DEC SI MODERA MODERA NORMAL NONE [1]	ITY 2] TE [-1] VE [-2] [0] Maximum 20
2] INSTREAM COVER Indicate p quality; 2- quality; 3-Highest quality in moderate o diameter log that is stable, well develo 1 UNDERCUT BANKS [1] 1 OVERHANGING VEGETATION 1 SHALLOWS (IN SLOW WATER ROOTMATS [1] Comments	resence 0 to 3: 0-Absent; 1-Very sma Moderate amounts, but not of highest or greater amounts (e.g., very large bo ped rootwad in deep / fast water, or de 1 POOLS > 70cm [2] [1] ROOTWADS [1]] [1] BOULDERS [1]	Il amounts or if more common o c quality or in small amounts of h oulders in deep or fast water, lar eep, well-defined, functional por OXBOWS, BACKWATERS AQUATIC MACROPHYTES LOGS OR WOODY DEBRI	f marginal AMO nighest rge Check ONE (C ols. EXTENSIVE [1] MODERATE 5 [1] SPARSE 5 5 [1] NEARLY AB	UNT 575% [11] 25-75% [7] 525% [3] SENT <5% [1] Cover Maximum 20 9 9
3] CHANNEL MORPHOLOGY	Check ONE in each category (<i>Or 2 & a</i>	average)		
SINUOSITY DEVELOPME HIGH [4] EXCELLENT MODERATE [3] GOOD [5] LOW [2] FAIR [3] NONE [1] POOR [1] Comments FAIR [3]	NT CHANNELIZATION [7] NONE [6] RECOVERED [4] RECOVERING [3] RECENT OR NO RECOVE	STABILITY HIGH [3] MODERATE [2] LOW [1] RY [1]		Channel Maximum 20
4] BANK EROSION AND RIPA River right looking downstream EROSION Comments RII RIVE	RIAN ZONE Check ONE in each of PARIAN WIDTH F DE > 50m [4] Image: I	Eategory for EACH BANK (Or 2) FLOOD PLAIN QUALITY ST, SWAMP [3] B OR OLD FIELD [2] ENTIAL, PARK, NEW FIELD [1] ED PASTURE [1] PASTURE, ROWCROP [0]	per bank & average) □ □ CONSERVATIO ☑ □ URBAN OR IND □ □ MINING / CONS Indicate predominant la past 100m riparian.	N TILLAGE [1] DUSTRIAL [0] STRUCTION [0] and use(s) Riparian Maximum 10
5] POOL / GLIDE AND RIFFLE MAXIMUM DEPTH CI Check ONE (ON/Y) Check	(<i>RUN QUALITY</i> HANNEL WIDTH (ONE (0r.2 & average)		Recreation	Potential
□ > 1m [6] □ POOL W □ 0.7-<1m [4]	IDTH > RIFFLE WIDTH [2] □ TORF IDTH = RIFFLE WIDTH [1] □ VERY IDTH < RIFFLE WIDTH [0] □ FAST IDTH < RIFFLE WIDTH [0] □ Indu	RENTIAL [-1] ✓ SLOW [1] (FAST [1] □ INTERSTITIAL [1] □ INTERSTITIAL [1] □ INTERMITTEN ERATE [1] □ EDDIES [1] icate for reach - pools and riffles	L [-1] S.	Pool / G
Comments High flow at time of sur	vev			Maximum 12
Indicate for functional riffl of riffle-obligate species: RIFFLE DEPTH RU □ BEST AREAS > 10cm [2] □ MAXII	es; Best areas must be large Check ONE (Or 2 N DEPTH RIFFLE / RUI MUM > 50cm [2]	e enough to support a p & average). N SUBSTRATE RIFFLI cobble, Boulder) [2]	Dopulation	RIFFLE [metric=0] EDNESS
BEST AREAS 5-10cm [1] MAXII	vi∪ivi < 50cm [1] ∐ MOD. STABLE (e.g., Large Gravel) [1] ., Fine Gravel, Sand) [0]	LOW [1]	Riffle /
[metric=0]			EXTENSIVE [-1]	Maximum
6] <i>GRADIENT</i> (12 ft/mi) □ DRAINAGE AREA ☑ (15.6 mi²) □	VERY LOW - LOW [2-4] MODERATE [6-10] HIGH - VERY HIGH [10-6]	%POOL: 20 % %RUN: 80 %F		Gradient Maximum 10



Stream Drawing:



			Stream KW-	015	Fair
ChieEPA	Qualitative Habita and Use Assess	t Evaluation Indement Field Shee	ex QHEI	Score:	46.75
Stream & Location: Sandy Creek/	Holloway-Knox 138kV Transmis	sion Line	RM:	Date: 05	03 / 18
s-tmq-05/02/2018-05	Scorers	Full Name & Affiliatio	n: M. Thomayer,	T.Qualio-CH2M I	
<i>River Code:</i> <u>0504</u> - <u>0001</u> - <u>0406</u>	STORET #:	Lat./ Long.: _ (NAD 83 - decimal °) *	/8		location
1] SUBSTRATE Check ONLY Two setimate % or note estimate % or note BEST TYPES DOL RIFFL BUDR /SLABS [10] BOULDER [9] COBBLE [8] 20 30 30 30 30 30 30	ubstrate TYPE BOXES; every type present OTHER TYPES POOL HARDPAN [4] DETRITUS [3] DETRITUS [3] D	Chec ORIGIN LIMESTONE [1] TILLS [1] 20 HARDPAN [0] SANDSTONE [0] es: ignore RIP/RAP [0]	k ONE (Or 2 & ave SILT	erage) QUALITY HEAVY [-2] MODERATE [- NORMAL [0] FREE [1] EXTENSIVE [- MODERATE [-	$\begin{array}{c} \textbf{.1} \\ \textbf{.2} \\ \textbf{.2} \\ \textbf{.1} \\ \textbf{.2} \end{array}$
NUMBER OF BEST TYPES: Comments	4 or more [2] sludge from point 3 or less [0]	-sources) LACUSTURINE SHALE [-1] COAL FINES [-2	[0] 🗟 👋 🖓 [2]	NORMAL [0]	20
2] INSTREAM COVER Indicate pr quality; 2-M quality; 3-Highest quality in moderate o diameter log that is stable, well develop UNDERCUT BANKS [1] 1 OVERHANGING VEGETATION [SHALLOWS (IN SLOW WATER) ROOTMATS [1] Comments	esence 0 to 3: 0-Absent; 1-Very Adderate amounts, but not of hig r greater amounts (e.g., very larg ed rootwad in deep / fast water, 1 POOLS > 70cm [2] 1 ROOTWADS [1] [1] BOULDERS [1]	small amounts or if more com ghest quality or in small amoun ge boulders in deep or fast wa or deep, well-defined, function OXBOWS, BACKWA AQUATIC MACROPI 1 LOGS OR WOODY D	mon of marginal hts of highest iter, large Cho hal pools. TERS [1] VTES [1] SEBRIS [1] N	AMOUNT eck ONE (Or 2 & EXTENSIVE >75% IODERATE 25-7 PARSE 5-<25% IEARLY ABSEN Ca Maxin	- average) % [11] 55% [7] [3] T <5% [1] Diver mum 20
31 CHANNEL MORPHOLOGY	neck ONE in each category (Or	2 & average)			
SINUOSITY DEVELOPMEN HIGH [4] EXCELLENT [MODERATE [3] GOOD [5] LOW [2] FAIR [3] NONE [1] POOR [1] Comments Formation of the second	IT CHANNELIZATIO 7] □ NONE [6] ☑ RECOVERED [4] □ RECOVERING [3] □ RECENT OR NO RECO	N STABILITY HIGH [3] MODERATE LOW [1] DVERY [1]	[2]	Cha Maxii	mum 20
4] BANK EROSION AND RIPAR River right looking downstream RIP □ ROSION □ □ NONE / LITTLE [3] □ MODE □ MODERATE [2] □ NAR □ HEAVY / SEVERE [1] □ VER □ NON Comments NON	RIAN ZONE Check ONE in ea ARIAN WIDTH > 50m [4] > 50m [4] BRATE 10-50m [3] ROW 5-10m [2] Y NARROW < 5m [1]	Ach category for EACH BANK FLOOD PLAIN QUA DREST, SWAMP [3] IRUB OR OLD FIELD [2] ESIDENTIAL, PARK, NEW FIE ENCED PASTURE [1] PEN PASTURE, ROWCROP	(Or 2 per bank & a LITY □ □ □ CON □ □ URE LD [1] □ □ MIN Indicate pro past 100m	ISERVATION TIL SAN OR INDUST ING / CONSTRU edominant land us riparian. Ripa Maxir	LLAGE [1] RIAL [0] CTION [0] se(s) arian num 10 3.7‡
5] POOL / GLIDE AND RIFFLE , MAXIMUM DEPTH CH Check ONE (ONLY!) Check) > 1m [6] POOL WI 0.7-<1m [4] POOL WI 0.4-<0.7m [2] POOL WI 0.2-<0.4m [1] < 0.2m [0] Comments	/ RUN QUALITY ANNEL WIDTH ONE (Or 2 & average) DTH > RIFFLE WIDTH [2] DTH = RIFFLE WIDTH [1] N DTH < RIFFLE WIDTH [1]	CURRENT VELOCIA Check ALL that apply FORRENTIAL [-1] SLOW [/ERY FAST [1] INTERS FAST [1] INTERN MODERATE [1] EDDIES Indicate for reach - pools and	TY 1] TITIAL [-1] IITTENT [-2] 5 [1] 5 riffles.	Recreation Po Primary Cor econdary Co rcle one and comment rcle one and comment rcle one and comment rcle one and comment Ravin	tential tact ontact tonback) ool / rrent 12
Indicate for functional riffle of riffle-obligate species: RIFFLE DEPTH RUN BEST AREAS > 10cm [2] MAXIN BEST AREAS > 10cm [1] MAXIN BEST AREAS < 5cm [metric=0] Comments	es; Best areas must be la Check ONE ((I DEPTH RIFFLE / UM > 50cm [2] STABLE (e. UM < 50cm [1] MOD. STABLE UNSTABLE	arge enough to suppo Dr 2 & average). RUN SUBSTRATE R g., Cobble, Boulder) [2] BLE (e.g., Large Gravel) [1] (e.g., Fine Gravel, Sand) [0]	rt a population	n MBEDDEDN E [2] [1] ERATE [0] Maxi	LE [metric=0] ESS iffle / 0 mum 8
6] GRADIENT (8.3 ft/mi) DRAINAGE AREA (20.6 mi ²)	VERY LOW - LOW [2-4] MODERATE [6-10] HIGH - VERY HIGH [10-6]	%POOL: 20 %RUN: 80)%GLIDE:()%RIFFLE:(Grad Maxin	dient 10

A] SAMPLE	ED REACH	Comment RE: Reach consistency/	Is reach typical of steam?, Recreatior	n/Observed - Inferred, Other	✓ Sampling observations, Concerns, Acc	ess directions, etc.
Check A	LL that apply	Perennial flow regime. surrounded	by maintained herbaceous field, route	e 30 to the north, railroad tra	cks with wetland in between to the south	l
METHOD	STAGE					
		OHWM = 10', TOB = 15'				
DISTANCE						
∐ 0.5 Km □ 0.2 Km	CLARITY	B] AESTHETICS	D] MAINTENANCE	Circle some & COMMENT	E] ISSUES	F] MEASUREMENTS
0.15 Km	1stsample pass 2nd	NUISANCE ALGAE	PUBLIC / PRIVATE / BOTH / NA		WWTP / CSO / NPDES / INDUSTRY	x width 10 ft
0.12 Km	□ < 20 cm □		ACTIVE / HISTORIC / BOTH / NA		HARDENED / URBAN / DIRT&GRIME	x depth
	\square 20-<40 cm \square 40 70 cm \square		YOUNG-SUCCESSION-OLD		CONTAMINATED / LANDFILL	max. depth ^{2 ft}
100 ft			SPRAY / SNAG / REMOVED		BMPs-CONSTRUCTION-SEDIMENT	x bankfull width 15 ft
			MODIFIED / DIPPED OUT / NA		LOGGING / IRRIGATION / COOLING	bankfull x depth
meters					BANK / ERUSION / SURFACE	W/D ratio
CANOP	Y 1st cm					bankfull max. depth
🗸 > 85%- OPE	as N					floodprone x^2 width
55%-<85%	2nd cm					entrench ratio
☐ 30%-<55%			IMPOLINDED / DESICCATED		PARK / GOLE / LAWN / HOME	
□ 10%-<30%	C] RECRE	ATION AREA DEPTH	FLOOD CONTROL / DRAINAGE		ATMOSPHERE / DATA PAUCITY	Legacy free:
□ <10%- CLO	SED	<i>POOL:</i> []>100π ² []>3π				

Stream Drawing:

	and the second			
2-	highway Route 30			
	Ve Legrass SlopE Le	K	le	
	~	and		L LOW
	K Ellad Ridge M	ST THE	noh Val	
	PEM wetland		5	FRAILROad
NA	RIPTION OF STREAM REACH (This <u>must</u> be completed):	OESO SULTARAN (DESC SULTARAN	INA ONIWAAD	prior tracks

		Str	eam KW-17 Poo	or
ChieEPA	Qualitative Habita and Use Assess	at Evaluation Index ment Field Sheet	QHEI Score	9: 41.5
Stream & Location: Holloway-Kno	ox 138kV Transmission Line		RM:Date:	5 03 18
<u>s-mdt-05/03/2018-03; Muddy Fork</u> <i>River Code:</i> 0504 - 0001 - 040	Scorer: 4_STORET #:	s Full Name & Affiliation:_ Lat./ Long.: (NAD 83 - decimal °) •	M. Thomayer, T.Qualio; Ja	acobs Office verified location ☑
1] SUBSTRATE Check ONLY Two sestimate % or note BEST TYPES POOL RIFFL	Substrate TYPE BOXES; every type present OTHER TYPES POO Image: Im	Check O ORIGIN UIMESTONE [1] UIMESTONE [1] UIMESTONE [1] UIMESTONE [0] UIMERDPAN [0] SANDSTONE [0]	NE (Or 2 & average) QUAL I HEAVY [- SILT MODERA NORMAL FREE [1]	ITY 2] TE [-1] Substrate .[0] VE [-2]
BEDROCK [5]	(Score natural substra 4 or more [2] sludge from poin 3 or less [0]	tes; ignore RIP/RAP [0] t-sources) LACUSTURINE [0] SHALE [-1] COAL FINES [-2]		TE [-1] Maximum [0] 20
2] INSTREAM COVER Indicate pr quality; 3-Highest quality in moderate o diameter log that is stable, well develop 1 UNDERCUT BANKS [1] 1 OVERHANGING VEGETATION [SHALLOWS (IN SLOW WATER) ROOTMATS [1]	esence 0 to 3: 0-Absent; 1-Ver, Moderate amounts, but not of hi r greater amounts (e.g., very lar ed rootwad in deep / fast water 1 POOLS > 70cm [2] 1 ROOTWADS [1] [1] BOULDERS [1]	small amounts or if more common ghest quality or in small amounts or rge boulders in deep or fast water, , or deep, well-defined, functional OXBOWS, BACKWATEI AQUATIC MACROPHYT LOGS OR WOODY DEB	of marginal AMO of highest large Check ONE (C pools. EXTENSIVE RS [1] MODERATE FES [1] SPARSE 5-< RIS [1] NEARLY AB	UNT >75% [11] 25-75% [7] 25% [3] SENT <5% [1]
				Maximum 7 20
3] CHANNEL MORPHOLOGY C SINUOSITY DEVELOPMEI HIGH [4] EXCELLENT [MODERATE [3] GOOD [5] LOW [2] FAIR [3] NONE [1] POOR [1] Comments	NT CHANNELIZATIO 7] □ NONE [6] ☑ RECOVERED [4] ☑ RECOVERING [3] □ RECENT OR NO REC	DN STABILITY HIGH [3] MODERATE [2] LOW [1]		Channel Maximum 20
4] BANK EROSION AND RIPAL River right looking downstream EROSION Ø Ø WID NONE / LITTLE [3]	RIAN ZONE Check ONE in e PARIAN WIDTH Image: Registration of the second sec	each category for <i>EACH BANK</i> (Or FLOOD PLAIN QUALIT OREST, SWAMP [3] HRUB OR OLD FIELD [2] ESIDENTIAL, PARK, NEW FIELD ENCED PASTURE [1] PEN PASTURE, ROWCROP [0]	2 per bank & average) TY B CONSERVATIO CONSERVATIO CONSERVATIO CONSERVATIO CONSERVATIO CONSERVATIO CONSERVATIO Indicate predominant la past 100m riparian.	N TILLAGE [1] DUSTRIAL [0] TRUCTION [0] and use(s) Riparian Maximum 10
5] POOL / GLIDE AND RIFFLE MAXIMUM DEPTH CH Check ONE (ONLY!) Check > 1m [6] POOL W 0.7-<1m [4] POOL W 0.4-<0.7m [2] POOL W 0.2-<0.4m [1] < 0.2m [0] Comments	/ RUN QUALITY IANNEL WIDTH ONE (Or 2 & average) DTH > RIFFLE WIDTH [2] DTH = RIFFLE WIDTH [1] DTH < RIFFLE WIDTH [0] I	CURRENT VELOCITY Check ALL that apply TORRENTIAL [-1] SLOW [1] VERY FAST [1] INTERSTIT FAST [1] INTERMITT MODERATE [1] EDDIES [1] Indicate for reach - pools and rift	IAL [-1] ENT [-2]	Pool / Current Pool / Maximum
Indicate for functional riffle of riffle-obligate species: RIFFLE DEPTH RUN ☑ BEST AREAS > 10cm [2] □ MAXIN □ BEST AREAS 5-10cm [1] ☑ MAXIN □ BEST AREAS < 5cm [metric=0] Comments	es; Best areas must be Check ONE (N DEPTH RIFFLE / IUM > 50cm [2] STABLE (e IUM < 50cm [1] MOD. STAL UNSTABLE	large enough to support a Or 2 & average). RUN SUBSTRATE RIFF a.g., Cobble, Boulder) [2] BLE (e.g., Large Gravel) [1] E (e.g., Fine Gravel, Sand) [0]	A population	RIFFLE [metric=0] EDNESS Riffle / 2 Maximum 8
6] <i>GRADIENT</i> (>140 ft/mi) □ DRAINAGE AREA (0.15 mi ²) ☑	VERY LOW - LOW [2-4] MODERATE [6-10] HIGH - VERY HIGH [10-6]	%POOL: 20 %RUN: 20	%GLIDE: 50 %RIFFLE: 10	Gradient Maximum 10



		Stream k	W-20 Poor
ChieEPA	Qualitative Habitat Evaluand Use Assessment F	ation Index QI	HEI Score: 41.5
Stream & Location: Holloway-Kno	x 138kV Transmission Line	<i>RM:</i> _	Date: 5 / 03 / 18
s-mdt-05/03/2018-04; Reeds Run	Scorers Full Nan	1e & Affiliation: M. Thom	ayer, T.Qualio; Jacobs Office verified —
All SUBSTRATE Check ONLY TWO	STORET #: (NAD 83 - dec	<u>imal °) /8</u>	Iocation ✓
BEST TYPES POOL RIFFL	every type present E OTHER TYPES POOL RIFFLE □ □ HARDPAN [4] 10 70 [Check ONE (<i>Or 2</i> ORIGIN LIMESTONE [1]	& average) QUALITY / HEAVY [-2] MODERATE [-1] Substrate
Image: Comparise of the sector of the sec	MUCK [2] 90 30 Gore natural substrates; ignore (Score natural substrates; ignore or more [2] sludge from point-sources) 3 or less [0]	INECTIONS [0] IWETLANDS [0] IHARDPAN [0] ISANDSTONE [0] RIP/RAP [0] ILACUSTURINE [0] ISHALE [-1]	INORMAL [0] FREE [1] EXTENSIVE [-2] MODERATE [-1] MODERATE [-1] NORMAL [0] NONE [1]
Comments	L	COAL FINES [-2]	
2] INSTREAM COVER Indicate pr quality; 3-Highest quality in moderate o diameter log that is stable, well develop 1 UNDERCUT BANKS [1] 1 OVERHANGING VEGETATION [SHALLOWS (IN SLOW WATER) ROOTMATS [1] Comments	esence 0 to 3: 0-Absent; 1-Very small amou Aoderate amounts, but not of highest quality r greater amounts (e.g., very large boulders ed rootwad in deep / fast water, or deep, we POOLS > 70cm [2] OXI 1] ROOTWADS [1] AQ [1] BOULDERS [1] LOO	nts or if more common of margi or in small amounts of highest in deep or fast water, large II-defined, functional pools. 30WS, BACKWATERS [1] JATIC MACROPHYTES [1] 3S OR WOODY DEBRIS [1]	nal AMOUNT Check ONE (Or 2 & average) □ EXTENSIVE >75% [11] □ MODERATE 25-75% [7] ☑ SPARSE 5-<25% [3]
3] CHANNEL MORPHOLOGY C SINUOSITY DEVELOPMEN HIGH [4] EXCELLENT [MODERATE [3] GOOD [5] LOW [2] FAIR [3] NONE [1] POOR [1] Comments	heck ONE in each category (<i>Or 2 & average</i> CHANNELIZATION 7] □ NONE [6] ☑ RECOVERED [4] ☑ RECOVERING [3] □ RECENT OR NO RECOVERY [1]) STABILITY HIGH [3] MODERATE [2] LOW [1]	Channel Maximum 20
4] BANK EROSION AND RIPAL River right looking downstream EROSION BIL NONE / LITTLE [3] Ø MODE MODERATE [2] NAR HEAVY / SEVERE [1] VER NONE	RIAN ZONE Check ONE in each category ARIAN WIDTH FLOOI E > 50m [4] Image: Comparison of the system DERATE 10-50m [3] Image: Comparison of the system ROW 5-10m [2] Image: Comparison of the system Y NARROW < 5m [1]	for EACH BANK (Or 2 per bar D PLAIN QUALITY AMP [3] LD FIELD [2] , PARK, NEW FIELD [1] TURE [1] RE, ROWCROP [0] Indice past	nk & average) CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0] MINING / CONSTRUCTION [0] ate predominant land use(s) 100m riparian. Maximum 10
5] POOL / GLIDE AND RIFFLE MAXIMUM DEPTH CH Check ONE (ONLY!) Check) > 1m [6] POOL W 0.7-<1m [4] POOL W 0.4-<0.7m [2] POOL W 0.2-<0.4m [1] (0.2-<0.4m [1] (0.2-<0.4m [1])	/ RUN QUALITY ANNEL WIDTH CURR ONE (Or 2 & average) Chec DTH > RIFFLE WIDTH [2] TORRENTIA DTH = RIFFLE WIDTH [1] VERY FAST DTH < RIFFLE WIDTH [0]	ENT VELOCITY * ALL that apply L [-1] SLOW [1] [1] INTERSTITIAL [-1] INTERMITTENT [-2] [1] EDDIES [1] reach - pools and riffles.	Recreation Potential <i>Primary Contact</i> Secondary Contact (circle One and comment on back) Pool / Current Maximum 12
Indicate for functional riffle of riffle-obligate species: RIFFLE DEPTH RUN BEST AREAS > 10cm [2] MAXIN BEST AREAS 5-10cm [1] MAXIN BEST AREAS < 5cm [metric=0] Comments	Ex; Best areas must be large end Check ONE (Or 2 & avera I DEPTH RIFFLE / RUN SUE IUM > 50cm [2] STABLE (e.g., Cobble, IUM < 50cm [1] MOD. STABLE (e.g., La UNSTABLE (e.g., Fine (Jgh to support a popul ge). 3STRATE RIFFLE / RU Boulder) [2] arge Gravel) [1] Gravel, Sand) [0]	ation <u>INO RIFFLE [metric=0]</u> JN EMBEDDEDNESS NONE [2] LOW [1] Riffle / 2 MODERATE [0] Riffle / 2 Maximum 8
6] <i>GRADIENT</i> (10 ft/mi) DRAINAGE AREA (5.92 mi ²) FDA 4520	VERY LOW - LOW [2-4] % MODERATE [6-10] HIGH - VERY HIGH [10-6] %	POOL: 20 %GLID RUN: 50 %RIFFL	E: 10 Gradient 10 B: 10 0000000000000000000000000000000000
EFA 4020			00/10/00



		Stream	n KW-21 Fair
ChieEPA	Qualitative Habitat E and Use Assessme	Evaluation Index Int Field Sheet	QHEI Score: 49
Stream & Location: Holloway-Kno	x 138kV Transmission Line	RM	: Date: 5 / 03 / 18
s-mdt-05/03/2018-05; Still Fork River Code: 0504 - 0001 - 0405 1] SUBSTRATE Check ONLY Two so	Scorers Fu	II Name & Affiliation: M. Th at./ Long.: /2 D 83 - decimal °) /2 Check ONE (C	omayer, T.Qualio; Jacobs 6
BEST TYPES POOL RIFFLI BLDR /SLABS [10] BOULDER [9] GRAVEL [7] SAND [6] BEDROCK [5] NUMBER OF BEST TYPES: Comments	E OTHER TYPES POOL RIF Image: Im	FLE ORIGIN LIMESTONE [1] TILLS [1] S WETLANDS [0] HARDPAN [0] SANDSTONE [0] SANDSTONE [0] SHALE [-1] COAL FINES [-2]	QUALITY U HEAVY [-2] MODERATE [-1] FREE [1] C EXTENSIVE [-2] MODERATE [-1] MODERATE [-1] MODERATE [-1] NONE [1] MAXIMUM 20
2] INSTREAM COVER Indicate pro- quality; 3-Highest quality in moderate or diameter log that is stable, well develop 1 UNDERCUT BANKS [1] 1 OVERHANGING VEGETATION [SHALLOWS (IN SLOW WATER) ROOTMATS [1]	esence 0 to 3: 0-Absent; 1-Very sma Aoderate amounts, but not of highest r greater amounts (e.g., very large be r drootwad in deep / fast water, or d POOLS > 70cm [2] 1] ROOTWADS [1] [1] BOULDERS [1]	Il amounts or if more common of m t quality or in small amounts of high oulders in deep or fast water, large eep, well-defined, functional pools. OXBOWS, BACKWATERS [1] AQUATIC MACROPHYTES [1 LOGS OR WOODY DEBRIS [arginal nest AMOUNT Check ONE (Or 2 & average) EXTENSIVE >75% [11] MODERATE 25-75% [7] SPARSE 5-<25% [3]
Comments			Maximum 6 20
3] CHANNEL MORPHOLOGY CI SINUOSITY DEVELOPMEN □ HIGH [4] □ EXCELLENT [☑ MODERATE [3] □ GOOD [5] □ LOW [2] ☑ FAIR [3] □ NONE [1] □ POOR [1] Comments □	heck ONE in each category (<i>Or 2 & a</i> CHANNELIZATION 7] ☑ NONE [6] □ RECOVERED [4] □ RECOVERING [3] □ RECENT OR NO RECOVE	Average) STABILITY HIGH [3] MODERATE [2] LOW [1]	Channel Maximum 20
4] BANK EROSION AND RIPAR River right looking downstream RIP EROSION Image: Comparison of the second sec	RIAN ZONE Check ONE in each of a constraint of a	Category for EACH BANK (Or 2 per FLOOD PLAIN QUALITY ST, SWAMP [3] B OR OLD FIELD [2] ENTIAL, PARK, NEW FIELD [1] ED PASTURE [1] PASTURE, ROWCROP [0] D	bank & average) CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0] URBAN OR INDUSTRIAL [0] MINING / CONSTRUCTION [0] dicate predominant land use(s) ast 100m riparian. Riparian Maximum 10 9
5] POOL / GLIDE AND RIFFLE J MAXIMUM DEPTH CH Check ONE (ONLY!) Check □ > 1m [6] □ POOL WI □ 0.7-<1m [4] □ POOL WI □ 0.4-<0.7m [2] □ POOL WI □ 0.2-<0.4m [1] □ < 0.2m [0] Comments	/ RUN QUALITY IANNEL WIDTH ONE (Or 2 & average) DTH > RIFFLE WIDTH [2] DTH = RIFFLE WIDTH [1] DTH < RIFFLE WIDTH [1]	CURRENT VELOCITY Check ALL that apply RENTIAL [-1] SLOW [1] Y FAST [1] INTERSTITIAL [- T [1] INTERMITTENT ERATE [1] EDDIES [1] icate for reach - pools and riffles.	1] [-2] Recreation Potential Primary Contact Secondary Contact (circle one and comment on back) Pool / Current Maximum 12
Indicate for functional riffle of riffle-obligate species: RIFFLE DEPTH RUN BEST AREAS > 10cm [2] MAXIM BEST AREAS 5-10cm [1] MAXIM BEST AREAS < 5cm [metric=0] Comments	es; Best areas must be larg Check ONE (Or 2 N DEPTH NUM > 50cm [2] STABLE (e.g., O STABLE (e.g. UNSTABLE (e.g.	e enough to support a pop & average). N SUBSTRATE RIFFLE / Cobble, Boulder) [2] (e.g., Large Gravel) [1] ., Fine Gravel, Sand) [0]	Image: None of the second state of
6] GRADIENT (10 ft/mi) DRAINAGE AREA (37.7 mi ²)	VERY LOW - LOW [2-4] MODERATE [6-10] HIGH - VERY HIGH [10-6]	%POOL: 20 %GI %RUN: 10 %RIF	FLE: 0 Gradient 10



		Strea	am KW-27	Good
ChieEPA	Qualitative Habitat E and Use Assessme	valuation Index nt Field Sheet	QHEI Score	62.25
Stream & Location: Pipes Fork /	Holloway-Knox 138kV Transmission L	ine R	M:Date:	05 04 18
<u>s-tmg-05/04/2018-05A</u> <i>River Code:</i> 0504 - 0001 - 040	Scorers Fu	Il Name & Affiliation: <u>M.</u> at./ Long.: 406285	Thomayer, T.Qualio - C /8_10423	H2M HILL Office verified location
1] SUBSTRATE Check ONLY Two estimate % or note BEST TYPES POOL PIEEL	substrate <i>TYPE BOXES</i> ; e every type present FOTHER TYPES POOL PIE	Check ONE	(Or 2 & average) QUAL	ITY
□ BLDR /SLABS [10]	□ HARDPAN [4] □ DETRITUS [3] □ MUCK [2] □ SILT [2] 50 50 □ ARTIFICIAL [0]	LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] RIP/RAP [0] Ces) LACUSTURINE [0] SHALE [-1] COAL FINES [-2]	SILT MODERA SILT MODERA NORMAL FREE [1] DEONE MODERA S NORMAL NONE [1]	2] TE [-1] [0] VE [-2] TE [-1] [0] <i>X</i> Aximum 20
2] INSTREAM COVER Indicate p quality; 3-Highest quality in moderate of diameter log that is stable, well develop 1 UNDERCUT BANKS [1] 1 OVERHANGING VEGETATION SHALLOWS (IN SLOW WATER ROOTMATS [1]	Image: system condition of the system condition	Il amounts or if more common of quality or in small amounts of h pulders in deep or fast water, lar sep, well-defined, functional poc OXBOWS, BACKWATERS AQUATIC MACROPHYTES LOGS OR WOODY DEBRIS	marginal AMOU ighest Check ONE (O) ge Check ONE (O) ols. EXTENSIVE [1] Ø MODERATE [1] [1] Ø SPARSE 5- 5 [1] NEARLY AB	UNT r 2 & average) >75% [11] 25-75% [7] 25% [3] SENT <5% [1] Cover
Comments			1	Maximum 14 20
3] CHANNEL MORPHOLOGY C SINUOSITY DEVELOPME HIGH [4] MODERATE [3] LOW [2] NONE [1] Comments	Check ONE in each category (<i>Or 2 & a</i> NT CHANNELIZATION [7] NONE [6] RECOVERED [4] RECOVERING [3] RECENT OR NO RECOVER	RY [1]	I	Channel Maximum 20
4] BANK EROSION AND RIPA River right looking downstream EROSION P WID NONE / LITTLE [3] P MOI MODERATE [2] NAF HEAVY / SEVERE [1] VER NONE Comments	RIAN ZONE Check ONE in each of parlian width PARIAN WIDTH Image: Constraint of the parliam	ategory for <i>EACH BANK</i> (Or 2 p LOOD PLAIN QUALITY ST, SWAMP [3] 3 OR OLD FIELD [2] ENTIAL, PARK, NEW FIELD [1] D PASTURE [1] PASTURE, ROWCROP [0]	Der bank & average)	N TILLAGE [1] DUSTRIAL [0] TRUCTION [0] Ind use(s) <i>Riparian</i> Maximum 10
5] POOL / GLIDE AND RIFFLE MAXIMUM DEPTH Check ONE (ONLY!) Check ○ 1m [6] ? POOL W ○ 0.7-<1m [4] POOL W ○ 0.4-<0.7m [2] POOL W ○ 0.2-<0.4m [1] ○ < 0.2m [0]	Image: A constraint of the second state of the second s	CURRENT VELOCITY Check ALL that apply RENTIAL [-1] SLOW [1] ' FAST [1] INTERSTITIAL [1] INTERMITTEN ERATE [1] EDDIES [1] icate for reach - pools and riffles	[-1]	Potential Contact y Contact y Contact Pool / Current 8
Comments High flow at time of sur	vev			Viaximum 12
Indicate for functional riffl of riffle-obligate species: RIFFLE DEPTH RUI ☐ BEST AREAS > 10cm [2]	es; Best areas must be large Check ONE (Or 2 of N DEPTH RIFFLE / RUI MUM > 50cm [2] STABLE (e.g., C MUM < 50cm [1] MOD. STABLE (e.g.	e enough to support a p & average). N SUBSTRATE RIFFLE obble, Boulder) [2] e.g., Large Gravel) [1] , Fine Gravel, Sand) [0]	Opulation	RIFFLE [metric=0] EDNESS Riffle / Run Maximum 8
6] <i>GRADIENT</i> (2.3 ft/mi) □ DRAINAGE AREA (5.1 mi ²) □	VERY LOW - LOW [2-4] MODERATE [6-10] HIGH - VERY HIGH [10-6]	%POOL: 20 % %RUN: 50 %R	GLIDE: 10 RIFFLE: 20	Gradient Maximum 10

A] SAMPLED REACH	SAMPLED REACH Comment RE: Reach consistency/ Is reach typical of steam?, Recreation/Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.				
Check ALL that apply	Perennial flow regime. Same stre	eam as S-TMQ-05042018-05, second	crossing along ROW. Highe	er quality than first crossing.	
METHOD STAGE	TOB: 15' OHWM: 15'				
	B] AESTHETICS	D] MAINTENANCE	Circle some & COMMENT	E] ISSUES	F] MEASUREMENTS
□ 0.15 Km 1stsample pass 2 □ 0.15 Km □ < 20 cm	2nd NUISANCE ALGAE INVASIVE MACROPHYTES DESCOLORATION DISCOLORATION OIL SHEEN TRASH / LITTER NUISANCE ODOR SLUDGE DEPOSITS CSOS/SSOS/OUTFALLS	PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED		WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H ₂ 0 / TILE / H ₂ 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME	x width x depth max. depth 3 ft x bankfull width 15 ft bankfull x depth W/D ratio bankfull max. depth bloodprone x ² width entrench. ratio Legacy_Tree: antipersonal statements
□ 10%-<30% C] REC □ <10%- CLOSED	REATION AREA DEPTH POOL: >100ft ² >3ft	FLOOD CONTROL / DRAINAGE		ATMOSPHERE / DATA PAUCITY	Legacy Tree:

Stream Drawing:


		Stream	NKW-28 Poor
ChieEPA	Qualitative Habitat Ev and Use Assessmen	valuation Index t Field Sheet	QHEI Score: 39.25
Stream & Location: Pipes Fork / H	Holloway-Knox 138kV Transmission Lin	е RM .	Date: 05 / 04 / 18
<u>s-tmq-05/04/2018-05</u> <i>River Code:</i> 0504 - 0001 - 040	Scorers Full	Name & Affiliation: M. The ./ Long.: 40625451/8	omayer, T.Qualio - CH2M HILL <u> <u> <u> </u> <u> </u></u></u>
1] SUBSTRATE Check ONLY Two estimate % or note BEST TYPES POOL RIFFL BUDR /SLABS [10] BOULDER [9] COBBLE [8] GRAVEL [7] BEDROCK [5] NUMBER OF BEST TYPES: Comments	Substrate TYPE BOXES; every type present OTHER TYPES POOL RIFFL DETRITUS [3] DETRITUS [3] SILT [2] O SILT [2] O SCORE natural substrates; igno 4 or more [2] sludge from point-source 3 or less [0]	Check ONE (C ORIGIN LIMESTONE [1] TILLS [1] WETLANDS [0] ARDPAN [0] SANDSTONE [0] CHARDPAN [0] SHALE [-1] COAL FINES [-2]	Dr 2 & average) QUALITY A HEAVY [-2] HEAVY [-2] MODERATE [-1] FREE [1] MODERATE [-1] MODERATE [-1] MAXIMUL 20
2] INSTREAM COVER Indicate pr quality; 2- quality; 3-Highest quality in moderate of diameter log that is stable, well develop 1 UNDERCUT BANKS [1] OVERHANGING VEGETATION SHALLOWS (IN SLOW WATER) ROOTMATS [1] Comments	esence 0 to 3: 0-Absent; 1-Very small a Moderate amounts, but not of highest q or greater amounts (e.g., very large boulded rootwad in deep / fast water, or deet 1 POOLS > 70cm [2] [1] BOULDERS [1] 1 1	amounts or if more common of ma uality or in small amounts of high ders in deep or fast water, large p, well-defined, functional pools. OXBOWS, BACKWATERS [1] AQUATIC MACROPHYTES [1 LOGS OR WOODY DEBRIS [1	arginal nest AMOUNT Deck ONE (Or 2 & average) EXTENSIVE >75% [11] Image: Barbon Moderate 25-75% [7] MODERATE 25-75% [7] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 25-75% [3] Image: Barbon Moderate 35-75% [3] Image: Barbon Moderate 35-75% [3] Image: Barbon Moderate 35-75% [3]
3] CHANNEL MORPHOLOGY C SINUOSITY DEVELOPME HIGH [4] EXCELLENT MODERATE [3] GOOD [5] LOW [2] FAIR [3] NONE [1] POOR [1] Comments	heck ONE in each category (0r 2 & average of a second	erage) STABILITY ☐ HIGH [3] ☑ MODERATE [2] ☑ LOW [1]	Channel Maximum 20
4] BANK EROSION AND RIPAL River right looking downstream EROSION RIF RIF ROSION MODERATE [3] MODERATE [2] HEAVY / SEVERE [1] Comments	RIAN ZONE Check ONE in each cat PARIAN WIDTH R E > 50m [4] I DERATE 10-50m [3] I DERATE 10-50m [3] I DERATE 10-50m [2] I DERATE 10-50m	egory for EACH BANK (Or 2 per OOD PLAIN QUALITY , SWAMP [3] DR OLD FIELD [2] ITIAL, PARK, NEW FIELD [1] PASTURE [1] ASTURE, ROWCROP [0] PASTURE, ROWCROP [0]	bank & average) R CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0] MINING / CONSTRUCTION [0] dicate predominant land use(s) st 100m riparian. Riparian Maximum 10
5] POOL / GLIDE AND RIFFLE MAXIMUM DEPTH CH Check ONE (ONLY!) Check ○ > 1m [6] POOL W ○ 0.7-<1m [4] POOL W ○ 0.4-<0.7m [2] POOL W ○ 0.2-<0.4m [1] ○ < 0.2m [0] Comments High flow at time of sur	/ RUN QUALITY ANNEL WIDTH CL CONE (Or 2 & average) IDTH > RIFFLE WIDTH [2] TORRE IDTH = RIFFLE WIDTH [1] VERY F IDTH < RIFFLE WIDTH [0] FAST [MODEF Indica	JRRENT VELOCITY Check ALL that apply NTIAL [-1] SLOW [1] SAST [1] INTERSITIAL [- 1] INTERMITTENT [RATE [1] EDDIES [1] the for reach - pools and riffles.	Image: state stat
Indicate for functional riffl of riffle-obligate species: RIFFLE DEPTH RUI BEST AREAS > 10cm [2] MAXIM BEST AREAS 5-10cm [1] MAXIM BEST AREAS < 5cm [metric=0] Comments	es; Best areas must be large Check ONE (Or 2 & N DEPTH RIFFLE / RUN NUM > 50cm [2] STABLE (e.g., Co NUM < 50cm [1] MOD. STABLE (e. UNSTABLE (e.g., I	enough to support a pop average). SUBSTRATE RIFFLE / bble, Boulder) [2] g., Large Gravel) [1] Fine Gravel, Sand) [0]	Image: Second system Image: Second system Second system Second system Image: Second system Second system <t< td=""></t<>
6] <i>GRADIENT</i> (2.3 ft/mi) □ DRAINAGE AREA	VERY LOW - LOW [2-4] MODERATE [6-10] HIGH - VERY HIGH [10-6]	%POOL: %GL %RUN: 100 %RIF	LIDE: Gradient FLE: Maximum 10



Appendix D OEPA HHEI Datasheets

Stream KV	V-1
ChieFPA Primary Headwater Habitat Evaluation Form	26
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/01/20	18-07
SITE NUMBER RIVER BASIN 050400010402 DRAINAGE AREA (mi²) 0.0	<u>)1</u>
DATE 05/01/18 SCORER MDT, TMQ COMMENTS ephemeral flow regime	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	VERY
MODIFICATIONS: Upper limits of stream has been impacted from recent construction	
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.	HHEI
TYPE PERCENT TYPE PERCENT	Metric Points
BOULDER (>256 mm) [16 pts] 5% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Substrate
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0% COBBLE (65-256 mm) [12 pts] 10% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 35% MUCK [0 pts] 0%	16
SAND (<2 mm) [6 pts]	
Bidr Slabs, Boulder, Cobble, Bedrock	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
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):	Pool Depth Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] ✓	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	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]	Bankfull Width
	Max=30
	5
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY شرک NOTE: River Left (L) and Right (R) as looking downstream	
RIPARIAN WIDTH FLOODPLAIN QUALITY H. D. (Marther Dark)	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Field	
Image: Narrow <5m	1
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_ephemeral	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	
□ 0.5	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Middle Branch Sandy Creek	Distance from Evaluated Stream >2 miles
CWH Name: _	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	OAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Homeworth OH NRCS Soil Map P	Page: NRCS Soil Map Stream Order
County: Columbiana Township / City: West T	Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/25/18	Quantity: 0.31
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): Canopy (% open):100%	
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id. a	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:	
ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrat Comments Regarding Biology:	imary Headwater Habitat Assessment Manual) Voucher? (Y/N) N tes Observed? (Y/N) N Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation an T-Line ROW Edge	nd a narrative description of the stream's location
Siope	
FLOW T-Line Centerline	e hh-mdt-5/1/2018-07
$N \rightarrow 1/2$	
Slope	
	T-Line ROW Edge
October 24, 2002 Revision PHWH Form Page - 2	

Stream K	N-2
ChieFPA Primary Headwater Habitat Evaluation Form	51
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/01/20	18-06
SITE NUMBER RIVER BASIN 050400010402 DRAINAGE AREA (mi²) 0.	04
LENGTH OF STREAM REACH (ft) 203 LAT. 40.00779 LONG01.03000 RIVER CODE RIVER MILE	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
	OVERY
MODIFICATIONS: Quite a bit of trash and debris in channel	
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	Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 20% BOULDER (>256 mm) [16 pts] 5% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Points
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts] 13% CLAY or HARDPAN [0 pt] 0% GRAVEL (2-64 mm) [9 pts] 60% MUCK [0 pts] 0%	
SAND (<2 mm) [6 pts]	16
Total of Percentages of 20.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
 So centimeters [20 pts] Check ONLY one box): So centimeters [20 pts] 	Max = 30
 ✓ > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 	30
COMMENTS MAXIMUM POOL DEPTH Inches 10	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
= 4.0 meters (> 13') [30 pts] $ = 3.0 m - 4.0 m (> 9'7'' - 13') [25 pts] $ $ = 5.0 m (> 3'3'' - 4'8'') [15 pts] $ $ = 5.0 m (> 3'3'' - 4'8'') [15 pts]$	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH Feet : 3.00	5
RIPARIAN ZONE AND FLOODPLAIN QUALITY SNOTE: River Left (L) and Right (R) as looking downstream	
<u>RIPARIAN WIDTH</u> <u>L_R</u> (Per Bank) <u>L_R</u> (Most Predominant per Bank) <u>L_R</u>	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Field Orban or Industrial	n
Narrow <5m	þ
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 intermittent	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
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	0 ft)

	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Middle Branch Sandy Creek	Distance from Evaluated Stream >2 mile
	Distance from Evaluated Stream
Homeworth OH	TIRE WATERSHED AREA. CLEARLY MARK THE STELLOCATION
USGS Quadrangle Name: Interest of the second s	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Coumbiana Towns	hip / City:west Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_ Y Date of last precipitation:	04/25/18 Quantity: 0.31
Photograph Information: _3 photos	
Elevated Turbidity? (Y/N): N Canopy (% open): 100°	%
Were samples collected for water chemistry? (Y/N): (Note lab	o 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/h) Y If not	nlease evolain.
	มเธอระ ฮมุมสมา
Additional comments/description of pollution impacts:	
Performed? (Y/N): (If Yes, Record all observations. Voucher ID number. Include appropriate field data	r collections optional. NOTE: all voucher samples must be labeled wit sheets from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): _N (If Yes, Record all observations. Voucher ID number. Include appropriate field data Fish Observed? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Salamanders O Comments Regarding Biology:	r collections optional. NOTE: all voucher samples must be labeled wit a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N ic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)
Performed? (Y/N):N (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Aquat Comments Regarding Biology:	r collections optional. NOTE: all voucher samples must be labeled with sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? (
Performed? (Y/N):N (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Salamanders? (Y/N) N Aquat Comments Regarding Biology:	r collections optional. NOTE: all voucher samples must be labeled wit a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N ic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)
Performed? (Y/N): (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquat Comments Regarding Biology: 	r collections optional. NOTE: all voucher samples must be labeled wit a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N ic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N OF STREAM REACH (This <u>must</u> be completed):
Performed? (Y/N): (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquat Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest for	r collections optional. NOTE: all voucher samples must be labeled with a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? $($
Performed? (Y/N): N (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquat Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest for T-Line ROV (Edge	r collections optional. NOTE: all voucher samples must be labeled with a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? (Y/N) S Voucher? (Y/N) N Voucher?
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Performed? (Y/N): N (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquat Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest for T-Line ROV (Edge	r collections optional. NOTE: all voucher samples must be labeled wit a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N ic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N OF STREAM REACH (This <u>must</u> be completed): r site evaluation and a narrative description of the stream's loca
Performed? (Y/N): N (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquat Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest for T-Line ROV Edge	r collections optional. NOTE: all voucher samples must be labeled wit a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N ic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N OF STREAM REACH (This <u>must</u> be completed): r site evaluation and a narrative description of the stream's loca
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Performed? (Y/N): (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquat Comments Regarding Biology: 	r collections optional. NOTE: all voucher samples must be labeled with a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher?
Performed? (Y/N): N (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquat Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest for T-Line ROV Edge	r collections optional. NOTE: all voucher samples must be labeled wit a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N ic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N OF STREAM REACH (This <u>must</u> be completed): r site evaluation and a narrative description of the stream's loca
Performed? (Y/N): N (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Aquat Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest for T-Line RO / Edge FLOW	r collections optional. NOTE: all voucher samples must be labeled wit a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N ic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N OF STREAM REACH (This <u>must</u> be completed): r site evaluation and a narrative description of the stream's loca
Performed? (Y/N): N (If Yes, Record all observations. Vouche ID number. Include appropriate field data Fish Observed? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquat Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest for T-Line ROV Edge FLOW	r collections optional. NOTE: all voucher samples must be labeled wit a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N ic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N OF STREAM REACH (This <u>must</u> be completed): r site evaluation and a narrative description of the stream's loca
Performed? (Y/N): N (If Yes, Record all observations. Vouche ID number. Include appropriate field date Fish Observed? (Y/N) Voucher? (Y/N) Salamanders O Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquat Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest for T-Line ROY Edge FLOW	r collections optional. NOTE: all voucher samples must be labeled v a sheets from the Primary Headwater Habitat Assessment Manual) bserved? (Y/N) Voucher? (Y/N) Coucher? (Y/N) Voucher? (

PHWH Form Page - 2

Save as pdf

Stream KV	√-3
ChieFPA Primary Headwater Habitat Evaluation Form	6
HHEI Score (sum of metrics 1, 2, 3) :	U
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/01/20	18-05
SITE NUMBER RIVER BASIN 050400010402 DRAINAGE AREA (mi²) 0.1	6
LENGTH OF STREAM REACH (ft) 103 LAT. 40.80836 LONG81.04138 RIVER CODE RIVER MILE	
DATE 05/01/18 SCORER MDI, IMQ COMMENTS Intermittent flow regime	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	ctions
STREAM CHANNEL INONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO R	VERY
4 SUBSTRATE (Estimate percent of event time of events the present Check ON V the moderningst substate TVDE haves	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE PERCENT TYPE PERCENT BLDR SLABS [16 pts] 0% []] SILT [3 pt] 60%	Points
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Substrate
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0% COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 30%	Max = 40
GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] 0%	6
SAND (<2 mm) [6 pts] 0% ARTIFICIAL [3 pts] 0%	
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of availuation Avoid plunge pools from read culverts or storm water pipes) (Check ON! X one box):	Pool Depth
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
 > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 	25
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 2.0 m $(-2^{1})^{-1}$ [15 pts] > 1.0 m $(-2^{1})^{-1}$ [15 pts]	Width
= 3.0 m (<	
COMMENTS AVERAGE BANKFULL WIDTH Feet : 2.00	5
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY నిNOTE: River Left (L) and Right (R) as looking downstream	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
Image: Second	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
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 intermittent	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 1.0 2.0 3.0 3.0	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) ✓ Flat to Moderate ✓ </td <td>ft)</td>	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Als	o be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Middle Branch Sandy Creek CWH Name:	Distance from Evaluated Stream 1.80 miles Distance from Evaluated Stream Distance from Evaluated Stream 1.80
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Homeworth OH	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Columbiana Towr	ship / City:West Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitation:	04/25/18 Quantity: 0.31
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): Canopy (% open):100)%
Were samples collected for water chemistry? (Y/N): (Note la	ab 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 no	t, please explain:
Additional comments/description of pollution impacts:	
Performed? (Y/N): _N (If Yes, Record all observations. Vouch ID number. Include appropriate field da Fish Observed? (Y/N) N Salamanders Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) N Aqua Comments Regarding Biology:	er collections optional. NOTE: all voucher samples must be labeled with the site ta sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) N Voucher? (Y/N) N atic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION	I OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for	or site evaluation and a narrative description of the stream's location
	Slope
	hh-mdt-5/1/2018-05
PEM Wetland	
$N \rightarrow $	
T-Line C nterline	T-Line ROW Edge
PHWH	Form Page - 2
October 24, 2002 Revision	Save as pdf Reset Form

Stream KW-4	
ChieFPA Primary Headwater Habitat Evaluation Form 26	
HHEI Score (sum of metrics 1, 2, 3) :	1
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/01/2018-04	
SITE NUMBER RIVER BASIN 050301030101 DRAINAGE AREA (mi²) 0.01	1
LENGTH OF STREAM REACH (ft) LAT. 40.79230 LONG01.04104 RIVER CODE RIVER MILE	1
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	ļ
	Ľ.
MODIFICATIONS: Upper limits of stream has recently been dredged	
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.	l C
BLDR SLABS [16 pts] 0% SILT [3 pt] 30% Point	S
BOULDER (>256 mm) [16 pts] <u>5%</u> LEAF PACK/WOODY DEBRIS [3 pts] <u>0%</u> BEDROCK [16 pt] <u>0%</u> FINE DETRITUS [3 pts] <u>0%</u>	te
COBBLE (65-256 mm) [12 pts] 25% CLAY or HARDPAN [0 pt] 0%	10
GRAVEL (2-64 mm) [9 pts] 40% MUCK [0 pts] 0% 16 SAND (<2 mm) [6 pts]	
Total of Percentages of 20.000/ (A) Substrate Percentage (B)	
Bidr Slabs, Boulder, Cobble, Bedrock	
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): Max = 3	pth 30
> 30 centimeters [20 pts] > 22 5 - 30 cm [30 pts] < 5 cm [5 pts]	l
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 5	
COMMENTS MAXIMUM POOL DEPTH Inches 1	J
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfu	II
= 2 + 0 meters (> 13') [30 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 meters (> 3' 8'' - 4' 8'') [15 meters (0
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	1
COMMENTS AVERAGE BANKFULL WIDTH Feet : 3.00 5	
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream	
RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	
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)	
COMMENTS_ephemeral	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	
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)	

					•	
	NSTREAM DESIGN	ATED USE(S)				
· · · · · · · · · · · · · · · · · · ·	e:				Distance from Evalua	ated Stream >2 m
CWH Name	:				Distance from Evalua	ated Stream
EWH Name					Distance from Evalua	ated Stream
MAPI	PING: ATTACH COP	PIES OF MAPS, INCLUD	ING THE ENTIR	WATERSHED	AREA. CLEARLY MAI	RK THE SITE LOCAT
USGS Quadran	gle Name: Homew	orth OH	NR	CS Soil Map Pa	ge: NRCS S	oil Map Stream Orde
County: Colum	nbiana		Township /	City: West To	wnship	
MISC		_				
Base Flow Con	ditions? (Y/N):_Y	Date of last precip	oitation: 04	/25/18	Quantity: 0.3	81
Photograph Info	ormation: 3 photos					
Elevated Turbid	lity? (Y/N): N	Canopy (% oper	n): 100%]		
Were samples of	collected for water c	hemistry? (Y/N): _	(Note lab san	nple no. or id. ar	nd attach results) Lab I	Number:
Field Measures	: Temp (°C)	Dissolved Oxygen	(mg/l)	pH (S.U.)	Conductivity (µ	ımhos/cm)
Is the sampling	reach representative	e of the stream (Y/N)	, If not, plea	se explain:		
Additional comr	monts/doscription of	pollution impacts:				
	nems/description of					
Performed? (Y/	N): (If Y ID n	es, Record all observatio umber. Include appropr	ons. Voucher coll iate field data she	ections optional. ets from the Prim	NOTE: all voucher san ary Headwater Habitat	nples must be labeled Assessment Manual)
Performed? (Y/ Fish Observed? Frogs or Tadpo Comments Reg	N): N (If Y ID n P (Y/N) Vou les Observed? (Y/N parding Biology:	es, Record all observation umber. Include appropr cher? (Y/N) N Sal- N Voucher? (Y/N)	ons. Voucher coll iate field data she amanders Obser	ections optional. ets from the Prim ved? (Y/N) N acroinvertebrate	NOTE: all voucher san ary Headwater Habitat Voucher? (Y/N) s Observed? (Y/N)	nples must be labeled Assessment Manual) Voucher? (Y/N)
Performed? (Y/ Fish Observed? Frogs or Tadpo Comments Reg	N): _N (If Y ID n P (Y/N) N Vou les Observed? (Y/N parding Biology:	es, Record all observatio umber. Include appropr cher? (Y/N) N Sal N Voucher? (Y/N)	ons. Voucher coll iate field data she amanders Obser N Aquatic M	ections optional. ets from the Prim ved? (Y/N) N acroinvertebrate	NOTE: all voucher san ary Headwater Habitat Voucher? (Y/N) s Observed? (Y/N) N	Not the second labeled Assessment Manual)
Performed? (Y/ Fish Observed? Frogs or Tadpo Comments Reg	N): N (If Y D n (Y/N) Vou les Observed? (Y/N arding Biology: RAWING AND N	es, Record all observatio umber. Include appropr cher? (Y/N) Sal N Voucher? (Y/N)	ons. Voucher coll iate field data she amanders Obser N Aquatic M	ections optional. ets from the Prim ved? (Y/N) N acroinvertebrate	NOTE: all voucher san ary Headwater Habitat Voucher? (Y/N) s Observed? (Y/N) N EACH (This <u>must</u>	t be completed):
Performed? (Y/ Fish Observed? Frogs or Tadpo Comments Reg	N): N (If Y D n P (Y/N) Vou les Observed? (Y/N aarding Biology: P RAWING AND N T-Line ROW Ed	es, Record all observatio umber. Include appropr cher? (Y/N) Sal Voucher? (Y/N) N Voucher? (Y/N)	ons. Voucher coll iate field data she amanders Obser N Aquatic M	ections optional. ets from the Prim ved? (Y/N) N acroinvertebrate	NOTE: all voucher san ary Headwater Habitat Voucher? (Y/N) s Observed? (Y/N) N EACH (This <u>must</u> a parrative description	t be completed):
Performed? (Y/ Fish Observed? Frogs or Tadpo Comments Reg	N): N (If Y ID n P (Y/N) Vou les Observed? (Y/N aarding Biology: RAWING AND N moortant landmarks	es, Record all observatio umber. Include appropr cher? (Y/N) Sal Voucher? (Y/N) N Voucher? (Y/N)	ons. Voucher coll iate field data she amanders Obser N Aquatic M	ections optional. ets from the Prim ved? (Y/N) N acroinvertebrate	NOTE: all voucher san ary Headwater Habitat Voucher? (Y/N) s Observed? (Y/N) N EACH (This <u>must</u> a parrative description	t be completed):
Performed? (Y/ Fish Observed? Frogs or Tadpo Comments Reg	N): N (If Y ID n P (Y/N) Vou les Observed? (Y/N larding Biology: RAWING AND N moortant Landmarks T-Line ROW Ed	es, Record all observation umber. Include appropring cher? (Y/N) Sal- Voucher? (Y/N) N Voucher? (Y/N) IARRATIVE DESC and other features of ge	ons. Voucher coll iate field data she amanders Obser N Aquatic M	ections optional. ets from the Prim ved? (Y/N) N acroinvertebrate	NOTE: all voucher san ary Headwater Habitat Voucher? (Y/N) s Observed? (Y/N) N EACH (This <u>must</u> a parrative description	t be completed):
Performed? (Y/ Fish Observed? Frogs or Tadpo Comments Reg	N): N (If Y ID n P (Y/N) Vou les Observed? (Y/N larding Biology: RAWING AND N monotant landmarks T-Line ROW Ed	es, Record all observation umber. Include appropring ther? (Y/N) N Sale Voucher? (Y/N) N Voucher? (Y/N) IARRATIVE DESC and other features of ge T-Line Centerline	ons. Voucher coll iate field data she amanders Obser N Aquatic M	ections optional. ets from the Prim ved? (Y/N) N acroinvertebrate	NOTE: all voucher san ary Headwater Habitat Voucher? (Y/N) s Observed? (Y/N) N EACH (This <u>must</u> a narrative description	t be completed):
Performed? (Y/ Fish Observed? Frogs or Tadpo Comments Reg	N): N (If Y ID n P (Y/N) Vou les Observed? (Y/N larding Biology: RAWING AND N monortant Landmarks T-Line ROW Ed	es, Record all observation umber. Include appropring ther? (Y/N) N Sale Voucher? (Y/N) N Voucher? (Y/N) IARRATIVE DESC and other features of ge T-Line Centerline	Cons. Voucher coll iate field data she amanders Obser N Aquatic M CRIPTION OF f interest for site	ections optional. ets from the Prim ved? (Y/N) N acroinvertebrate	NOTE: all voucher san ary Headwater Habitat Voucher? (Y/N) s Observed? (Y/N) N EACH (This <u>must</u> a parrative description	T-Line ROW Edge
Performed? (Y/ Fish Observed? Frogs or Tadpo Comments Reg	N): N (If Y ID n P (Y/N) Vou les Observed? (Y/N parding Biology: RAWING AND N monortant Landmarks T-Line ROW Ed	es, Record all observation umber. Include appropring ther? (Y/N) N Sale Voucher? (Y/N) N Voucher? (Y/N) ARRATIVE DESC and other features of ge T-Line Centerline	Cons. Voucher coll iate field data she amanders Obser N Aquatic M CRIPTION OF f interest for site	ections optional. ets from the Prim ved? (Y/N) N acroinvertebrate	NOTE: all voucher san ary Headwater Habitat Voucher? (Y/N) s Observed? (Y/N) N EACH (This must a narrative description	T-Line ROW Edge
Performed? (Y/ Fish Observed? Frogs or Tadpo Comments Reg	N): N (If Y ID n P (Y/N) Vou les Observed? (Y/N parding Biology: RAWING AND N monortant Landmarks T-Line ROW Ed	es, Record all observation umber. Include appropring cher? (Y/N) N Sale Voucher? (Y/N) A Voucher? (Y/N) A Voucher? (Y/N) A Content features of ge T-Line Centerline hh-mdt-5/1/2018-04	RIPTION OF	ections optional. ets from the Prim ved? (Y/N) N acroinvertebrate	NOTE: all voucher san ary Headwater Habitat Voucher? (Y/N) s Observed? (Y/N) N EACH (This must a parrative description	T-Line ROW Edge

Stream KW	/-5
ChieFPA Primary Headwater Habitat Evaluation Form	5
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/01/201	8-03
SITE NUMBER RIVER BASIN 050301030101 DRAINAGE AREA (mi²) 0.0	4
LENGTH OF STREAM REACH (ft) 139 LAT. 40.79163 LONG81.04155 RIVER CODE RIVER MILE	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Obio's PHWH Streams" for Instruc	tions
MODIFICATIONS:	
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.	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 10%	Points
$ \boxed{\begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	Substrate
COBBLE (65-256 mm) [12 pts] 25% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]	25
Total of Percentages of 30 00% (A) Substrate Percentage 100% (B)	Δ + B
Bldr Slabs, Boulder, Cobble, Bedrock Check Check Check TOTAL NUMBER OF SUBSTRATE TYPES: 4	A · D
2 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 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]	5
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull Width
= 3.0 m - 4.0 m (>9'7" - 13') [25 pts] $ = 4.0 m (>9'7" - 13') [25 pts] $ $ = 4.0 m (<-3'3") [5 pts]$	Max=30
	_
	_
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Moderate 5-10m Mature Forest, Wetland Conservation Tillage	
Field Corpen Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Subsurface flow with isolated pools (Interstitial) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	
L 0.5 L 1.5 L 2.5 L >3	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream >2 miles
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: Homeworth OH NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Columbiana Township / City: West Township
MISCELLANEOUS
Base Flow Conditions? (Y/N):_Y Date of last precipitation: 04/25/18 Quantity: 0.31
Photograph Information: 3 photos
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/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 si
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 Tadpole's Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include import in Lindmarks and other features of interest for site evaluation and a narrative description of the stream's location
Y 16
FLOW
hh-mdt-5/1/2018-03
N A

T-Line enterline

T-Line FOW Edge

Save as pdf

Stream KW-6]
ChieFPA Primary Headwater Habitat Evaluation Form	
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/01/2018-01	
SITE NUMBER RIVER BASIN 050301030101 DRAINAGE AREA (mi²) 0.13	<u> </u>
LENGTH OF STREAM REACH (ft) 168 LAT. 40.78750 LONG81.04148 RIVER CODE RIVER MILE	_
DATE 05/01/18 SCORER MD1, IMQ COMMENTS Intermittent flow regime	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	5
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS :	
4 SUBSTRATE (Estimate percent of even time of events the present Check ON/ Vive and environt evidence TVDE have	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	EI
TYPE PERCENT TYPE PERCENT Met BLDR SLABS [16 pts] 0% SILT [3 pt] 15% Poir	nts
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	trate
$\square \square $	= 40
GRAVEL (2-64 mm) [9 pts] 60% MUCK [0 pts] 0%	1
SAND (<2 mm) [6 pts]	
Total of Percentages of 25.00% (A) Substrate Percentage 100% (B) A + E	В
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
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):	Depth
> 30 centimeters [20 pts]	
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	5
COMMENTS MAXIMUM POOL DEPTH	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bank	kfull
$ = 23.0 \text{ m} = 4.0 \text{ m} (s = 3^{\circ} 3^{\circ} - 4^{\circ} 8^{\circ}) [15 \text{ pts}] $ $ = 23.0 \text{ m} = 4.0 \text{ m} (s = 3^{\circ} 3^{\circ} - 4^{\circ} 8^{\circ}) [15 \text{ pts}] $ $ = 23.0 \text{ m} = 4.0 \text{ m} (s = 3^{\circ} 3^{\circ} - 4^{\circ} 8^{\circ}) [15 \text{ pts}] $ $ = 23.0 \text{ m} (s = 3^{\circ} 3^{\circ} - 4^{\circ} 8^{\circ}) [15 \text{ pts}] $ $ = 23.0 \text{ m} (s = 3^{\circ} 3^{\circ} - 4^{\circ} 8^{\circ}) [15 \text{ pts}] $ $ = 23.0 \text{ m} (s = 3^{\circ} 3^{\circ} - 4^{\circ} 8^{\circ}) [15 \text{ pts}] $	lth =30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH Feet : 3.00 5	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
Image: Second se	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing (At This of Evaluation) (Check ONE Fone box). Moist Channel, isolated pools, no flow (Intermittent)	
COMMENTS_intermittent	
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	

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) VWWH Name: Distance from Evaluated Stream CWH Name: Distance from Evaluated Stream EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Homeworth, OH NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Columbiana Township / City: West Township
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/25/18 Quantity: 0.31
Photograph Information: 3 photos
Elevated Turbidity? (Y/N): Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mq/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 Salamanders Observed? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (THIS <u>must</u> be completed):



Stream KW-7	
ChieFPA Primary Headwater Habitat Evaluation Form 21	
HHEI Score (sum of metrics 1, 2, 3) :	l
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/01/2018-02	
SITE NUMBER RIVER BASIN 050301030101 DRAINAGE AREA (mi²) 0.01	
LENGTH OF STREAM REACH (ft) 109 LAT. 40.70721 LONG01.04130 RIVER CODE RIVER MILE	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
	Ľ.
MODIFICATIONS: Channelized roadside ditch	
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.	l C
BLDR SLABS [16 pts] 0% SILT [3 pt] 15% Points	S
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 10% Substrat	te
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	.0
GRAVEL (2-64 mm) [9 pts] 20% MUCK [0 pts] 0% √ ARTIFICIAL [3 pts] 55% 16	
Total of Percentages of O OOV (A) Substrate Percentage (B)	
Bidr Slabs, Boulder, Cobble, Bedrock 0.00% Check 100%	
	. .
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): Max = 30 M	oth 0
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 5 cm - 10 cm [15 pts] < 5 cm [5 pts]	l
> 10 - 22.5 cm [25 pts]	
COMMENTS MAXIMUM POOL DEPTH Inches 0	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankful	II
= 2.0 meters (> 13') [30 pts] = 2.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] = 2.0 m (<=3' 3") [5 pts] = 2.0 m)
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	1
COMMENTS AVERAGE BANKFULL WIDTH Feet : 1.50 5	
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Field Orban or industrial	
Image: Narrow <5m	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Subsurface flow with isolated pools (Interstitial)	
COMMENTS_ephemeral	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
$\square 0.5 \qquad \square 1.5 \qquad \square 2.5 \qquad \square 3$	
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, Atta	ich Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream >2 miles
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: Homeworth, OH NRCS Soil Map P	age: NRCS Soil Map Stream Order
County: Columbiana Township / City: West T	[°] ownship
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/25/18	Quantity:
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): _ N Canopy (% open): _ 100%	
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id. a	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): (If Yes, Record all observations. Voucher collections optional	NOTE: all voucher samples must be labeled with the site
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N)	Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrat	es Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
<u></u>	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	EACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation an	ad a narrative description of the stream's location
T-Line ROV Edge	hh-mdt-5/1/2018-02
T-Line	ROW Edge
T-Line Centerline	77

PHWH Form Page - 2

Save as pdf Reset Form

Slope

Slope

Stream KW-8	
ChieFPA Primary Headwater Habitat Evaluation Form 21	
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/01/2018-10	
SITE NUMBER RIVER BASIN 050301030101 DRAINAGE AREA (mi²) 0.01	1
LENGTH OF STREAM REACH (ft) 50 LAT. 40.70090 LONG01.04157 RIVER CODE RIVER MILE	1
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	- I
MODIFICATIONS: Channelized roadside ditch	
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.	ic
BLDR SLABS [16 pts] 0% SILT [3 pt] 10% Point	ts
BOULDER (>256 mm) [16 pts] <u>0%</u> LEAF PACK/WOODY DEBRIS [3 pts] <u>0%</u> BEDROCK [16 pt] <u>0%</u> FINE DETRITUS [3 pts] <u>0%</u>	ate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	40 \
GRAVEL (2-64 mm) [9 pts] 55% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]	
Total of Percentages of 0.00% (A) Substrate Percentage (B)	
Bidr Slabs, Boulder, Cobble, Bedrock 0.0076 Check 100%	
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): Max = 3	рtn 30
> 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]	
COMMENTS MAXIMUM POOL DEPTH Inches 0	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfu	III
= 2 + 2.0 meters (> 13') [30 pts] = 2 + 2.0 m (> 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8'') [15 pts] = 2 + 2.0 m (< 3'3'' - 4'8''') [15 pts] = 2 + 2.0 m (< 3'3'' -	0
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	7
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY *** NOTE: River Left (L) and Right (R) as looking downstream	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage Mederate 5 10m Immature Forest, Shrub or Old Urban or Industrial	
Field Open Pasture, Row Crop	
Norrow <5m V Residential, Park, New Field I Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
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	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Complete	<u>ed):</u>
QHEI PERFORMED? - Yes V No QHEI Score (If Yes	s, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream >2 miles
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER	SHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Homeworth OH NRCS Soil N	Map Page: NRCS Soil Map Stream Order
County: Columbiana Township / City: V	Vest Township
MISCELLANEOUS Base Flow Conditions? (Y/N):_Y Date of last precipitation:04/25/18	Quantity: 0.31
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. c	or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) PH (S.I	U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain	in:
Additional comments/description of pollution impacts:	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections op ID number. Include appropriate field data sheets from the Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinver Comments Regarding Biology:	ptional. NOTE: all voucher samples must be labeled with the site the Primary Headwater Habitat Assessment Manual) N) N Voucher? (Y/N) N Voucher? (Y/N) N rtebrates Observed? (Y/N) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREA	AM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation	ion and a narrative description of the stream's location
FLOW	hh-mdt-5/1/2018-10
Slope	Slope
T-Line RC W Edge T-Line C	T-Line ROW Edge
	2
October 24, 2002 Revision	Save as pdf Reset Form

Stream KW-9]				
ChieFPA Primary Headwater Habitat Evaluation Form					
HHEI Score (sum of metrics 1, 2, 3) :					
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/01/2018-09	9				
SITE NUMBER RIVER BASIN 050400010401 DRAINAGE AREA (mi²) 0.06					
LENGTH OF STREAM REACH (ft) 167 LAT. 40.78171 LONG -81.04158 RIVER CODERIVER MILE	_				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Obio's PHWH Streams" for Instruction					
	,				
MODIFICATIONS:					
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.	IEI tric				
BLDR SLABS [16 pts] 0% SILT [3 pt] 70% Poi	nts				
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	trate				
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 20%	= 40				
GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] 0% G	;				
Total of Percentages of O OO% (A) Substrate Percentage COO% (B)					
Bldr Slabs, Boulder, Cobble, Bedrock	D				
2 Maximum Bool Donth (Massura the maximum pool donth within the 61 meter (200 ft) evoluation reach at the time of	Donth				
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	= 30				
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] ✓ > 22.5 - 30 cm [30 pts]					
> 10 - 22.5 cm [25 pts])				
COMMENTS MAXIMUM POOL DEPTH Inches 10					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Ban	kfull dth				
= 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] $ = 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] $ $ = 4.0 m (< 3' 3") [5 pts] $ $ = 4.0 m (< 3' 3") [5 pts] $ $ = 4.0 m (< 3' 3") [5 pts]$	=30				
> 1.5 m - 3.0 m (> 9' /* - 4' 8") [20 pts]					
	'				
This information <u>must</u> also be completed					
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY					
L R (Per Bank) L R (Most Predominant per Bank) L R					
Moderate 5-10m Immature Forest, Wetand Immature Forest, Wetand Urban or Industrial					
Field Field Open Pasture, Row Crop					
None Fenced Pasture Mining or Construction					
COMMENTS					
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):					
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)					
None 1.0 2.0 1.0 3.0					
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Hoderate (2 ft/100 ft) Moderate to Severe					

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	<u>.</u>
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, At	ttach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Conser Run	Distance from Evaluated Stream 1.90 mile
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHI	ED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Homeworth OH NRCS Soil Map	Page: NRCS Soil Map Stream Order
County: Columbiana Township / City: West	t Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/25/18	Quantity: 0.31
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id	d. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
$\mathbf{Y} = \mathbf{Y}$	
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): (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the F Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebr Comments Regarding Biology:	nal. NOTE: all voucher samples must be labeled with the site Primary Headwater Habitat Assessment Manual) Voucher? (Y/N) N voucher? (Y/N) N Voucher? (Y/N) N
	DEACH (This must be completed):
Include important landmarks and other features of interset for site evolution	and a narrative description of the stream's location
Slope T Line ROW Edge	hh-mdt-5/1/2018-08
47 V	
FLOW	
nem wetland	
T-Line C Interline	T-1 COW Edge

Stream KW-10					
ChieFDA Primary Headwater Habitat Evaluation Form					
HHEI Score (sum of metrics 1, 2, 3) :	_				
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/01/2018-08	Ţ.				
SITE NUMBER RIVER BASIN 050400010401 DRAINAGE AREA (mi²) 0.17					
LENGTH OF STREAM REACH (ft) 130 LAT. 40.77690 LONG01.04160 RIVER CODE RIVER MILE	i				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions					
MODIFICATIONS:					
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. <u>TYPE</u> <u>PERCENT</u> <u>TYPE</u> <u>PERCENT</u>					
BLDR SLABS [16 pts] 0% SILT [3 pt] 60% POINT BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	ts				
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0% Max = 4	ate 40				
COBBLE (65-256 mm) [12 pts] 3% CLAY or HARDPAN [0 pt] 20% GRAVEL (2-64 mm) [9 pts] 15% MUCK [0 pts] 0%					
SAND (<2 mm) [6 pts]					
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5.00% (A) Substrate Percentage 100% (B) A + B					
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 4					
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 OV/ X one box):	pth				
> 30 centreters [20 pts] > 5 cm - 10 cm [15 pts]	JU				
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]					
COMMENTS MAXIMUM POOL DEPTH Inches 2					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfu	ull				
= 2 + 0 meters (> 13') [30 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 width $ = 2 + 0 m (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 pts] = 2 + 0 meters (> 3' 3'' - 4' 8'') [15 meters (> 3' 8'' - 4' 8'') [$	ו 30				
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]					
COMMENTS AVERAGE BANKFULL WIDTH Feet 1.50 5					
This information must also be completed					
RIPARIAN ZONE AND FLOODPLAIN QUALITY					
L R (Per Bank) L R (Most Predominant per Bank) L R					
Moderate 5-10m Minimuter Forest, Weitand Conservation Tillage					
─────────────────────────────────────					
None Fenced Pasture Mining or Construction					
COMMENTS flows through wetland complex					
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 intermittent					
None 1.0 2.0 3.0 >3					
STREAM GRADIENT ESTIMATE					
Flat (0.5 ft/100 ft) Flat to Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100 ft)					

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Conser Run	_ Distance from Evaluated Stream _ 1.65 _ mile
CWH Name: _	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	DAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Homeworth OH NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Columbiana Township / City: West	Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/25/18	Quantity: 0.31
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/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 ID number. Include appropriate field data sheets from the Pr Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:	al. NOTE: all voucher samples must be labeled with the site rimary Headwater Habitat Assessment Manual) Voucher? (Y/N) N ates Observed? (Y/N) N Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM I	REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation a	hh-mdt-5/1/2018-08
FLOW	
N 2	
T-Line C Interline	T-Lihe ROW Edge

October 24, 2002 Revision

PHWH Form Page - 2

Save as pdf

Stream K	W-11				
ChioFDA Primary Headwater Habitat Evaluation Form					
HHEI Score (sum of metrics 1, 2, 3) :	45				
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-tmq-05/02/20)18-02				
SITE NUMBER KW-11 RIVER BASIN 050400010401 DRAINAGE AREA (mi ²)	.01				
LENGTH OF STREAM REACH (ft) 104 LAT. 40.77469 LONG81.04160 RIVER CODE RIVER MILE					
DATE 05/02/18 SCORER MDT, TMQ COMMENTS Intermittent flow regime					
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions				
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING	OVERY				
manipulated roadside ditch at ROW crossing, natural upstream					
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.	HHEI				
TYPE PERCENT TYPE PERCENT No. 100 No. 100 No. 100 No. 100 No. 100	Metric Points				
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Substrato				
Image: BedRock [16 pt] 0% Image: Fine Detritus [3 pts] 0% Image: COBBLE (65-256 mm) [12 pts] 0% Image: CLAY or HABDBAN_[0 pt] 0%	Max = 40				
GRAVEL (2-64 mm) [9 pts] 20% MUCK [0 pts] 0%	15				
SAND (<2 mm) [6 pts] 10% ARTIFICIAL [3 pts] 0%					
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B				
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 3					
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth				
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]	Max = 30				
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	25				
	23				
	Development				
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]	Width				
$ = 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \le 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] $ $ = 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] $	Max=30				
COMMENTS AVERAGE BANKFULL WIDTH Feet 1 2.00	5				
This information <u>must</u> also be completed					
RIPARIAN ZONE AND FLOODPLAIN QUALITY Short E: River Leit (L) and Right (R) as looking downstream St RIPARIAN WIDTH FLOODPLAIN QUALITY					
L R (Per Bank) L R (Most Predominant per Bank) L R					
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial					
Narrow <5m Residential Park New Field Open Pasture, Row Cro	q				
None Image: A state of the state					
COMMENTS					
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):					
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)					
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): Image: Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): Image: Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): Image: Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): Image: Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): Image: Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): Image: Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): Image: Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):					
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)0 ft)				

ADDITIONAL STREAM INFORMATION (This Information Must	Also be Completed)	<u>.</u>		
QHEI PERFORMED? - Yes 🖌 No QHEI Score	(If Yes, A	ttach Completed QHEI Form)		
DOWNSTREAM DESIGNATED USE(S) WWH Name: Conser Run CWH Name:		Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream	1.32	miles -
MAPPING: ATTACH COPIES OF MAPS, INCLUDING TH	E ENTIRE WATERSH	ED AREA. CLEARLY MARK THE SITE L	OCATION	
USGS Quadrangle Name: Homeworth, Ohio	NRCS Soil Map	Page: NRCS Soil Map Stream	n Order	
County: Columbiana	ownship / City: Wes	t Township		
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Y Date of last precipitation:	04/25/18	Quantity: 0.31		
Photograph Information: 3 photos				
Elevated Turbidity? (Y/N): N Canopy (% open):	100%			
Were samples collected for water chemistry? (Y/N):	te lab sample no, or in	and attach results) Lab Number		
			-	7
Is the sampling reach representative of the stream (Y/N)	not, please explain:_			
Additional comments/description of pollution impacts:				
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Vo ID number. Include appropriate field	ucher collections optio I data sheets from the	nal. NOTE: all voucher samples must be la Primary Headwater Habitat Assessment M	abeled with th anual)	ne site
Fish Observed? (Y/N) N Voucher? (Y/N) Salamande Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) A	ers Observed? (Y/N)	Voucher? (Y/N) N rates Observed? (Y/N) Voucher? ((Y/N) N	
Comments Regarding Biology:				_
<u></u>				
DRAWING AND NARRATIVE DESCRIPT	ON OF STREAM	REACH (This <u>must</u> be comple	eted):	
Include important landmarks and other features of interes	st for site evaluation	and a narrative description of the strea	am's location	n
DRAWING AND NARRATIVE DES	CRIPTION OF STRE	EAM REACH (This must be completed	ted):	

1	Include important landmarks and	d other features of interest for site	e evaluation and a narrative description	kow
		Hautweet Z	wick Rd	
		PEM we	stand / cow p	asture



Stream KW-012
ChieFPA Primary Headwater Habitat Evaluation Form
HHEI Score (sum of metrics 1, 2, 3) :
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-tmq-05/02/2018-01 SITE NUMBER KW-012 RIVER BASIN 050400010401 DRAINAGE AREA (mi²) 0.36
LENGTH OF STREAM REACH (ft) 233 LAT. 40.76922 LONG81.04166 RIVER CODE RIVER MILE
DATE U5/U2/18 SCORER MDI, IMQ COMMENTS Perennial flow regime
MODIFICATIONS:
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. HHEI TYPE BLDR SLABS [16 pts] 0% SILT [3 pt] 90% BOULDER (>256 mm) [16 pts] 0% ELAF PACK/WOODY DEBRIS [3 pts] 0% Substrate BEDROCK [16 pt] 0% 0% 0% 0% 0% 0%
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0% GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock 0.00% (A) Substrate Percentage Check 100% (B) A + B SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 2
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30 > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]
✓ > 22.5 - 30 cm [30 pts] < 5 cm [5 pts]
COMMENTS MAXIMUM POOL DEPTH Inches 10
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \checkmark \leq 1.0 m (<=3' 3") [5 pts]
COMMENTS AVERAGE BANKFULL WIDTH Feet 1.50 5
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY Colspan="2">Colspan="2"
L R (Per Bank) L R (Most Predominant per Bank) L R Vide >10m Vide Mature Forest, Wetland Conservation Tillage Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial
Narrow <5m
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Description:
SINUOSITY (Number of bends per 61 m (200 ft) of channel)(Check ONLY one box):None1.072.03.00.51.52.5>3
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate (2 ft/100 ft) Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: EWH Name:	_ Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream	1.20
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	AREA. CLEARLY MARK THE SITE L	OCATION
USGS Quadrangle Name: Homeworth, Ohio NRCS Soil Map P	Page: NRCS Soil Map Stream	Order
County: Columbiana Township / City: West T	Township	
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/25/18	Quantity: 0.31	
Photograph Information: 3 photos		
Elevated Turbidity? (Y/N): Canopy (% open):100%		
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	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:		
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrat Comments Regarding Biology:	I. NOTE: all voucher samples must be la mary Headwater Habitat Assessment Ma Voucher? (Y/N) N tes Observed? (Y/N) N Voucher? (beled with the site inual) Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R Include important landmarks and other features of interest for site evaluation an PEM wetland	REACH (This <u>must</u> be completed a narrative description of the stream stre	ted): m's location

PHWH Form Page - 2 Save as pdf

T-Line ROW Edge

T-Line C Interline

October 24, 2002 Revision

ध्

Stream KV	√- 013
ChieFPA Primary Headwater Habitat Evaluation Form	1
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-tmq-05/02/20	18-04
SITE NUMBER KW-013 RIVER BASIN 050400010406 DRAINAGE AREA (mi²) 0.0)1
LENGTH OF STREAM REACH (ft) 881 LAT. 40.75235 LONG. 81.04188 RIVER CODE RIVER MILE	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Obio's PHWH Streams" for Instru	ctions
MODIFICATIONS: manipulated agricultural ditch	VERY
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.	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 50%	Points
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 0% ✓ MUCK [0 pts] 40% SAND (<2 mm) [6 pts]	6
Total of Percentages of CODY (A) Substrate Percentage (CODY)	
Bldr Slabs, Boulder, Cobble, Bedrock 0.00%	A+D
2 Maximum Pool Donth (Massure the maximum pool donth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 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]	30
	1
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull Width
= 3.0 m - 4.0 m (> 97 m - 13) [25 pts] $ = 4.0 m (> 97 m - 13) [25 pts] $ $ = 4.0 m (< 37 m - 13) [5 pts]$	Max=30
COMMENTS AVERAGE BANKFULL WIDTH Feet : 0.00	D
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Moderate 5-10m Matcher Forest, Shrub or Old Urban or Industrial	
Field Field Open Pasture, Row Crop Open Pasture, Row Crop	
Image: Automotion of the second state Image: Automotion of the second state <td></td>	
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bonds per 61 m (200 ft) of sharpel) (Check 201 Views here)	
None 1.0 2.0 3.0	
STREAM GRADIENT ESTIMATE Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat to Moderate Image: Flat (0.5 ft/100 ft) Image: Flat (0.5 ft/100 ft) Image: Flat (0.5 ft/100 ft) Image: Flat (0.5 ft/100 ft) Image: Flat (0.5 ft/100 ft) Image: Flat (0.5 ft/100 ft) Image: Flat (0.5 ft/100 ft) Image: Flat (0.5 ft/100 ft) Image: Flat (0.5 ft/100 ft) Image: Flat (0.5 ft/100 ft) Image: Flat (0.5	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also	be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name: Conser Run	Distance from Evaluated Stream	0.10 miles
CWH Name: _	_ Distance from Evaluated Stream _	
EWH Name:	Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE EN	ITIRE WATERSHED AREA. CLEARLY MARK THE SITE LO	DCATION
USGS Quadrangle Name: Homeworth, Ohio	NRCS Soil Map Page: NRCS Soil Map Stream	Order
County: Columbiana Towns	hip / City:West Township	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation:	04/25/18 Quantity: 0.31	
Photograph Information: 3 photos		
Elevated Turbidity? (Y/N): N Canopy (% open): 100	%	
Were samples collected for water chemistry? (Y/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): (If Yes, Record all observations. Vouche	r collections optional. NOTE: all voucher samples must be la	beled with the site
Eish Obson/od2 (X/N) N Vouchor2 (X/N) N Salamandara O	hearved 2 (V/N) N Voucher2 (V/N) N	
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquat	ic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	N N	, <u> </u>

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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



PHWH Form Page - 2



Stream KW-0	16
ChieFPA Primary Headwater Habitat Evaluation Form	1
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION First Energy Holloway-Knox 138kV Transmission Line Field ID: s-tmq-05/02/2018-06	
SITE NUMBER KW-016 RIVER BASIN 050400010404 DRAINAGE AREA (mi ²) 0.28	
LENGTH OF STREAM REACH (ft) 130 LAT. 40.72501 LONG81.04160 RIVER CODE RIVER MILE	_
DATE 05/02/16 SCORER TMQ, MDT COMMENTS Fereninal	
	15
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER' MODIFICATIONS: Manipulated stream by man-made ponds and culverts, natural channel downstream Image: Content of the stream by man-made ponds and culverts, natural channel downstream Image: Content of the stream by man-made ponds and culverts, natural channel downstream	Y
1 SUBSTRATE (Estimate percent of every type of substrate present Check ON/ Y two predominant substrate TYPE hoxes	_
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	-IEI
TYPE PERCENT TYPE PERCENT PERCENT Image: BLDR SLABS [16 pts] 0% Image: SILT [3 pt] 20%	ints
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0% Subs	strate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	: = 40
GRAVEL (2-64 mm) [9 pts] 50% MUCK [0 pts] 0% SAND (c2 mm) [6 ptc] 20% ARTIFICIAL [3 ptc] 10%	6
Total of Percentages of a conv (A) Substrate Percentage (B)	
Bidr Slabs, Boulder, Cobble, Bedrock	·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): Max	Depth (= 30
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] <pre>> 5 cm - 10 cm [15 pts]</pre>	
> 10 - 22.5 cm [25 pts]	5
COMMENTS MAXIMUM POOL DEPTH Inches 5	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bar	ıkfull
= 3.0 m - 4.0 m (> 9' 7'' - 13') [25 pts]	atn k=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
	5
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage Moderate 5, 10m Immature Forest, Shrub or Old Immature Forest, Shrub or Old	
Field Open Pasture, Row Crop	
Narrow < Sm Residential, Park, New Field II Mining or Construction	
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
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, Atta	ach Completed QHEI Form)		
DOWNSTREAM DESIGNATED USE(S)			
WWH Name: Muddy Fork	_ Distance from Evaluated Stream	1.57	miles
CWH Name: _	_ Distance from Evaluated Stream _		
EWH Name:	Distance from Evaluated Stream		L
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	OAREA. CLEARLY MARK THE SITE L	OCATION	
USGS Quadrangle Name: Minerva, Ohio NRCS Soil Map F	Page: NRCS Soil Map Stream	Order	
County: Carroll Township / City: August	ta Township		
MISCELLANEOUS			
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/25/18	Quantity: 0.31		
Photograph Information: 3 photos			
Elevated Turbidity? (Y/N): Canopy (% open):90%			
Were samples collected for water chemistry? (Y/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:			
N			
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optiona	 NOTE: all voucher samples must be la imary Headwater Habitat Assessment Ma 	beled with the	site
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N)	Voucher? (Y/N)	N	
Frogs or Ladpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra	tes Observed? (Y/N) N Voucher? (Y/N)	
Comments Regarding Biology:			_
			_

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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

	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
FLOW →	FLOW + IF Xaanna har har har har har har har har har ha
	BUWH Form Page - 2

PHWH Form Page - 2

Save as pdf



Stream KW-18]
ChieFPA Primary Headwater Habitat Evaluation Form	_
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/03/2018-02]
SITE NUMBER RIVER BASIN 050400010405 DRAINAGE AREA (mi ²) 0.15	4
LENGTH OF STREAM REACH (ft) LOG LAT. 40.09156 LONG01.03910 RIVER CODE RIVER MILE	5
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	 \$
MODIFICATIONS:	
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	ric
BLDR SLABS [16 pts] 0% SILT [3 pt] 40% POIN	its
BEDROCK [16 pt] 0% Substr Max =	rate = 40
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 60% GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] 0%	
SAND (<2 mm) [6 pts]	
Total of Percentages of 20.00% (A) Substrate Percentage 100% (B) A + B	3
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 16 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth	epth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	: 30
 ✓ > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 30 	
3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ON/ Y one box): Bank	full
$ = 2.0 \text{ m} (c_1^2)^2 (30 \text{ pts}) $ $ = 2.0 \text{ m} (c_1^2)^2 (30 \text{ pts}) $ $ = 2.0 \text{ m} (c_1^2)^2 (31 \text{ pts}) $ $ = 2.0 \text{ m} (c_1^2)^2 (31 \text{ pts}) $ $ = 2.0 \text{ m} (c_1^2)^2 (31 \text{ pts}) $ $ = 2.0 \text{ m} (c_1^2)^2 (31 \text{ pts}) $ $ = 2.0 \text{ m} (c_1^2)^2 (31 \text{ pts}) $ $ = 2.0 \text{ m} (c_1^2)^2 (31 \text{ pts}) $ $ = 2.0 \text{ m} (c_1^2)^2 (31 \text{ pts}) $ $ = 2.0 \text{ m} (c_1^2)^2 (31 \text{ pts}) $ $ = 2.0 \text{ m} (c_1^2)^2 (31 \text{ pts}) $:h :30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH Feet : 3.50 15	
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY 차NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Field Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
COMMENTS flows through cow pasture	
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_intermittent	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
□ 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 Als	o be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Still Fork	Distance from Evaluated Stream0.90miles
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	INTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Minerva, Ohio	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Carroll Tow	nship / City: Augusta Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	04/25/18 Quantity: 0.31
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): N Canopy (% open): 10	0%
Were samples collected for water chemistry? (Y/N): (Note I	ab 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)	t, please explain:
Additional comments/description of pollution impacts:	
Performed? (Y/N): N (If Yes, Record all observations. Vouch ID number. Include appropriate field da Fish Observed? (Y/N) N Salamanders Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) N Aqu Comments Regarding Biology:	er collections optional. NOTE: all voucher samples must be labeled with the site ita sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) N Voucher? (Y/N) N atic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTIO	N OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest f	or site evaluation and a narrative description of the stream's location
FLOW	
	Slope
kr l	
N	
	T-Line RC W Edge
T-Line Cent rine	
PHWH	Form Page - 2
October 24, 2002 Revision	Save as pdf Reset Form

Stream KW-19	
ChieFPA Primary Headwater Habitat Evaluation Form	
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-mdt-05/03/2018-01]
SITE NUMBER RIVER BASIN 050400010405 DRAINAGE AREA (mi²) 0.10	1
DATE 05/03/18 SCORER MDT, TMQ COMMENTS Intermittent flow regime	j
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	_
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS:	
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 OF A CONTRACT OF A CON	El IC
BLDR SLABS [16 pts]	ts
BEDROCK [16 pt] 0% Substr Max =	ate 40
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 55% 0% -	
SAND (<2 mm) [6 pts]	
Total of Percentages of 5.00% (A) Substrate Percentage 100% (B) A + B	}
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	epth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	30
✓ > 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankf	full
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ✓ ≤ 1.0 m (<=3' 3") [5 pts]	h 30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH Feet : 2.00 5	
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
✓ Wide >10m ✓ Mature Forest, Wetland ✓ Conservation Tillage ✓ Moderate 5-10m Immature Forest, Shrub or Old ✓ ✓ Urban or Industrial	
Field Field Open Pasture, Row Crop	
None Image: Perced Pasture Image: Maining or Construction	
COMMENTS flows through cow pasture	
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)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ON/ Yone box)	
None 1.0 2.0 3.0 0.5 3.0	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate (2 ft/100 ft) Moderate (2 ft/100 ft) Severe (10 ft/100 ft)	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Con	mpleted):
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Still Fork	Distance from Evaluated Stream 0.86miles
CWH Name: _	_ Distance from Evaluated Stream _
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE W	ATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Minerva, Ohio NRCS	Soil Map Page: NRCS Soil Map Stream Order
County: Carroll Township / Ci	ty: Augusta Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/2	5/18 Quantity: 0.31
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): Canopy (% open):100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample	e no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) p	oH (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:	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collection in the collection of the coll	ons optional. NOTE: all voucher samples must be labeled with the site from the Primary Headwater Habitat Assessment Manual) I? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N oinvertebrates Observed? (Y/N) N Voucher? (Y/N)
	<u> </u>
DRAWING AND NARRATIVE DESCRIPTION OF S	TREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site ev	aluation and a narrative description of the stream's location
	ыре
NI I	
T-Line Cent rline	
PHWH Form Pa	age - 2
October 24, 2002 Revision	Save as pdf Reset Form

ChieEPA Primary Head	dwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-	Knox 138kV Transmission Line Field ID: s-mdt-05/03/2018-0	6
SITE NUMBER	RIVER BASIN 050400010405 DRAINAGE AREA (mi ²) 0.06	
LENGTH OF STREAM REACH (ft) 161 LAT.	40.65326 LONG81.04135 RIVER CODE RIVER MILE	
DATE 05/03/18 SCORER MDT, TMQ	COMMENTS Ephemeral flow regime	
NOTE: Complete All Items On This Form - Ref	er to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ns
STREAM CHANNEL MODIFICATIONS: NONE / NATURAL	CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER	Y
1. SUBSTRATE (Estimate percent of every type (Max of 32). Add total number of significant substrained in the substraine	of substrate present. Check ONLY two predominant substrate TYPE boxes strate types found (Max of 8). Final metric score is sum of boxes A & B. T TYPE SILT [3 pt] 40% LEAF PACK/WOODY DEBRIS [3 pts] 0% FINE DETRITUS [3 pts] 0% CLAY or HARDPAN [0 pt] 90% MUCK [0 pts] 0%	HEI etric ints strate a = 40
SAND (<2 mm) [6 pts]	ARTIFICIAL [3 pts]	2
Total of Percentages of 0.00% Bldr Slabs, Boulder, Cobble, Bedrock	(A) Substrate Percentage 100% (B) A +	⊦B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE	TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
 Maximum Pool Depth (Measure the maximum evaluation. Avoid plunge pools from road culver 30 centimeters [20 pts] 22.5 - 30 cm [30 pts] 10 - 22.5 cm [25 pts] 	m pool depth within the 61 meter (200 ft) evaluation reach at the time of ts or storm water pipes) Pool Max > 5 cm - 10 cm [15 pts] < 5 cm [5 pts]	Depth c = 30 5
COMMENTS	MAXIMUM POOL DEPTH Inches 4	
Second Entropy 3. BANK FULL WIDTH (Measured as the average > 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]	MAXIMUM POOL DEPTH Inches 4 ge of 3-4 measurements) (Check ONLY one box): Bar > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Si 3" - 4' 8") [15 pts] ✓ ≤ 1.0 m (<=3' 3") [5 pts]	nkfull idth x=30
3. BANK FULL WIDTH (Measured as the average > 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] COMMENTS	MAXIMUM POOL DEPTH Inches 4 ge of 3-4 measurements) (Check ONLY one box): 4 > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 5 ✓ ≤ 1.0 m (<=3' 3") [5 pts]	nkfull idth x=30
3. BANK FULL WIDTH (Measured as the average > 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] COMMENTS RIPARIAN ZONE AND FLOODPLAIN OF RIPARIAN WIDTH L R (Per Bank) L FLO L R (Per Bank) L FLO Moderate 5-10m Moderate 5-10m Moderate 5-10m Moderate 5-10m	MAXIMUM POOL DEPTH Inches 4 ge of 3-4 measurements) (Check ONLY one box):	nkfull idth x=30
COMMENTS 3. BANK FULL WIDTH (Measured as the average > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 3.0 m - 4.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN ZONE AND FLOODPLAIN Q Narrow <5m	MAXIMUM POOL DEPTH Inches 4 ge of 3-4 measurements) (Check ONLY one box):	hkfull idth x=30
COMMENTS 3. BANK FULL WIDTH (Measured as the average > 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] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODPLAIN OR RIPARIAN WIDTH FLO L R (Per Bank) L I Y Wide >10m Image: Comments of the second	MAXIMUM POOL DEPTH Inches 4 ge of 3-4 measurements) (Check ONLY one box): 4 2 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 5 2 1.0 m (<=3' 3") [5 pts]	nkfull idth x=30
COMMENTS 3. BANK FULL WIDTH (Measured as the average > 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] COMMENTS RIPARIAN ZONE AND FLOODPLAIN OF RIPARIAN WIDTH FLO L R (Per Bank) L I Vide >10m Moderate 5-10m Image: COMMENTS flows through cow pase None Image: COMMENTS flows through cow pase FLOW REGIME (At Time of Evaluation) Stream Flowing Subsurface flow with isolated pools (Inter COMMENTS_ephemeral	MAXIMUM POOL DEPTH Inches 4 ge of 3-4 measurements) (Check ONLY one box): 4 > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 3 > 1.0 m (<=3' 3") [5 pts]	hkfull idth x=30
COMMENTS 3. BANK FULL WIDTH (Measured as the average > 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] COMMENTS RIPARIAN ZONE AND FLOODPLAIN OF RIPARIAN WIDTH FLO L R (Per Bank) L Image: Colspan="2">Image: Colspan="2">Comments Image: Colspan="2">RIPARIAN WIDTH FLO Image: Colspan="2">Moderate 5-10m Image: Colspan="2">Image: Colspan="2">Colspan="2" Image: Colspan="2">Colspan="2">Colspan="2" Image: Colspan="2">Colspan="2" Image: Colspan="2">Colspan="2" Image: Colspan="2">Colspan="2" Image: Colspan="2">Colspan="2" Image: Colspan="2">Colspan="2" Image: Colspan="2">Colspan="2" Image: Colspan="2" Image: Colspan="2"	MAXIMUM POOL DEPTH 4 ge of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts]	hkfull idth x=30

Stream KW-22
ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Still Fork	_ Distance from Evaluated Stream 0.94 miles
CWH Name: _	_ Distance from Evaluated Stream _
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Minerva, OH NRCS Soil Map I	Page: NRCS Soil Map Stream Order
County: Carroll Township / City: Augus	sta Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/25/18	Quantity: 0.31
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): Canopy (% open):	
Were samples collected for water chemistry? (Y/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:	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optiona ID number. Include appropriate field data sheets from the Pr Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) Aquatic Macroinvertebra Comments Regarding Biology:	al. NOTE: all voucher samples must be labeled with the site rimary Headwater Habitat Assessment Manual) Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
DRAWING AND NARRATIVE DESCRIPTION OF STREAM I Include important landmarks and other features of interest for site evaluation an T-Line ROW Edge	REACH (This <u>must</u> be completed): and a narrative description of the stream's location



Stream KW-2	23
ChieFPA Primary Headwater Habitat Evaluation Form	
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-tmq-05/04/2018	-04
SITE NUMBER RIVER BASIN 050400010403 DRAINAGE AREA (mi²) 0.04	
LENGTH OF STREAM REACH (ft) 361 LAT. 40.64/97 LONG. 81.04123 RIVER CODE RIVER MILE RIVER MILE	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Obio's PHWH Streams" for Instructi	ions
MODIFICATIONS: Flows from seep	:RY
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.	HEI Ietric
PERCENT TYPE PERCENT BLDR SLABS [16 pts] 0% I	oints
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0% Su BEDROCK [16 pt] 0% Su	ubstrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	ax = 40
GRAVEL (2-64 mm) [9 pts] 20% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]	12
Total of Percentages of 0.00% (A) Substrate Percentage	
Bldr Slabs, Boulder, Cobble, Bedrock 0.0076 Check 100% Check 100%	
2 Maximum Bool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	ol Denth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY or above):	ax = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] ✓	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTSMAXIMUM POOL DEPTH	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): B	ankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m (< 0' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	lax=30
	5
	5
This information <u>must</u> also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY SWOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
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)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ON/ V one box)	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Pipe Run	_ Distance from Evaluated Stream 0.69 miles
CWH Name: _	_ Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	OAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Minerva, OH NRCS Soil Map P	Page: NRCS Soil Map Stream Order
County: Carroll Township / City: Augus	ta Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/04/18	Quantity: 0.43
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	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 ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N	NOTE: all voucher samples must be labeled with the site mary Headwater Habitat Assessment Manual) Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrat	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
	· · · · · · · · · · · · · · · · · · ·
DRAWING AND NARRATIVE DESCRIPTION OF STREAM	REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation at	nd a narrative description of the stream's location
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PHWH Form Page - 2	

Reset Form

Stream KW-24
ChieFPA Primary Headwater Habitat Evaluation Form
HHEI Score (sum of metrics 1, 2, 3) :
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-tmq-05/04/2018-03
SITE NUMBER RIVER BASIN U30400010403 DRAINAGE AREA (mi²) U.54
DATE 05/04/18 SCORER MDT, TMQ COMMENTS Perennial flow regime
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
MODIFICATIONS:
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 Metri
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%
Image: BedRock [16 pt] 0% Image: Fine Detritus [3 pts] 0% Image: Comparison of the temperature of temperat
GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] 0% 12
Total of Percentages of (A) Substate Demostrates (P)
Bidr Slabs, Boulder, Cobble, Bedrock
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TIPES: 3 TOTAL NUMBER OF SUBSTRATE TIPES: 3
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): Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts]
20
COMMENTS MAXIMUM POOL DEPTH Inches 12
S. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfu > 4.0 meters (> 13') [30 pts] 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width
COMMENTS TOB: 4', OHWM: 2.5' AVERAGE BANKFULL WIDTH Feet 1: 4.00 15
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream
RIPARIAN WIDTH FLOODPLAIN QUALITY
Wide >10m Mature Forest, Wetland Conservation Tillage
Moderate 5-10m Field Urban or Industrial
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop
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_Perennial
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 Image: Stream

QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attach Completed QHEI Form) DOWNSTREAM DESIGNATED USE(S)	
DOWNSTREAM DESIGNATED USE(S) Distance from Evaluate WWH Name: Distance from Evaluated DWNSTREAM DESIGNATED USE(S) Distance from Evaluated Distance from Evaluated Distance from Evaluated Distance from Evaluated Distance from Evaluated MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK ' USGS Quadrangle Name: Minerva, OH NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Page: MISCELLANEOUS Base Flow Conditions? (Y/N): Masse Flow Conditions? (Y/N): Date of last precipitation: 05/04/18 Photograph Information: S photos Elevated Turbidity? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Nun Field Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhc Is the sampling reach representative of the stream (Y/N) If not, please explain:)
WWH Name: Distance from Evaluated CWH Name: Distance from Evaluated Distance from Evaluated Distance from Evaluated MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK * USGS Quadrangle Name: Minerva, OH NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Page: MSCELLANEOUS Township / City: Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/04/18 Quantity: 0.43 Photograph Information: 3 photos Elevated Turbidity? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N Y Usosite as a conductivity (umhous the sampling reach representative of the stream (Y/N) Is the sampling reach representative of the stream (Y/N) If not, please explain:	
CWH Name: Distance from Evaluated Distance from Evaluated Distance from Evaluated MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK USGS Quadrangle Name: USGS Quadrangle Name: Minerva, OH NRCS Soil Map Page: NRCS Soil M County: Carroll Township / City: Washington Township MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/04/18 Quantity: 0.43 Photograph Information: 3 photos Elevated Turbidity? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Nun Field Measures: Temp (°C) Dissolved Oxygen (mq/l) pH (S.U.) Conductivity (µmhu Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	d Stream 0.55 miles
EWH Name: Distance from Evaluated MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK '' USGS Quadrangle Name: Minerva, OH NRCS Soil Map Page: NRCS Soil N County: Carroll Township / City: Washington Township MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/04/18 Quantity: 0.43 Photograph Information: 3 photos Elevated Turbidity? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Nun Field Measures: Temp (°C) Dissolved Oxygen (mq/l) pH (S.U.) Conductivity (µmhe Is the sampling reach representative of the stream (Y/N) If not, please explain:	I Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK* USGS Quadrangle Name: Minerva, OH NRCS Soil Map Page: NRCS Soil Map Page: County: Carroll Township / City: Washington Township MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/04/18 Quantity: 0.43 Photograph Information: 3 photos Elevated Turbidity? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Nun Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhe Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	I Stream
USGS Quadrangle Name: Minerva, OH NRCS Soil Map Page: Num Soil Map Page: Num Soil Map Page: Num Soil Map Page: Num Soil Map Page: Odd Soil Map Page: Num Soil Map Page: </td <td>THE SITE LOCATION</td>	THE SITE LOCATION
County: Carroll Township / City: Washington Township MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/04/18 Quantity: 0.43 Photograph Information: 3 photos Elevated Turbidity? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Nun Field Measures: Temp (°C) Dissolved Oxygen (mq/l) pH (S.U.) Conductivity (µmhu Is the sampling reach representative of the stream (Y/N) If not, please explain:	Map Stream Order
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/04/18 Quantity: 0.43 Photograph Information: 3 photos Elevated Turbidity? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Nun Field Measures: Temp (°C) Dissolved Oxygen (mq/l) pH (S.U.) Conductivity (µmhr Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/04/18 Quantity: 0.43 Photograph Information: 3 photos Elevated Turbidity? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Nun Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhd Is the sampling reach representative of the stream (Y/N) If not, please explain: BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher sample ID number. Include appropriate field data sheets from the Primary Headwater Habitat Ass Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology:	
Photograph Information: 3 photos Elevated Turbidity? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Nun Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhu 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 sample ID number. Include appropriate field data sheets from the Primary Headwater Habitat Ass Fish Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Comments Regarding Biology:	
Elevated Turbidity? (Y/N): N Canopy (% open): 95% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Nur Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmho 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 sample ID number. Include appropriate field data sheets from the Primary Headwater Habitat Ass Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) N Frogs or Tadpoles Observed? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) N Comments Regarding Biology:	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Nur Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhi Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	
Field Measures: Temp (°C) Dissolved Oxygen (mq/l) pH (S.U.) Conductivity (µmhi Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	mber:
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	os/cm)
Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher sample ID number. Include appropriate field data sheets from the Primary Headwater Habitat Ass 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 Comments Regarding Biology:	
Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher sample ID number. Include appropriate field data sheets from the Primary Headwater Habitat Ass Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Comments Regarding Biology: N	
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher sample ID number. Include appropriate field data sheets from the Primary Headwater Habitat Ass Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Comments Regarding Biology:	
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher sample ID number. Include appropriate field data sheets from the Primary Headwater Habitat Ass 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) Aquatic Macroinvertebrates Observed? (Y/N) N Comments Regarding Biology:	
	es must be labeled with the site sessment Manual) Voucher? (Y/N) <mark>N</mark>
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be Include important landmarks and other features of interest for site evaluation and a narrative description of dirt farm road	completed): the stream's location

Save as pdf

Reset Form

Stream KW-25]
ChieFPA Primary Headwater Habitat Evaluation Form	-
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-tmq-05/04/2018-02	=
SITE NUMBER RIVER BASIN 050400010403 DRAINAGE AREA (mi²) 0.10	1
LENGTH OF STREAM REACH (ft) 532 LAT 40.64467 LONG -81.04139 RIVER CODERIVER MILE	1
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Obio's PHWH Streams" for Instructions	
	Ľ.
MODIFICATIONS:	
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.	
BLDR SLABS [16 pts] 0% SILT [3 pt] 50% Point	ts
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0% Substra	ite
Omega Omega CLAY or HARDPAN [0 pt] Omega Max = 4	40 ⁻∟
GRAVEL (2-64 mm) [9 pts] 20% MUCK [0 pts] 0% 12 SAND (<2 mm) [6 pts]	
Total of Percentages of a coord (A) Substrate Percentage (B)	
Bidr Slabs, Boulder, Cobble, Bedrock	
	_
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): Max = 3	pth 30
> 30 centimeters [20 pts] > 22 5 - 30 cm [30 pts] > 5 cm - 10 cm [15 pts]	L
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 25	
COMMENTS MAXIMUM POOL DEPTH Inches 5	
3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfu	ıll
$ = > 4.0 \text{ meters} (> 13') [30 \text{ pts}] = > 1.0 \text{ m} - 1.5 \text{ m} (> 3' 3" - 4' 8") [15 \text{ pts}] = Width \\ = 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = Max=30 \\ = 3.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] = $	0
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	1
COMMENTS TOB: 3', OHWM: 2' AVERAGE BANKFULL WIDTH Feet : 3.00 5	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	
RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ON! Y one box)	
Stream Flowing Stream	
COMMENTS_ephemeral	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100 ft)	

ADDITIONAL STREAM INFORMATION (This Information Must Als	so be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Pipe Run	Distance from Evaluated Stream0.56m
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: Minerva, OH	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Carroll Town	nship / City: Washington Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation:	05/04/18 Quantity: 0.43
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): Canopy (% open):8	5%
Were samples collected for water chemistry? (Y/N): (Note I	ab 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 no	ot, please explain:
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Vouch	her collections optional. NOTE: all voucher samples must be labeled with the s
ID number. Include appropriate field da	ata 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 Aqu	iatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION	N OF STREAM REACH (This <u>must</u> be completed):
DRAWING AND NARRATIVE DESCRIPTION	N OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for	or site evaluation and a narrative description of the stream's location
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I'N wetland	Fonduber 3
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Stream KW-26	3
ChieFPA Primary Headwater Habitat Evaluation Form	1
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION FirstEnergy Holloway-Knox 138kV Transmission Line Field ID: s-tmg-05/04/2018-0	1
SITE NUMBER RIVER BASIN 050400010403 DRAINAGE AREA (mi²) 0.05	
LENGTH OF STREAM REACH (ft) LAT. 40.03736 LONG01.04109 RIVER CODE RIVER MILE	-
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	 ns
	Y
MODIFICATIONS:	
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	tric
BLDR SLABS [16 pts] 0% SILT [3 pt] 45% POI	ints
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0% Max	strate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0% GRAVEL (2-64 mm) [9 pts] 20% 0% 0%	
SAND (<2 mm) [6 pts]	3
Total of Percentages of 5.00% (A) Substrate Percentage 100% (B) A +	- B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool	Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	= 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
3 RANK FULL WIDTH (Massured as the average of 3-4 measurements) (Check ON/ Yone box):	htull
= 24.0 meters (> 13') [30 pts] $ = 2.0 m - 4.0 m (> 3') [3'] = 4' 8'' [15 pts] $ $ = 4' (2') [15 pts]$	dth
= 3.0 m (4.0 m (97 - 13) [25 pts] $ = 3.0 m (97 - 13) [25 pts] $ $ = 3.0 m (97 - 13) [25 pts]$	30
COMMENTS TOB: 4', OHWM: 2' AVERAGE BANKFULL WIDTH Feet : 4.00 1	5
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
Wide >10m Mature Forest, Welland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Image: Narrow <5m Image: Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Subsurface flow with isolated pools (Interstitial)	
COMMENTS_ephemeral	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
1.0 1.0 2.0 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)	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed)	<u>:</u>
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, A	ttach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Pipe Run CWH Name:	Distance from Evaluated Stream 0.41 miles Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSH	ED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Minerva, OH NRCS Soil Mag	o Page: NRCS Soil Map Stream Order
County: Carroll Township / City: Was	hington Township
MISCELLANEOUS	
Base Flow Conditions? (V/N): Y Date of last precipitation: 05/04/18	Quantity: 0.43
Distribution of the sector of	Quantry
Elevated Turbidity? (Y/N): Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id	d. 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:	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optio ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinverteb Comments Regarding Biology:	nal. NOTE: all voucher samples must be labeled with the site Primary Headwater Habitat Assessment Manual) N Voucher? (Y/N) N Voucher? (Y/N) N
Include important landmarks and other features of interest for site avaluation	I REACH (This <u>must</u> be completed):
FLOW FLOW AND AND AND AND SIDE EVALUATION	and a narrative description of the stream's location

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Reset Form

Appendix E Jacobs Open Water/Pond Data Forms



2019 01		
FEATURE ID: P-TMQ-05022018-01 Associated Features: None		
DATE: 05/02/2018 CLIENT/PROJECT NAME: FIRST ENERGY / HOLLOWWAY-KNOX 138KV TRANSMISSION LINE		
nayer		
STATE/COUNTY: OH/ Columbiana IS THIS A MAPPED NWI FEATURE?: No		
WA	TERBODY CH	IARACTERISTICS
Man-made pond		
1.5 ft		
150 ft		
APPROXIMATE SIZE: 0.17 acres		
Ç	QUALITATIVE	E ATTRIBUTES
AVERAGE WATER APPEARANCE: slightly turbid, mucky		
Sand, silt		
Amphibians, small fish		
SURROUNDING LAND USE: Residential, mowed yard		
none		
COMMENTS		
Man-made pond holding water from stream that flows through culverts to the west and east.		
	WA Man-made pond 1.5 ft 150 ft 0.17 acres Gand, silt Amphibians, small fish Residential, mowed yard none none	WATERBODY CE Man-made pond 1.5 ft 150 ft 0.17 acres QUALITATIVE dightly turbid, mucky Sand, silt Amphibians, small fish Residential, mowed yard none COMM



POND DATA SHEET				
FEATURE ID: P-TMQ-050	ATURE ID: P-TMQ-05022018-02 ASSOCIATED FEATURES: S-TMQ-05022018-04			
DATE: 05/02/2018	CLIENT/PROJECT NAME	: First Energy / H	HOLLOWAY-KNOX 138KV TRANMISSION LINE	
INVESTIGATORS: T.Qualio, M. Tho	omayer			
STATE/COUNTY: OH / Columbian	STATE/COUNTY: OH / Columbiana IS THIS A MAPPED NWI FEATURE?: PUBG			
	WA	ATERBODY CH	IARACTERISTICS	
WATERBODY TYPE:	Man-made pond			
AVG. DEPTH:	2 ft			
AVG. WIDTH (WATER SURFACE):	200 ft			
APPROXIMATE SIZE:	0.009 acres			
	(QUALITATIVI	E ATTRIBUTES	
AVERAGE WATER APPEARANCE:	Green from alga			
PRIMARY SUBSTRATE (IF OBSERVED):	Silt, sand			
POTENTIAL HABITAT FOR:	Amphibians, small fish			
SURROUNDING LAND USE:	Residential, pasture			
WETLAND FRINGE (IF PRESENT):	none			
COMMENTS				
Man-made pond in mowed yard s	surrounded by horse past	ure and connected	to stream s-tmq-05022018-04 through culvert	



POND DATA SHEET			
FEATURE ID: P-TMQ-05022018-05 Associated Features: S-TMQ-05022018-06			
DATE: 05/02/2018	DATE: 05/02/2018 CLIENT/PROJECT NAME: FIRST ENERGY / HOLLOWAY-KNOX 138KV TRANSMISSION LINE		
INVESTIGATORS: T.Qualio, M. Tho	omayer		
STATE/COUNTY: OH / Carroll	IS THIS A MAPPED NWI FEATURE?: PUBG		
	WAT	FERBODY CH	IARACTERISTICS
WATERBODY TYPE:	Man-made pond		
AVG. DEPTH:	3 ft		
AVG. WIDTH (WATER SURFACE):	250 ft		
APPROXIMATE SIZE:	.09 acres		
QUALITATIVE ATTRIBUTES			
AVERAGE WATER APPEARANCE:	clear		
PRIMARY SUBSTRATE (IF Gravel, boulders, silt, sand OBSERVED): Gravel, boulders, silt, sand			
POTENTIAL HABITAT FOR:	NTIAL HABITAT FOR: Amphibians, small fish, large fish		
SURROUNDING LAND USE:	cleared ROW, mowed res	sidential yard	
WETLAND FRINGE (IF PRESENT):	None		
COMMENTS			
Man-made pond, largest of three stream.	man-made pond features, fi	illed through stro	eam and diverts flow to other ponds through culverts and manipulated



POND DATA SHEET					
FEATURE ID: P-TMQ-05022018-04 ASSOCIATE			D FEATURES: S-TMQ-05022018-06		
DATE: 05/02/2018	CLIENT/PROJECT NAME	: First Energy / H	IOLLOWAY-KNOX 138KV TRANSMISSION LINE		
INVESTIGATORS: T.Qualio, M. Tho	omayer				
STATE/COUNTY: OH / Carroll IS THIS A MAPPED NWI FEATURE?: PUBG					
	WA	ATERBODY CH	IARACTERISTICS		
WATERBODY TYPE:	Man-made pond				
AVG. DEPTH:	2 ft				
AVG. WIDTH (WATER SURFACE):	115 ft				
APPROXIMATE SIZE:	0.22 acres				
		QUALITATIVE	ATTRIBUTES		
AVERAGE WATER APPEARANCE:	clear				
PRIMARY SUBSTRATE (IF OBSERVED):	Silt, sand				
POTENTIAL HABITAT FOR:	Amphibians, small fish				
SURROUNDING LAND USE:	Forested, cleared ROW				
WETLAND FRINGE (IF PRESENT):	None				
COMMENTS					
Man-made pond, part of three ma	n-made pond features, fil	led through manip	pulated stream and culverts from first pond that diverts flow.		



POND DATA SHEET				
FEATURE ID: P-TMQ-05022018-03Associated Features: S-TMQ-05022018-06				
DATE: 05/02/2018	CLIENT/PROJECT NAME	: First Energy / Holloway-Knox 138kV Transmission Line		
INVESTIGATORS: T.Qualio, M. Tho	omayer			
STATE/COUNTY: OH / Carroll IS THIS A MAPPED NWI FEATURE?: adjacent to PUBG				
	WA	ATERBODY CHARACTERISTICS		
WATERBODY TYPE:	Man-made pond			
AVG. DEPTH:	1.5 ft			
AVG. WIDTH (WATER SURFACE):	160 ft			
APPROXIMATE SIZE:	0.06 acres			
		QUALITATIVE ATTRIBUTES		
AVERAGE WATER APPEARANCE:	clear			
PRIMARY SUBSTRATE (IF OBSERVED):	Silt, sand			
POTENTIAL HABITAT FOR:	Amphibians, small fish			
SURROUNDING LAND USE:	Forested, cleared ROW			
WETLAND FRINGE (IF PRESENT):	None			
COMMENTS				
Man-made pond, part of three ma	n-made pond features, fil	led through manipulated stream and culverts from first pond that diverts flow.		



POND DATA SHEET					
FEATURE ID: P-MDT-05/03/2018-01 ASSOCIATED FEATURES: None					
DATE: 05/03/2018	CLIENT/PROJECT NAME: FIRSTENERGY / HOLLOWWAY-KNOX 138KV TRANSMISSION LINE				
INVESTIGATORS: M. Thomayer, T.	Qualio				
STATE/COUNTY: OH/ Carroll	STATE/COUNTY: OH/ Carroll IS THIS A MAPPED NWI FEATURE?: Yes, PUBGx				
	W	ATERBODY CH	IARACTERISTICS		
WATERBODY TYPE:	Man-made				
AVG. DEPTH:	6 ft				
AVG. WIDTH (WATER SURFACE):	35 ft				
APPROXIMATE SIZE:	0.10 acres				
		QUALITATIVI	E ATTRIBUTES		
AVERAGE WATER APPEARANCE:	slightly turbid, mucky				
PRIMARY SUBSTRATE (IF OBSERVED):	Sand, silt				
POTENTIAL HABITAT FOR:	Amphibians, small fish, various reptiles observed: none				
SURROUNDING LAND USE: Residential, pasture					
WETLAND FRINGE (IF PRESENT):	No				
COMMENTS					
Man-made pond in residential yard.					



POND DATA SHEET					
FEATURE ID: P-TMQ-05042018-01 ASSOCIATED FEATURES: W-TMQ-05042018-05-06			D FEATURES: W-TMQ-05042018-05-06		
DATE: 05/04/2018	CLIENT/PROJECT NAME:	FIRST ENERGY / 1	HOLLOWWAY-KNOX 138KV TRANSMISSION LINE		
INVESTIGATORS: T.Qualio, M. Tho	omayer				
STATE/COUNTY: OH/ Carroll			IS THIS A MAPPED NWI FEATURE?: Yes, PUBG		
	WA	TERBODY CH	IARACTERISTICS		
WATERBODY TYPE:	Natural				
AVG. DEPTH:	3 ft				
AVG. WIDTH (WATER SURFACE):	150 ft				
APPROXIMATE SIZE:	0.51 acres				
	Ģ	QUALITATIVI	E ATTRIBUTES		
AVERAGE WATER APPEARANCE:	slightly turbid, mucky				
PRIMARY SUBSTRATE (IF OBSERVED):	Sand, silt				
POTENTIAL HABITAT FOR:	Amphibians, small fish, various reptiles observed: turtles, snake				
SURROUNDING LAND USE:	TRROUNDING LAND USE: Residential, wetland				
WETLAND FRINGE (IF PRESENT):	VerLand Fringe (IF present): Yes, W-TMQ-05042018-05 and W-TMQ-05042018-06				
COMMENTS					
Naturally occurring pond that is dammed on the north side by man-made berm and the east and south side by a gravel drive-way. Separates wetlands 05 and 06. Turtles, snake, and various frogs observed.					

Appendix F Representative Photographs



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-01	PEM	East	5/01/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-02	PEM	Southwest	5/01/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-03	PEM	West	5/01/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-04	PEM	Northwest	5/01/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-05	PEM	East	5/01/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-06E	PEM	South	5/01/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-06S	PSS	Southeast	5/01/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-07	PEM	East	5/02/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-08	PEM	North	5/02/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-09	PEM	South	5/02/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-10	PEM	Southeast	5/02/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-11	PEM	North	5/24/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-12	PEM	Northwest	5/03/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-13	PEM	North	5/03/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-14	PEM	Southwest	5/03/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-15	PEM/PSS/PFO	North	5/03/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-16	PEM	North	5/03/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-17	PEM	North	5/04/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-18	PEM	Southwest	5/04/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-19	PEM	East	5/04/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-20	PEM	North	5/04/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-21	PEM	South	5/04/2018



Site Name	Cowardin Class	Photo Direction	Date of Survey
Wetland KW-22	PEM	South	5/04/2018



Site Name	Flow Regim	ne Photo Directio	on Date of Survey
Stream KW-0	1 Ephemera	l Upstream	5/01/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-02	Intermittent	Downstream	5/01/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-03	Intermittent	Upstream	5/1/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-04	Ephemeral	Downstream	5/1/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-05	Ephemeral	Upstream	5/01/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-06	Intermittent	Downstream	5/01/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-07	Ephemeral	Upstream	5/01/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-08	Ephemeral	Upstream	5/01/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-09	Perennial	Downstream	5/01/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-10	Intermittent	Downstream	5/01/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-11	Intermittent	Downstream	5/02/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-12	Perennial	Downstream	5/02/2018


Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-13	Intermittent	Downstream	5/02/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-14	Perennial	Downstream	5/02/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-15	Perennial	Downstream	5/02/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-16	Perennial	Downstream	5/02/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-17	Perennial	Upstream	5/03/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-18	Intermittent	Upstream	5/03/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-19	Intermittent	Upstream	5/03/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-20	Perennial	Downstream	5/03/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-21	Perennial	Downstream	5/03/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-22	Ephemeral	Downstream	5/03/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-23	Ephemeral	Upstream	5/04/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-24	Perennial	Downstream	5/04/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-25	Intermittent	Upstream	5/04/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-26	Ephemeral	Downstream	5/04/2018



	Site Name	Flow Regime	Photo Direction	Date of Survey
S	Stream KW-27	Perennial	Downstream	5/04/2018



Site Name	Flow Regime	Photo Direction	Date of Survey
Stream KW-28	Perennial	Upstream	5/04/2018



Site Name	Photo Direction	Date of Survey
Pond KW-01	North	5/02/2018



Site Name	Photo Direction	Date of Survey
Pond KW-02	Southwest	5/02/2018



Site Name	Photo Direction	Date of Survey
Pond KW-03	South	5/24/2018



Site Name	Photo Direction	Date of Survey
Pond KW-04	Northwest	5/02/2018



Site Name	Photo Direction	Date of Survey
Pond KW-05	Northwest	5/02/2018



Site Name	Photo Direction	Date of Survey
Pond KW-06	South	5/02/2018



Site Name	Photo Direction	Date of Survey
Pond KW-07	South	5/04/2018