LETTER OF NOTIFICATION FOR CROOKSVILLE-PHILO SOUTH 138 KV TRANSMISSION LINE REBUILD PROJECT (CROOKSVILLE-CANNELVILLE)



BOUNDLESS ENERGY"

PUCO Case No. 21-1112-EL-BLN

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

Submitted by: AEP Ohio Transmission Company, Inc.

LETTER OF NOTIFICATION AEP Ohio Transmission Company, Inc. Crooksville-Philo South 138 kV Transmission Line Rebuild Project (Crooksville-Cannelville)

4906-6-05

AEP Ohio Transmission Company, Inc. ("AEP Ohio Transco" or the "Company") provides the following information to the Ohio Power Siting Board ("OPSB") in accordance with the accelerated application requirements of Ohio Administrative Code Section 4906-6-05.

4906-6-05(B) General Information

B(1) Project Description

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

The Company is proposing the Crooksville-Philo South 138 kilovolt (kV) Transmission Line Rebuild Project (Crooksville-Cannelville) (the "Project") in the Village of Crooksville in Perry County, York Township in Morgan County, and Clay and Brush Creek Townships in Muskingum County, Ohio (OH). The existing Philo-Rutland 138 kV transmission line is supported by steel lattice towers constructed in a six-wire double-circuit configuration. For the subject of this filing, the Company plans to complete a polefor-pole rebuild to replace the lattice towers with steel monopole structures strung in a three-wire, singlecircuit 138 kV line to be renamed as the Crooksville-Philo South 138 kV Transmission Line, which will total approximately 6.6 miles in length. The additional 6 miles of rebuild from the Cannelville Switch to the Philo Station will be filed separately with the OPSB.

The Project will be constructed within an existing 100 foot-wide transmission line ROW. However, supplemental easements will be required to accommodate the Project. The location of the Project is shown on Map 1 in Appendix A.

The Project meets the requirements for a Letter of Notification ("LON") because it is within the types of projects defined by Item (2)(b) of *Appendix A* to O.A.C. 4906-1-01, *Application Requirement Matrix for Electric Power Transmission Lines*:

(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

B(2) Statement of Need

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

The existing Philo-Rutland 138 kV transmission line is approximately 13.5 miles long and consists of a 6wire, single circuit configuration. The Philo-Rutland 138 kV line was originally constructed in 1925 with 2-397.5 & 636 KCM ACSR conductors and steel lattice structures. Nearly all of the approximately 13.5 miles of line still utilizes the original conductor.

There are several asset renewal concerns on this transmission line, including burned insulators and damaged shield wire. Pre-1930's vintage lattice transmission towers were not designed for modern wind and ice loading requirements and lack adequate lightning protection. The nearly 100-year old towers have well exceeded the 70 year typical lifespan for this type of structure. In addition, these lines pose increased risk of failure due to the loss of strength identified with similar constructed lines.

The overall deterioration of the line is an indicator of the need to rebuild the asset rather than repair it. The circuit serves approximately 5.156 MW (1,794 customers) for Guernsey- Muskingum Co-Op at Cannelville Switch, who presently are at increased risk of outages. Failure to move forward with the project will place these customers at increased risk of outages due to the condition and deterioration of the line. Over the past five years, these customers have been subject to 320,767 customer minutes of interruption.

This project need was presented to PJM on 2/21/2020 and the solution was presented on 03/19/2020. Subsequently, a supplemental project ID was assigned by PJM (# s2223). The Project was included in the Company's 2021 Long Term Forecast Report Table FE-T9 page 84 (see Appendix B).

B(3) Project Location

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

Map 1 in Appendix A shows the location of the Project in relation to existing transmission facilities on a United States Geological Survey 1:24,000 topographic quadrangle (Crooksville [1977], Deavertown, OH [1977]). Map 2 in Appendix A identifies the Project components on March 2020 aerial imagery (Esri World Imagery, Maxar).

B(4) Alternatives Considered

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

The Project is located within existing ROW and will install new structures at or in close proximity to the location of existing structures. Access for removal of existing structures and construction of new structures will utilize the existing ROW to minimize tree clearing and impacts to private properties, and aquatic and cultural resources. Therefore, no additional alternatives were considered for the Project.

B(5) Public Information Program

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

The Company informs affected property owners and tenants about its projects through several different mediums. Within seven (7) days of filing this LON, the Company will issue a public notice in a newspaper of general circulation in the Project area. The notice will comply with requirements of OAC Section 4906-6-08(A)(1-6). Further, the Company will mail a letter, via first class mail, to affected landowners, tenants, contiguous owners and other landowners the Company may approach for an easement necessary for the construction, operation, or maintenance of the Project. The letter will comply with requirements of OAC Section 4906-6-08(B). The Company maintains a website (http://aeptransmission.com/ohio/) which provides the public access to an electronic copy of this LON and the public notice for this LON. An electronic copy of the LON will be served to the public library in each political subdivision for this Project. The Company retains ROW land agents that discuss Project timelines, construction and restoration activities and convey information to affected owners and tenants throughout the Project.

B(6) Construction Schedule

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

The Company anticipates construction of the Project to begin in February 2022 and be in-service by August 2023.

B(7) Area Map

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

Map 1 included in Appendix A identifies the location of the Project area on a United States Geological Survey 1:24,000 quadrangle maps (Philo [1977], Crooksville [1977], Deavertown [1977], Rokeby Lock [1977]). Map 2 in Appendix A is an aerial map of the Project area (Esri World Imagery, Maxar).

To visit the Project from Columbus, take I-70 E towards Wheeling, West Virginia. Continue on I-70 for approximately 30.0 miles. Taking exit 132 for OH-13 (Newark/Thornville). Turn right onto OH-13 S (Jacksontown Road) and travel approximately 15.0 miles to OH-669 E and continue approximately 4.0 miles to OH-93. Turn right onto OH-669 E/OH-93 S, travel 0.5 mile to West Main Street. Continue on West Main Street 0.5 mile to South State Street/Ceramic Road. Veer right onto South State Street/Ceramic Road

and travel approximately 0.75 mile to the intersection of Ceramic Road and Harrison Road. The western most portion of the Project will be located on the left at latitude 39.759395, longitude -82.086322.

B(8) Property Agreements

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

Please refer to **Appendix C** for a table of property parcel numbers and an indication as to whether the easement/option necessary to construct and operate the facility has been obtained.

B(9) Technical Features

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

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

The Crooksville-Philo South 138 kV Transmission Line Rebuild (Crooksville-Cannelville) is planned to include:

Voltage:	138 kV
Conductors:	795 kcmil 26/7 Strands DRAKE ACSR
Static Wire:	AFL OPGW DNO-9275 S1-36/101/646 0.646 With Up To 96 Fibers
Insulators:	Polymer
ROW Width:	Varies
Structure Types:	Five (5) single circuit, steel monopole dead end;
• •	Twenty-seven (27) single circuit, steel monopole tangents;
	One (1) single circuit, steel monopole switch

For electric power transmission lines that are within one hundred feet of an occupied residence or institution, the production of electric and magnetic fields during the operation of the proposed electric power transmission line. The discussion shall include:

B(9)(b) Electric and Magnetic Fields

i) Calculated Electric and Magnetic Field Levels

Three loading conditions were examined: (1) Normal Maximum Loading, (2) Emergency Loading, and (3) Winter Normal Conductor Rating, consistent with the OPSB requirements. Normal Maximum Loading represents the peak flow expected with all system facilities in

service; daily/hourly flows fluctuate below this level. Emergency loading is the maximum current flow during unusual (contingency) conditions, which exist only for short periods of time. Winter normal (WN) conductor rating represents the maximum current flow that a line, including its terminal equipment, can carry during winter conditions. It is not anticipated that this circuit of this line would operate at its WN rating in the foreseeable future.

EMF levels were computed one meter above ground under the line and at the ROW edges (50/50 feet, left/right, of centerline).

Results calculated using EPRI's EMF Workstation 2015 software are summarized below:

Crooksville-Philo Newark 138 kV Line					
Condition	Load (A)	Phasing Arrangements	Ground Clearance (feet)	Electric Field (kV/m)*	Magnetic Field (mG)*
(1) Normal Max. Loading^	202.9	A-B-C	38.94	0.28/0.95/0.09	11.82/14.86/5.82
(2) Emergency Line Loading^^	410.42	A-B-C	23.97	0.29/2.02/0.11	27.29/67.49/12.55
(3) Winter Conductor Rating^^^	1359.7	A-B-C	38.94	0.27/0.95/0.09	61.23/99.56/34.03

^ - Peak line flow expected with all system facilities in service.

^^ - Maximum flow during a critical system contingency

^^^ - Maximum continuous flow that the line, including its terminal equipment, can withstand during winter conditions.

*EMF levels (left ROW edge/maximum/right ROW edge) computed one meter above ground at the point of minimum ground clearance, assuming balanced phase currents and 1.0 P.U. Voltages. ROW width is 50 feet (left) and 50 feet (right) of centerline, respectively.

For power-frequency EMF, IEEE Standard C95.6TM-2002 recommends the following limits:

	General Public	Controlled Environment	
Electric Field Limit (kV/m)	5.0	20.0	
Magnetic Field Limit (mG)	9040	27,100	

The above EMF levels are well within the limits specified in IEEE Standard C95.6TM-2002. Those limits have been established to "prevent harmful effects in human beings exposed to electromagnetic fields in the frequency range of 0-3 kHz."

ii) Design Alternatives

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

Design alternatives were not considered due to EMF strength levels. Transmission lines, when energized, generate EMF. Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. However, some people are concerned that EMF have impacts on human health. Due to these concerns, EMF associated with the new circuits was calculated and set forth in the table above. The EMF was computed in a manner to maximize the estimate, assuming the highest reasonable input values based on conditions along the proposed transmission line rebuild. Normal daily EMF levels would be less than these, which were calculated at maximum load conditions. Based on studies from the National Institutes of Health, the magnetic field (measured in milliGauss, or mG) associated with emergency loading at the highest EMF value for this transmission line is lower than those associated with normal household appliances like microwave ovens, electric shavers and hair dryers. For additional information regarding EMF, the National Institutes of Health has posted information on their website: http://www.niehs.nih.gov/health/topics/agents/emf/. Additionally, information on electric and magnetic fields is available on the Company's website: https://www.aepohio.com/info/projects/emf/OurPosition.aspx. The information found on the Company's website describes the basics of electromagnetic field theory, scientific research activities, and EMF exposures encountered in everyday life. Similar material will be made available for those affected by the construction activities for this Project.

B(9)(c) Project Costs

The estimated capital cost of the project.

The estimated capital cost of the Project, comprised of applicable tangible and capital costs, is approximately \$13,800,000 (Class 4). Pursuant to the PJM OATT, the costs for this Project will be recovered in the AEP Ohio Transmission Company's FERC formula rate (Attachment H-20 to the PJM OATT) and allocated to the AEP Zone.

B(10) Social and Economic Impacts

The applicant shall describe the social and ecological impacts of the project. B(10)(a) Provide a brief, general description of land use within the vicinity of the proposed project, including a list of municipalities, townships, and counties affected. The Project is located in the Village of Crooksville in Perry County, York Township in Morgan County, and Clay and Brush Creek Townships, Muskingum County, Ohio. Land use in the Project area within the Village of Crooksville consists of medium-density residential and public housing communities. The Project crosses through the James Brown Terrace Heights public housing community, a Perry Metropolitan Housing Authority development, within the Village of Crooksville at the west end of the Project. The Project plans to rebuild the transmission line within the existing ROW or supplementing existing rights, no new easements will be required, and no additional impacts are anticipated. The land use along the remaining portion of the line consists of the existing transmission line ROW traversing wooded slopes and valleys, and areas of open field/pasture on the broad ridgetops. Local roads bordered by scattered residences are located along the broad ridgetops and valleys.

B(10)(b) Agricultural Land Information

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

According to the Perry County Auditor's Office, Morgan County Auditor's Office, and the Muskingum County Auditor's Office as of October 15, 2021, the Project does not cross registered Agricultural District Land. The Project does not cross active agricultural row crop land (Appendix A, Map 2), therefore, impacts to agricultural uses beyond the existing ROW are not anticipated.

B(10)(c) Archaeological and Cultural Resources

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

A cultural resource survey and report were conducted by the Company's consultant for the Project. Correspondence from the State Historic Preservation Office ("SHPO") was received in July and December 2020, see **Appendix D**. The SHPO stated that that the Project will have no adverse effect on historic properties and that no further archaeological work is necessary.

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

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

A Notice of Intent ("NOI") will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharge under General Permit OHC000005, and the Company will implement and maintain best management practices as outlined in the Project-specific Storm Water

LETTER OF NOTIFICATION FOR CROOKSVILLE-PHILO SOUTH 138 KV TRANSMISSION LINE REBUILD PROJECT (CROOKSVILLE-CANNELVILLE)

Pollution Prevention Plan to minimize erosion and sediment to Project surface water quality during storm events.

The Company's consultant completed wetland delineation and stream identification field reviews for the Project in May 2020. Forty-seven streams and twelve wetlands were identified within the study area. Due to landowner requests, access routes for Project construction will require temporary impacts to two PEM wetlands due to the placement of timber mats. The Company will submit the appropriate Clean Water Act Section 401/404 permit application(s) to authorize these two wetland impacts. All other streams and wetlands will either be aerially spanned, crossed by an air bridge, or avoided all together.

The Project crosses the Federal Emergency Management Agency ("FEMA") 100-year floodplain area associated with Brush Creek (FEMA, Flood Insurance Rate Map, Panel 39115C0050D, Effective Date September 19, 2012). However, the Project will cross the FEMA floodplain aerially as the new structures will be located outside the floodplain in the same locations as the existing structures. Therefore, no floodplain permitting is anticipated for the Project. These resources are shown on Figure 2 in Appendix E.

Coordination with the Federal Aviation Administration ("FAA") will not be required. Proposed structure heights are below the minimum height requirement for FAA markings. Additionally, there are no known airports or heliports within five miles of the Project.

In addition to easement acquisition, state and local road permits or bonds could be required. Coordination with these stakeholders is necessary to identify the authorization requirements and timeframes.

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

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

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

A coordination letter was submitted to the United States Fish and Wildlife Service ("USFWS") Ohio Ecological Services Field Office on July 9, 2020, seeking technical assistance on the Project for potential impacts to threatened or endangered species. In a response email dated July 15, 2020, the USFWS noted the potential for the Indiana bat and northern long-eared bat to occur within the Project area. The USFWS recommended that if tree removal was required for the Project, it be limited to the time between October 1 and March 31 to avoid the potential for take of the Indiana bat and northern long-eared bat and northern long-eared bat. The Company is planning to complete tree clearing during the recommended timeframe but should implementation of the seasonal tree cutting recommendation not be feasible, the USFWS will be contacted for further guidance.

LETTER OF NOTIFICATION FOR CROOKSVILLE-PHILO SOUTH 138 KV TRANSMISSION LINE REBUILD PROJECT (CROOKSVILLE-CANNELVILLE)

The USFWS also stated that due to the Project type, size, and location, no other impacts to federally endangered, threatened, or proposed species or designated critical habitat are anticipated.

A coordination letter was submitted to the Ohio Department of Natural Resources ("ODNR") Division of Wildlife ("DOW") on July 9, 2020, seeking technical assistance for potential impacts to threatened or endangered species in the vicinity of the Project area. In a response received on September 17, 2020, ODNR-DOW noted the potential for the Indiana bat, northern long-eared bat, little brown bat and tri-colored bat to occur within the Project area. ODNR-DOW recommended that if tree removal was required for the Project, it be limited to the time between October 1 and March 31 to avoid potential for take of these state-listed species. ODNR-DOW also recommended conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH \geq 20 if possible. The Company is planning to complete tree clearing during the recommended timeframe but should implementation of the seasonal tree cutting recommendation not be feasible, the ODNR will be contacted for further guidance.

ODNR-DOW also noted the potential for the black tern, northern harrier, sandhill crane and trumpeter swan bird species to be present in the Project area. Critical habitat for the black tern, sandhill crane, and trumpeter swan were not identified during field survey and therefore the Project is not likely to impact these species. The northern harrier habitat was identified in the Project area. ODNR-DOW recommends that 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 Company anticipates being able to comply with time of year requirements for habitat avoidance, if this becomes unfeasible the Company will continue coordination with ODNR to minimize potential impacts from clearing.

ODNR-DOW noted the potential for eleven mussel species, two amphibian species, and six fish species to be present in the Project area; however, impacts to these species are not anticipated as no in-water work is proposed for the Project.

Coordination letters from USFWS and ODNR-DOW are provided in Appendix D.

B(10)(f) Areas of Ecological Concern

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

Coordination letters were submitted to the USFWS and ODNR requesting a review of the Project and identification of areas of ecological concern. The USFWS response dated July 15, 2020 (Appendix D), indicated there are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the Project. The ODNR response received on September 17, 2020 (Appendix D) indicated that according to the Ohio Natural Heritage Database (ODNR), no known unique ecological sites, geologic

LETTER OF NOTIFICATION FOR CROOKSVILLE-PHILO SOUTH 138 KV TRANSMISSION LINE REBUILD PROJECT (CROOKSVILLE-CANNELVILLE)

features, animal assemblages, scenic rivers, state wildlife areas, state natural preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas are located within the Project area.

A review the National Conservation Easement Database and the USACE Regulatory In-lieu Fee and Bank Information Tracking System did not identify mapped easements or mitigation sites in the Project area.

The Project crosses the FEMA 100-year floodplain area associated with Brush Creek (FEMA, Flood Insurance Rate Map, Panel 39115C0050D, Effective Date September 19, 2012). However, the Project will cross the FEMA floodplain aerially as the new structures will be located outside the FEMA floodplain in the same locations as the existing structures. Therefore, no floodplain permitting is anticipated for the Project. These resources are shown on Figure 2 in Appendix E.

In May 2020, the Company's consultant completed wetland delineation and stream identification field reviews within a 200-foot-wide corridor for the existing and proposed transmission line centerline, which included the existing and proposed ROW. The results of the survey are presented in the Ecological Survey Report included in Appendix E. Fifteen (15) perennial, twenty-six intermittent, and six ephemeral streams were identified within the study area. One palustrine forested ("PFO") wetland, one palustrine scrub-shrub ('PSS") wetland, and ten palustrine emergent ("PEM") wetlands were also identified in the study area. Impacts are anticipated to be minimal as these aquatic resources are anticipated to be spanned, with the exception of two wetlands which will be temporarily impacted for access road construction. In general, the habitat encountered within the ROW consisted of maintained transmission line ROW bordered by mixed deciduous forest, open fields, pastures, residential areas and PEM/PSS/PFO wetlands.

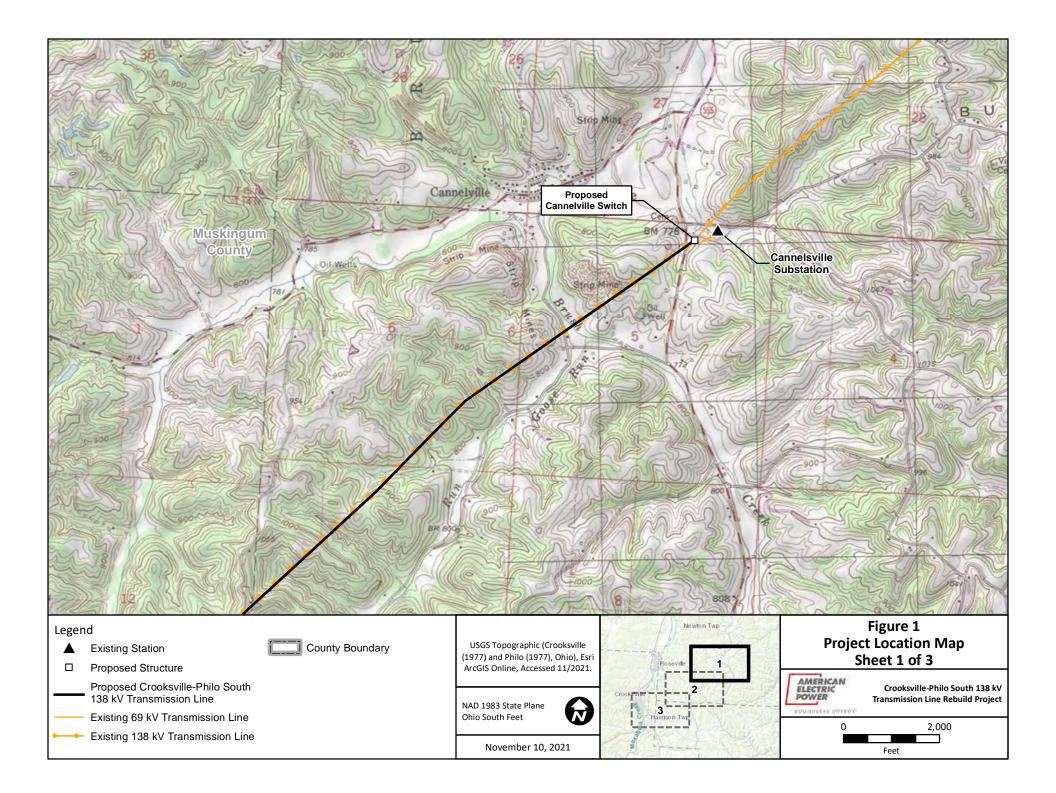
B(10)(g) Unusual Conditions

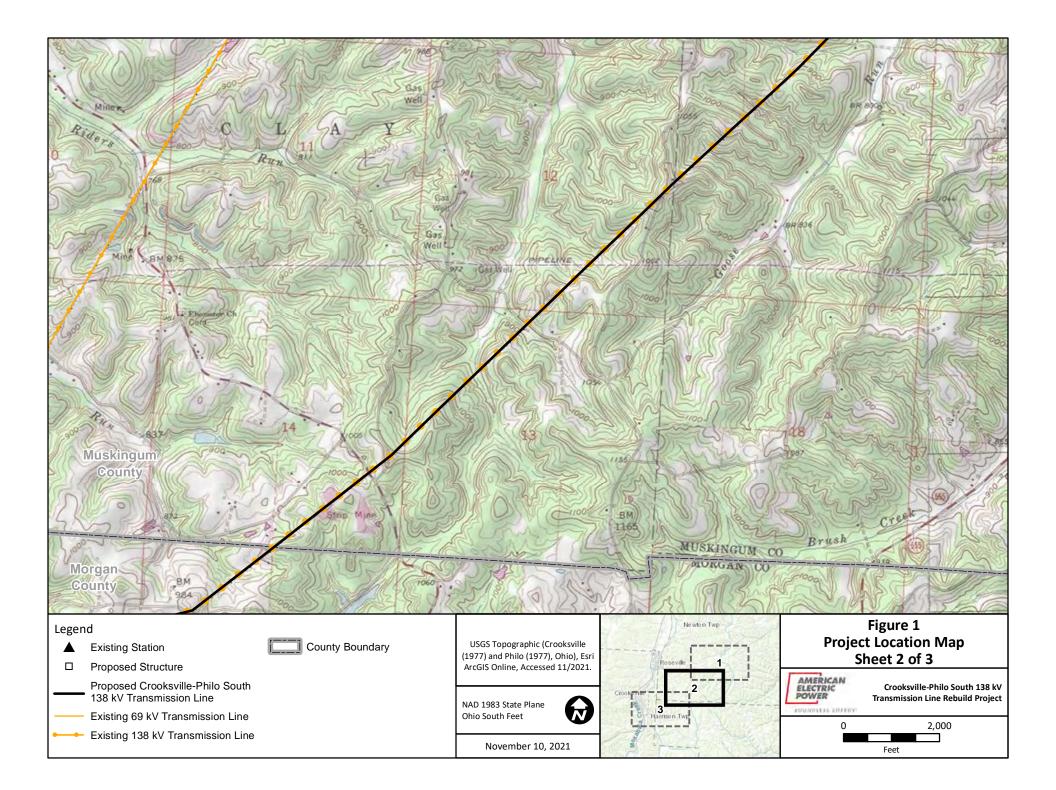
Provide any known additional information that will describe any unusual conditions resulting in significant environmental, social, health, or safety impacts.

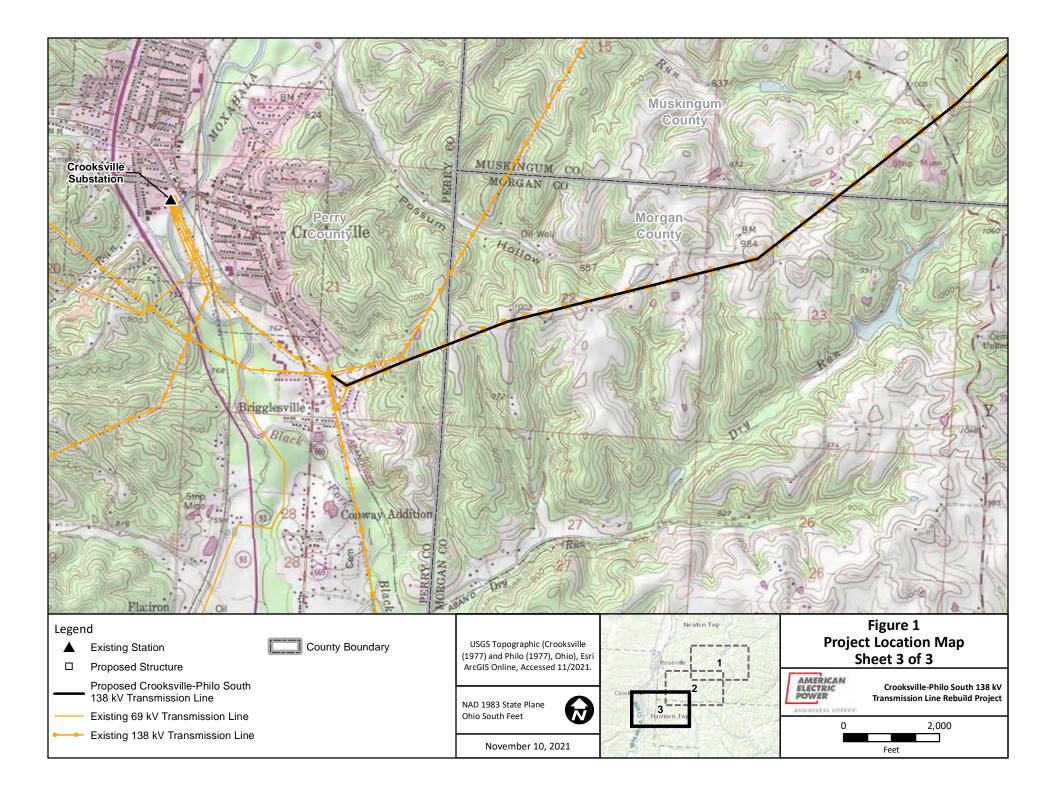
To the best of the Company's knowledge, no unusual conditions exist that would result in substantial environmental, social, health, or safety impacts.

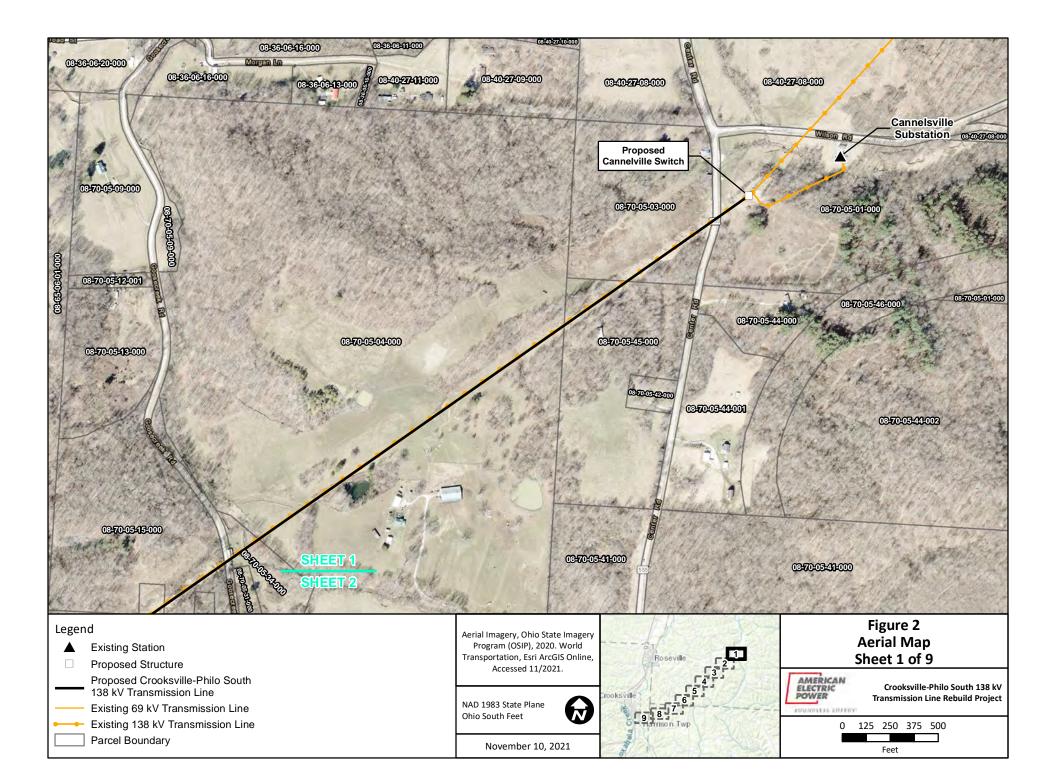
APPENDIX A

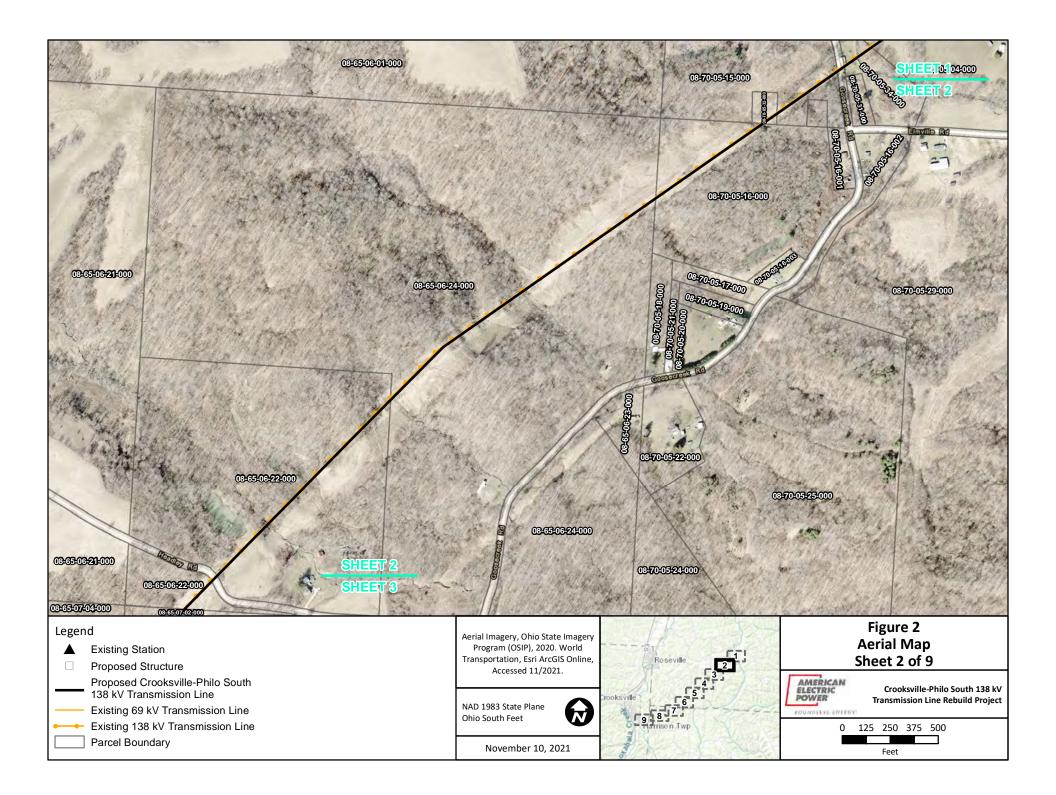
Project Maps

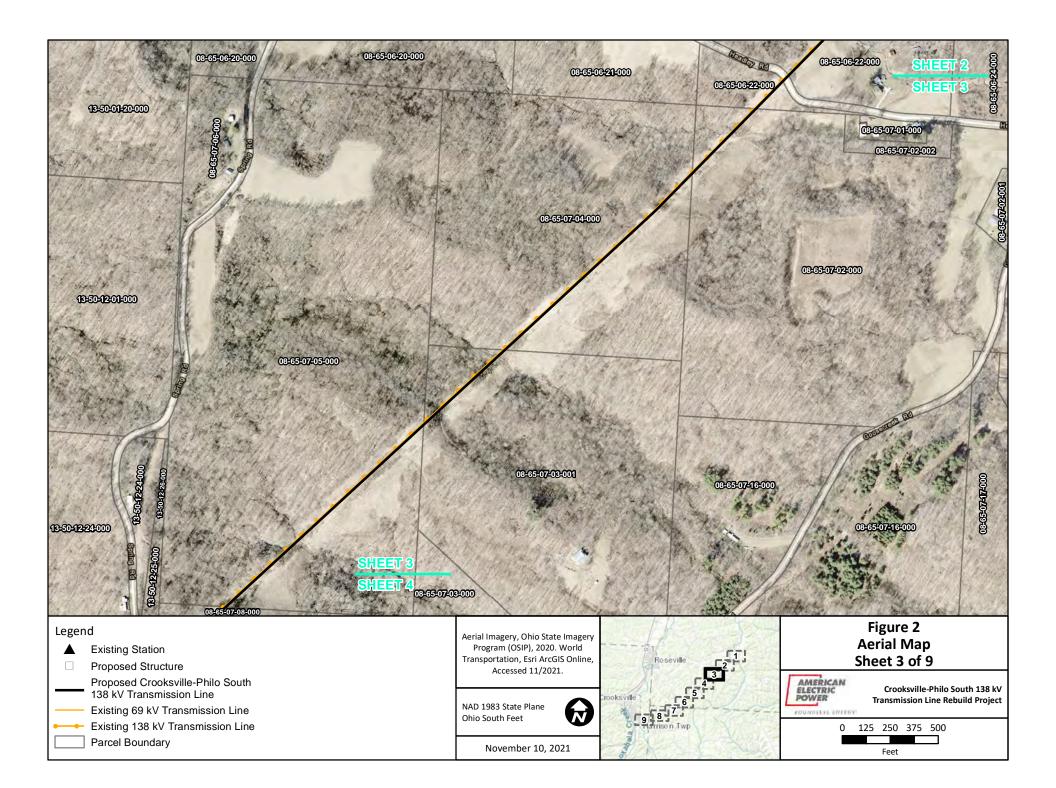


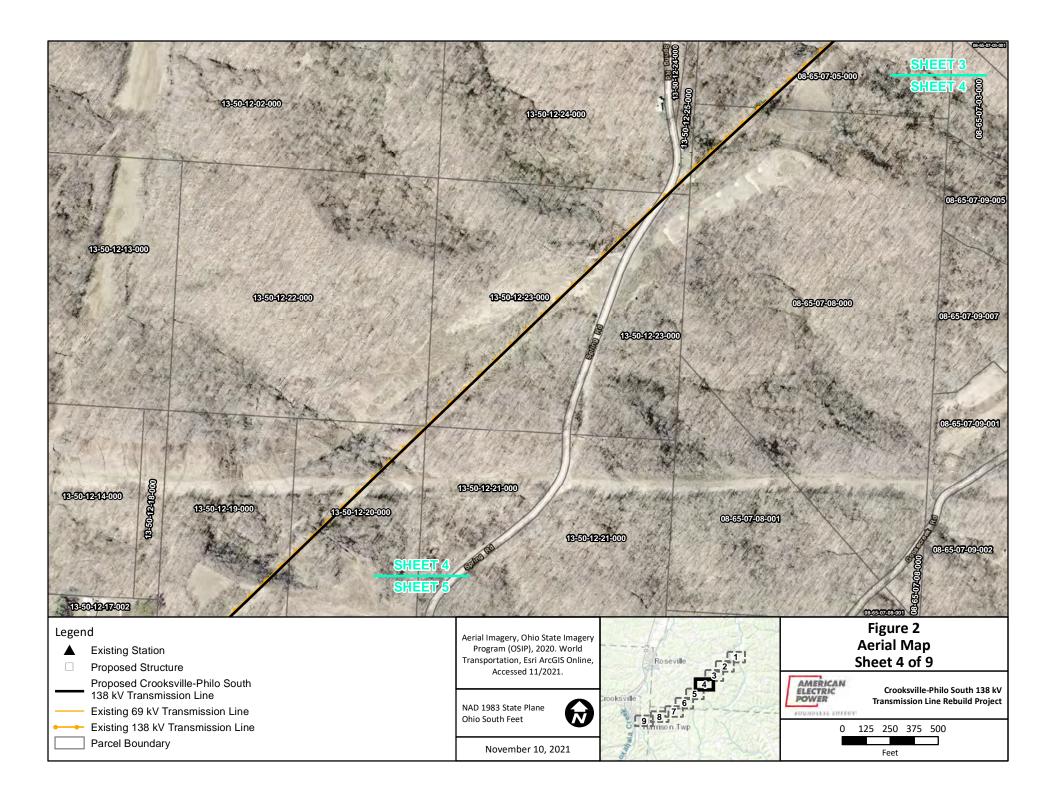






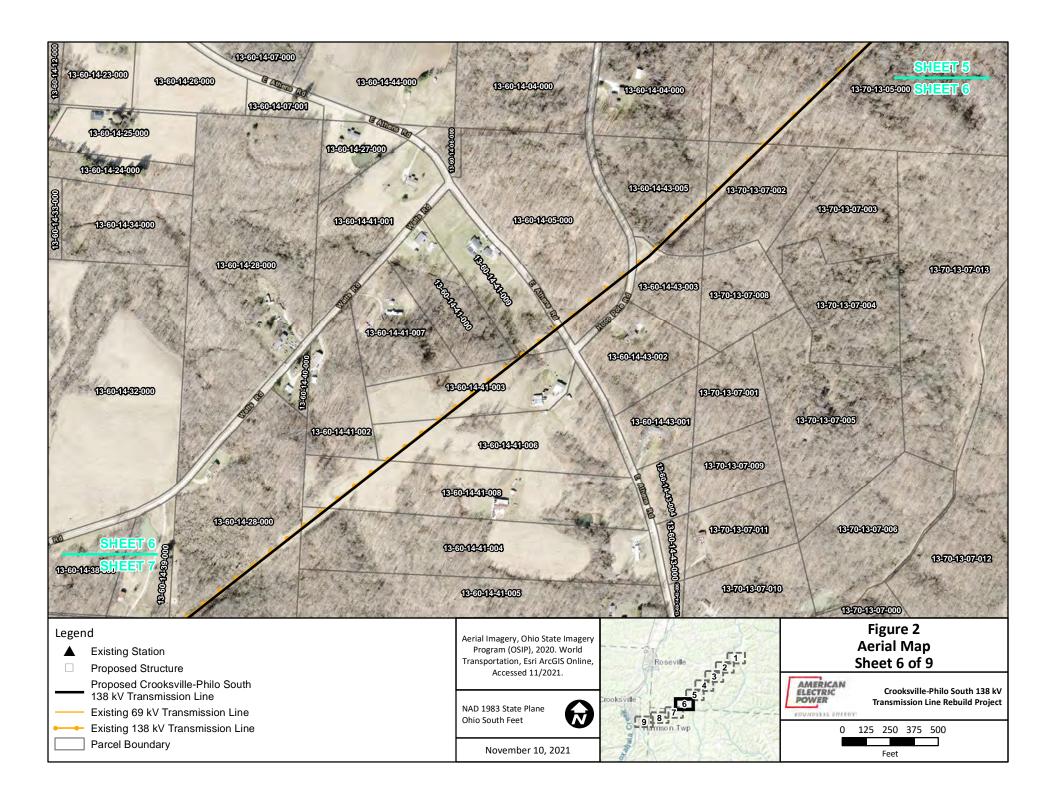


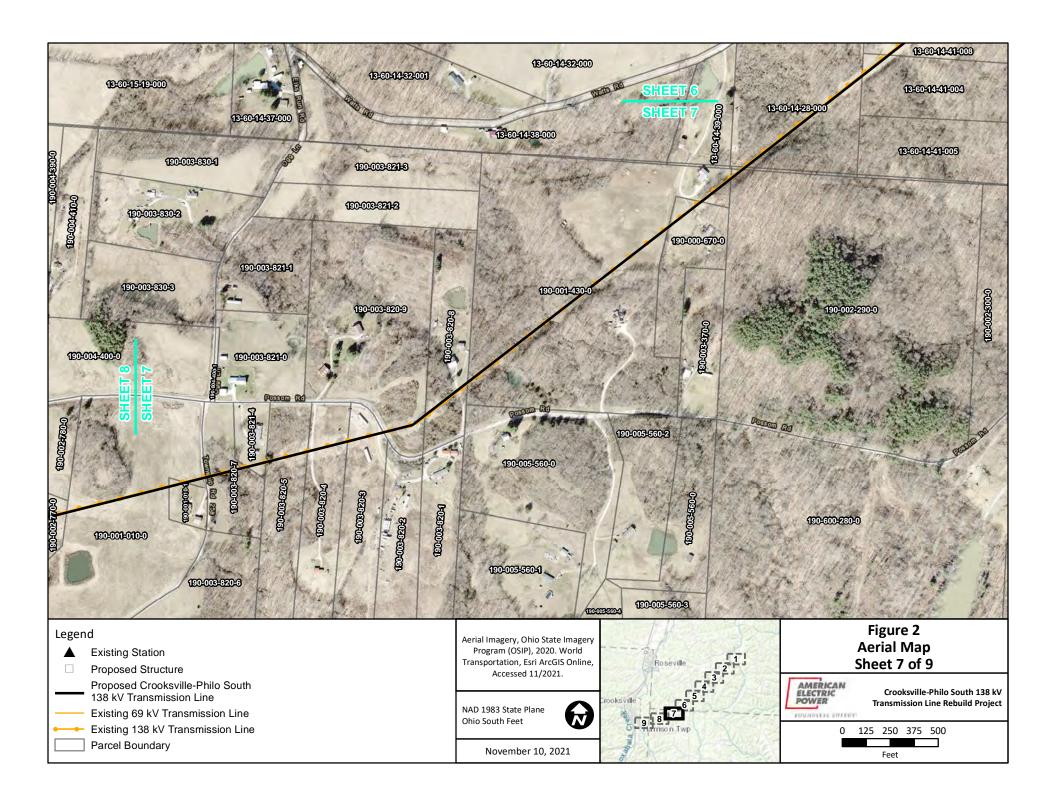


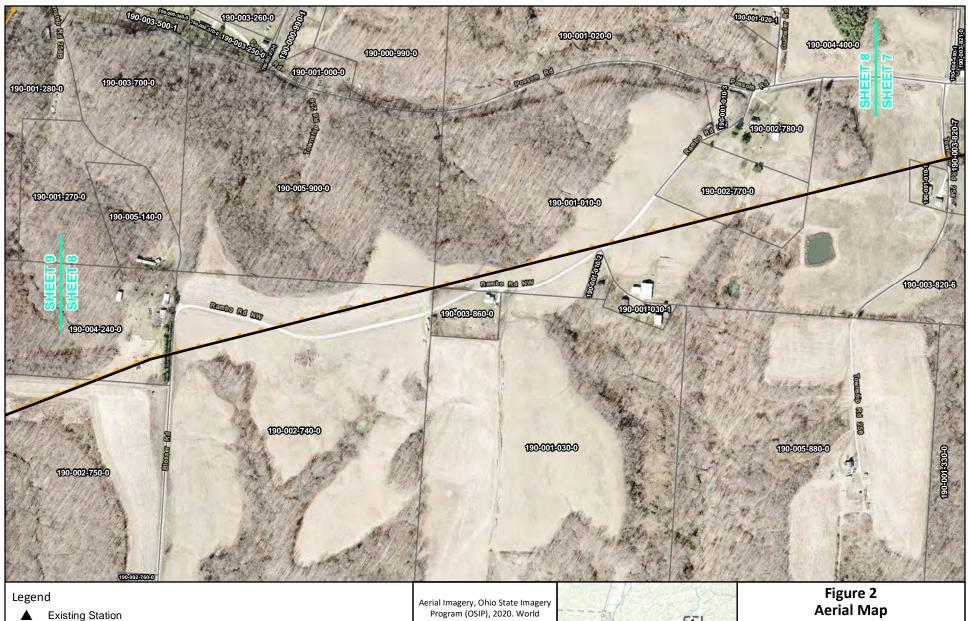












Transportation, Esri ArcGIS Online,

Accessed 11/2021.

NAD 1983 State Plane

Ohio South Feet



Parcel Boundary

November 10, 2021

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Sheet 8 of 9

0 125 250 375 500

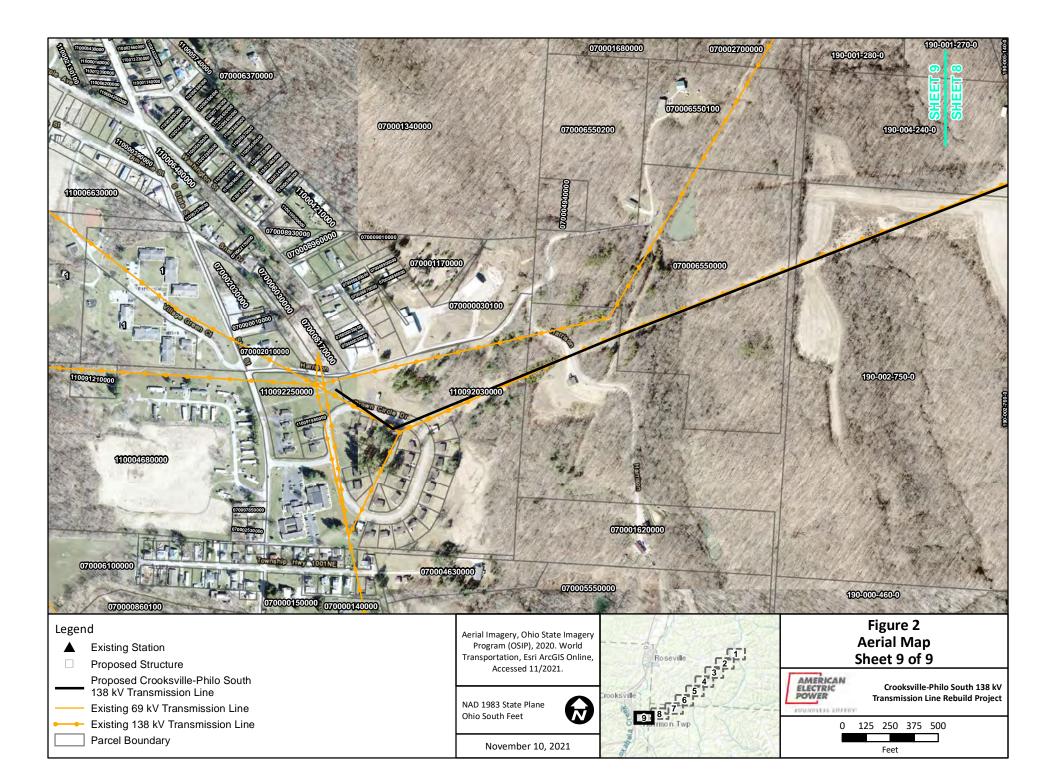
Feet

Crooksville-Philo South 138 kV

Transmission Line Rebuild Project

AMERICAN ELECTRIC POWER

EDUNDLESS INFROM



APPENDIX B

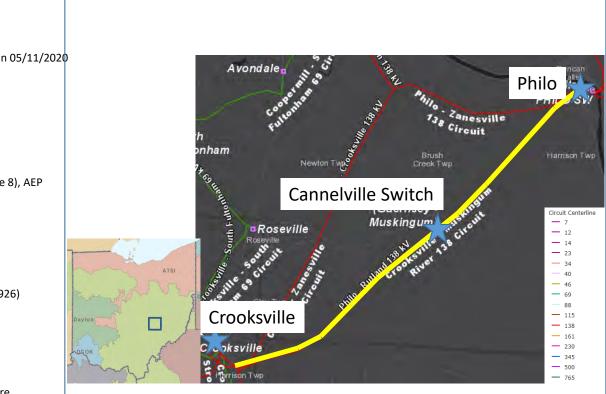
PJM Interconnection Submittal and Long Term Forecast Report

PUCO Form FE-T9 AEP Ohio Transmission Company Specifications of Planned Transmission Lines

LINE NAME AND NUMBER:	Crooksville - Philo (s2223), TP2019113	
POINTS OF ORIGIN AND TERMINATION	Crooksville, Philo INTERMEDIATE STATION - Cannelville SW	
RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS	13 mi / 100 ft / 1 circuit	
VOLTAGE: DESIGN / OPERATE	138 kV/ 138 kV	
APPLICATION FOR CERTIFICATE:	2021	
CONSTRUCTION:	2023-2024	
CAPITAL INVESTMENT:	\$25M	
PLANNED SUBSTATION:	N/A	
SUPPORTING STRUCTURES:	Steel	
PARTICIPATION WITH OTHER UTILITIES	N/A	
PURPOSE OF THE PLANNED TRANSMISSION LINE	Rebuild of existing 138 kV line	
CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	Increased risk of equipment failure.	
MISCELLANEOUS:		



AEP Transmission Zone M-3 Process Crooksville-Philo 138kV Circuit Rebuild



Need Number: AEP-2020-OH004

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 05/11/2020

Previously Presented:

Needs Meeting 2/21/2020 Solutions Meeting 3/19/2020

Project Driver: Equipment Material/Condition/Performance/Risk

Specific Assumption Reference:

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 8), AEP Presentation on Pre-1930s Lines

Problem Statement:

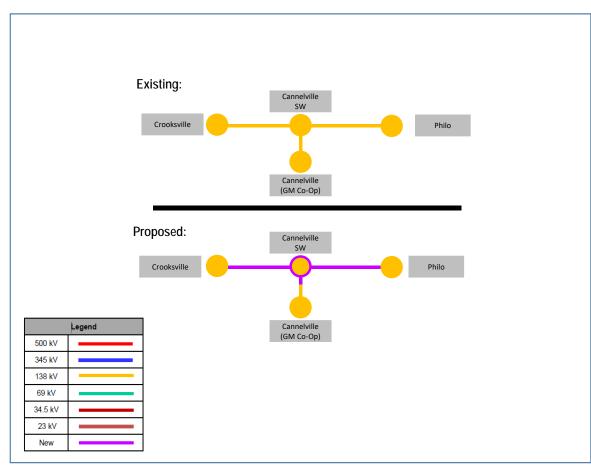
Crooksville – Philo 138kV

- Length: 13 Miles
- Original Construction Type: Aluminum/Steel Lattice
- Original Conductor Type: 397.5 ACSR Lark / 636 ACSR Grosbeak (vintage 1926)
- Momentary/Permanent Outages: 1 total outages
 - CMI: 320,767
 - Number of open conditions: 5
 - Total structure count: 65
 - Open conditions include: Burnt insulators, damaged shield wire
- Please reference assumptions materials on pre-1930s era lattice lines

SRRTEP-Western – AEP Supplemental 05/11/2020



AEP Transmission Zone M-3 Process Crooksville-Philo 138kV Circuit Rebuild



Need Number: AEP-2020-OH004

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 05/11/2020

Selected Solution:

- Rebuild ~12 miles of the Crooksville Philo 138kV circuit. (s2223.1) Estimated Cost: \$29.8M
- Replace Cannelville Switch with a new phase-overphase switch. Relocate the existing Cannesvsille – Guernsey-Muskingum Co-op 138kV line to new Cannelville Switch. The switch needs to be relocated to maintain service to the customer while the line is being rebuilt. (s2223.2) Estimated Cost: \$1.1M

Estimated Cost: \$30.9M

Projected In-Service: 9/30/2022

Supplemental Project ID: s2223

Project Status: Engineering

Model: N/A

SRRTEP-Western – AEP Supplemental 05/11/2020

APPENDIX C

Property Agreements

Property Parcel Number	Easement Type	Easement Agreement/Option Obtained (Yes/No)
08-70-05-01-000	Existing	Yes
08-70-05-03-000	Existing	Yes
08-70-05-45-000	Existing	Yes
08-70-05-42-000	Temporary	No
08-70-05-04-000	Supplemental	No
08-70-05-34-000	Supplemental	No
08-70-05-31-000	Supplemental	No
08-70-05-15-000	Supplemental	No
08-70-05-33-000	Supplemental	No
08-70-05-32-000	Existing	Yes
08-70-05-16-000	Existing	Yes
08-65-06-24-000	Existing	Yes
08-65-06-22-000	Existing	Yes
08-65-07-02-000	Existing	Yes
08-65-07-04-000	Existing	Yes
08-65-07-03-001	Existing	Yes
08-65-07-05-000	Supplemental	No
13-50-12-01-000	Temporary	No
08-65-07-08-000	Supplemental	No
13-50-12-25-000	Existing	Yes
13-50-12-23-000	Supplemental	No
13-50-12-24-000	Existing	Yes
13-50-12-21-000	Supplemental	No
13-50-12-22-000	Supplemental	No
13-50-12-20-000	Supplemental	No
13-50-12-19-000	Existing	Yes
13-70-13-04-000	Supplemental	No
13-70-13-05-002	Supplemental	No
13-50-12-17-002	Temporary	No
13-70-13-05-000	Supplemental	No
13-50-12-16-000	Temporary	No
13-70-13-07-002	Supplemental	No
13-70-13-07-008	Temporary	No
13-60-14-43-005	Supplemental	No
13-60-14-43-003	Supplemental	No
13-60-14-05-000	Supplemental	No
13-60-14-41-009	Supplemental	No
13-60-14-41-000	Existing	Yes

Property Parcel Number	Easement Type	Easement Agreement/Option Obtained (Yes/No)
13-60-14-41-003	Supplemental	No
13-60-14-41-006	Supplemental	No
13-60-14-41-002	Existing	Yes
13-60-14-41-008	Existing	Yes
13-60-14-41-004	Existing	Yes
13-60-14-28-000	Existing	Yes
13-60-14-39-000	Existing	Yes
190-002-290-0	Existing	Yes
190-001-430-0	Supplemental	No
190-000-670-0	Supplemental	No
190-003-820-8	Supplemental	No
190-003-820-9	Supplemental	No
190-003-820-2	Supplemental	No
190-003-820-3	Supplemental	No
190-003-820-4	Supplemental	No
190-003-820-5	Supplemental	No
190-003-821-4	Supplemental	No
190-003-820-7	Supplemental	No
190-001-010-0	Supplemental	No
190-001-010-1	Supplemental	No
190-002-780-0	Existing	Yes
190-002-770-0	Supplemental	No
190-001-010-2	Existing	Yes
190-003-860-0	Existing	Yes
190-005-900-0	Existing	Yes
190-002-740-0	Existing	Yes
190-004-240-0	Supplemental	No
190-002-750-0	Supplemental	No
70006550000	Existing	Yes
110092030000	Existing	Yes
110092040000	Existing	Yes
110091850000	Existing	Yes
110091840000	Existing	Yes
110091760000	Existing	Yes
110092010000	Existing	Yes
110092000000	Existing	Yes
110091990000	Existing	Yes
110015150000	Existing	Yes

Property Parcel Number	Easement Type	Easement Agreement/Option Obtained (Yes/No)
110092250000	Existing	Yes

APPENDIX D

Agency Correspondence



In reply, refer to 2020-MLT-48961

July 17, 2020

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

RE: Philo-Cannelsville 138kV Transmission Line Rebuild Project, Perry, Morgan, and Muskingum Counties, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on June 29, 2020 regarding the proposed Philo-Cannelsville 138kV Transmission Line Rebuild Project, Perry, Morgan, and Muskingum Counties, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The following comments pertain to the Phase I Archaeological Investigations for the Approximately 20.9 km (13 mi) Philo-Cannelsville 138kV Transmission Line Rebuild Project in Perry, Morgan, and Muskingum Counties, Ohio by Weller & Associates, Inc. (2020).

A literature review, visual inspection, shovel probe and shovel test unit excavation was completed as part of the investigations. No previously identified archaeological sites are located within the project area. Two (2) new archaeological sites were identified during survey. Ohio Archaeological Inventory (OAI) #33MU1620 and 33MU1621 are small prehistoric lithic scatters. They sites recommended not eligible for listing in the National Register of Historic Places (NRHP). Our office agrees with this recommendation and no additional archaeological investigations are needed.

The following comments pertain to the *History/Architecture Investigations for the 13.0 km (20.9 mi) Philo-Cannelsville 138 kV Rebuild Project in Perry, Morgan, and Muskingum Counties, Ohio* by Weller & Associates, Inc. (2020).

A literature review and field survey were completed as part of the investigations. Two National Register-listed resources, four Ohio Historic Inventory resources, and 108 resources 50 years of age or older were identified within the Area of Potential Effects.

It is Weller's recommendation that one of the previously recorded Ohio Historic Inventory properties (PER0002606) is eligible for inclusion in the National Register of Historic Places under Criterion C. Our office agrees with Weller's recommendation regarding eligibility.

Based on the information provided, the project corridor will be relatively unobstructed and visible from a majority of the identified historic properties. The existing nature of the project and proposed rebuild should not impact the significance or integrity of these historic properties in a way that would alter their National Register status or eligibility. Therefore, we agree that the project as proposed will have no adverse effect on historic properties.

Based on the information provided, we agree that the project as proposed will have no adverse effect on historic properties.

No further coordination with this office is necessary, unless the project changes or unless new or additional historic properties are discovered during implementation of this project. In such a situation, this office should be contacted. If you have any questions, please contact me at (614) 298-2022, or by e-mail at <u>khorrocks@ohiohistory.org</u>, or Joy Williams at jwilliams@ohiohistory.org. Thank you for your cooperation.

Sincerely,

with

Krista Horrocks, Project Reviews Manager Resource Protection and Review

RPR Serial No: 1084713-1084714



In reply, refer to 2020-MLT-48961

December 29, 2020

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

RE: Philo-Crooksville 138kV Transmission Line Rebuild Project, Perry, Morgan, and Muskingum Counties, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on December 29, 2020 (originally June 29, 2020) regarding the proposed Philo-Crooksville 138kV Transmission Line Rebuild Project, Perry, Morgan, and Muskingum Counties, Ohio. Revised reports were provided to our office because the name of the project, originally the Philo-Cannelsville 138kV Transmission Line Rebuild Project, was changed. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The following comments pertain to the *Phase I Archaeological Investigations for the Approximately 20.9 km (13 mi) Philo-Crooksville 138kV Transmission Line Rebuild Project in Perry, Morgan, and Muskingum Counties, Ohio* by Weller & Associates, Inc. (2020).

A literature review, visual inspection, shovel probe and shovel test unit excavation was completed as part of the investigations. No previously identified archaeological sites are located within the project area. Two (2) new archaeological sites were identified during survey. Ohio Archaeological Inventory (OAI) #33MU1620 and 33MU1621 are small prehistoric lithic scatters. The sites are recommended not eligible for listing in the National Register of Historic Places (NRHP). Our office agrees with this recommendation and no additional archaeological investigations are needed.

The following comments pertain to the *History/Architecture Investigations for the 13.0 km (20.9 mi) Philo-Crooksville 138 kV Rebuild Project in Perry, Morgan, and Muskingum Counties, Ohio* by Weller & Associates, Inc. (2020).

A literature review and field survey were completed as part of the investigations. Two National Register-listed resources, four Ohio Historic Inventory resources, and 108 resources 50 years of age or older were identified within the Area of Potential Effects.

It is Weller's recommendation that one of the previously recorded Ohio Historic Inventory properties (PER0002606) is eligible for inclusion in the National Register of Historic Places under Criterion C. Our office agrees with Weller's recommendation regarding eligibility. Based on the information provided, the project corridor will be relatively unobstructed and visible from a majority of the identified historic properties. The existing nature of the project and proposed rebuild should not impact the significance or integrity of these historic properties in a way that would alter their National Register status or eligibility. Therefore, we agree that the project as proposed will have no adverse effect on historic properties.

RPR Serial No: 1084713, 1084714, 1086717

Based on the information provided, we agree that the project as proposed will have no adverse effect on historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional historic properties are discovered during implementation of this project. In such a situation, this office should be contacted. If you have any questions, please contact me at (614) 298-2022, or by e-mail at <u>khorrocks@ohiohistory.org</u>, or Joy Williams at jwilliams@ohiohistory.org. Thank you for your cooperation.

Sincerely,

unt

Krista Horrocks, Project Reviews Manager Resource Protection and Review

RPR Serial No: 1084713, 1084714, 1086717

800 E. 17th Ave., Columbus, OH 43211-2474 • 614.297.2300 • ohiohistory.org

From:	Ohio, FW3 <ohio@fws.gov></ohio@fws.gov>
Sent:	Wednesday, July 15, 2020 8:31 AM
То:	Kristen Vonderwish; Joshua Noble
Cc:	nathan.reardon@dnr.state.oh.us; Parsons, Kate
Subject:	AEP Crooksvills - Philo 138 kV Line Rebuild, Perry, Morgan, and
	Muskingum Co

EXTERNAL E-MAIL MESSAGE



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# 03E15000-2020-TA-1809

Dear Ms. Vonderwish,

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

Federally Threatened and Endangered Species: The endangered Indiana bat (Myotis sodalis) and threatened northern long-eared bat (Myotis septentrionalis) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥ 3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: Should the proposed project site contain trees ≥ 3 inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are

present and trees \geq 3 inches dbh cannot be avoided, we recommend removal of any trees \geq 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see <u>http://www.fws.gov/midwest/endangered/mammals/nleb/index.html</u>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats. If Indiana bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

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

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

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

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew,

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

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

Sincerely,

Patrice M. Ashfield Field Office Supervisor

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

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

September 17, 2020

Kristen Vonderwish GAI Consultants 6000 Town Center Blvd., Suite 300 Canonsburg, PA 15317

Re: 20-707; Crooksville - Philo 138 kV Line Rebuild Project

Project: The proposed Project involves rebuilding approximately 6.7 miles of the existing Crooksville – Philo 138 kV transmission line and the installation of a new switch at the Cannelville station.

Location: The proposed project is located in Perry, Morgan, and Muskingum 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 no records at or within a onemile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

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 entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (Myotis septentrionalis), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (Perimyotis subflavus), a state endangered species. During the spring and summer (April 1 through September 30), these species of bats predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. If trees are present within the project area, and trees must be cut, the DOW recommends cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with $DBH \ge 20$ if possible. If trees are present within the project area, and trees must be cut during the summer months, the DOW recommends a mist net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting. Mist net and acoustic surveys should be conducted in accordance with the most recent version of the "OHIO DIVISION OF WILDLIFE GUIDANCE FOR BAT SURVEYS AND TREE CLEARING". If state listed bats are documented, DOW recommends cutting only occur from October 1 through March 31, however, limited summer tree cutting may be acceptable after consultation with DOW (contact Sarah Stankavich, sarah.stankavich@dnr.state.oh.us).

The DOW also recommends that a desktop or field-based habitat assessment is conducted to determine if there are potential hibernaculum(a) present within the project area. Habitat assessments should be conducted in accordance with the current USFWS "*Range-wide Indiana Bat Survey Guidelines*" and submitted to Sarah Stankavich, <u>sarah.stankavich@dnr.state.oh.us</u> if potential hibernacula are present within .25 miles of the project area. If a potential hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species:

<u>Federally Endangered</u> fanshell (*Cyprogenia stegaria*) sheepnose (*Plethobasus cyphyus*) snuffbox (*Epioblasma triquetra*)

<u>Federally Threatened</u> rabbitsfoot (*Quadrula cylindrica cylindrica*)

<u>State Endangered</u> long-solid (*Fusconaia maculata maculata*) Ohio pigtoe (*Pleurobema cordatum*) sharp-ridged pocketbook (*Lampsilis ovata*) wartyback (*Quadrula nodulata*),

<u>State Threatened</u> black sandshell (*Ligumia recta*)

fawnsfoot (*Truncilla donaciformis*) threehorn wartyback (*Obliquaria reflexa*)

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2020), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2020) can be found at: http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Su rvey%20Protocol.pdf

The project is within the range of the following listed fish species:

<u>State Endangered</u> northern madtom (*Noturus stigmosus*)

<u>State Threatened</u> American eel (*Anguilla rostrata*) blue sucker (*Cycleptus elongatus*) channel darter (*Percina copelandi*) mountain madtom (*Noturus eleutherus*) paddlefish (*Polyodon spathula*)

The DOW recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, 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 also within the range of the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species. This species is found in areas of sandy soils that are associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the black tern (*Chlidonias niger*), a state endangered bird. The black tern prefers large, undisturbed inland marshes with fairly dense vegetation and pockets of open water. They nest in various kinds of marsh vegetation but cattail marshes are generally favored. Nests are built on top of muskrat houses or on top of floating vegetation. If this type of

habitat will be impacted, construction should be avoided in this habitat from April 1 to June 30 to reduce impacts to this species. 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 hudsonis*), 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 sandhill crane (*Grus canadensis*), a state threatened species. Sandhill cranes are primarily a wetland-dependent species. On their wintering grounds, they will utilize agricultural fields; however, they roost in shallow, standing water or moist bottomlands. On breeding grounds they require a rather large tract of wet meadow, shallow marsh, or bog for nesting. If grassland, prairie, or wetland habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 to September 1. If this habitat will not be impacted, this project is not likely to have an impact on this species.

The project is within the range of the trumpeter swan (*Cygnus buccinator*), a state threatened bird. Trumpeter swans prefer large marshes and lakes ranging in size from 40 to 150 acres. They like shallow wetlands one to three feet deep with a diverse mix of plenty of emergent and submergent 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 April 15 to June 15. If this habitat will not be impacted, this project is not likely to have an impact on 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)

APPENDIX E

Ecological Survey Report



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Ecological Survey Report

AEP Ohio Transmission Company Crooksville – Cannelville 138 kV Transmission Line Rebuild Project Perry, Morgan, and Muskingum Counties, Ohio

GAI Project Number: C170352.83, Task 001

November 2021

Prepared for: American Electric Power Service Corporation 8600 Smiths Mill Road New Albany, Ohio 43054

> Prepared by: GAI Consultants, Inc. Canton Office 5299 Lauby Road, Suite 120 North Canton, Ohio 44720

> > **Report Authors:**

Kristen L. Vonderwish Project Environmental Specialist

Joshua J. Noble, MS Senior Environmental Manager



BOUNDLESS ENERGY**

Table of Contents

1.0	Introdu	uction	1
2.0	Metho	ds	1
	2.1	Wetlands	1
		2.1.2 Onsite Inspection	2
	2.2	Waterbodies	
		2.2.1 Preliminary Data Gathering	
		2.2.2 Onsite Inspection	
	2.3	Rare, Threatened, and Endangered Species	
		2.3.1 Preliminary Data Gathering	
		2.3.2 Onsite Inspection	
3.0	Result	S	3
	3.1	Wetlands	3
		3.1.1 Preliminary Data Gathering	
		3.1.2 Onsite Inspection	
		3.1.3 Regulatory Discussion	
	3.2	Waterbodies	
		3.2.1 Preliminary Data Gathering3.2.2 Onsite Inspection	
		3.2.2 Onsite Inspection3.2.3 Regulatory Discussion	
	3.3	Rare, Threatened, and Endangered Species	
	0.0	3.3.1 Preliminary Data Gathering	
		3.3.2 Onsite Inspection	
4.0	Conclu	usions	1
5.0	Refere	ences	2
Table	1	Wetlands Identified Within the Project Study Area	
Table		Waterbodies Identified Within the Project Study Area	
Table	3	ODNR and USFWS RTE Species and Critical Habitat Review Results	
Figure	e 1	Project Location Map	
Figure	e 2	Resource Location Map	
Figure	e 3	Stream Eligibility Map	
Appe	ndix A	Photographs	
•••	ndix B	Wetland Determination Data Forms	
•••	ndix C	Ohio Rapid Assessment Method for Wetlands (ORAM) Data Forms	
•••			
•••	ndix D	Primary Headwater Habitat Evaluation (HHEI) Data Forms	
Appe	ndix E	ODNR and USFWS Correspondence	

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1.0 Introduction

GAI Consultants, Inc. (GAI), on behalf of American Electric Power Ohio Transmission Company, Inc. (AEP), completed an ecological survey for the Crooksville – Cannelville 138 kilovolt (kV) Line Rebuild Project (Project) located in Perry, Morgan and Muskingum Counties, Ohio (OH). The proposed Project involves rebuilding approximately 6.7 miles of the existing Philo-Rutland 138 kV transmission line and the installation of a new switch at the Cannelville Station.

Ecological surveys were conducted on May 18 - 21, 2020 and September 16 - 17, 2021. The Project study area consisted of a 200-foot-wide corridor centered along the existing transmission line and a 50-foot-wide corridor for access roads, as shown in Figure 1.

The Project study area is located within the Brush Creek (USGS HUC #050400040801), Black Fork (USGS HUC # 050400040501), and Middle Moxahala Creek (USGS HUC # 050400040503) watersheds.

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

2.0 Methods

2.1 Wetlands

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

2.1.1 Preliminary Data Gathering

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

- USGS 7.5-minute topographic mapping for Crooksville (USGS, 1977), Deavertown (USGS, 1977), Philo (USGS, 1977), and Rokeby Lock (USGS, 1977) (Figure 1);
- United States Fish and Wildlife Service (USFWS), National Wetlands Inventory (NWI) mapping (USFWS, 2020) (Figure 2).
- Federal Emergency Management Agency (FEMA), National Flood Hazard Layer (FEMA, 2020) (Figure 2).
- United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS, 2019) soil mapping (Figure 2).

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



2.1.2 Onsite Inspection

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

The presence of wetland hydrology is determined by examining the observation point for primary and secondary indicators of wetland hydrology. The presence of any primary indicator signifies the presence of wetland hydrology, or the presence of two (2) or more secondary indicators signifies the presence of wetland hydrology.

Vegetation is characterized by four different strata, including trees, saplings/shrubs, herbs, and woody vines. When evaluating an area for the presence of hydrophytes (plants that grow either partially or totally submerged in water), classification of the indicator status of vegetation is based on The National Wetland Plant List: 2018 Update of Wetland Ratings (USACE, 2018). Possible indicator statuses for plants include Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU) or Upland (UPL). Presence of hydrophytic vegetation is then determined by using a Rapid Test, Dominance Test or Prevalence Index.

To determine the presence of hydric soils, soil data is collected by digging a minimum sixteen inch (16.0") deep soil pit. The soil profile is studied and described, while possible hydric indicators are examined. Soil indicators described in the Wetlands Delineation Manual and Regional Supplement are used to determine the presence of hydric soils. The presence of any of these indicators signifies a hydric soil.

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

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

Wetlands are then classified using the Classification of Wetlands and Deepwater Habitats of the United States as modified for NWI Mapping Convention. Possible classifications for wetlands include Palustrine Emergent (PEM), Palustrine Scrub-Shrub (PSS), Palustrine Forested (PFO), or Palustrine Unconsolidated Bottom (PUB) based on aerial coverage of the vegetative community across the extent of the wetland boundary (Cowardin et al., 1979).

2.2 Waterbodies

As with wetlands, Sections 404 and Section 401 of the Clean Water Act (CWA) and state regulations protect waterbodies in OH. Generally, waterbodies are defined as environmental features that have defined beds and banks, ordinary high water mark (OHWM), and contain flowing or standing water for at least a portion of the year.

2.2.1 Preliminary Data Gathering

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

Page 2

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

2.2.2 Onsite Inspection

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

When a waterbody is identified, field measurements are collected. The measurements include top of bank width, top of bank depth, pool depth, water depth, OHWM width, and OHWM depth. A detailed description of substrate composition is recorded. Waterbodies are delineated using white flagging marked with the GAI stream code (such as S001). The tops-of-bank for streams wider than 10 feet (>10.0') are delineated, while the centerline of smaller streams is delineated. The locations of the flags are recorded using a sub-meter-capable hand-held GPS unit.

2.3 Rare, Threatened, and Endangered Species

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

2.3.1 Preliminary Data Gathering

A request for review of the Ohio Natural Heritage Database is submitted to the Ohio Department of Natural Resources (ODNR) to determine if state-listed Threatened or Endangered species occur within a one-mile (1.0 mi) radius of the Project area. A request is submitted to the USFWS Ohio Ecological Services Field Office to determine if federally-listed Threatened or Endangered species occur within the vicinity of the Project area.

2.3.2 Onsite Inspection

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

3.0 Results

3.1 Wetlands

3.1.1 Preliminary Data Gathering

Desktop review of available USFWS NWI digital data for the Project revealed four (4) NWI mapped wetlands within the Project study Area. Three NWI wetlands are classified as a palustrine, unconsolidated bottom, intermittently exposed, excavated (PUBGx) which corresponds to W003, W007, and W008. Pond 001 is classified as a palustrine, unconsolidated bottom, intermittently exposed, diked/impounded (PUBG), (USFWS, 2020).



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NWI Code	NWI Description	Figure Number	Related Field Inventoried Resource (Wetland ID/Stream ID)	Comments
PUBGx	Palustrine; Unconsolidated bottom; Intermittently exposed; Excavated.	Fig. 2, Sheet 2	W003-PSS-CATMOD2	W003 appears to be an unmaintained farm pond within the review area and ROW.
PUBGx	Palustrine; Unconsolidated bottom; Intermittently exposed; Excavated.	Fig. 2, Sheet 3	W007-PUB-CATMOD2, W007-PEM-CATMOD2	W007 appears to be an unmaintained farm pond within the review area and ROW.
PUBGx	Palustrine; Unconsolidated bottom; Intermittently exposed; Excavated.	Fig. 2, Sheet 4	W008-PUB-CATMOD2	W008 appears to be an unmaintained farm pond within the review area and ROW.
PUBGh	Palustrine; Unconsolidated bottom; Intermittently exposed; Diked/Impunded	Fig. 2, Sheet 12	POH-KLV-001	POH appears to be an unmaintained farm pond primarily outside of the review area and ROW.

NWI Disposition Table

According to the USDA-NRCS soil mapping, forty-one (41) soil map units are located within the Project study area (Figure 2). Two soil map units (Lk- Lindside silt loam and Lm- Lobdell loam, channery substratum) are classified as hydric or are known to contain hydric inclusions.

3.1.2 Onsite Inspection

Seventeen (17) wetlands were identified and delineated within the Project study area including twelve PEM wetlands, one PSS wetland, one PFO wetland, two PUB wetlands, and one PEM/PUB wetland. These wetlands are primarily located within or in the margins of the existing transmission ROW. These wetlands do not appear to part of larger wetland complexes or hydraulic features. Based on the habitat types listed in the RTE table below, these wetlands would have the potential only to be utilized by the listed bird and bat species. However, the size and characteristics of these wetlands do not appear to be suitable for habitation and/or utilization by the listed birds. Listed bats may utilize trees for roosting from April through September.

To document site conditions, USACE Data Forms were completed for each wetland and upland reference. Information on the delineated wetlands can be found in Table 1 and photographs of the wetlands are included in Appendix A.

3.1.3 Regulatory Discussion

Wetland surveys were conducted using the most current regulations as regulated by Ohio Administrative Code (OAC) rules 3745-1-50 through 3745-1-54.

3.2 Waterbodies

3.2.1 Preliminary Data Gathering

A desktop review of the available USGS topographic mapping revealed seven mapped stream segments located within the Project study area (Figure 1). A desktop review of OEPA's Stream Eligibility Web Map revealed the Project is located within watersheds categorized as "Eligible Areas" which may require 401 WQC coverage (Figure 3).



3.2.2 Onsite Inspection

Fifty-three (53) stream segments were identified and delineated within the Project study area. Nineteen (19) stream segments were classified as having a perennial flow regime, twenty-six (26) were classified as intermittent and eight (8) were classified as ephemeral. Due to the size, gradient and impacts from surrounding land uses, these streams are unlikely to provide suitable habitat for RTE listed aquatic species. No streams found in the study area are listed mussel streams. Information on the delineated waterbodies and its classification can be found in Table 2, and photographs of the identified stream are included in Appendix A.

3.2.3 Regulatory Discussion

The USACE Jurisdictional Determination Form Instructional Guidebook (USACE, 2007) and the revised definition of "Waters of the United States" (USACE 2019) were used to determine stream classification and flow status.

As regulated by OAC Chapter 3745-1-24, streams were also assessed according to OEPA guidance using either the HHEI for watersheds less than one square mile (<1.0 mi2) in size, or the Qualitative Habitat Evaluation Index (QHEI) for watersheds between one and twenty square miles (1.0-20.0 mi2) in size.

Although ephemeral streams are no longer regulated by the USACE, the Ohio EPA considers ephemeral streams as "waters of the state," and thus regulated according to the State's 401 Water Quality Standards.

3.3 Rare, Threatened, and Endangered Species

3.3.1 Preliminary Data Gathering

The ODNR and USFWS consultation letters were submitted on July 9, 2020. A response from USFWS was received on July 15, 2020. A response from the ODNR was received on September 17, 2020. The USFWS and ODNR responses are included in Appendix E.

The USFWS identified that the Indiana bat and northern long-eared bat may be present in the vicinity of the Project. Potential impacts to these species will be determined by the schedule of Project construction and extent of tree clearing that is needed.

The ODNR identified that the entire state of Ohio is within the range of the Indiana bat, the northern long-eared bat, the little brown bat, and the tricolored bat. These species of bats roost in trees during summer (April 1 through September 30). Tree clearing should be avoided during this period. If trees need to be cut within the project area, the Division of Wildlife (DOW) recommends cutting only occur from October 1 through March 31. If trees are present and must be cut during the summer, the DOW also recommends a mist net survey or acoustic survey be conducted from June 1 through August 15 prior to any cutting. Potential impacts to bat species will be determined by the schedule of Project construction and extent of tree clearing that is needed.

The ODNR identified eleven mussel species and six fish species. The ODNR recommends that no in-water work in perennial streams be conducted from April 15 to June 30 to reduce potential impacts to indigenous aquatic species and their habitat. If no in-water work in a perennial stream is anticipated, the Project is unlikely to impact aquatic species. In addition, four (4) bird species, two (2) state endangered and two (2) state threatened, are within range of the Project. A list of RTE species identified by the ODNR and USFWS responses is included below.

3.3.2 Onsite Inspection

Potential habitat for RTE species was evaluated within the Project study area. In general, the habitat encountered within the study area consisted of maintained transmission line right-of-





way bordered by mixed deciduous forest, open fields, residential and industrial properties and PEM/PUB/PSS/PFO wetlands.

Forested areas located within the Project area may provide suitable roost trees for the state listed bats species. Abiding by seasonal cutting restrictions should avoid negative affecting the listed species.

Large open fields and pastureland located within and near the Project may provide suitable habitat for the state listed Northern harrier. The initial field review was conducted dur the nesting season of the Northern harrier. This species was not observed at that time. The black tern, sandhill crane, and trumpeter swan utilize large marshes, wet meadows and bogs. These features were not documented within the Project area, therefore these species are not likely to be present.

Nineteen perennial, 26 intermittent and eight ephemeral streams were identified within the study area. These streams do not appear to meet habitat requirements for listed fish, mussel or amphibian species, due to these streams being of small size, low gradient, and shallow depth.

Representative photographs of the identified habitat types are included in Appendix A.



Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Amphibians						
Eastern hellbender ²	Cryptobranchus alleganiensis alleganiensis	Found in unglaciated (south and east) Ohio in large, swift flowing streams under large rocks	E, FSC	No	No; No known habitat occurs within the project area	April 15 to June 30
Eastern Spadefoot Toad ²	Scaphiopus holbrookii	Sandy soils that are associated with river valleys and flooded agricultural fields or other water holding depressions	E	No	No; No known habitat occurs within the project area	-
Bats						
Indiana bat ^{2,3}	Myotis sodalis	Trees >3" dbh	E, FE	Yes	Yes; Tree clearing maybe necessary within the project area	October 1 – March 31
Northern long-eared bat ^{2,3}	Myotis septentrionalis	Roost sites can be trees, caves, and mines	E, FT	Yes	Yes; Tree clearing maybe necessary within the project area	October 1 – March 31
Little brown bat ²	Myotis lucifugus	Roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves	E	Yes	Yes; Tree clearing maybe necessary within the project area	October 1 – March 31
Tricolored bat ²	Perimyotis subflavus	Roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves	E	Yes	Yes; Tree clearing maybe necessary within the project area	October 1 – March 31
Birds						
Black tern ²	Chlidonias niger	Large, undisturbed inland marshes with fairly dense vegetation and pockets of open water	E	No	No; No known habitat occurs within the project area	April 1 to June 30
Northern Harrier ²	Circus hudsonis	Large marshes and grasslands	Е	No	Yes; Habitat is located within project area	May 15 to August 1
Sandhill Crane ²	Grus canadensis	Large wet meadow, shallow marsh, or bog	т	No	No; No known habitat occurs within the project area	April 1 to September 1
Trumpeter Swan ²	Cygnus buccinator	Large marshes and lakes ranging in size from 40 to 150 acres	Т	No	No; No known habitat occurs within the project area	April 15 to June 15

ODNR and USFWS RTE Species and Critical Habitat Review Results¹



Common Name	Scientific Name	Habitat Type	Listing Status ²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Fish						
Northern madtom ²	Noturus stigmosus	Deep swift riffles of large rivers	E	No	No; No in-stream work is anticipated during construction	April 15 to June 30
American eel ²	Anguilla rostrata	Freshwater lakes, streams, and rivers	Т	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Blue sucker ²	Cycleptus elongatus	Main stems of major rivers and lower sections of main tributaries	т	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Channel darter ²	Rivers and large creeks in		т	No	No; No in-stream work is anticipated during construction	April 15 to June 30
		Deep swift riffles of large rivers	Т	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Paddlefish ²	Polyodon spathula	Large, deep, slow-moving rivers, lakes, and reservoirs	т	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Mussels						
Black Sandshell ²	Ligumia recta	Found in varying sizes of creeks, rivers, and lakes with sand and gravel bottoms and a moderate current	т	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Fanshell ²	Cyprogenia stegaria	Found in medium to large rivers with sand or gravel substrates and a moderate current	FE	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Sheepnose ²	a moderate current Found in shallow areas of large		FE	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Snuffbox2Epioblasma triquetraFound in small to medium-sized creeks in areas with swift current; Can also be found in Lake Erie an some larger rivers		creeks in areas with swift current; Can also be found in Lake Erie and	FE	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Rabbitsfoot ² Quadrula cylindrica Shallow areas with sand and grav		Shallow areas with sand and gravel along the bank and next to shoals	FT	No	No; No in-stream work is anticipated during construction	April 15 to June 30



Common Name	Scientific Name	Habitat Type	Listing Status²	Habitat Type Present Within the Project Area?	Impacts to Habitat/Species Anticipated?	Restricted Construction Dates
Mussels (continued)						
Long-solid ²	Fusconaia maculata maculata	Large or small rivers with gravel substrate	E	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Ohio pigtoe ²	Pleurobema cordatum	Medium-sized rivers with mud, sand, gravel or cobble	E	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Sharp-ridged pocketbook ²	Lampsilis ovata	Large rivers in coarse sand or gravel	E	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Wartyback ²	Quadrula nodulata	Medium to large rivers with a mud, and or gravel bottom	E	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Fawnsfoot ²	Truncilla donaciformis	Large to medium large rivers with mud, soft sand or gravel substrates	т	No	No; No in-stream work is anticipated during construction	April 15 to June 30
Threehorn wartyback ²	Obliquaria reflexa	Large rivers with moderate currents and firm bottoms of gravel, sand and mud	т	No	No; No in-stream work is anticipated during construction	April 15 to June 30

Notes:

¹ E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; FE = federal endangered; FT = federal threatened; FSC = federal species of concern; FC = federal candidate.

- ² ODNR, Division of Wildlife (DOW) comments included in the ODNR response, dated September 17, 2020.
- ³ USFWS comments included in the USFWS response, dated July 15, 2020.

4.0 Conclusions

Ecological surveys were conducted within the Project study area on May 18 - 21, 2020 and September 16 - 17, 2021. Fifty-three streams (19 perennial, 26 intermittent, and eight ephemeral) were identified within the Project study area. Seventeen wetlands were identified within the Project study area. Summaries of the delineated aquatic features are provided in Tables 1 and 2, and a map of their locations is depicted on Figure 2. Photographs of the wetland and stream features are included in Appendix A. Wetland Determination Data Forms documenting the investigation are provided in Appendix B, with HHEI and ORAM Data Forms provided in Appendix C and D, respectively.

The Project area does not appear to provide preferred or critical habitat for most listed species. Potential habitat is present for the four listed bat species and the Northern harrier.

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



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United States Geological Survey. 1977. Philo, Ohio 7.5-Minute Topographic Quadrangle (1:24,000).





TABLES



	Loc	ation					ORAM	Nearest	-	2		Proposed	Impacts
Wetland ID ¹	Latitude ²	Longitude ²	Isolated?	Habitat Type ³	Delineated Area (acre) ⁴	Score⁵	Category ⁶	Structure # (Existing / Proposed)	Existing Structure # in Wetland	Proposed Structure # in Wetland	Structure Installation Method	Temporary Matting Area (acre)	Permanent Impact Area (acre)
W001-PEM-CAT2	39.810518	-81.986415	No	PEM	0.069	31	2	33 / 33	N/A	N/A	N/A	0.00	0.00
W002-PEM-CATMOD2	39.809477	-81.987859	No	PEM	0.042	40	Modified 2	34 / 34	N/A	N/A	N/A	0.00	0.00
W003-PSS-CATMOD2	39.806806	-81.992889	No	PSS	0.296	43	Modified 2	35 / 35	N/A	N/A	N/A	0.00	0.00
W004-PEM-CAT2	39.806671	-81.994349	No	PEM	0.120	33	2	35 / 35	N/A	N/A	N/A	0.00	0.00
W005-PEM-CAT2	39.802158	-82.001771	No	PEM	0.100	32	2	39 / 39	N/A	N/A	N/A	0.001	0.00
W006-PEM-CAT2	39.801034	-82.003686	No	PEM	0.014	37	Modified 2	39 / 39 40 / 40	N/A	N/A	N/A	0.00	0.00
W007-PUB-CATMOD2	39.800009	-82.005344	No	PUB	0.110			40 / 40	N/A	N/A	N/A	0.00	0.00
W007-PEM-CATMOD2	39.799790	-82.005090	No	PEM	0.037	41	Modified 2	40 / 40	N/A	N/A	N/A	0.00	0.00
W008-PUB-CATMOD2	39.799224	-82.006545	No	PUB	0.148	43	Modified 2	41 / 41	N/A	N/A	N/A	0.00	0.00
W009-PEM-CATMOD2	39.791537	-82.016757	No	PEM	0.022	35	Modified 2	44 / 44	N/A	N/A	N/A	0.00	0.00
W010-PFO-CAT2	39.784546	-82.026647	No	PFO	0.051	49	2	48 / 48	N/A	N/A	N/A	0.00	0.00
W011-PEM-CATMOD2	39.778191	-82.034676	No	PEM	0.098	37	Modified 2	51 / 51	N/A	N/A	N/A	0.00	0.00
W012-PEM-CATMOD2	39.776881	-82.036943	No	PEM	0.023	38	Modified 2	51 / 51	N/A	N/A	N/A	0.00	0.00
W013-PEM-CATMOD2	39.775200	-82.038996	No	PEM	0.191	38	Modified 2	52 / 52	N/A	N/A	N/A	0.00	0.00
W014-PEM-CATMOD2	39.801378	-81.999804	No	PEM	0.024	40	Modified 2	N/A	N/A	N/A	N/A	TBD	TBD
W015-PEM-CAT2	39.785647	-82.022857	No	PEM	0.207	30	2	N/A	N/A	N/A	N/A	TBD	TBD

Table 1 Wetlands Identified Within the Project Study Area



	Loc	ation				ORAM		Nearest				Proposed Impacts	
Wetland ID ¹	Latitude ²	Longitude ²	Isolated?	Habitat Type ³	Delineated Area (acre)⁴	Score⁵	Category ⁶	Structure # (Existing / Proposed)	Existing Structure # in Wetland	Proposed Structure # in Wetland	Structure Installation Method	Temporary Matting Area (acre)	Permanent Impact Area (acre)
W016-PUB-CAT2	39.770699	-82.048773	No	PUB	0.019	47	2	N/A	N/A	N/A	N/A	TBD	TBD
W017-PEM-CATMOD2	39.77067	-82.048593	No	PEM	0.026	35	Modified 2	N/A	N/A	N/A	N/A	TBD	TBD
				Total:	1.597			ł	<u>I</u>		L	0.001	0.00

Notes:

- 1 GAI map designation.
- 2 North American Datum, 1983.
- 3 Jurisdictional status is the opinion of GAI and must be confirmed by USACE and state agencies through the JD process.
- 4 PEM – Palustrine Emergent, PFO – Palustrine Forested; PUB – Palustrine Unconsolidated Bottom.
- 5 Total acreage of wetland located within the Project study area.
- 6 Interim scoring breakpoints for wetland regulatory categories for ORAM v 5.0 Score: Category 1 score 0 - 29.9; Category 1 or 2 gray zone ORAM score 30 - 34.9; Category modified 2 ORAM score 35 - 44.9; Category 2 ORAM score 45 - 59.9; Category 2 or 3 ORAM score 60 - 64.9; Category 3 ORAM score 65 - 100. OEPA Ecology Unit Division of Surface Water. ORAM v. 5.0 Qualitative Score Calibration. Dated August 15, 2000. http://www.epa.ohio.gov/portals/35/401/oram50sc s.pdf.
- 7 OAC Rule 3745-1-54(C)(2) defines Category 1 wetlands as wetlands which "...support minimal wildlife habitat, and minimal hydrological and recreation functions," and as wetlands which have "...hydrologic isolation, low species diversity, a predominance of non-native species, no significant habitat or wildlife use, and limited potential to achieve beneficial wetland functions." Category 2 wetlands are defined as wetlands which "...support moderate wildlife habitat, or hydrological or recreational functions," and as wetlands which are "...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." Degraded but Restorable Category 2 Wetlands are according to OAC Rule 3745-1-54(C) states that wetlands that are assigned to Category 2 constitute the broad middle category that "...support moderate wildlife habitat, or hydrological or recreational functions," but include "...wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." OAC Rule 3745-1-54(C)(2) defines Category 3 wetlands as wetlands which "...support superior habitat, or hydrological or recreational functions," and as wetlands which have "...high levels of diversity, a high proportion of native species, or high functional values."



	Loc	cation						F	Field Evaluat	ion			Propose	ed Impacts
Stream ID ¹	Latitude ²	Longitude ²	Stream Type	Stream Name	Delineated Length (feet) ³	Bankfull Width (feet)⁴	OHWM Width (feet)	Method	Score ^{5, 6}	Category / Rating / OAC Designation ⁷	Ohio EPA 401 Eligibility ⁸	Stream Crossing?	Fill Type	Length (LF)
S001	39.811194	-81.983993	Perennial	UNT to Brush Creek	363.686	8	7	HHEI	62	Class II PHW	Eligible	No	N/A	0.00
S002	39.810527	-81.986409	Perennial	UNT to Brush Creek	334.200	4	3.5	HHEI	43	Class II PHW	Eligible	No	N/A	0.00
S003	39.808665	-81.989878	Intermittent	UNT to Brush Creek	215.255	3	2.5	HHEI	27	Class I PHW	Eligible	No	N/A	0.00
S004	39.806559	-81.993800	Intermittent	UNT to Brush Creek	324.660	3	2	HHEI	27	Class I PHW	Eligible	No	N/A	0.00
S005	39.805913	-81.994958	Perennial	Brush Creek	310.335	15	13	Chapter 3745-1-24	N/A	WWH	Eligible	No	N/A	0.00
S006	39.804966	-81.996772	Intermittent	UNT to Goose Creek	271.178	3	2.5	HHEI	27	Class I PHW	Eligible	Matted Bridge	N/A	0.00
S007	39.802600	-82.001184	Perennial	UNT to Goose Creek	214.063	5	4	HHEI	51	Class II PHW	Eligible	Matted Bridge	N/A	0.00
S008	39.801050	-82.003565	Intermittent	UNT to Goose Creek	151.091	3	2	HHEI	27	Class I PHW	Eligible	Matted Bridge	N/A	0.00
S009	39.799310	-82.005958	Perennial	UNT to Goose Creek	218.430	4	3.5	HHEI	50	Class II PHW	Eligible	No	N/A	0.00
S010	39.797790	-82.007977	Perennial	UNT to Goose Creek	346.640	4	3.5	HHEI	54	Class II PHW	Eligible	Matted Bridge	N/A	0.00
S011	39.797666	-82.008567	Intermittent	UNT to Goose Creek	161.343	3	2.5	HHEI	37	Class II PHW	Eligible	No	N/A	0.00
S012	39.796641	-82.009718	Ephemeral	UNT to Goose Creek	65.316	3	2	HHEI	26	Class I PHW	Eligible	No	N/A	0.00
S013	39.795996	-82.010603	Ephemeral	UNT to Goose Creek	73.603	3	2	HHEI	24	Class I PHW	Eligible	No	N/A	0.00
S014	39.795977	-82.010709	Ephemeral	UNT to Goose Creek	76.847	3	2	HHEI	24	Class I PHW	Eligible	No	N/A	0.00
S015	39.794648	-82.011964	Ephemeral	UNT to Goose Creek	190.090	3	2.5	HHEI	24	Class I PHW	Eligible	No	N/A	0.00
S016	39.794594	-82.012384	Perennial	UNT to Goose Creek	241.855	8	7	HHEI	65	Class II PHW	Eligible	No	N/A	0.00
S017	39.791948	-82.016031	Perennial	UNT to Goose Creek	230.232	6	5.5	HHEI	55	Class II PHW	Eligible	No	N/A	0.00

Table 2Waterbodies Identified Within the Project Study Area



	Loc	ation					L		Field Evaluat	ion			Propose	ed Impacts
Stream ID ¹	Latitude ²	Longitude ²	Stream Type	Stream Name	Delineated Length (feet) ³	Bankfull Width (feet)⁴	OHWM Width (feet)	Method	Score ^{5, 6}	Category / Rating / OAC Designation ⁷	Ohio EPA 401 Eligibility ⁸	Stream Crossing?	Fill Type	Length (LF)
S018	39.791861	-82.016358	Intermittent	UNT to Goose Creek	187.701	4	3.5	HHEI	47	Class II PHW	Eligible	No	N/A	0.00
S019	39.791743	-82.016302	Intermittent	UNT to Goose Creek	101.690	3	2.5	HHEI	27	Class I PHW	Eligible	No	N/A	0.00
S020	39.791739	-82.016627	Intermittent	UNT to Goose Creek	123.932	3	2	HHEI	27	Class I PHW	Eligible	No	N/A	0.00
S021	39.787316	-82.022412	Intermittent	UNT to Goose Creek	1021.373	3	2	HHEI	27	Class I PHW	Eligible	No	N/A	0.00
S022	39.786544	-82.023718	Ephemeral	UNT to Goose Creek	106.373	2	1.5	HHEI	30	Class II PHW	Eligible	No	N/A	0.00
S023	39.785981	-82.024255	Perennial	UNT to Goose Creek	278.149	5	4	HHEI	66	Class II PHW	Eligible	No	N/A	0.00
S024	39.785898	-82.024402	Intermittent	UNT to Goose Creek	130.426	4	3.5	HHEI	51	Class II PHW	Eligible	No	N/A	0.00
S025	39.782017	-82.029670	Perennial	UNT to Brush Creek	229.786	6	5.5	HHEI	62	Class II PHW	Eligible	No	N/A	0.00
S026	39.781052	-82.031386	Intermittent	UNT to Brush Creek	73.973	3	2.5	HHEI	37	Class II PHW	Eligible	No	N/A	0.00
S027	39.779960	-82.032809	Intermittent	UNT to Brush Creek	123.711	3	2.5	HHEI	27	Class I PHW	Eligible	No	N/A	0.00
S028	39.779485	-82.033486	Perennial	UNT to Brush Creek	387.112	9	8.5	HHEI	59	Class II PHW	Eligible	No	N/A	0.00
S029	39.779041	-82.033589	Intermittent	UNT to Brush Creek	272.990	3	2	HHEI	24	Class I PHW	Eligible	No	N/A	0.00
S030	39.775686	-82.038631	Intermittent	UNT to Brush Creek	88.654	3	2.5	HHEI	24	Class I PHW	Eligible	No	N/A	0.00
S031	39.775578	-82.038826	Intermittent	UNT to Brush Creek	102.752	3	2.5	HHEI	24	Class I PHW	Eligible	No	N/A	0.00
S032	39.775480	-82.038851	Intermittent	UNT to Brush Creek	97.257	3	2.5	HHEI	24	Class I PHW	Eligible	No	N/A	0.00
S033	39.773401	-82.041984	Intermittent	UNT to Elk Run	144.908	3	2.5	HHEI	24	Class I PHW	Eligible	No	N/A	0.00
S034	39.767922	-82.050563	Intermittent	UNT to Elk Run	70.363	3	2.5	HHEI	27	Class I PHW	Eligible	No	N/A	0.00



	Loc	ation					0	F	ield Evaluat	ion			Propose	ed Impacts
Stream ID ¹	Latitude ²	Longitude ²	Stream Type	Stream Name	Delineated Length (feet) ³	Bankfull Width (feet)⁴	OHWM Width (feet)	Method	Score ^{5, 6}	Category / Rating / OAC Designation ⁷	Ohio EPA 401 Eligibility ⁸	Stream Crossing?	Fill Type	Length (LF)
S035	39.767946	-82.051026	Intermittent	UNT to Elk Run	64.447	3	2.5	HHEI	27	Class I PHW	Eligible	No	N/A	0.00
S036	39.767746	-82.050776	Perennial	UNT to Elk Run	497.880	5	4.5	HHEI	49	Class II PHW	Eligible	No	N/A	0.00
S037	39.767301	-82.051862	Perennial	UNT to Elk Run	237.856	5	4.5	HHEI	52	Class II PHW	Eligible	No	N/A	0.00
S038	39.767134	-82.052259	Intermittent	UNT to Elk Run	334.516	4	3.5	HHEI	34	Class II PHW	Eligible	No	N/A	0.00
S039	39.765318	-82.057817	Intermittent	UNT to Dry Run	125.656	3	2.5	HHEI	24	Class I PHW	Eligible	No	N/A	0.00
S040	39.765191	-82.057884	Perennial	UNT to Dry Run	255.281	5	4.5	HHEI	49	Class II PHW	Eligible	No	N/A	0.00
S041	39.764320	-82.062092	Intermittent	UNT to Dry Run	182.112	3	2.5	HHEI	30	Class II PHW	Eligible	No	N/A	0.00
S042	39.761403	-82.075968	Intermittent	UNT to Dry Run	183.055	3	2.5	HHEI	34	Class II PHW	Eligible	No	N/A	0.00
S043	39.760464	-82.079061	Intermittent	UNT to Dry Run	276.632	4	3.5	HHEI	37	Class II PHW	Eligible	No	N/A	0.00
S044	39.760727	-82.079439	Intermittent	UNT to Dry Run	46.116	3	2	HHEI	27	Class I PHW	Eligible	No	N/A	0.00
S045	39.760367	-82.079559	Perennial	UNT to Dry Run	247.914	5	4.5	HHEI	52	Class II PHW	Eligible	No	N/A	0.00
S046	39.759725	-82.082558	Ephemeral	UNT to Maxahala Creek	113.414	3	2	HHEI	22	Class I PHW	Eligible	No	N/A	0.00
S047	39.759426	-82.085182	Intermittent	UNT to Maxahala Creek	991.108	5	4.5	HHEI	52	Class II PHW	Eligible	No	N/A	0.00
S048	39.80158	-82.000113	Perennial	UNT to Goose Creek	433.934	10	9.5	HHEI	51	Modified Class II PHW	Eligible	TBD	TBD	TBD
S049	39.78572	-82.022685	Ephemeral	UNT to Goose Creek	300.813	4	3.5	HHEI	33	Modified Class II PHW	Eligible	TBD	TBD	TBD
S050	39.783124	-82.029945	Ephemeral	UNT to Brush Creek	374.878	3	2.5	HHEI	21	Modified Class I PHW	Eligible	TBD	TBD	TBD
S051	39.783165	-82.032101	Perennial	UNT to Brush Creek	81.808	6	5.5	HHEI	52	Class II PHW	Eligible	TBD	TBD	TBD



	Loc	ation				Bankfull		F	ield Evaluat	ion			Propose	ed Impacts
Stream ID ¹	Latitude ²	Longitude ²	Stream Type	Stream Name	Delineated Length (feet) ³	Length Width	OHWM Width (feet)	Method	Score ^{5, 6}	Category / Rating / OAC Designation ⁷	Ohio EPA 401 Eligibility ⁸	Stream Crossing?	Fill Type	Length (LF)
S052	39.781521	-82.032577	Perennial	UNT to Brush Creek	189.351	7	6.5	HHEI	55	Class II PHW	Eligible	TBD	TBD	TBD
S053	39.789496	-82.009861	Perennial	UNT to Goose Creek	156.415	5	4.5	HHEI	52	Modified Class II PHW	Eligible	TBD	TBD	TBD
				Total:	12423.16									0.00

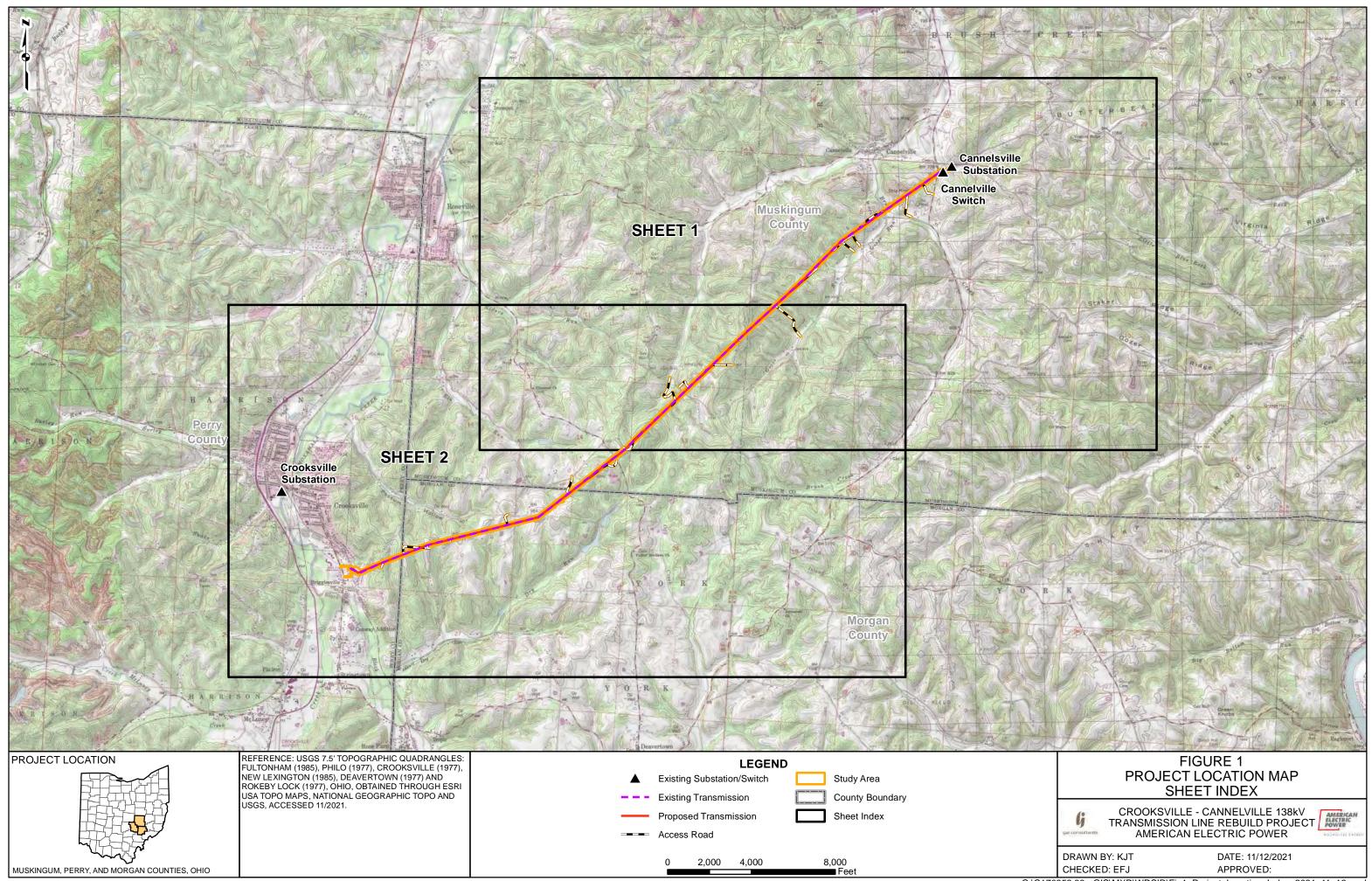
Notes:

- 1 GAI map designation.
- 2 North American Datum, 1983.
- 3 Total stream length (in feet) located within the Project study area.
- 4 Width in feet from tops of stream bank
- 5 Scoring for OEPA Headwater Habitat Evaluation Index (HHEI) Primary Headwater Habitats (PHWH). HHEI Score and comparison to HHEI Flow Chart places streams into six PHW categories: Rheocrene, Class I (natural channel), Class I (modified channel), Class II (natural channel), Class II (modified channel), Class III.
- 6 Narrative rating for headwater streams using the OEPA Qualitative Habitat Evaluation Index (QHEI). Excellent = ≥70; Good = 55 - 60; Fair = 43 - 54; Poor = 30 - 42; Very Poor = <30.
- As defined by OAC Chapter 3745-1 Water Quality Standards, Water use designations and statewide criteria (OAC 3745-1-07). http://www.epa.ohio.gov/dsw/rules/3745_1.aspx. 7
- As defined by the 401 WQC conditions for stream eligibility coverage under the 2017 NWP program. Streams located in Possibly Eligible areas are eligible for coverage if the pH is <6.5 or stream flow is ephemeral. Streams located in Possibly 8 Eligible areas are also eligible for coverage if the HHEI score is <50, or if the HHEI score is between 50-69 and substrate composition is <10% coarse types (includes cumulative percentage of bedrock, boulders, boulder slabs, and cobble).

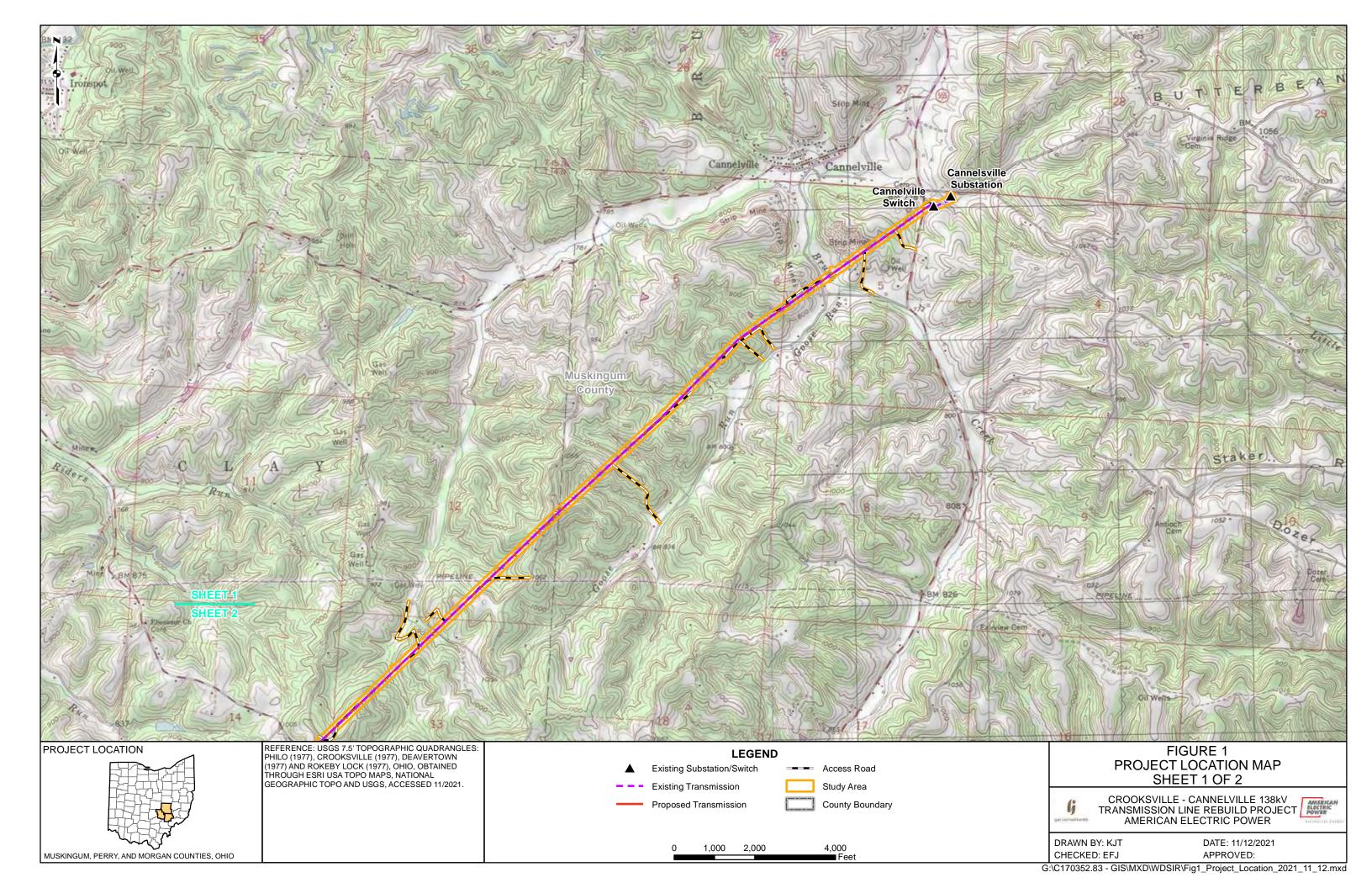


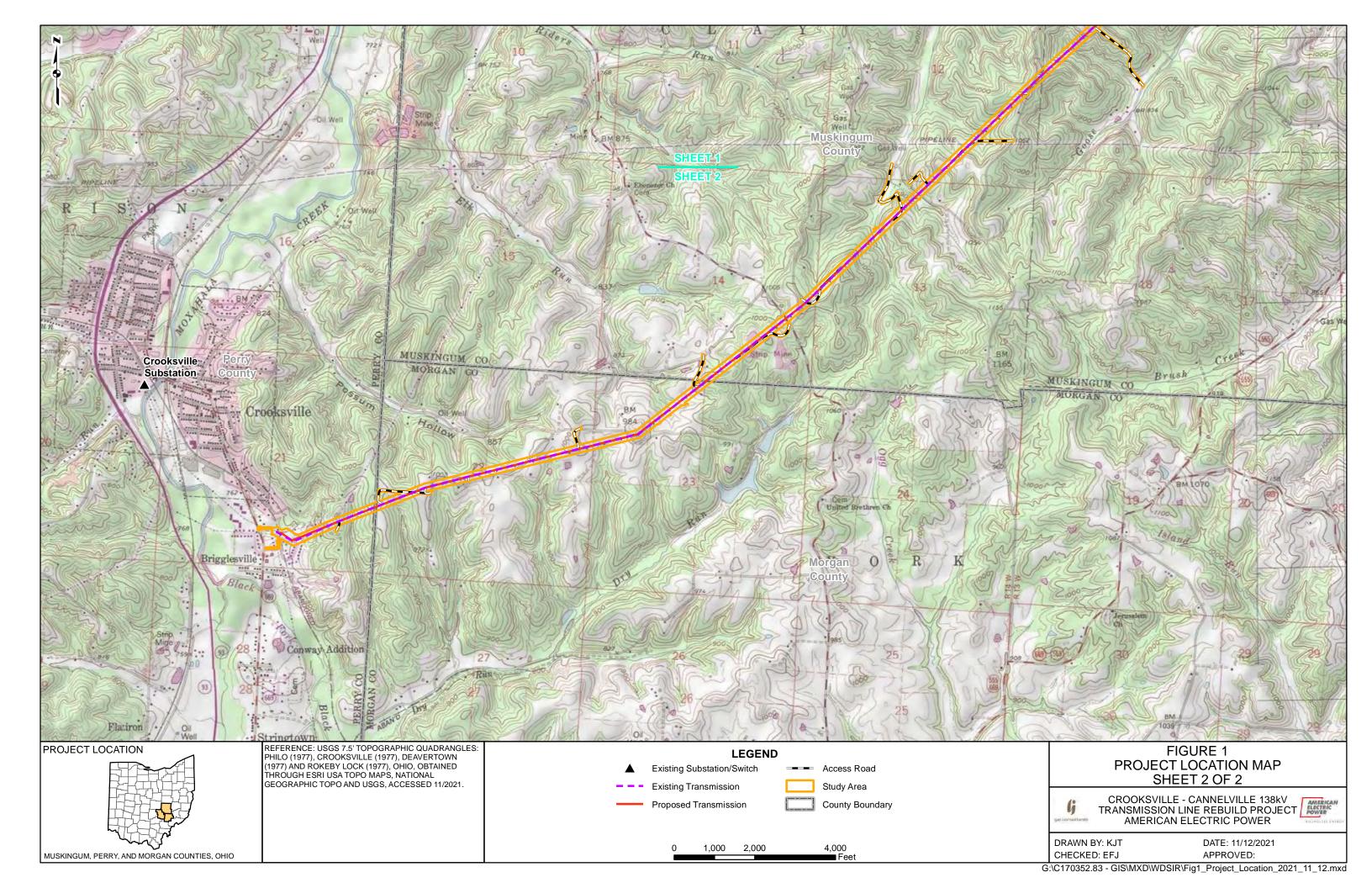
FIGURES

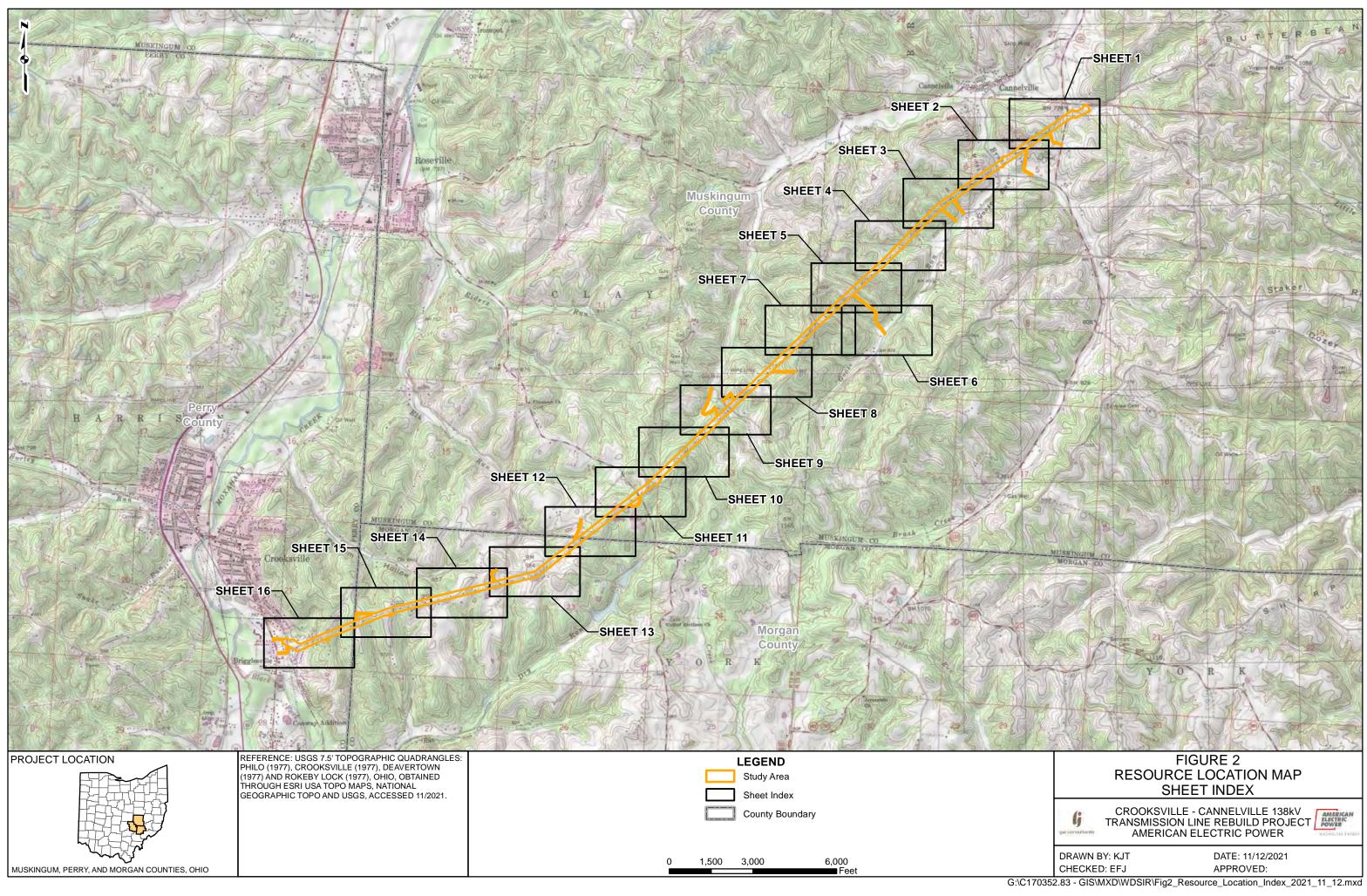


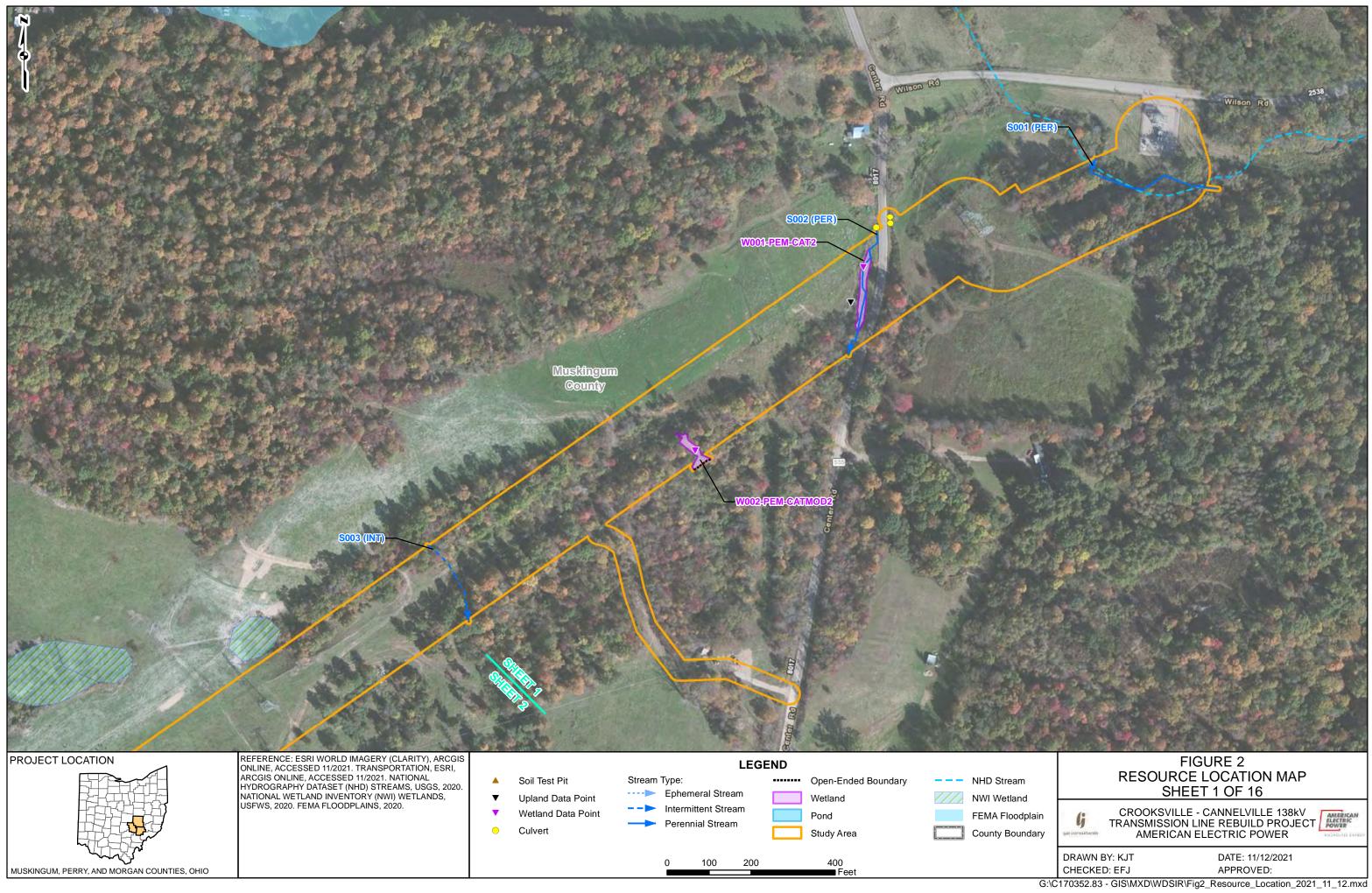


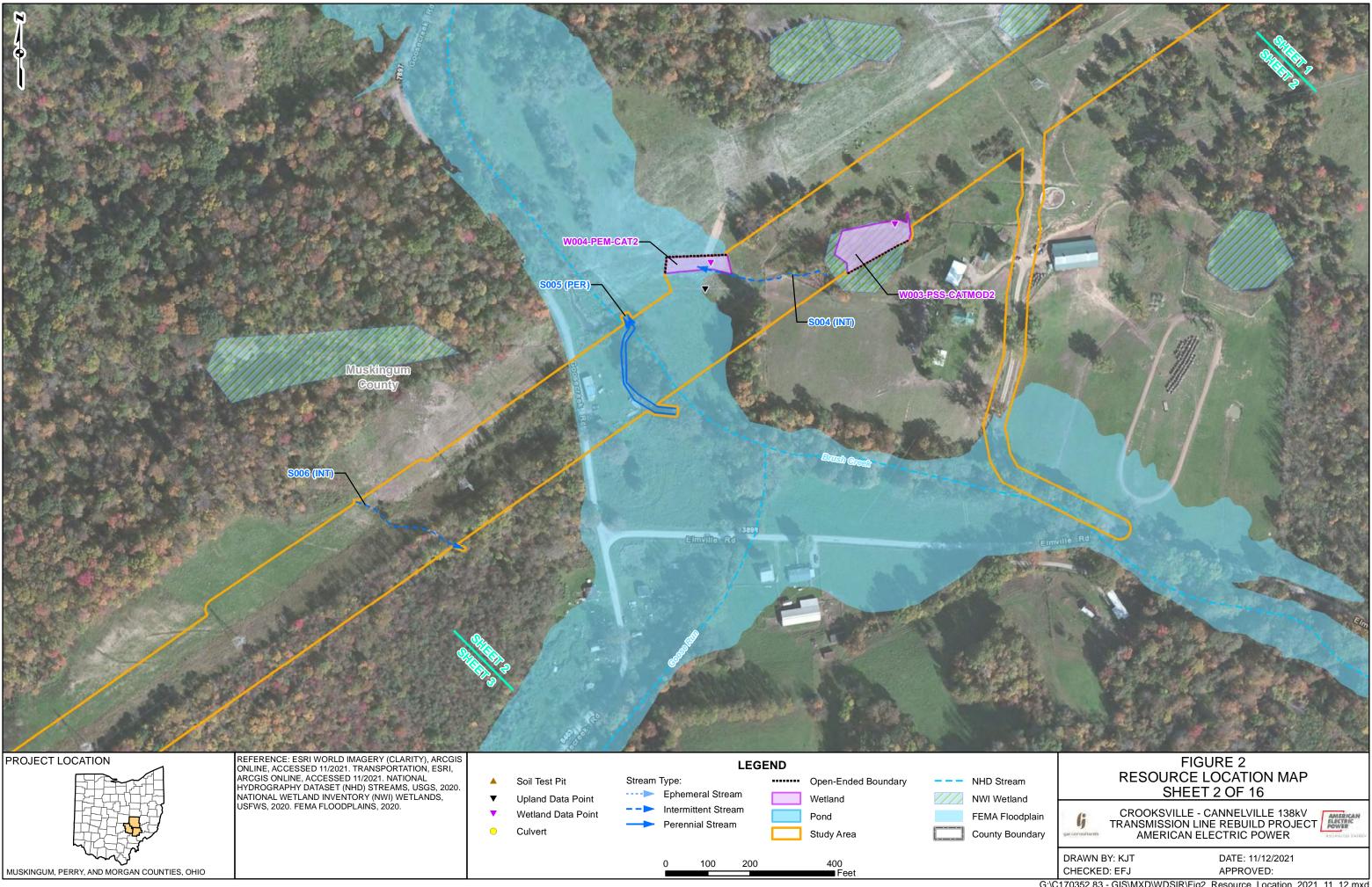
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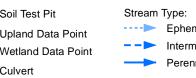






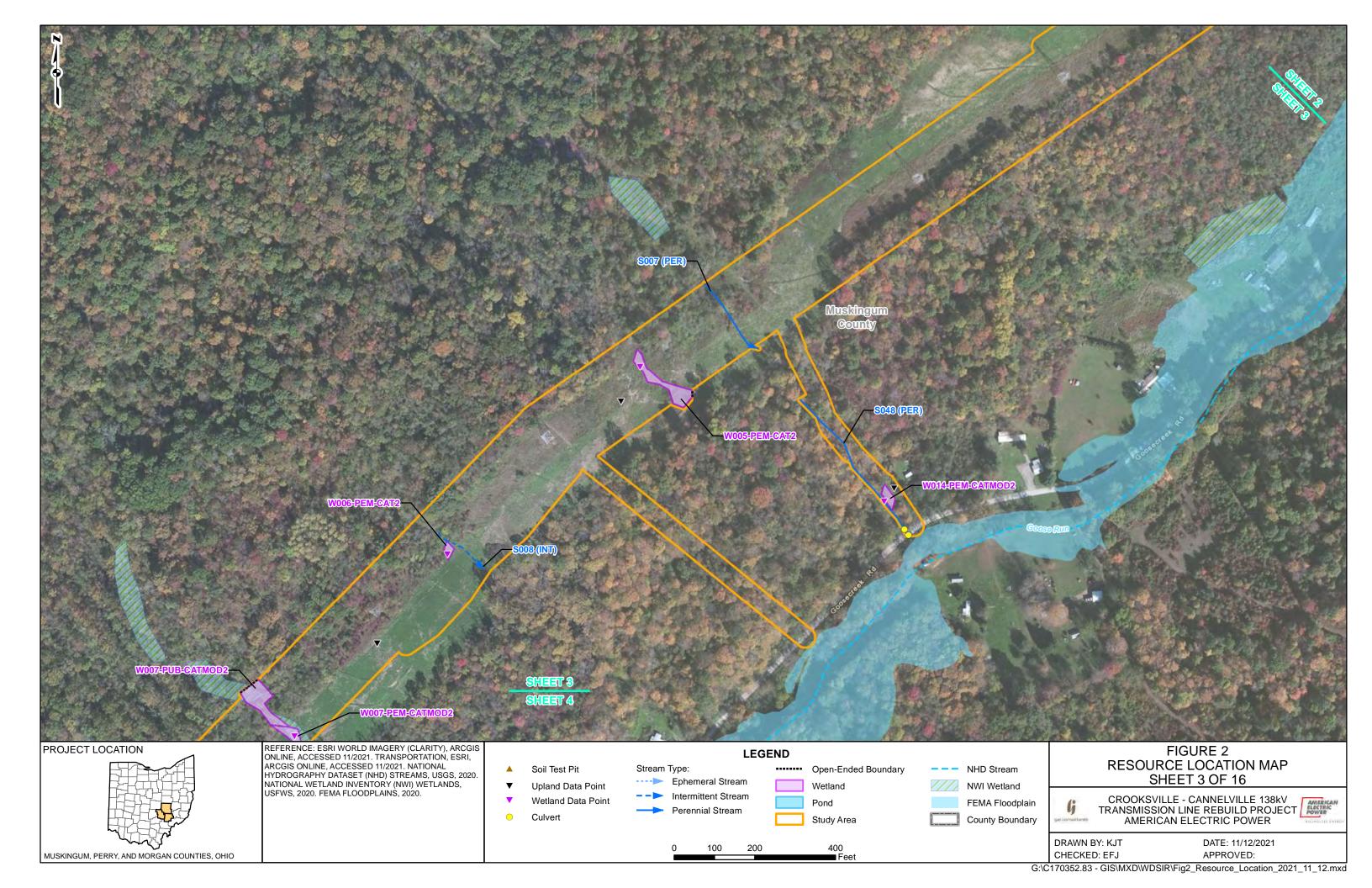


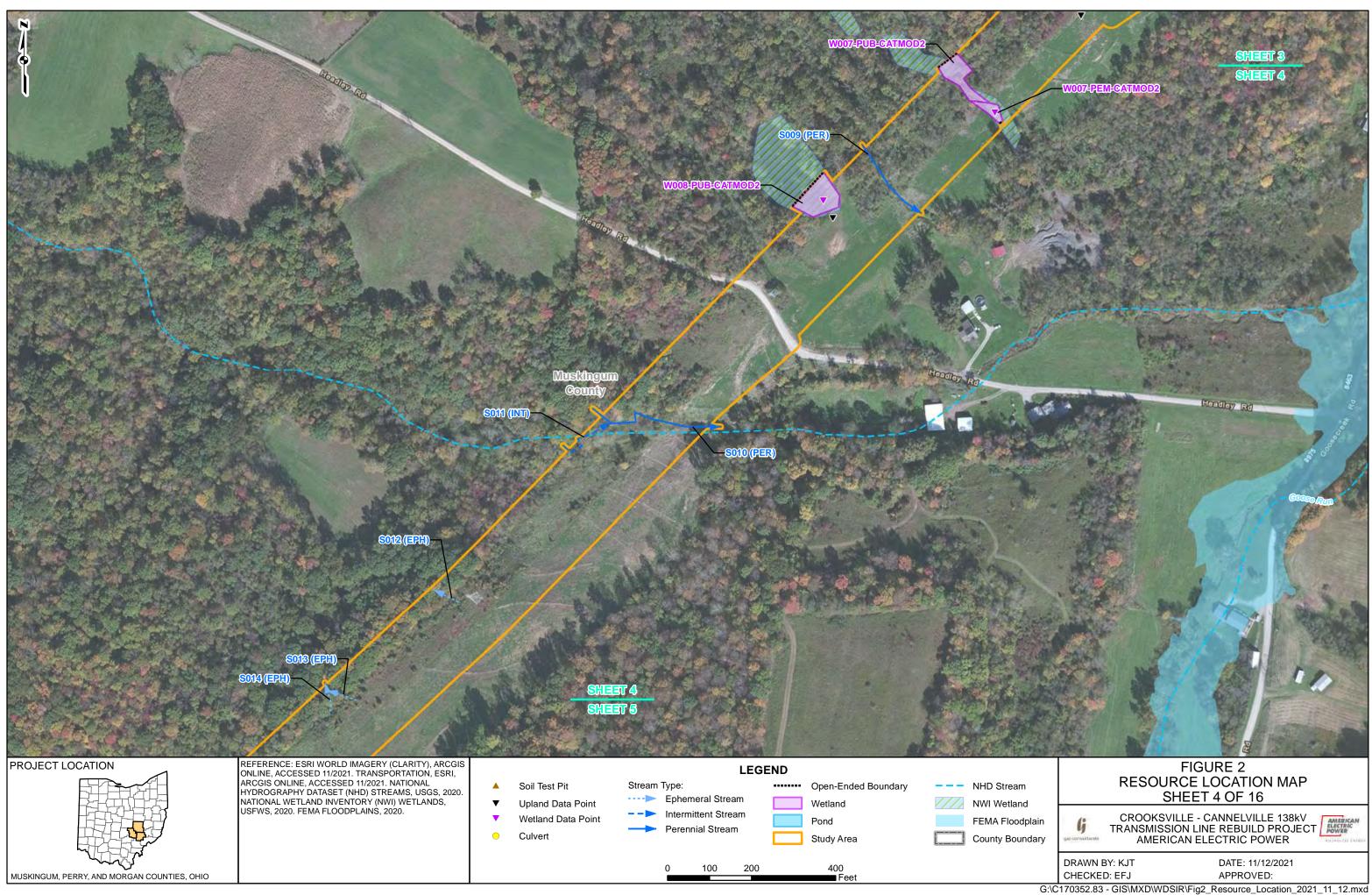


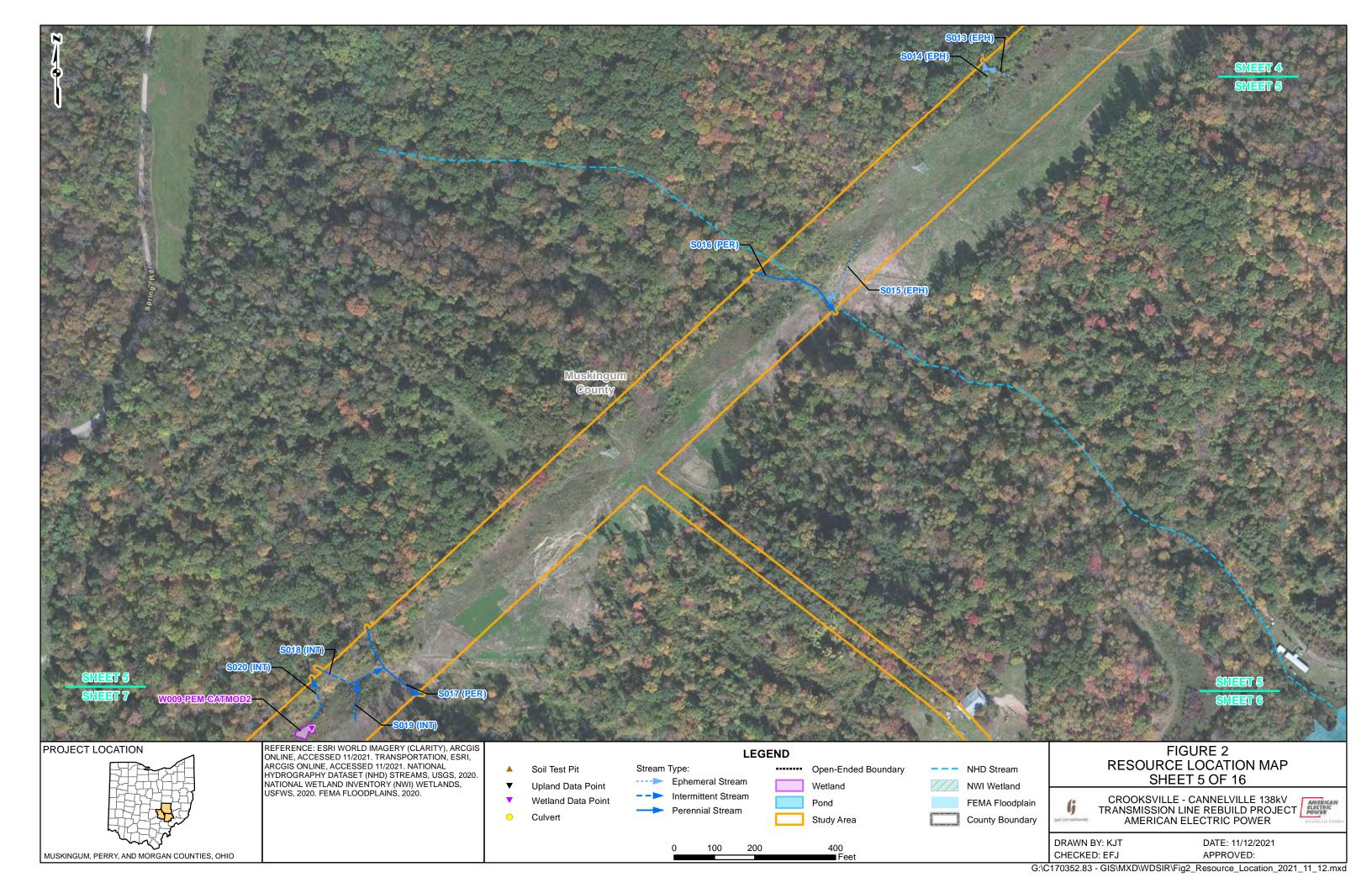


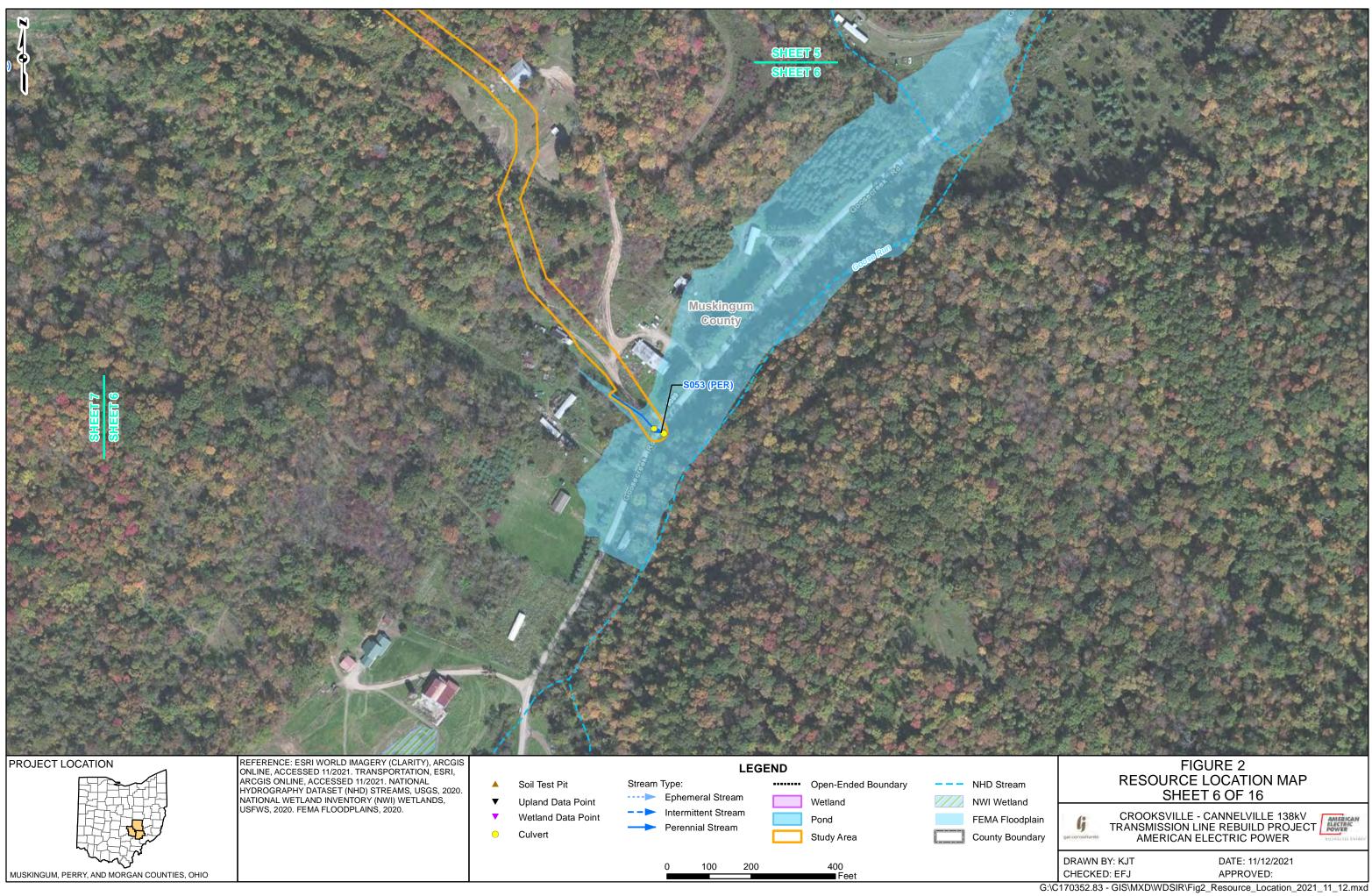


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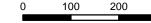




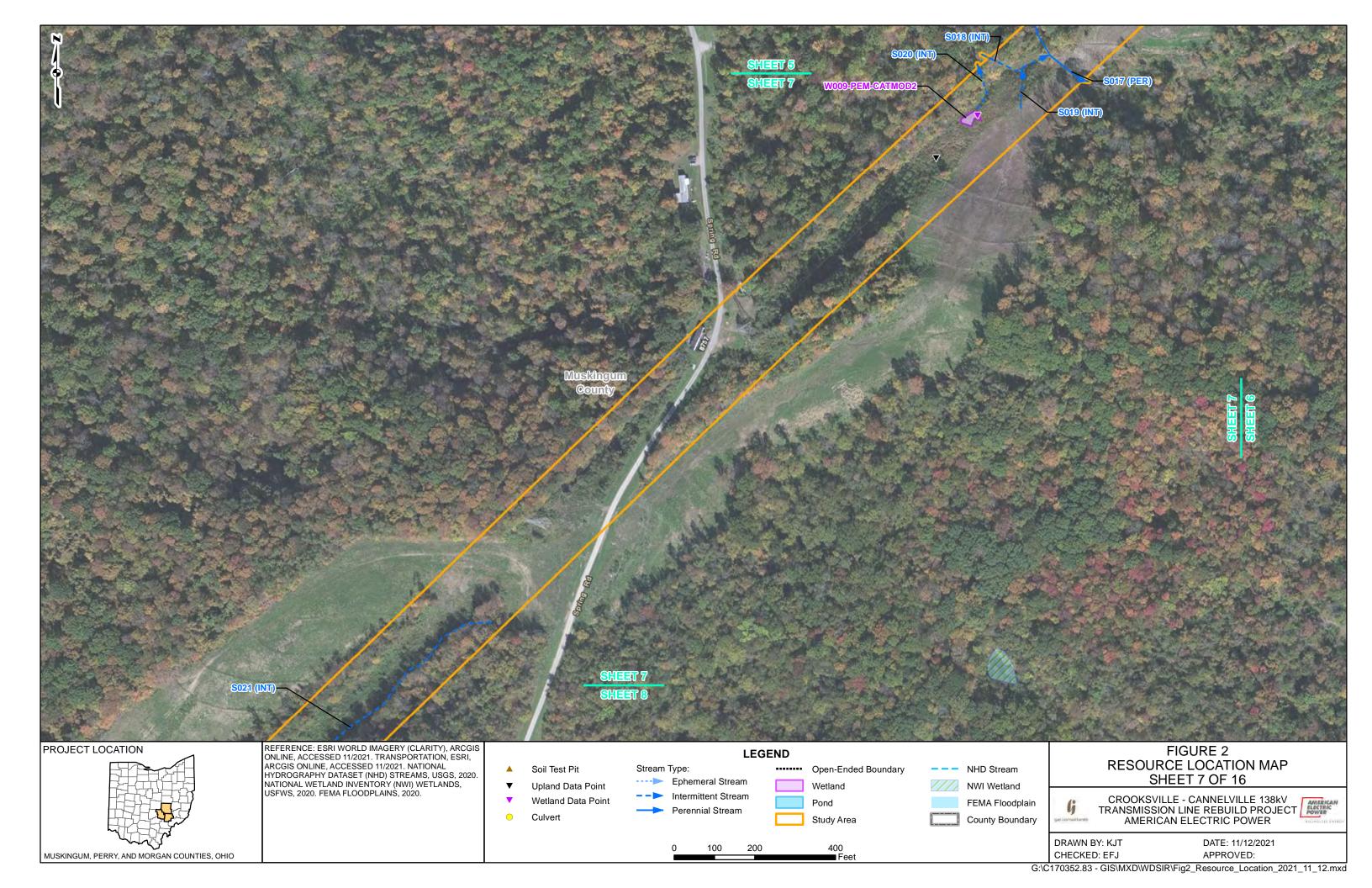


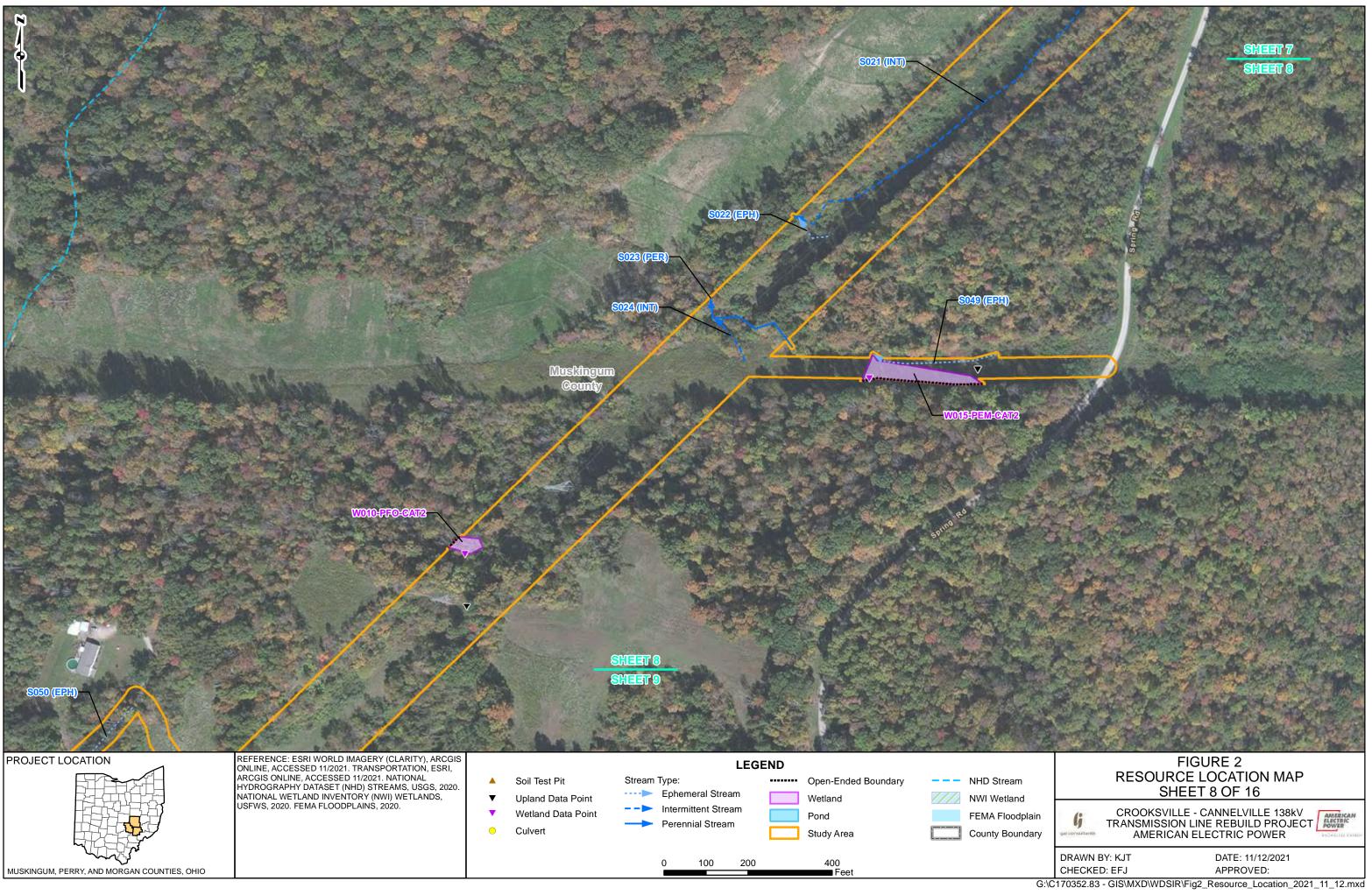


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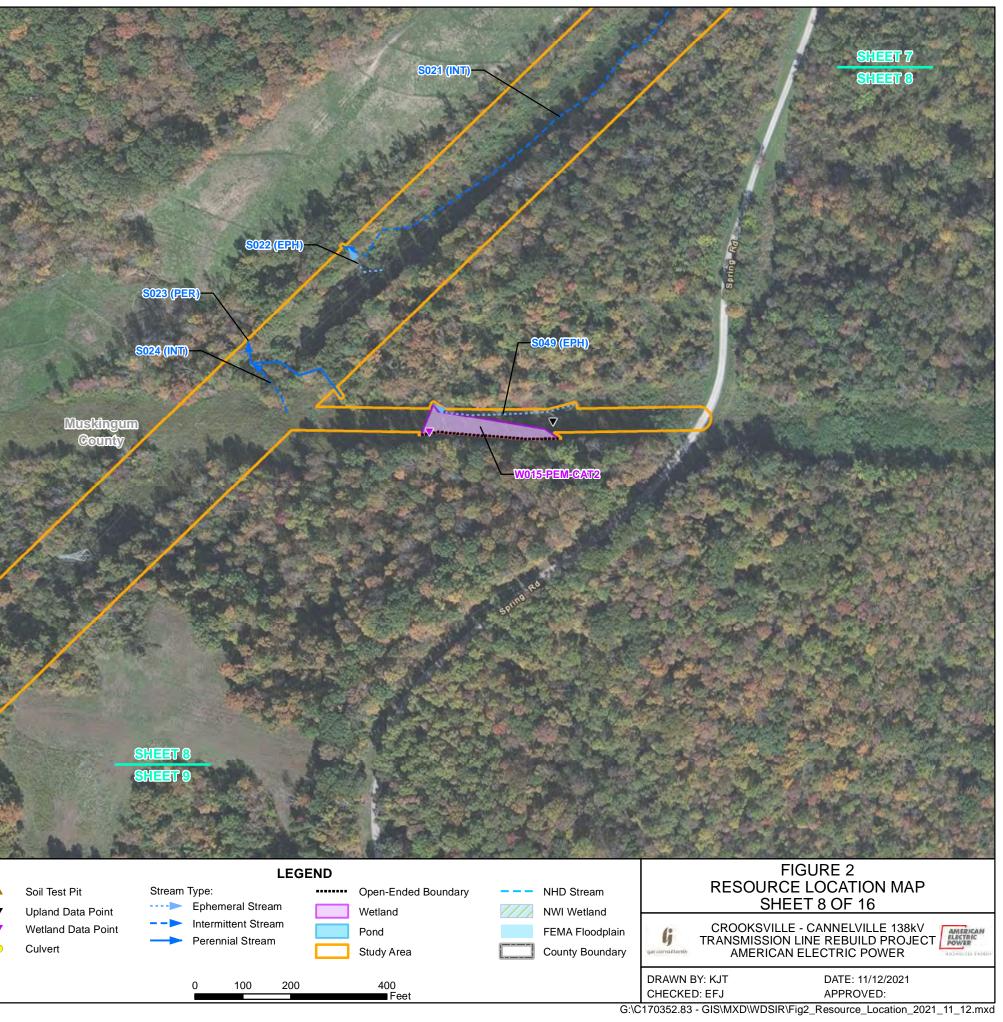


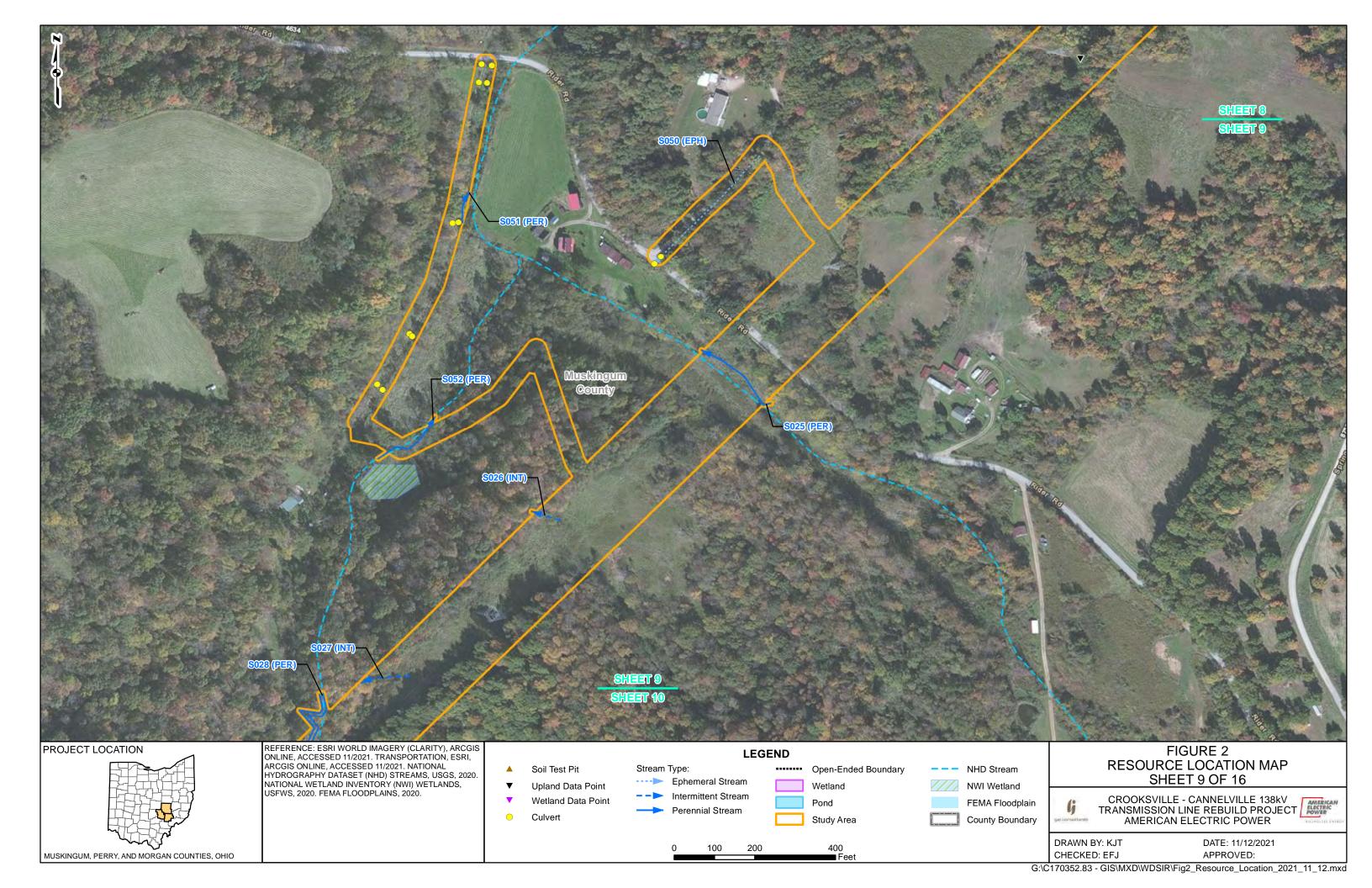


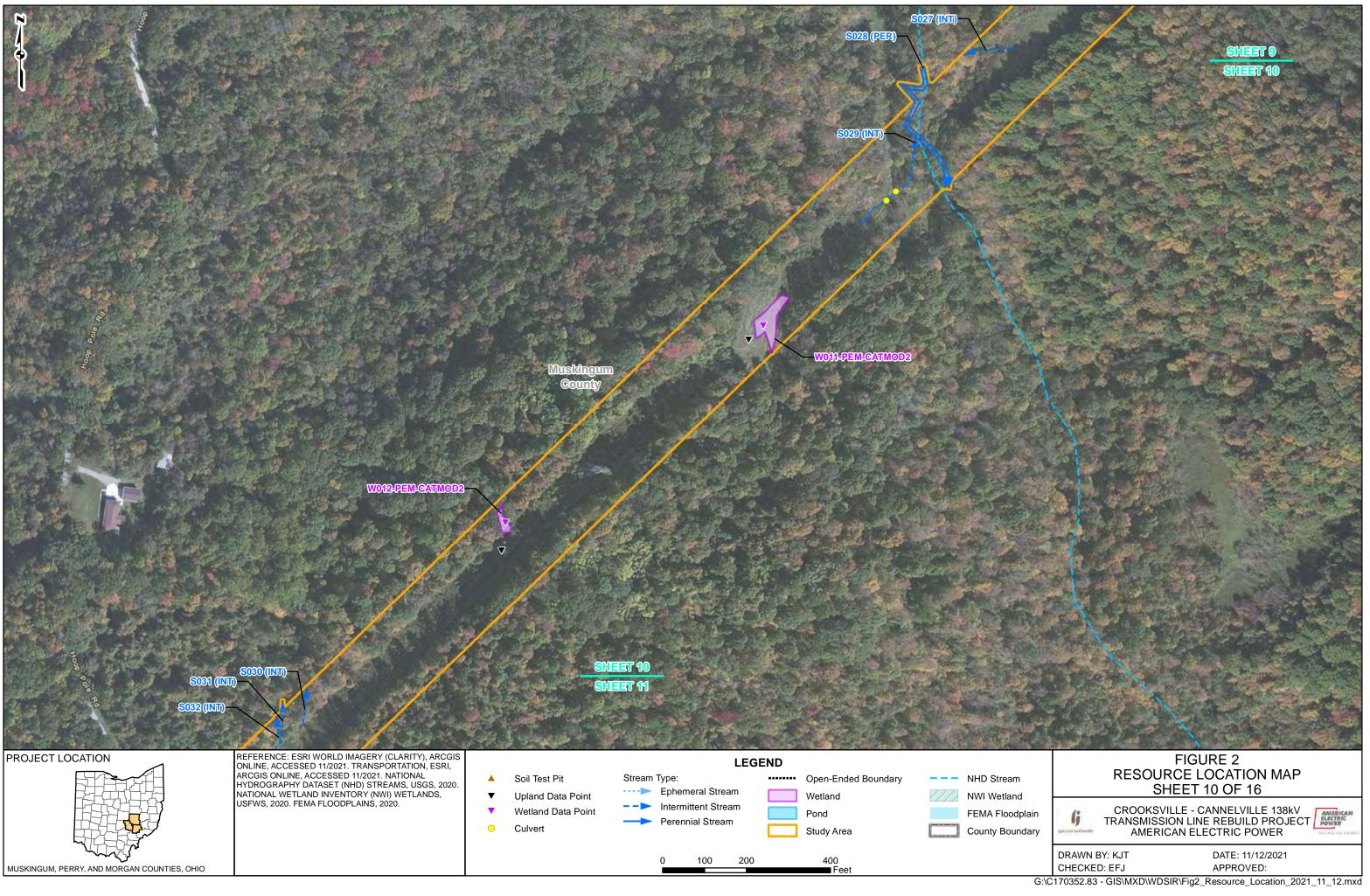


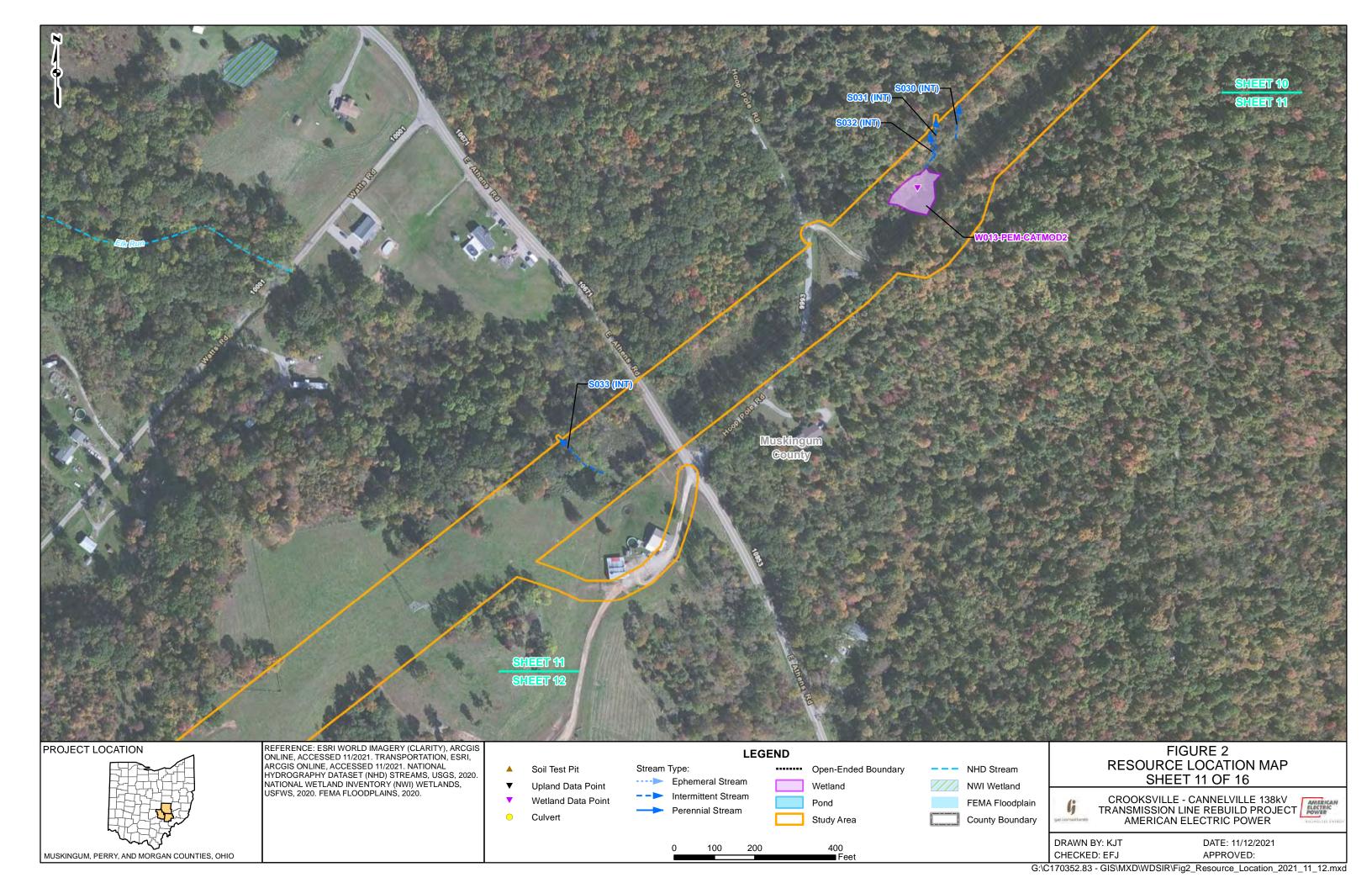


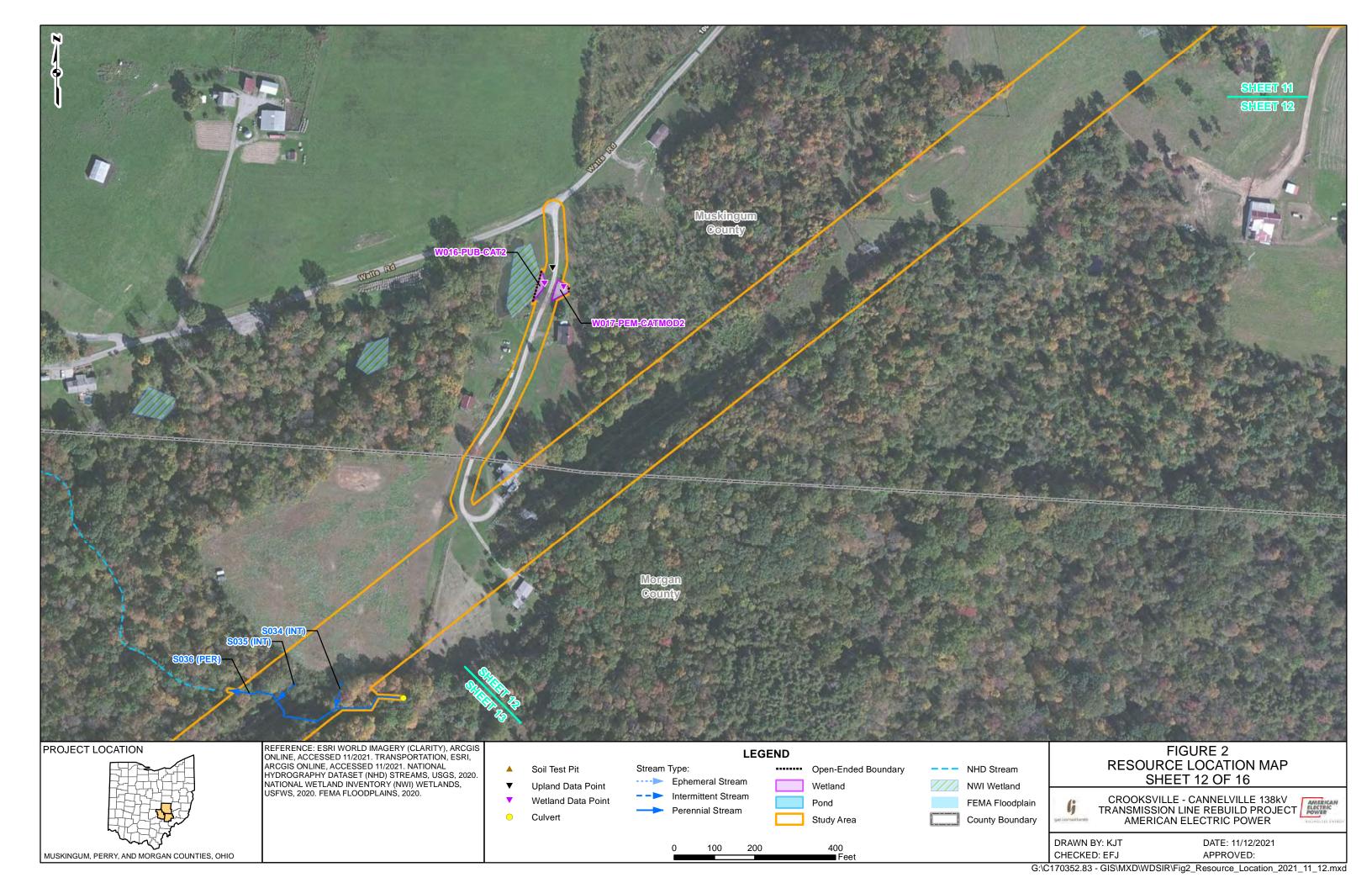


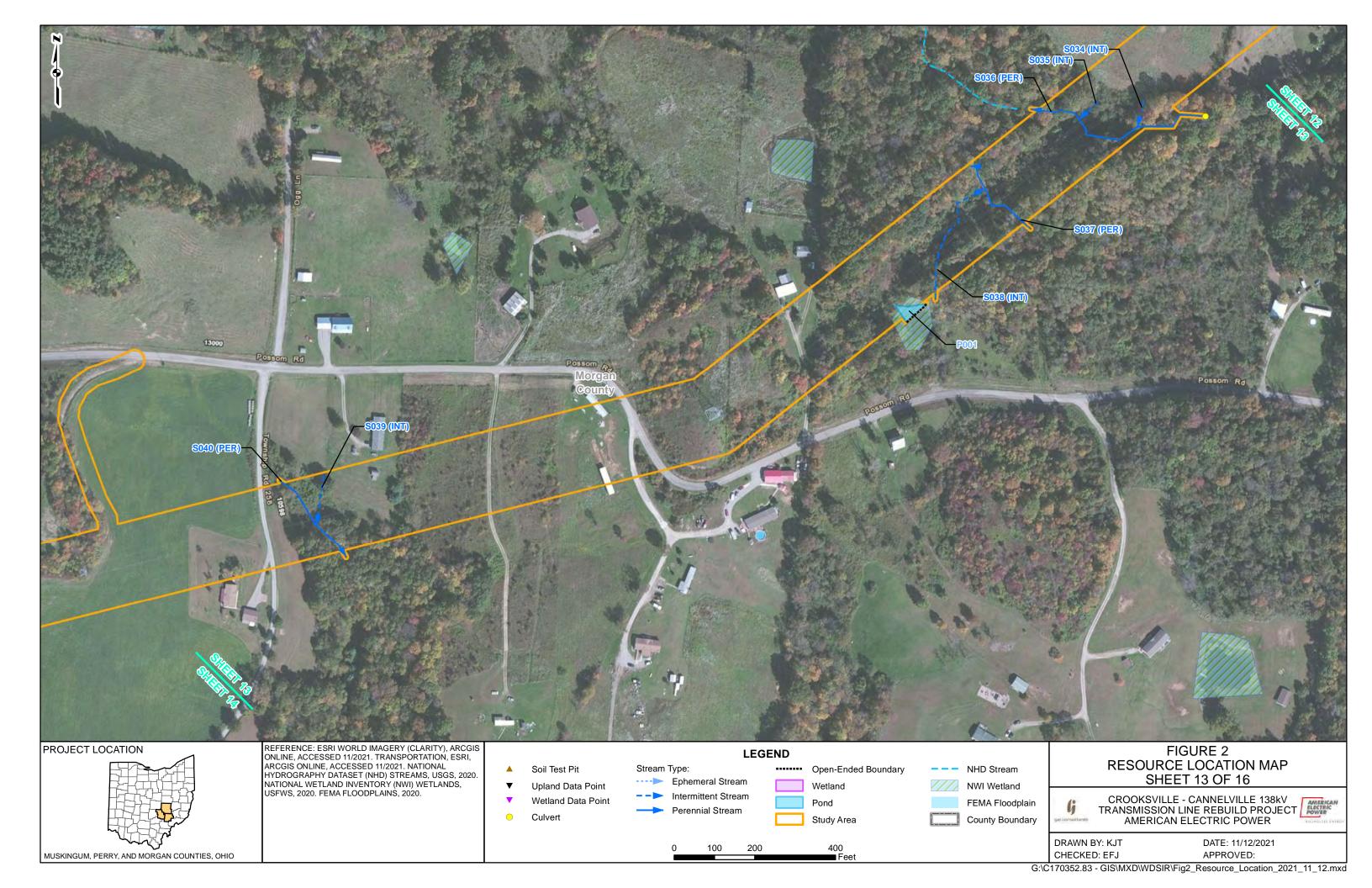


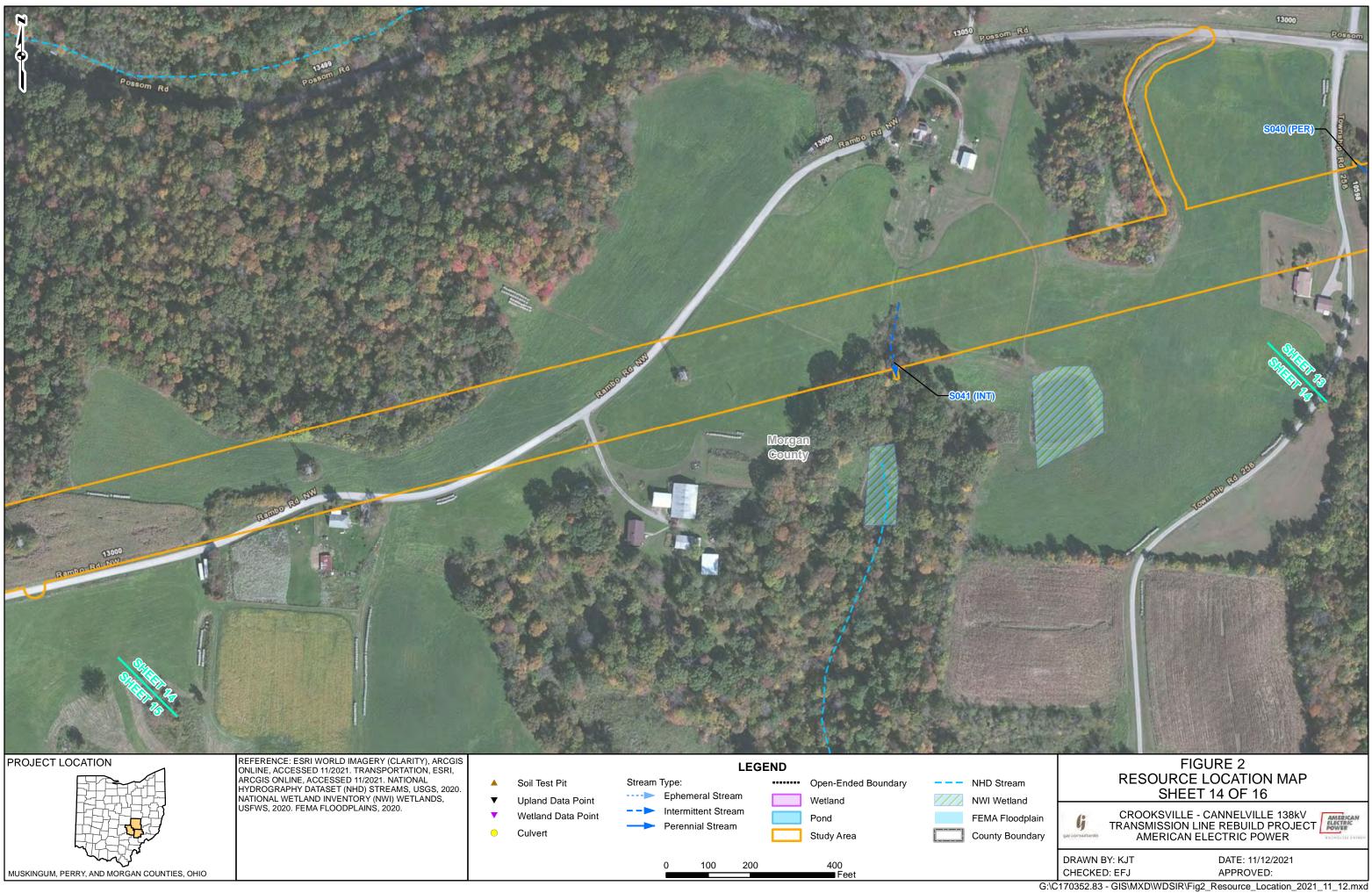


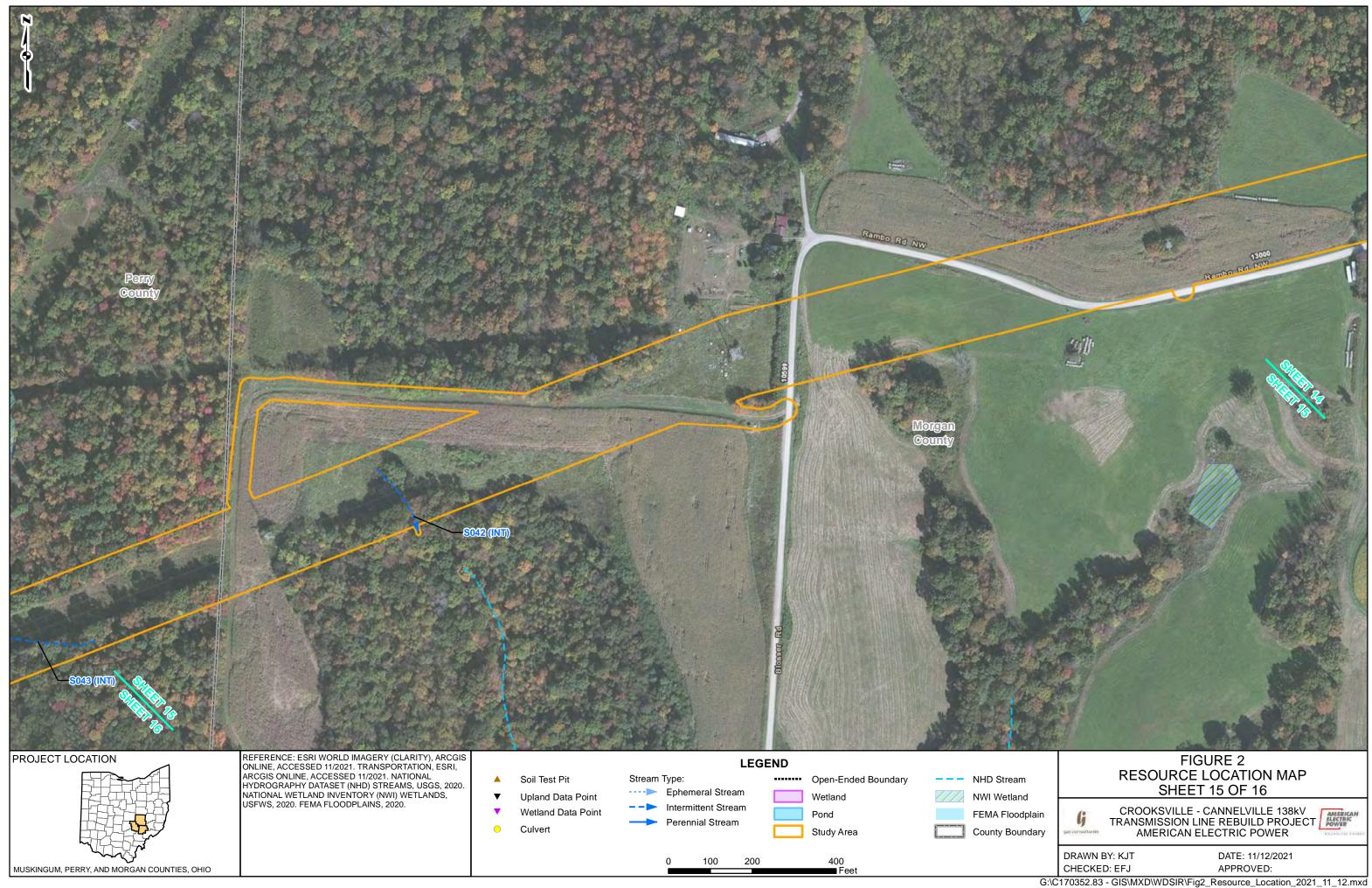


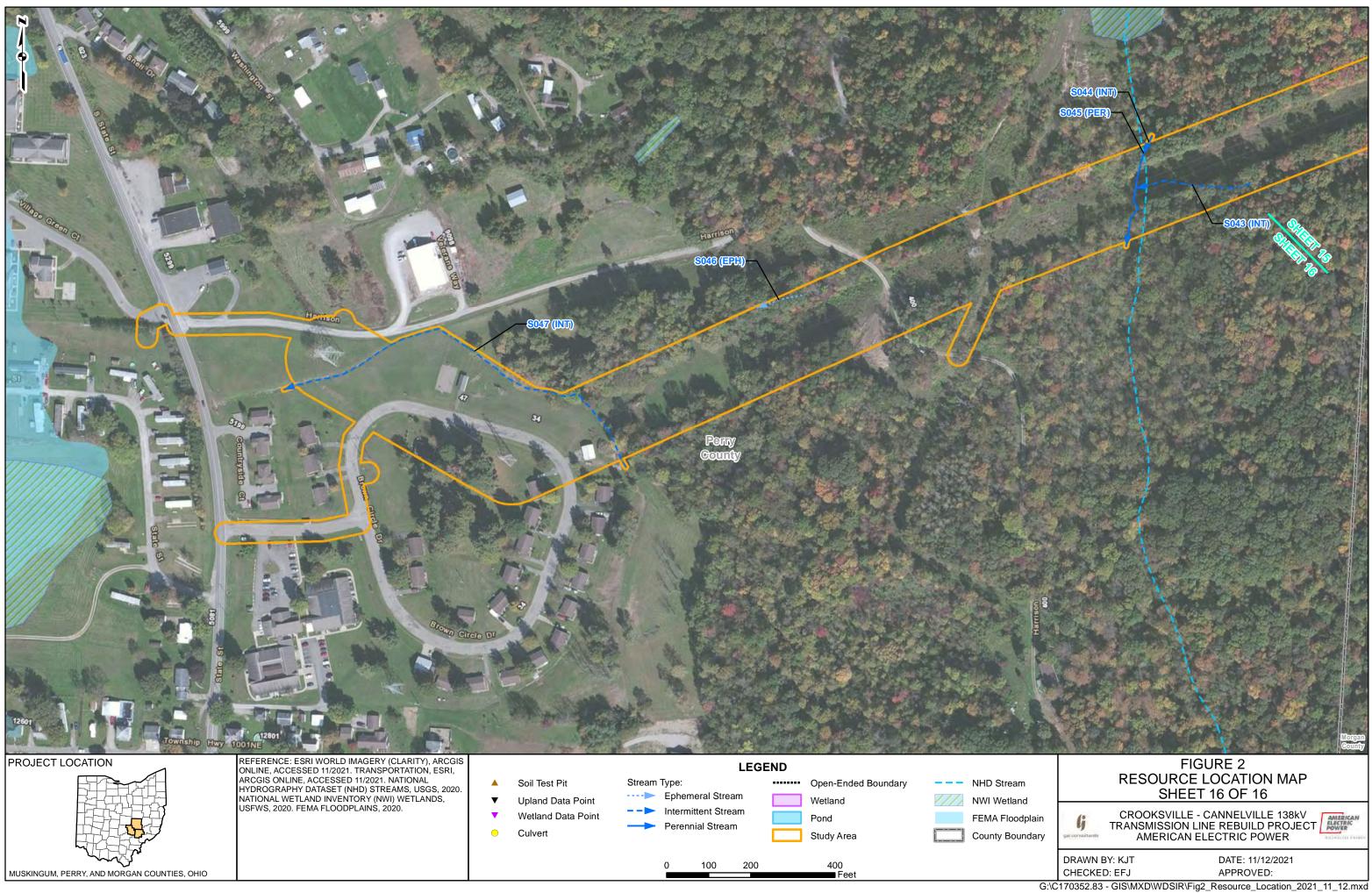






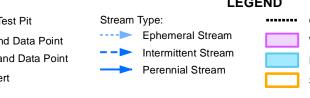






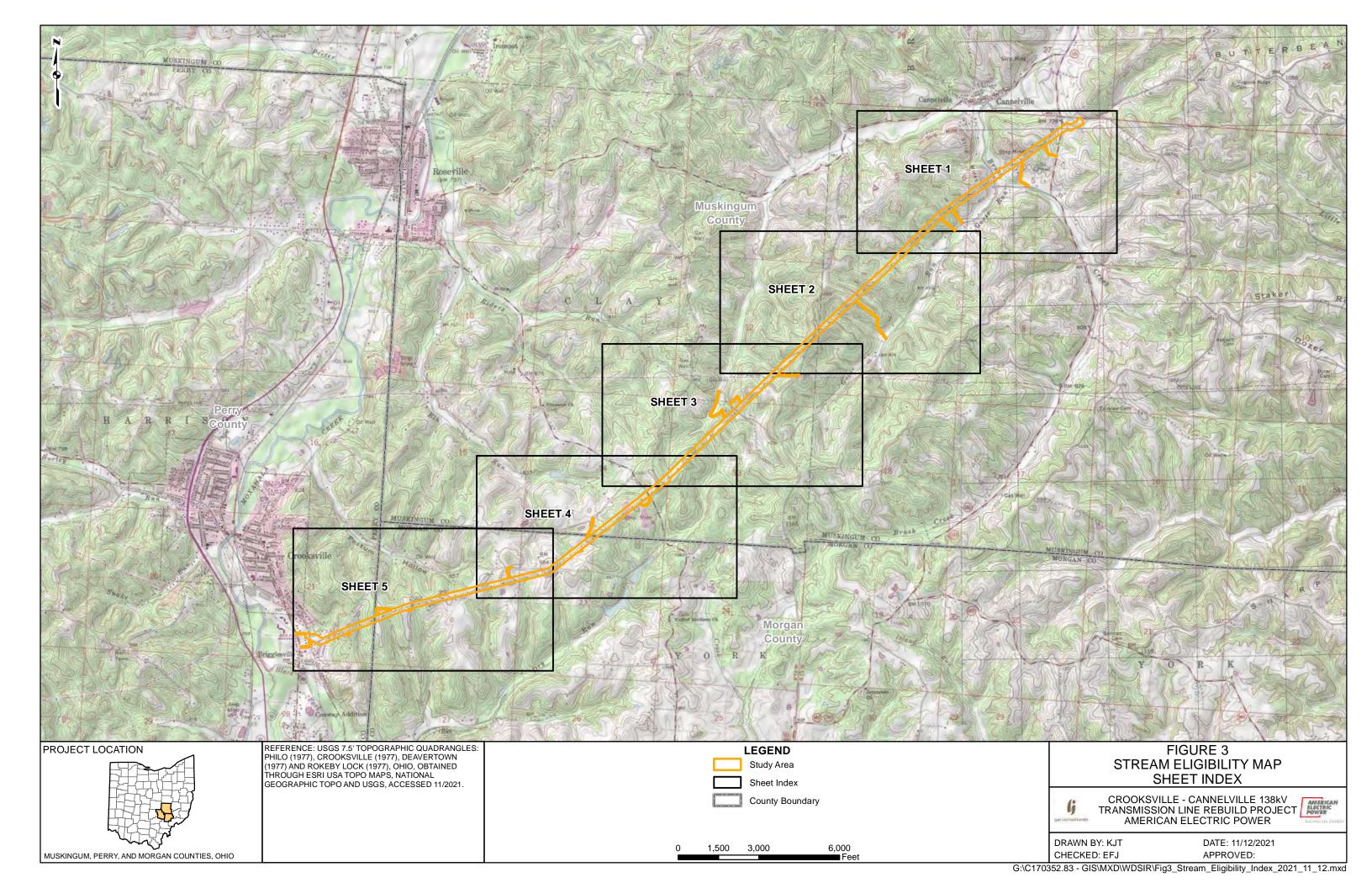


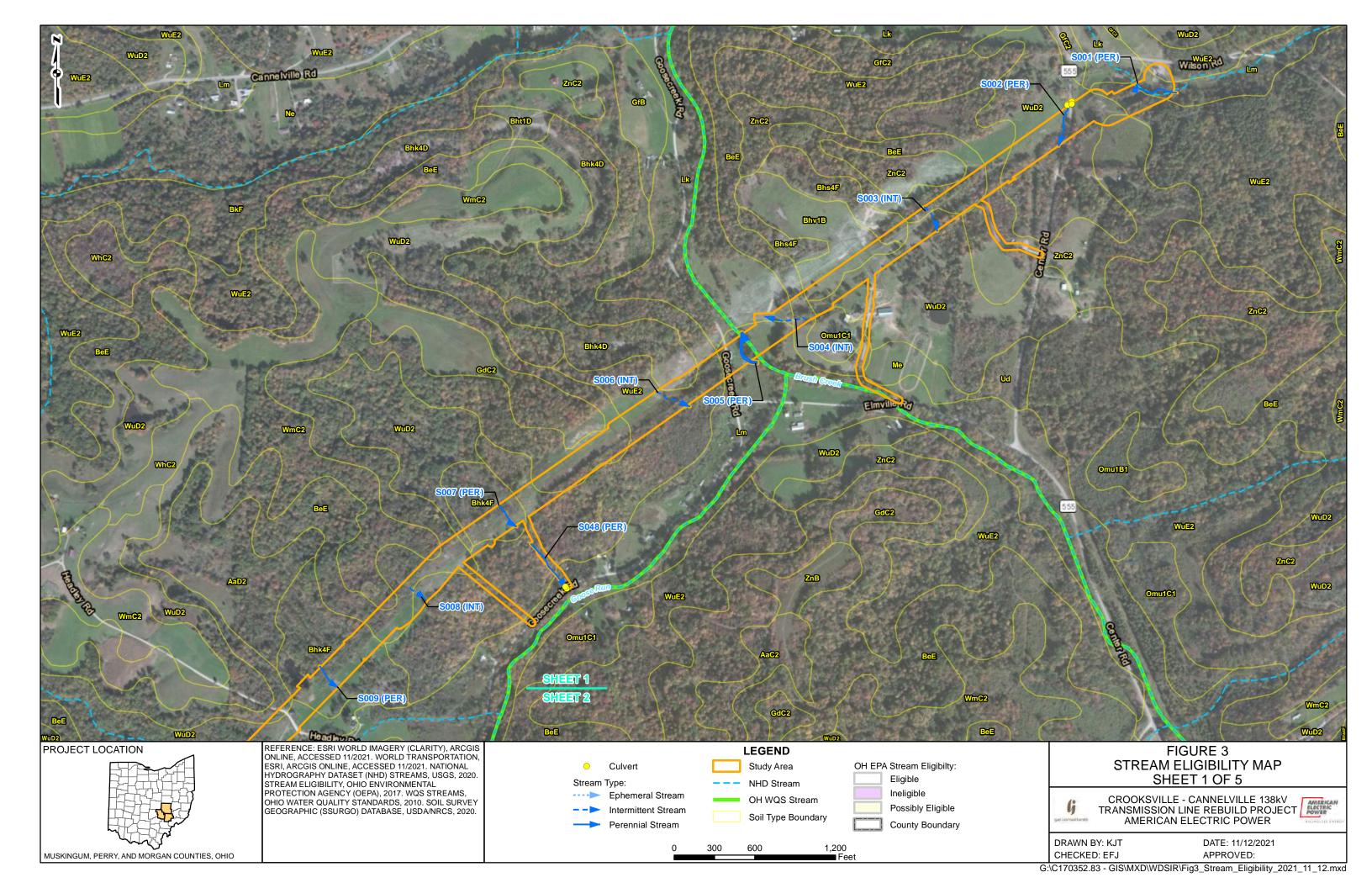


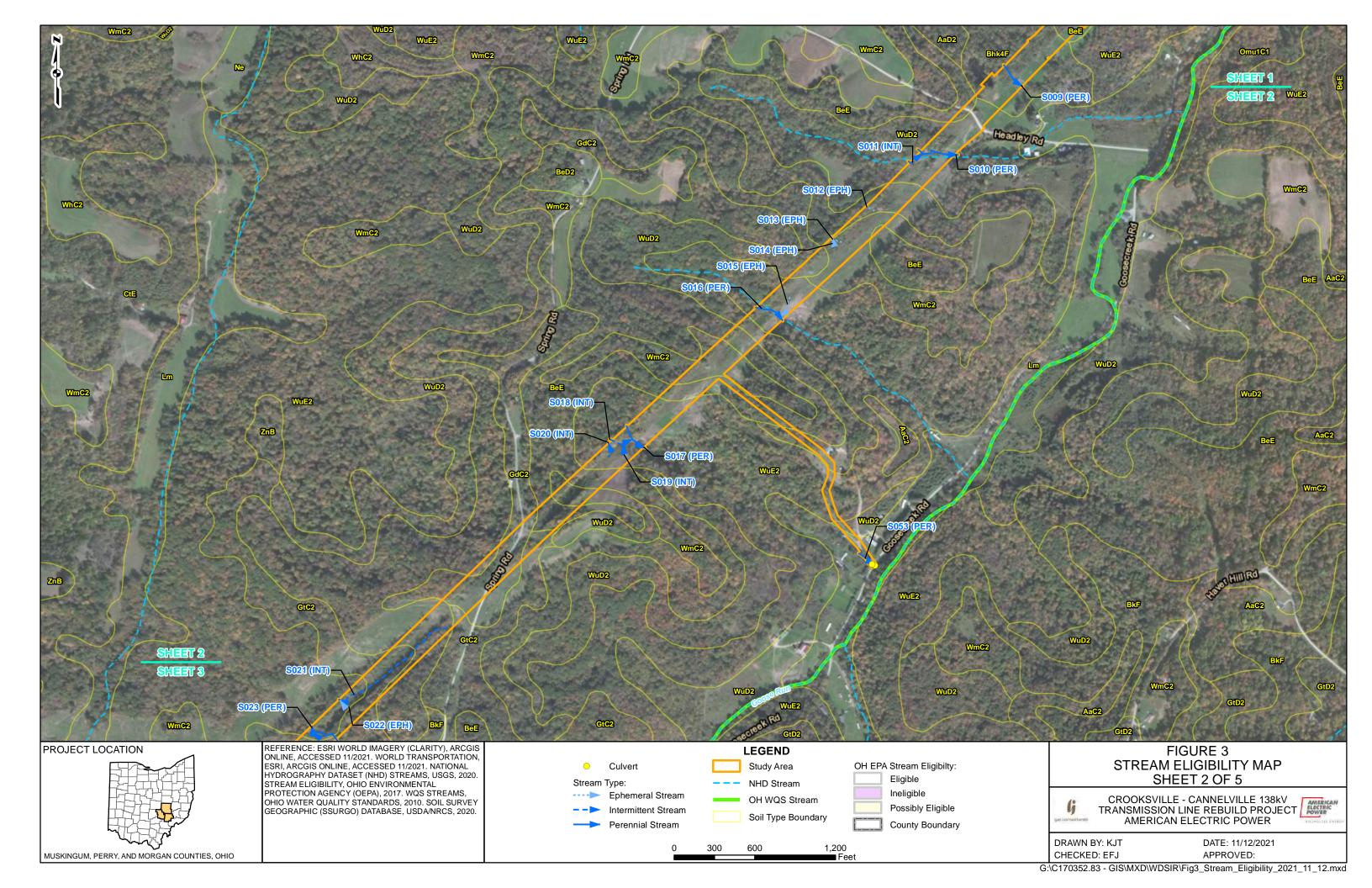


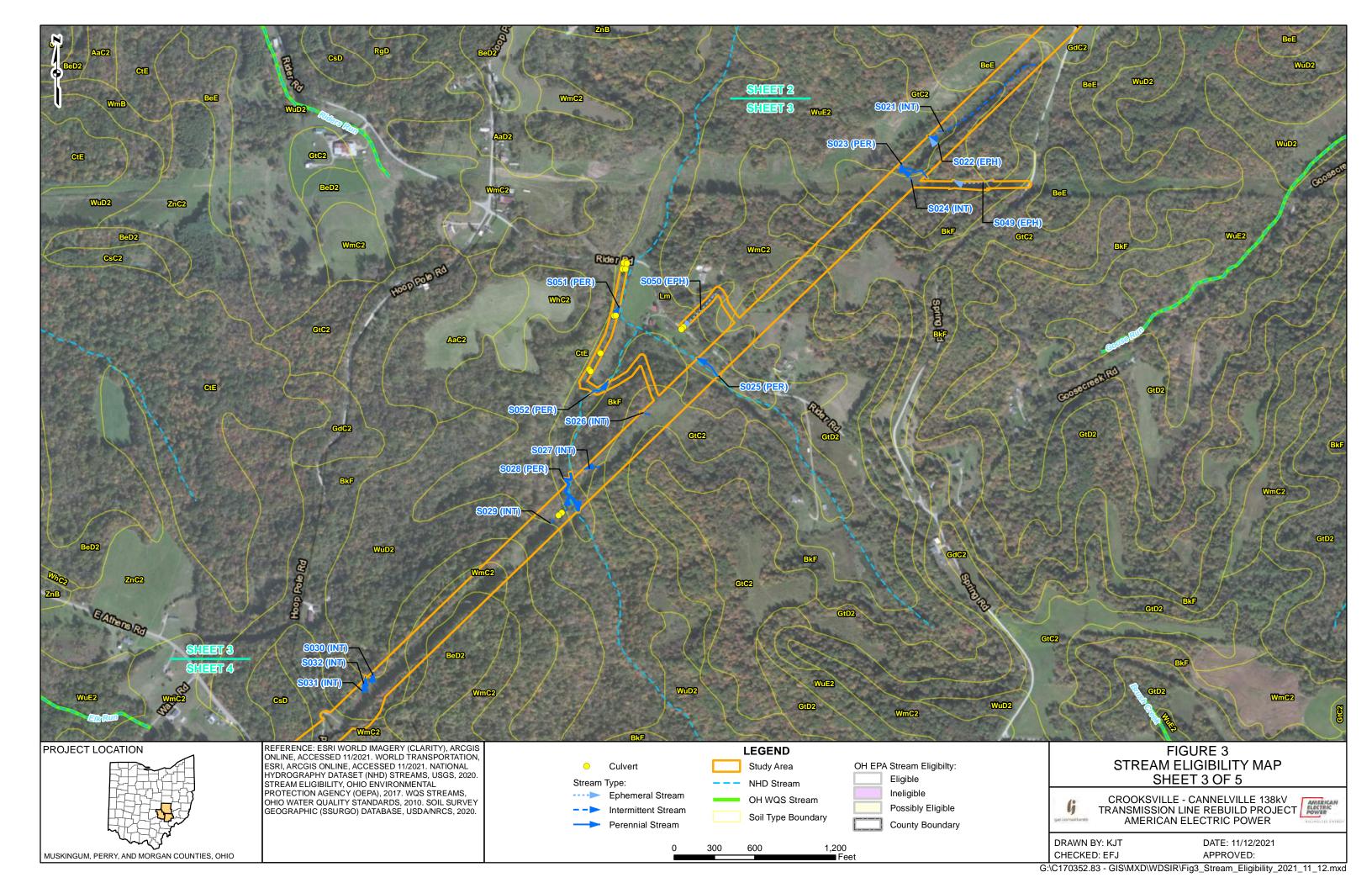


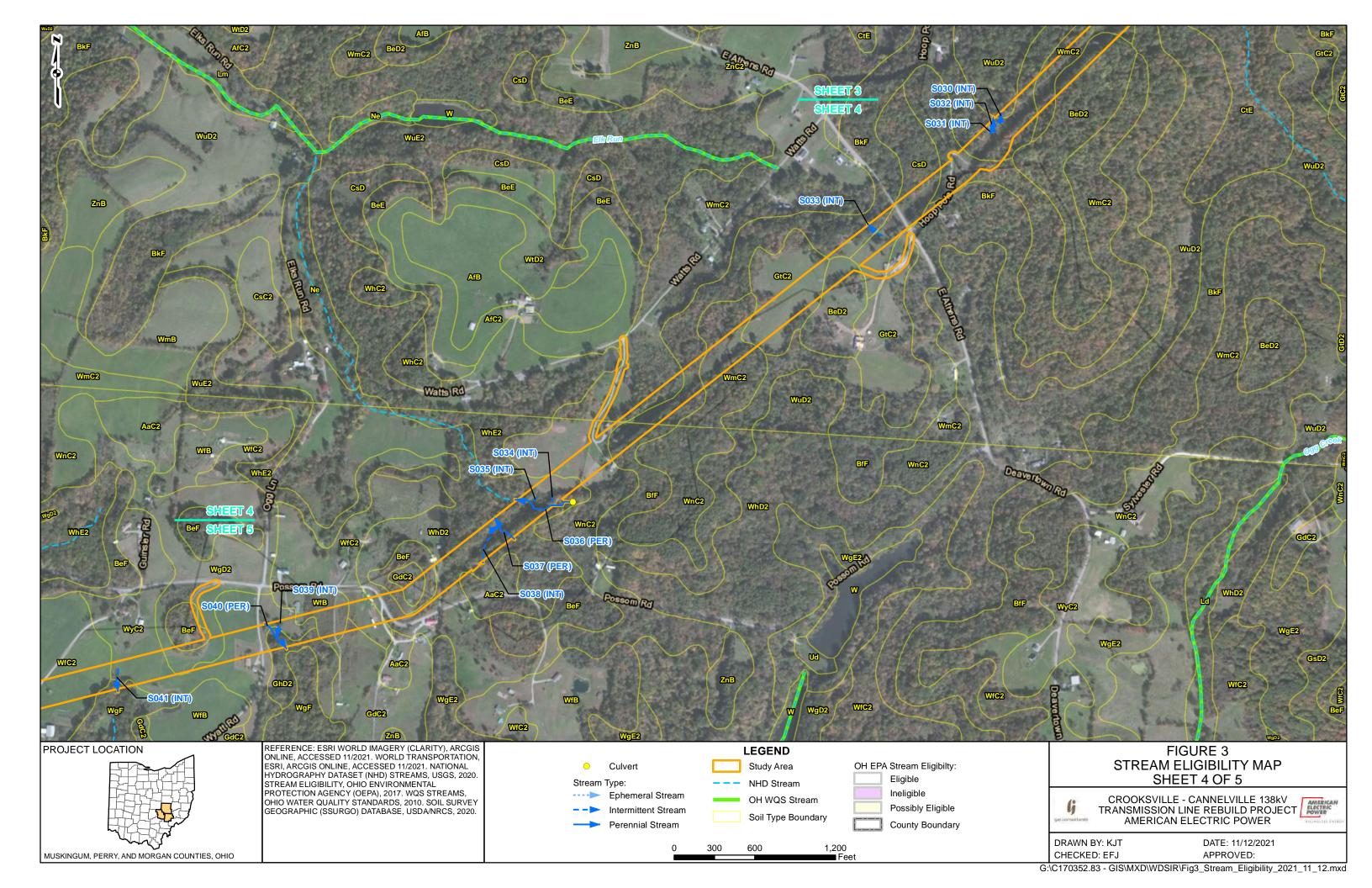


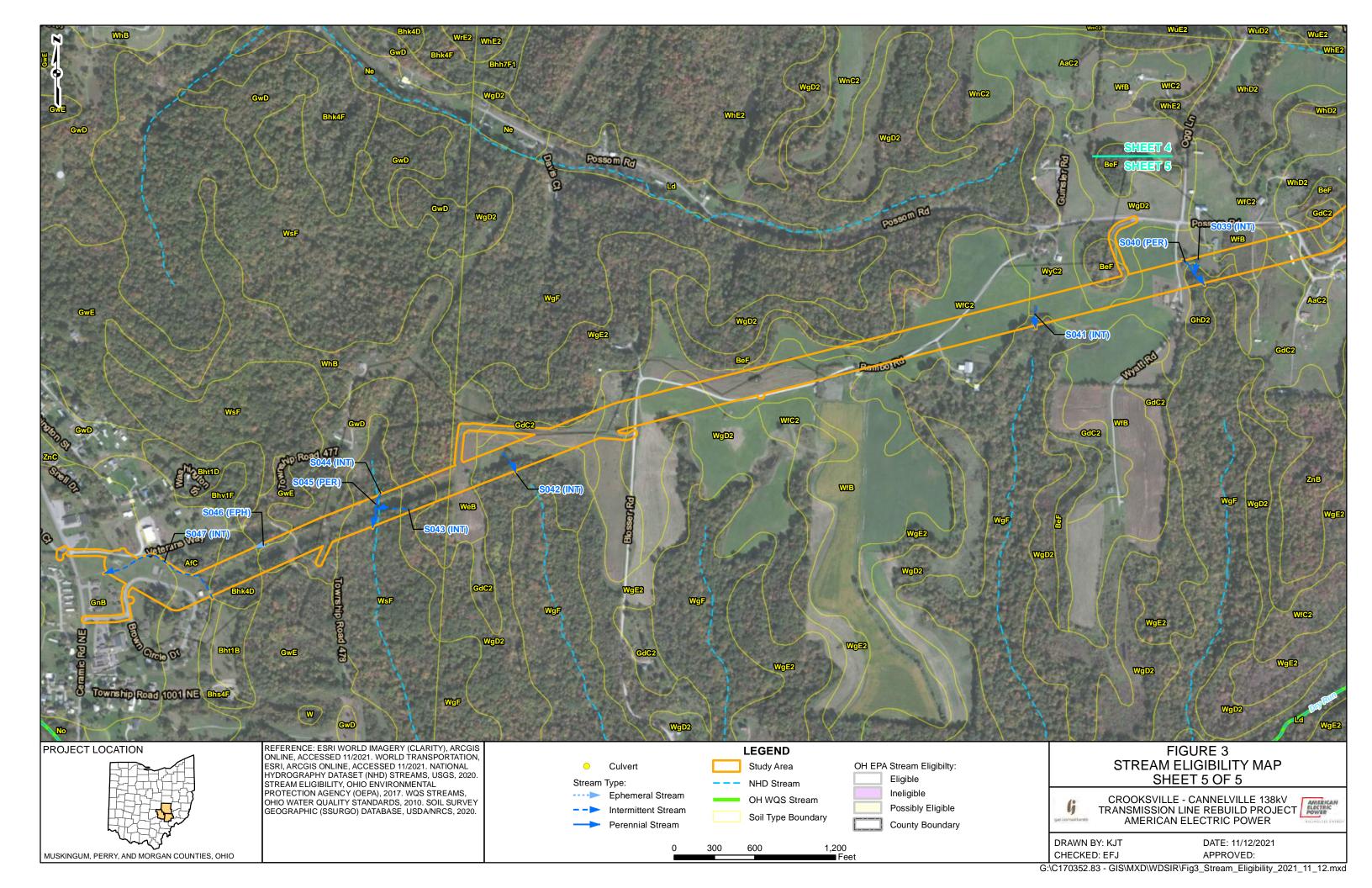












APPENDIX A Photographs





Photograph 1. Wetland W001-PEM-CAT2, Facing North



Photograph 2. Wetland W001-PEM-CAT2, Facing South





Photograph 3. Wetland W001-PEM-CAT2, Facing West



Photograph 4. Wetland W001-PEM-CAT2, Facing East





Photograph 5. Wetland W002-PEM-CATMOD2, Facing South



Photograph 6. Wetland W002-PEM-CATMOD2, Facing North





Photograph 7. Wetland W002-PEM-CATMOD2, Facing West



Photograph 8. Wetland W002-PEM-CATMOD2, Facing East





Photograph 9. Wetland W003-PSS-CATMOD2, Facing South



Photograph 10. Wetland W003-PSS-CATMOD2, Facing East





Photograph 11. Wetland W003-PSS-CATMOD2, Facing West



Photograph 12. Wetland W003-PSS-CATMOD2, Facing North





Photograph 13. Wetland W004-PEM-CAT2, Facing North



Photograph 14. Wetland W004-PEM-CAT2, Facing South





Photograph 15. Wetland W004-PEM-CAT2, Facing West



Photograph 16. Wetland W004-PEM-CAT2, Facing East





Photograph 17. Wetland W005-PEM-CAT2, Facing South



Photograph 18. Wetland W005-PEM-CAT2, Facing West





Photograph 19. Wetland W005-PEM-CAT2, Facing East



Photograph 20. Wetland W005-PEM-CAT2, Facing North





Photograph 21. Wetland W006-PEM-CAT2, Facing South



Photograph 22. Wetland W006-PEM-CAT2, Facing North





Photograph 23. Wetland W006-PEM-CAT2, Facing East



Photograph 24. Wetland W006-PEM-CAT2, Facing West





Photograph 25. Wetland W007-PUB-CATMOD2, Facing East



Photograph 26. Wetland W007-PUB-CATMOD2, Facing West





Photograph 27. Wetland W007-PUB-CATMOD2, Facing South



Photograph 28. Wetland W007-PUB-CATMOD2, Facing North





Photograph 29. Wetland W007-PEM-CATMOD2, Facing East



Photograph 30. Wetland W007-PEM-CATMOD2, Facing West





Photograph 31. Wetland W007-PEM-CATMOD2, Facing South



Photograph 32. Wetland W007-PEM-CATMOD2, Facing North





Photograph 33. Wetland W008-PUB-CATMOD2, Facing East



Photograph 34. Wetland W008-PUB-CATMOD2, Facing West





Photograph 35. Wetland W008-PUB-CATMOD2, Facing South



Photograph 36. Wetland W008-PUB-CATMOD2, Facing North





Photograph 37. Wetland W009-PEM-CATMOD2, Facing East



Photograph 38. Wetland W009-PEM-CATMOD2, Facing West





Photograph 39. Wetland W009-PEM-CATMOD2, Facing North



Photograph 40. Wetland W009-PEM-CATMOD2, Facing South





Photograph 41. Wetland W010-PFO-CAT2, Facing East



Photograph 42. Wetland W010-PFO-CAT2, Facing West





Photograph 43. Wetland W010-PFO-CAT2, Facing South



Photograph 44. Wetland W010-PFO-CAT2, Facing North





Photograph 45. Wetland W011-PEM-CATMOD2, Facing East



Photograph 46. Wetland W011-PEM-CATMOD2, Facing West





Photograph 47. Wetland W011-PEM-CATMOD2, Facing South



Photograph 48. Wetland W011-PEM-CATMOD2, Facing North





Photograph 49. Wetland W012-PEM-CATMOD2, Facing East



Photograph 50. Wetland W012-PEM-CATMOD2, Facing West





Photograph 51. Wetland W012-PEM-CATMOD2, Facing South



Photograph 52. Wetland W012-PEM-CATMOD2, Facing North





Photograph 53. Wetland W013-PEM-CATMOD2, Facing East



Photograph 54. Wetland W013-PEM-CATMOD2, Facing West





Photograph 55. Wetland W013-PEM-CATMOD2, Facing South



Photograph 56. Wetland W013-PEM-CATMOD2, Facing North





Photograph 57. Wetland W014-PEM-CATMOD2, Facing North



Photograph 58. Wetland W014-PEM-CATMOD2, Facing South





Photograph 59. Wetland W014-PEM-CATMOD2, Facing West



Photograph 60. Wetland W014-PEM-CATMOD2, Facing East





Photograph 61. Wetland W015-PEM-CAT2, Facing North



Photograph 62. Wetland W015-PEM-CAT2, Facing South





Photograph 63. Wetland W015-PEM-CAT2, Facing West



Photograph 64. Wetland W015-PEM-CAT2, Facing East





Photograph 65. Wetland W016-PUB-CAT2, Facing North



Photograph 66. Wetland W016-PUB-CAT2, Facing South





Photograph 67. Wetland W016-PUB-CAT2, Facing, Facing East



Photograph 68. Wetland W016-PUB-CAT2, Facing, Facing West





Photograph 69. Wetland W017-PEM-CATMOD2, Facing North



Photograph 70. Wetland W017-PEM-CATMOD2, Facing South





Photograph 71. Wetland W017-PEM-CATMOD2, Facing West



Photograph 72. Wetland W017-PEM-CATMOD2, Facing East





Photograph 73. Stream S001 Upstream, Facing East



Photograph 74. Stream S001 Downstream, Facing West





Photograph 75. Stream S002 Upstream, Facing South



Photograph 76. Stream S002 Downstream, Facing North





Photograph 77. Stream S003 Upstream, Facing Northwest



Photograph 78. Stream S003 Downstream, Facing Southeast





Photograph 79. Stream S004 Upstream, Facing East



Photograph 80. Stream S004 Downstream, Facing West





Photograph 81. Stream S005 (Brush Creek) Upstream, Facing Southeast



Photograph 82. Stream S005 (Brush Creek) Downstream, Facing Northwest





Photograph 83. Stream S006 Upstream, Facing Northwest



Photograph 84. Stream S006 Downstream, Facing Southeast





Photograph 85. Stream S007 Upstream, Facing Northwest



Photograph 86. Stream S007 Downstream, Facing Southeast





Photograph 87. Stream S008 Upstream, Facing Northwest



Photograph 88. Stream S008 Downstream, Facing Southeast





Photograph 89. Stream S009 Upstream, Facing Northwest



Photograph 90. Stream S009 Downstream, Facing Southeast





Photograph 91. Stream S010 Upstream, Facing West



Photograph 92. Stream S010 Downstream, Facing East





Photograph 93. Stream S011 Upstream, Facing West



Photograph 94. Stream S011 Downstream, Facing East





Photograph 95. Stream S012 Upstream, Facing East



Photograph 96. Stream S012 Downstream, Facing West





Photograph 97. Stream S013 Upstream, Facing East



Photograph 98. Stream S013 Downstream, Facing West





Photograph 99. Stream S014 Upstream, Facing South



Photograph 100. Stream S014 Downstream, Facing North





Photograph 101. Stream S015 Upstream, Facing Northeast



Photograph 102. Stream S015 Downstream, Facing Southwest





Photograph 103. Stream S016 Upstream, Facing Northwest



Photograph 104. Stream S016 Downstream, Facing Southeast





Photograph 105. Stream S017 Upstream, Facing Northwest



Photograph 106. Stream S017 Downstream, Facing Southeast





Photograph 107. Stream S018 Upstream, Facing Northwest



Photograph 108. Stream S018 Downstream, Facing East





Photograph 109. Stream S019 Upstream, Facing South



Photograph 110. Stream S019 Downstream, Facing North





Photograph 111. Stream S020 Upstream, Facing Southwest



Photograph 112. Stream S020 Downstream, Facing North





Photograph 113. Stream S021 Upstream, Facing Northeast



Photograph 114. Stream S021 Downstream, Facing Southwest





Photograph 115. Stream S022 Upstream, Facing East



Photograph 116. Stream S022 Downstream, Facing Northwest





Photograph 117. Stream S023 Upstream, Facing East



Photograph 118. Stream S023 Downstream, Facing West





Photograph 119. Stream S024 Upstream, Facing Southeast



Photograph 120. Stream S024 Downstream, Facing Northwest





Photograph 121. Stream S025 Upstream, Facing West



Photograph 122. Stream S025 Downstream, Facing East





Photograph 123. Stream S026 Upstream, Facing East



Photograph 124. Stream S026 Downstream, Facing West





Photograph 125. Stream S027 Upstream, Facing West



Photograph 126. Stream S027 Downstream, Facing East



C170352.83, Task 001 / November 2021



Photograph 127. Stream S028 Upstream, Facing South



Photograph 128. Stream S028 Downstream, Facing North





Photograph 129. Stream S029 Upstream, Facing West



Photograph 130. Stream S029 Downstream, Facing East





Photograph 131. Stream S030 Upstream, Facing South



Photograph 132. Stream S030 Downstream, Facing North





Photograph 133. Stream S031 Upstream, Facing South



Photograph 134. Stream S031 Downstream, Facing North





Photograph 135. Stream S032 Upstream, Facing South



Photograph 136. Stream S032 Downstream, Facing North





Photograph 137. Stream S033 Upstream, Facing Southeast



Photograph 138. Stream S033 Downstream, Facing Northwest





Photograph 139. Stream S034 Upstream, Facing North



Photograph 140. Stream S034 Downstream, Facing South





Photograph 141. Stream S035 Upstream, Facing Northeast



Photograph 142. Stream S035 Downstream, Facing Southwest





Photograph 143. Stream S036 Upstream, Facing East



Photograph 144. Stream S036 Downstream, Facing West





Photograph 145. Stream S037 Upstream, Facing Southeast



Photograph 146. Stream S037 Downstream, Facing Northwest





Photograph 147. Stream S038 Upstream, Facing Southwest



Photograph 148. Stream S038 Downstream, Facing East



C170352.83, Task 001 / November 2021



Photograph 149. Stream S039 Upstream, Facing Northeast



Photograph 150. Stream S039 Downstream, Facing Southwest





Photograph 151. Stream S040 Upstream, Facing Northwest



Photograph 152. Stream S040 Downstream, Facing Southeast





Photograph 153. Stream S041 Upstream, Facing North



Photograph 154. Stream S041 Downstream, Facing South





Photograph 155. Stream S042 Upstream, Facing Northwest



Photograph 156. Stream S042 Downstream, Facing Southeast





Photograph 157. Stream S043 Upstream, Facing East



Photograph 158. Stream S043 Downstream, Facing West





Photograph 159. Stream S044 Upstream, Facing Northeast



Photograph 160. Stream S044 Downstream, Facing Southwest





Photograph 161. Stream S045 Upstream, Facing North



Photograph 162. Stream S045 Downstream, Facing South





Photograph 163. Stream S046 Upstream, Facing Northeast



Photograph 164. Stream S046 Downstream, Facing Southwest





Photograph 165. Stream S047 Upstream, Facing Southeast



Photograph 166. Stream S047 Downstream, Facing West





Photograph 167. Stream S048 Upstream, Facing Northwest



Photograph 168. Stream S048 Downstream, Facing Southeast





Photograph 169. Stream S049 Upstream, Facing East



Photograph 170. Stream S049 Downstream, Facing West





Photograph 171. Stream S050 Upstream, Facing Northeast



Photograph 172. Stream S050 Downstream, Facing Southwest





Photograph 173. Stream S051 Upstream, Facing South



Photograph 174. Stream S051 Downstream, Facing North





Photograph 175. Stream 52 Upstream, Facing Southwest



Photograph 176. Stream S052 Downstream, Facing Northwest





Photograph 177. Stream S053 Upstream, Facing Northwest



Photograph 178. Stream S053 Downstream, Facing Southeast





Photograph 179. Representative Upland Habitat, Facing Southwest



Photograph 180. Representative Upland Habitat, Facing Northeast





Photograph 181. Representative Upland Habitat, Facing Northwest



Photograph 182. Representative Upland Habitat, Facing Northeast





Photograph 181. Representative Upland Habitat, Facing West



Photograph 182. Representative Upland Habitat, Facing Northeast





Photograph 183. Representative Upland Habitat, Facing West



Photograph 184. Representative Upland Habitat, Facing Northeast



APPENDIX B Wetland Determination Data Forms



C170352.83, Task 001 / November 2021

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region
Project/Site: CYOUKSUITE Philo City/County: MUSKINGUMCO Sampling Date: 5/18/20
Applicant/Owner:State: OffState: Off_State: O
Investigator(s): KUV Section, Township, Range:
Landform (hillslope, terrace, etc.): Deptession Local relief (concave, convex, none): Concribe Slope (%): 01
Subregion (LRR or MLRA): LBRN Lat: 39.810675 Long: 81.98041 Datum: NAD83
Soil Map Unit Name: NIDZ-Westmondo nol Cuerosey Sifled m 15-25/ Slopenwi classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation 10, Soil 10, or Hydrology 10 significantly disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation $\underline{\Pi U}$, Soil $\underline{\Pi U}$, or Hydrology $\underline{\Pi U}$ as a significantly distributive of the Horman Circumstances presents are set of the Horman Circmma are set of the Horman Circmma are set of the Horman Circmma are set of the Horman ar
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Hydrology Present? Yes No No Wetland Hydrology Present? Yes No Remarks: No No
Wetland data for W001-PEM-CAT2
Data taken within transmission Line Row open field.
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)
VSaturation (A3) V Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2)
Viale Marks (B1) Presence of Reduced indir(C4) Dry-Season Water Fable (C2)
Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)
Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3)
Water-Stained Leaves (B9) Microtopographic Relief (D4)
Aquatic Fauna (B13)/FAC-Neutral Test (D5)
Field Observations:
Surface Water Present? Yes No O Depth (inches):
Water Table Present? Yes V Depth (inches): 0
Saturation Present? Yes V No Depth (inches): Wetland Hydrology Present? Yes No No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Hydrology Indicators are AZ, AB, CB, DZ, DS.

Sampling Point: wetland

201-	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30'r)	% Cover Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2		
3.		Total Number of Dominant Species Across All Strata:
4		
5		Percent of Dominant Species That Are OBL, FACW, or FAC:
6.		
7.		Prevalence Index worksheet:
	= Total Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 57)		FACW species x 2 =
1. nore		FAC species x 3 =
2		FACU species x 4 =
3		UPL species x 5 =
4		Column Totals: (A) (B)
.5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1 - Rapid Test for Hydrophytic Vegetation
8		2 - Dominance Test is >50%
9.		2 - Dominance rest is > 30 % 3 - Prevalence Index is $\leq 3.0^1$
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5/)		Problematic Hydrophytic Vegetation ¹ (Explain)
1. Phalaris anundinacea	ZO Y FORM	
2. Impatiens alpensis	20 y Fach	1. If the state of
3. Carex vulpinoided	20 4 061	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. Juncus ettusus	20 Y Fach	Definitions of Four Vegetation Strata:
5. Cyperus esculentus	15 N Fach	Definitions of Your Vegetation Grata.
6. Mimulus alatus	5 N Obl	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7		more in diameter at breast height (DBH), regardless of height.
8.		
9		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11		
	O = Total Cover	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
50% of total cover:		
Woody Vine Stratum (Plot size: 301)		Woody vine – All woody vines greater than 3.28 ft in height.
1. nolle		inoight.
2		
3.		
4.		
5.		Hydrophytic Vegetation /
	= Total Cover	Present? Yes No
50% of total cover:		
Remarks: (Include photo numbers here or on a separate		
Watering Nec- 15 dominant		
Wetternel veg is dominant.		

Depth	cription: (Describe Matrix	to the de	-	x Features		or confirm	n the absence of	indicators.)
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-16	KNR412	80	2.54B3/Le	20	_C	<u>PL</u>		
'Type: C=C Hydric Soil		oletion, RM	M=Reduced Matrix, MS	S=Masked	Sand Gra	ains.		Pore Lining, M=Matrix.
Black H Hydroge Stratifie 2 cm Mu Deplete Thick D Sandy N MLR/ Sandy F Sandy F	I (A1) pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) uck (A10) (LRR N) d Below Dark Surface ark Surface (A12) Mucky Mineral (S1) (A 147, 148) Gleyed Matrix (S4) Redox (S5) d Matrix (S6)		 Dark Surface Polyvalue Be Thin Dark Su Loamy Gleyee Depleted Mat Redox Dark S Depleted Dar Redox Depre Iron-Mangane MLRA 130 Umbric Surfa Piedmont Flo Red Parent M 	low Surfac rface (S9) d Matrix (I rix (F3) Surface (F k Surface ssions (F8 ese Masse b) ce (F13) (I odplain So	(MLRA 1 =2) 6) (F7) 8) es (F12) (MLRA 13 bils (F19)	47, 148) LRR N, 6, 122) (MLRA 14	148) Coas (M Pied (M Very Othe ³ Indicat 18) wetar	Muck (A10) (MLRA 147) st Prairie Redox (A16) ILRA 147, 148) mont Floodplain Soils (F19) ILRA 136, 147) Shallow Dark Surface (TF12) r (Explain in Remarks) tors of hydrophytic vegetation and ind hydrology must be present, s disturbed or problematic.
	Layer (if observed)	:				,	1	1
Depth (in	ches):						Hydric Soil Pre	esent? Yes <u>No</u>
Remarks:	Mee	+SF?	3					

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region
Project/Site: Crooksville Philo City/County: MUSKINgUMCO Sampling Date: 5/8/20
Applicant/Owner: ALP State: OH Sampling Point wetland
Investigator(s):
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): <u>CONCLUE</u> Slope (%): <u>O1</u> .
Subregion (LRR or MLRA): URRN Lat: 39,809482 Long: 81.987845 Datum: NAD83
Soil Map Unit Name: NUDZ-Westmore land Guensey Sitt Jam 15-251. Slope NWI classification: N/A-
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation 10, Soil 10, or Hydrology 10 significantly disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation 10, soil 10, or Hydrology 10 naturally problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes V No Is the Sampled Area within a Wetland? Yes No Hydric Soil Present? Yes Yes No within a Wetland? Yes No Wetland Hydrology Present? Yes Yes No No No No Remarks: Wetland Autu fur W002-PEM-CATMOD2 No No No No No
Datataken along transmission line BOW edge (forest.
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) Ovidiand Bhizaenbases on Living Roots (C2) Mass Trim Lines (B16)
Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)
Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3)
Water-Stained Leaves (B9) Microtopographic Relief (D4) Aquatic Fauna (B13) FAC-Neutral Test (D5)
Field Observations:
Surface Water Present? Yes No Depth (inches):
Water Table Present? Yes Vo Depth (inches): 8//
Saturation Present? Yes Vo Depth (inches): O Wetland Hydrology Present? Yes Vo No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks:
Hydrology Indicatus are AZ, AZ, C3, DZ, DS.

Sampling Point wetland

2410	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30V)	% Cover Species? Status	Number of Dominant Species
1. None		That Are OBL, FACW, or FAC: (A)
2		
		Total Number of Dominant
.3		Species Across All Strata: (B)
4		Percent of Dominant Species
5		That Are OBL, FACW, or FAC: (A/B)
6		
7.		Prevalence Index worksheet:
	= Total Cover	Total % Cover of: Multiply by:
E09/ of total cover		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 57)	20% of total cover:	FACW species x 2 =
1. NOLL		FAC species x 3 =
2		FACU species x 4 =
3.		UPL species x 5 =
		Column Totals: (A) (B)
4		
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		
8		- Rapid Test for Hydrophytic Vegetation
		-
9		3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 0)	100 C 10 C 100 C	
1. mpattens, capensis	30 V Fuch	Problematic Hydrophytic Vegetation ¹ (Explain)
2 Miles Micida	20 V 00	
2. Carry Williams Log	an in the	¹ Indicators of hydric soil and wetland hydrology must
3. Catch valpingiaea	Lacet	be present, unless disturbed or problematic.
4. Juncus PHUSUS	20 Y Fach	Definitions of Four Vegetation Strata:
5. KUMEX CRISPILS	10 IN Fac	
e Trances de la construction		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
0		more in diameter at breast height (DBH), regardless of
7		height.
8		Sapling/Shrub - Woody plants, excluding vines, less
9.		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11	- 10/	Herb – All herbaceous (non-woody) plants, regardless
	OO = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	20% of total cover:	height.
1. none		Thoight
2		
3		
4		Hydrophytic
5		Hydrophytic Vegetation
	O Tatal Cause	Present? Yes No
	= Total Cover	
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet.)	
Jelette Dura is day	0	
Wettand veg is domina	ANT	
0		
		-

Profile Description: (Describe to the dep Depth Matrix		ent the indication of the indi	ator or confirm	the absence of	indicators.)
Depth <u>Matrix</u> (inches) Color (moist) %	Color (moist)	% Typ	pe' Loc ²	Texture	Remarks
5-16 IOYR512 85	2.54R3/6	15 C	PL	Taim	
		==			
ype: C=Concentration, D=Depletion, RM=	Reduced Matrix, MS	=Masked Sand	d Grains.		Pore Lining, M=Matrix.
dric Soil Indicators:				Indicato	rs for Problematic Hydric Soils ³ :
_ Histosol (A1) _ Histic Epipedon (A2)	Dark Surface	• •	8) (MLRA 147,		i Muck (A10) (MLRA 147) st Prairie R e dox (A16)
_ Black Histic (A3) _ Hydrogen Sulfide (A4)		face (S9) (ML I		(N	ILRA 147, 148) mont Floodplain Soils (F19)
Stratified Layers (A5) 2 cm Muck (A10) (LRR N)	Depleted Mate	rix (F3)			ILRA 136, 147) Shallow Dark Surface (TF12)
_ Depleted Below Dark Surface (A11) _ Thick Dark Surface (A12)	Depleted Dark	k Surface (F7) ssions (F8)		Othe	er (Explain in Remarks)
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	Iron-Mangane MLRA 136		12) (LRR N,		
_ Sandy Gleyed Matrix (S4) _ Sandy Redox (S5)	Piedmont Floor		F19) (MLRA 1 4	18) wetlar	tors of hydrophytic vegetation and nd hydrology must be present,
_ Stripped Matrix (S6) estrictive Layer (if observed):	Red Parent M	aterial (F21) (I	WLRA 127, 147	7) unless	s disturbed or problematic.
Type:					,
Depth (inches):	_			Hydric Soil Pr	esent? Yes <u>No</u> No
emarks: Meets F3					
MR4.5 F 2.					

WETLAND DETERMINATION DATA FORM	 Eastern Mountains and Piedmont Region
Project/Site: Crostsville Philo City/C	county: MUSKINGUMCO. Sampling Date: 5/18/20
Applicant/Owner: AFP	State: State: State: Sampling Point upland
Vist	on, Township, Range:
	ief (concave, convex, none): CONVEX Slope (%): 10/
Subregion (LRR or MLRA): LBR N Lat: 39.810444	Long: -81,986519 Datum: NAD 83
Soil Map Unit Name: MUDZ-Westmare and Cuerray SIF	log m 15251. Soperiori classification: NA
Sol Map on Mane. To the the the office to the office to the office	
Are climatic / hydrologic conditions on the site typical for this time of year? Y	
Are Vegetation \underline{no} , Soil \underline{no} , or Hydrology \underline{no} significantly disturbed by \underline{no}	
Are Vegetation \underline{M} , Soil \underline{M} , or Hydrology \underline{M} naturally problema	
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks: Upland data for WOO1 & WOO2	
	Pict
Data taken within transmission Line	2 Kow opentield.
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 (
High Water Table (A2) Hydrogen Sulfide Od	
	es on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced	
Sediment Deposits (B2) Recent Iron Reductio	
Drift Deposits (B3) Thin Muck Surface (C Algal Mat or Crust (B4) Other (Explain in Ren	,
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No, Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks:	
Hydrology Indicators not present	·

1.1.27

Sampling Point: upland

2010	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 3017)	<u>% Cover Species? Status</u>	Number of Dominant Species D (A)
23		Total Number of Dominant Species Across All Strata: (B)
4		
5		Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6		Prevalence Index worksheet:
7		Total % Cover of: Multiply by:
	= Total Cover	OBL species x 1 =
50% of total cover:	20% of total cover:	FACW species x 2 =
Sapling/Shrub Stratum (Plot size: 15)		
1. Nove		FAC species x 3 =
2	·	FACU species x 4 =
3		UPL species x 5 =
4		Column Totals: (A) (B)
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1 - Rapid Test for Hydrophytic Vegetation
8		
9.		2 - Dominance Test is >50%
	= Total Cover	3 - Prevalence Index is ≤3.0 ¹
50% of total cover:		4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum, (Plot size: 57,)		data in Remarks or on a separate sheet)
1. Solidago anddensis	25 N Full	Problematic Hydrophytic Vegetation ¹ (Explain)
2 Classification a maining	5 N Fac	
		¹ Indicators of hydric soil and wetland hydrology must
3. Dactifis giomeraty	LO Y HULL	be present, unless disturbed or problematic.
4. Anaropogion Virginicus	D N Fac	Definitions of Four Vegetation Strata:
5. Anthoxanthum odoratum	20 V Had	_
6. Lonicera japonicel	15 N Fuch	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7		more in diameter at breast height (DBH), regardless of height.
8		
		Sapling/Shrub – Woody plants, excluding vines, less
9	· · · ·	than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
10		
11	100	Herb – All herbaceous (non-woody) plants, regardless
	10() = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 30 V)		height.
1. Noul		
2		
3.		
4		
5	States and states	Hydrophytic Vegetation
0	O	Present? Yes No
	= Total Cover	
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate s	sheet.)	
Fac Upland Veg is dominant		

Profile Description: (Describe to the dep Depth Matrix	Redox Features	commit the abaents	
Color (moist) % 0~16 10/18/41/3 100	Color (moist) _% Type ¹	Loc ² <u>Texture</u> <u>SL</u>	Remarks
¹ Type: C=Concentration, D=Depletion, RM: Hydric Soil Indicators:	=Reduced Matrix, MS=Masked Sand Grain		PL=Pore Lining, M=Matrix. cators for Problematic Hydric Soils ³ :
 Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) 	 Dark Surface (S7) Polyvalue Below Surface (S8) (MLR 14" Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LF MLRA 136) Umbric Surface (F13) (MLRA 136, Piedmont Floodplain Soils (F19) (M Red Parent Material (F21) (MLRA 	RA 147, 148) (7, 148) (((RR N, .122) ³ In: MLRA 148) w	2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) dicators of hydrophytic vegetation and etland hydrology must be present, nless disturbed or problematic.
Restrictive Layer (if observed): Type: Depth (inches):			il Present? Yes No
	snotpresent.		

WETLAND DETERMINATION DATA FORM –	Eastern Mountains and Piedmont Region
Project/Site: CrostSvill Phild City/Cou	nty: MUSKIMUMCO. sampling Date:5/13/20
Applicant/Owner: AFP	State: OH Sampling Point wetland
Investigator(s): KU Section,	Township, Range:
Landform (hillslope, terrace, etc.): Deptersion Local relief	(concave, convex, none): Cancave Slope (%): Ol.
Subregion (LRR or MLRA): UBRN' Lat: 39.80 (919	Long: 81.992686 Datum: NAD 83
Soil Map Unit Name: NUDZ-WIST MAYE LAND (Guernow Si Hlod	17 4 101 6
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	
Are Vegetation <u>MD</u> , Soil <u>ND</u> , or Hydrology <u>ND</u> significantly disturbed	
Are Vegetation <u>NO</u> , Soil <u>NO</u> , or Hydrology <u>NO</u> naturally problematic	
SUMMARY OF FINDINGS – Attach site map showing sample	
Litter Call Descento	s the Sampled Area
Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	vithin a Wetland? Yes Ves No
Permerket	
Kemarks. Wetland data for W003-PSS-CATM	OD2
	1
Patulaken along transmission Line R	ow tenced pusture.
J	
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 (B1A	
High Water Table (A2) Hydrogen Sulfide Odor (Saturation (A3) Oxidized Rhizospheres of the second	
Water Marks (B1) Presence of Reduced Irc	and the second se
Sediment Deposits (B2) Recent Iron Reduction ir Drift Deposits (B3) Thin Muck Surface (C7)	
Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remar	
Igon Deposits (B5)	Geomorphic Position (D2)
↓ Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	AC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes V No Depth (inches): 12/	
Water Table Present? Yes Vo Depth (inches):	/
Saturation Present? Yes Vo Depth (inches): 0	Wetland Hydrology Present? Yes V No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previou	us inspections) if susilable:
Describe Recorded Data (stream gauge, monitoring weil, aenar photos, previo	us inspections), il available.
Remarks: 1. (a) 1 (a part A) Ap 10 -	
Hydrology Indicators are AI, AZ, A3, B7,	(3, 9, 0, 05, 0)

Sampling Point: wetland

2010	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>3017</u>) 1. NOVE		Species?		Number of Dominant Species (A)
23			_	Total Number of Dominant Species Across All Strata:(B)
4 5		_	_	Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
		= Total Cov		OBL species x1 =
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size: 5)	10	N	FIL	FACW species x 2 =
1. Aver Saccharinum	20		Fact	FAC species x 3 =
2. Salux nigra	20	Y	061	FACU species x 4 =
3. Cornus amomum	20	V	Fach	UPL species x 5 =
4				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7		,		✓1 - Rapid Test for Hydrophytic Vegetation
8				$\sqrt{2}$ - Dominance Test is >50%
9			_	3 - Prevalence Index is $\leq 3.0^{1}$
	60 :	= Total Cov	er	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		
Herb Stratum (Plot size: 51)				data in Remarks or on a separate sheet)
1. nolle				Problematic Hydrophytic Vegetation ¹ (Explain)
2				¹ Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5			_	Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
1150% of total cover:		Total Cover:	er	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
$\frac{Woody Vine Stratum}{1} (Plot size: 30'r) $	20% 01	lotal cover.		Woody vine – All woody vines greater than 3.28 ft in height.
1				
2				
3				
4				Hydrophytic
5				Vegetation Present? Yes No
		Total Cove		
50% of total cover:		total cover:		
Remarks: (Include photo numbers here or on a separate s	heet.)			
Wettand veg is dominant				
0	å			
				_

Depth	Matrix	to the de		ment the l x Feature		or confirm	the absence of in	ndicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc2	Texture	Remarks
0-16	IONRULI	<u>85</u>	<u>ZSYR3 6</u>	<u>15</u>	<u></u>	<u>P</u>		
¹ Type: C=C Hydric Soil		letion, RM	Reduced Matrix, M	S=Masked	Sand Gra	ains.		ore Lining, M=Matrix.
Black Hi Hydroge Stratified 2 cm Mu Depleted Thick Da Sandy M MLR/ Sandy F Sandy F	(A1) pipedon (A2) stic (A3) en Sulfide (A4) d Layers (A5) ick (A10) (LRR N) d Below Dark Surfac ark Surface (A12) fucky Mineral (S1) (I A 147, 148) Bleyed Matrix (S4) Redox (S5) Matrix (S6)		 Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Ma Redox Dark 3 Depleted Da Redox Depresimation Iron-Mangan MLRA 13 Umbric Surfa Piedmont Flo Red Parent M 	elow Surfa Inface (S9 ad Matrix (trix (F3) Surface (F rk Surface essions (F ese Mass 6) ace (F13) (podplain S) (MLRA 1 F2) 6) (F7) 8) es (F12) (I (MLRA 13 oils (F19)	47, 148) LRR N, 6, 122) (MLRA 14	148) Coast (ML Piedm (ML Very S Other ³ Indicato	Muck (A10) (MLRA 147) Prairie Redox (A16) .RA 147, 148) nont Floodplain Soils (F19) .RA 136, 147) Shallow Dark Surface (TF12) (Explain in Remarks) ers of hydrophytic vegetation and d hydrology must be present, disturbed or problematic.
Restrictive	Layer (if observed):			viateriai (F		A 127, 147		
Type: Depth (in	ches):						Hydric Soil Pres	sent? Yes <u>No</u>
Remarks:	Meets	F3.						

WETLAND DETERMINATION DATA FORM	– Eastern Mountains and Piedmont Region
Project/Site: Croopsville Philo City/C	County: MUSKIWQUMCO Sampling Date: 5/18/20
Applicant/Owner:	State: OH Sampling Point wetland
V r. r	on, Township, Range:
A	
	ief (concave, convex, none): <u>CONCAVE</u> Slope (%): <u>O1</u>
Subregion (LRR or MLRA): UBRN Lat: 39, 804015	Long: <u>81,994239</u> Datum: <u>NAD83</u>
Soil Map Unit Name: LK-LINDSIDE SIHIOUM ()-31. Slop	NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Y	es No (If no, explain in Remarks.)
Are Vegetation \underline{ND} , Soil \underline{ND} , or Hydrology \underline{ND} significantly distur	rbed? Are "Normal Circumstances" present? Yes No
Are Vegetation $\underline{n}\underline{0}$, Soil $\underline{n}\underline{0}$, or Hydrology $\underline{n}\underline{0}$ naturally problem	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks: Wetland data for W004-PEM-CAT2	
Data taken within fenced pasture.	
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 Od	or (C1) Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizosphere	es on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced	
Sediment Deposits (B2) Recent Iron Reductio	
Drift Deposits (B3) Thin Muck Surface (C	and a second secon
Algal Mat or Crust (B4) Other (Explain in Rer	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes No Depth (inches);	-
Water Table Present? Yes <u>No</u> Depth (inches): <u>2</u>	
Saturation Present? Yes Vo Depth (inches): C	Wetland Hydrology Present? Yes V No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks:	~
Hiphrology Indicators are AZ, A3, C3,	12,05
	10-

Sampling Point; wetland

2010	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 301)	% Cover Species? Status	Number of Dominant Species
1. Mole		That Are OBL, FACW, or FAC: (A)
2		2
		Total Number of Dominant 3
3		Species Across All Strata: (B)
4		Percent of Dominant Species
5		That Are OBL, FACW, or FAC:(A/B)
6		
7		Prevalence Index worksheet:
	O = Total Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 5/		FACW species x 2 =
Sapling/Shrub Stratum (Plot size: 101)		
1. nou		FAC species x 3 =
2		FACU species x 4 =
3		UPL species x 5 =
		Column Totals: (A) (B)
4		
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1 - Rapid Test for Hydrophytic Vegetation
8		
9.		<u>√</u> 2 - Dominance Test is >50%
<i>a</i>		3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	0	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Majar 5 chundinaced	30 V tack	
2. Juncus effusus	30 VI FILL).
3. Impatiens capensis	20 N FULL	¹ Indicators of hydric soil and wetland hydrology must
	To by all	be present, unless disturbed or problematic.
4. Minnulus alatus	D IN DEL	Definitions of Four Vegetation Strata:
5		
6		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7		more in diameter at breast height (DBH), regardless of height.
		neight.
8		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11.		Herb – All herbaceous (non-woody) plants, regardless
	= Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	
Succession Succession		Woody vine - All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		height.
1_ hone		
2		
3.		
1		
		Hydrophytic
b		Vegetation Present? Yes No
	= Total Cover	Present? Yes V No
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet.)	
Wettake Vegis duration t)	
Wettand Veg 15 dominant	2	
-	2	
ù.		

		e to the dep	oth needed to docum			or confirm	the absence of	findicators.)
Depth (inches)	Color (moist)	%	Color (moist)	K Feature %	s Type ¹	Loc ²	Texture	Remarks
01	Tisua UIT	- 35	2511B 3/10	15		PL	SI	Temars
04	104NTIL	- 00	231K 210	12	Ľ	<u>pc</u>		
6-16	IONR SIZ	35	2.54K36	15	С	PL_	Toum	
	and the second second	_						
	-							
		4						
		-		-	-	-		
						_		
	· · · · · · · · · · · · · · · · · · ·				_			
		_						
17		alation DM	-Deduced Matrix MC	Maako	d Cand Ca	line	A section: DI -	Pero Lining M-Matrix
		pletion, RM	=Reduced Matrix, MS	=maske	sand Gr	ains.		Pore Lining, M=Matrix.
	Indicators:							ors for Problematic Hydric Soils ³ :
Histoso			Dark Surface					n Muck (A10) (MLRA 147)
Histic E	pipedon (A2)		Polyvalue Be	low Surfa	ice (S8) (N	ILRA 147,	148) Coa	ast Prairie Redox (A16)
Black ⊦	listic (A3)		Thin Dark Su	face (S9) (MLRA 1	47, 148)	(MLRA 147, 148)
Hydrog	en Sulfide (A4)		Loamy Gleye	d Matrix	(F2)		Pie	dmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Mat	rix (F3)			(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark S		-6)		Ver	y Shallow Dark Surface (TF12)
	d Below Dark Surfa	ce (A11)	Depleted Dar					er (Explain in Remarks)
	ark Surface (A12)	、 ,	Redox Depre					, i ,
	Mucky Mineral (S1)		Iron-Mangane					
	A 147, 148)	(,	MLRA 13			,		
	Gleyed Matrix (S4)		Umbric Surfa			6 122)	³ Indica	ators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo					ind hydrology must be present,
	d Matrix (S6)		Red Parent M					s disturbed or problematic.
				iateriai (i		n 12/, 14/		
	Layer (if observed):						
Type:								/
Depth (ir	iches):						Hydric Soil P	resent? Yes V No
Remarks:							1	
	Meete	52						
	TREAT	いフ.						

WETLAND DETERMINATION DATA FORM	– Eastern Mountains and Piedmont Region
Project/Site: Crooksville Philo city/	County: MuskingumCo
Applicant/Owner: ACP	State: 6H Sampling Point upland
Act at	
	on, Township, Range:
1000 2000 501	00.000
	Long: -81,9914281 Datum: NAD 83
Soil Map Unit Name: M-Cobdell Oam	NWI classification: MA
Are climatic / hydrologic conditions on the site typical for this time of year? Y	
Are Vegetation \underline{MO} , Soil \underline{MO} , or Hydrology \underline{MO} significantly disturbed	rbed? Are "Normal Circumstances" present? Yes Ves No
Are Vegetation $\underline{\mathcal{N}}_{\mathcal{O}}$, Soil $\underline{\mathcal{N}}_{\mathcal{O}}$, or Hydrology $\underline{\mathcal{N}}_{\mathcal{O}}$ naturally problem.	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks: Upland data for WOO3 & WOO4 Data taken within Fenced pasta	ure
HYDROLOGY	
	Secondary Indicators (minimum of two required)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (High Water Table (A2) Hydrogen Sulfide Od	
	res on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced	
Sediment Deposits (B2) Recent Iron Reduction	on in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (
Algal Mat or Crust (B4) Other (Explain in Rev	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3) Microtopographic Relief (D4)
Water-Stained Leaves (B9) Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (incles):	
Saturation Present? Yes No Depth (inches):	
(includes capillary fringe)	2 August 1 Aug
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), it available:
Remarks:	
U.E.L. Marken A	
Hydrology Is not present.	

Sampling Point: upland

2010	Absolute Dominant Indicator	Dominance Test worksheet:
	% Cover Species? Status	Number of Dominant Species () That Are OBL, FACW, or FAC: (A)
2 3		Total Number of Dominant Species Across All Strata: (B)
4 5		Percent of Dominant Species (A/B)
6		Prevalence Index worksheet:
7		
and the second se	= Total Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 5')		FACW species x 2 =
1. none	time in the second s	FAC species x 3 =
2		FACU species x 4 =
3.		UPL species x 5 =
4		Column Totals: (A) (B)
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1 - Rapid Test for Hydrophytic Vegetation
8		2 - Dominance Test is >50%
9		$3 - Prevalence Index is \leq 3.0^{1}$
	= Total Cover	
50% of total cover:	20% of total cover:	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum, (Plot size:		data in Remarks or on a separate sheet)
1. Doctulis domerate	30 V Fach	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Taraxacum officinale	TO NI Fact	
3. Tritolium evature		¹ Indicators of hydric soil and wetland hydrology must
	- 20 - Y Fact	be present, unless disturbed or problematic.
4. Mantuas ancestata	10 N Ful	Definitions of Four Vegetation Strata:
5. Anthoxanthum odoratum	20 V Fuch	
6		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7		height.
8		
		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
10		
11	120	Herb – All herbaceous (non-woody) plants, regardless
	= Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 301)		height.
1. houl		
2.		
3		
1		
		Hydrophytic
5	0	Vegetation Present? Yes No
	= Total Cover	
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet.)	
Upland veg is dominant.		

1

Sampling Point: upland

1-1

Profile Description: (Describe to the dep			the absence of ind	dicators.)
Depth (inches) Matrix O-(O) Color (moist) % IO-(A) IO-(A) IOO	Redox Featu Color (moist) %			Remarks
¹ Type: C=Concentration, D=Depletion, RM Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)	 Dark Surface (S7) Polyvalue Below Surface (S Thin Dark Surface (S Loamy Gleyed Matri Depleted Matrix (F3) Redox Dark Surface Depleted Dark Surface Redox Depressions Iron-Manganese Ma MLRA 136) Umbric Surface (F13) Piedmont Floodplain 	face (S8) (MLRA 147, 9) (MLRA 147, 148) < (F2) (F6) ce (F7) (F8) sses (F12) (LRR N,	Indicators 2 cm M 148) Coast F (MLF Piedmo (MLF Very SI Other (³ Indicator 8) wetland	te Lining, M=Matrix. for Problematic Hydric Soils ³ : luck (A10) (MLRA 147) Prairie Redox (A16) RA 147, 148) ont Floodplain Soils (F19) RA 136, 147) hallow Dark Surface (TF12) Explain in Remarks) s of hydrophytic vegetation and hydrology must be present, isturbed or problematic.
Restrictive Layer (if observed): Type: Depth (inches):	4		Hydric Soil Pres	ent? Yes No
Remarks: Hydric	Soils not prese	J.		

WETLAND DETERMINATION DATA FORM	 Eastern Mountains and Piedmont Region
Project/Site: CINKSVILLPhillo City/C	County: MUSKINGUMCO Sampling Date: 5/18/20
Applicant/Owner: AP	State: OH Sampling Point wetland
k/ T	on, Township, Range:
	ief (concave, convex, none): Slope (%):
Subregion (LRR or MLRA): UBBN Lat: 31.8022.73	Long: 82.00 19810 Datum: MAD 83
Soil Map Unit Name: ChK4F-Pethodd Channery Sillian	M 25-70/Slogs_NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Y Are Vegetation $\underline{ND}_{,}$, Soil $\underline{NO}_{,}$, or Hydrology $\underline{NO}_{,}$ significantly distur	
Are Vegetation $\underline{\Pi}$, Soil $\underline{\Pi}$, or Hydrology $\underline{\Pi}$ naturally problema	
	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes <u>V</u> No
Remarks: Wetland data for W005-PEM-CAT2	
Data taken within transmission Line R	ow/penfield.
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)	
Saturation (A3)	es on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced	d Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reductio	n in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C	C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Ren	marks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes Ves No Depth (inches):	24
Saturation Present? Yes Ves Depth (inches):	Wetland Hydrology Present? Yes V No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks:	
Hydrology Indicators are AZ, A3, C3	,VL,D5.
	,

Sampling Point: wetland

2010	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>2017</u>) 1. NJUL	% Cover Species? Status	Number of Dominant Species 4 That Are OBL, FACW, or FAC: (A)
2 3		Total Number of Dominant Species Across All Strata: (B)
4 5		Percent of Dominant Species 1001 (A/B)
6		222200.200
7		Prevalence Index worksheet:
	= Total Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15/		FACW species x 2 =
1. More		FAC species x 3 =
2		FACU species x 4 =
3		UPL species x 5 =
4		Column Totals: (A) (B)
5		Prevalence Index = B/A =
7		Hydrophytic Vegetation Indicators:
8		1 - Rapid Test for Hydrophytic Vegetation
9.		└─2 - Dominance Test is >50%
3	= Total Cover	3 - Prevalence Index is ≤3.0 ¹
50% of total cover	20% of total cover:	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 50% of total cover)		data in Remarks or on a separate sheet)
. Phalaris aryndinaced	30 y Euch	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Juncus ettusus 3. Carex vulipinaides	$\frac{30}{20}$ $\frac{1}{10}$ $\frac{1}{10}$	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. Onocleal sensibilis	20 y Fach	Definitions of Four Vegetation Strata:
5		
6		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7		height.
8 9		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
10		Herb – All herbaceous (non-woody) plants, regardless
50% of total cover:	= Total Cover 20% of total cover:	of size, and woody plants less than 3.28 ft tall.
<u>Woody Vine Stratum</u> (Plot size: 30°)		Woody vine – All woody vines greater than 3.28 ft in height.
2		
2		
4		Hydrophytic
5		Vegetation Present? Yes No
	= Total Cover	
50% of total cover:		
Remarks: (Include photo numbers here or on a separate Wetland Veg 5 domina		

Profile Descri	ption: (Describe	to the dept	h needed to docu	ment the i	ndicator	or confirm	the absenc	e of indicato	rs.)	
Depth _	Matrix			x Feature		. 2	Tautuma		Remarks	
(inches)	Color (moist)	Re	Color (moist)		Type'	Loc ²	Texture		Remarks	
0-16 1	MUM	<u>U</u>	2.54R316	12	C	<u>r</u>	<u></u>		_	
				_						
					-					
					-			-		
									_	
					-					
					-					
					-					
¹ Type: C=Con	centration, D=Dep	bletion, RM=	Reduced Matrix, M	S=Masked	I Sand Gr	ains.		PL=Pore Linin		
Hydric Soil Ind							Indi	cators for Pro	oblematic Hy	dric Soils ³ :
Histosol (A	(1)		Dark Surface	e (S7)				2 cm Muck (A	10) (MLRA 1	47)
Histic Epip			Polyvalue Be	elow Surfa	ce (S8) (I	MLRA 147,	148)	Coast Prairie		
Black Histi	c (A3)		Thin Dark Su	urface (S9)) (MLRA	147, 148)		(MLRA 147	7, 148)	
Hydrogen	Sulfide (A4)		Loamy Gleye		F2)			Piedmont Flo		(F19)
	ayers (A5).		V Depleted Ma					(MLRA 136		
	(A10) (LRR N)		Redox Dark		-			Very Shallow		
	Below Dark Surfac	e (A11)	Depleted Da					Other (Explain	n in Remarks;)
	Surface (A12)		Redox Depre							
	cky Mineral (S1) (LRR N,	Iron-Mangan		es (F12) (LKK N,				
	47, 148)		MLRA 13 Umbric Surfa			26 122)	³ In	dicators of hy	drophytic yea	etation and
Sandy Rec	yed Matrix (S4)		Piedmont Flo					etland hydrol		
Stripped M			Red Parent I					nless disturbe		
	yer (if observed)	:				,	1			
Type:										_
Depth (inche	ac).						Hydric So	il Present?	Yes 🗸	No
Remarks:							- inganie ee			
Remarks.		5								
	Meets	トク、								

WETLAND DETERMINATION DATA FORM	– Eastern Mountains and Piedmont Region
Project/Site: Crastsville Philo City/	County: MUSKINGUM (0 Sampling Date: 5/18/20
Applicant/Owner: ACP	State: Off Sampling Point upland
	ion, Township, Range:
	lief (concave, convex, none): CONVCX Slope (%): 01.
	Long: -82.002156 Datum: NAD83
	Luboo IE Devicit or
Soil Map Unit Name: WUVL-Westmarcland Guentay 511	1 100 IN 13-131 AppONWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation $\underline{\Omega}_{0}$, Soil $\underline{\Omega}_{0}$, or Hydrology $\underline{\Omega}_{0}$ significantly distu	
Are Vegetation <u><u>N</u>, Soil <u>N</u>, or Hydrology <u>N</u> naturally problem</u>	
Sommart of Findings – Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks: Upland data for W005-PEM-CAT	2
pland data the woos-peni-CAT	
Data taken within transmission Line	Row open Held.
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 (
High Water Table (A2) Hydrogen Sulfide Od	
	res on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1)	
	on in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	
Algai Mat or Crust (B4) Other (Explain in Ren	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Ves Depth (inches):	/
Saturation Present? Yes No Ver Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	0
Hydrology Indicators are not	present.
	A COLORED TO A COL

Sampling Point: upland

2010	Absolute Dominant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30'(</u>) 1. <u>N</u> (N)	% Cover Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
23		Total Number of Dominant 2 (B)
4		Percent of Dominant Species
5		That Are OBL, FACW, or FAC: (A/B)
6		Prevalence index worksheet:
7		
	= Total Cover	
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 57)		FACW species x 2 =
1. Nolle		FAC species x 3 =
2.		FACU species x 4 =
		UPL species x 5 =
3		Column Totals: (A) (B)
4		
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1 - Rapid Test for Hydrophytic Vegetation
8.		
9.		2 - Dominance Test is >50%
o	= Total Cover	3 - Prevalence Index is ≤3.0 ¹
E0% of total cover		4 - Morphological Adaptations ¹ (Provide supporting
	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	20 N Full	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Anthoxanthum pagratum	30 V Facy	
2. Trifollum pratchse	15 V Hacu	¹ Indicators of hydric soil and wetland hydrology must
3. Plantago Major	5 N tack	be present, unless disturbed or problematic.
4. Andropodon Virbinicus	15 N Fact	Definitions of Four Vegetation Strata:
5. Achillee milletolium	TO N Fact)	Demnitions of Four vegetation Strata.
6. Daucus carota	5 N TH	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
0. Lances Lander		more in diameter at breast height (DBH), regardless of
l		height.
8		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11.		Herb – All herbaceous (non-woody) plants, regardless
	10() = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:		
Woody Vine Stratum (Plot size: 30V)		Woody vine - All woody vines greater than 3.28 ft in
1. NOVE		height.
I. HOVER		
2		
3		
4		Hydrophytic
5		Vegetation
		Present? Yes No V
	= Total Cover	Present? Yes No V
50% of total cover:	= Total Cover 20% of total cover:	
	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	20% of total cover: sheet.)	
Remarks: (Include photo numbers here or on a separate	20% of total cover: sheet.)	
Remarks: (Include photo numbers here or on a separate	20% of total cover: sheet.)	
	20% of total cover: sheet.)	
Remarks: (Include photo numbers here or on a separate	20% of total cover: sheet.)	
Remarks: (Include photo numbers here or on a separate	20% of total cover: sheet.)	
Remarks: (Include photo numbers here or on a separate	20% of total cover: sheet.)	
Remarks: (Include photo numbers here or on a separate	20% of total cover: sheet.)	
Remarks: (Include photo numbers here or on a separate	20% of total cover: sheet.)	

Profile Description: (Describe to the	lepth needed to docur	nent the indicato	r or confirm	the absence of i	ndicators.)
Depth Matrix		x Features		Tasta	Demoder
$\frac{\text{(inches)}}{2 - 16} \frac{\text{Color (moist)}}{104843} \frac{\%}{100}$	Color (moist)	%Type 	<u>Loc²</u>	<u></u>	Remarks
¹ Type: C=Concentration, D=Depletion, I	RM=Reduced Matrix, MS	S=Masked Sand G	Grains.		ore Lining, M=Matrix. s for Problematic Hydric Soils ³ :
Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)	Thin Dark Su Loamy Gleye Depleted Mai Redox Dark S Depleted Dar Redox Depre Iron-Mangan MLRA 13 Umbric Surfa Piedmont Flo	blow Surface (S8) Inface (S9) (MLRA ad Matrix (F2) trix (F3) Surface (F6) rk Surface (F7) assions (F8) ese Masses (F12)	(LRR N, 136, 122))) (MLRA 14	2 cm 148) Coas (MI Piedn (MI Very Other ³ Indicato 8) wetlan	Muck (A10) (MLRA 147) t Prairie Redox (A16) LRA 147, 148) nont Floodplain Soils (F19) LRA 136, 147) Shallow Dark Surface (TF12) r (Explain in Remarks) ors of hydrophytic vegetation and d hydrology must be present, disturbed or problematic.
Restrictive Layer (if observed): Type:					1
Depth (inches):				Hydric Soil Pre	esent? Yes No
Remarks: Hydric Soll	s not presur	Ð			

WETLAND DETERMINATION DATA FORM	 Eastern Mountains and Piedmont Region 		
Project/Site: Crooks VIU Philo City/C	County: MUSKI VERUMCO. Sampling Date: 5/18/20		
Applicant/Owner: AP	State: OH Sampling Point wetland		
Investigator(s): KLV Secti	on, Township, Range:		
	ief (concave, convex, none): Concave Slope (%): 01.		
Subregion (LRR or MLRA): LBBN Lat: 39.801003	Long: 82.003694 Datum: NAD83		
Soil Map Unit Name: NUEZ-Westmorehand Gremsell Sill	lod m 25-40' Slappy classification: N/A		
Are climatic / hydrologic conditions on the site typical for this time of year?	, , , , , , , , , , , , , , , , , , , ,		
Are Vegetation \underline{N} , soil \underline{NO} , or Hydrology \underline{ND} significantly disturbed			
Are Vegetation $\underline{N_{0}}$, Soil $\underline{N_{0}}$, or Hydrology $\underline{N_{0}}$ naturally problem.			
-	npling point locations, transects, important features, etc.		
Sommart of Findings – Attach site map showing sam	iping point locations, transects, important leatures, etc.		
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes <u>No</u>		
Remarks: Wettand date for W006-PEM-CAT	72		
Data taken within transmission line	Rowlopen field.		
HYDROLOGY	the second s		
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 (
High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10)			
Saturation (A3) Vidized Rhizospher Water Marks (B1) Presence of Reduced	es on Living Roots (C3) Moss Trim Lines (B16) d Iron (C4) Dry-Season Water Table (C2)		
	n in Tilled Soils (C6) Crayfish Burrows (C8)		
Drift Deposits (B3)			
Algal Mat or Crust (B4) Other (Explain in Rer			
Iron Deposits (B5)	Geomorphic Position (D2)		
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)		
Water-Stained Leaves (B9)	Microtopographic Relief (D4)		
Aquatic Fauna (B13)	FAC-Neutral Test (D5)		
Field Observations:			
Surface Water Present? Yes No V Depth (inches):			
Water Table Present? Yes No Depth (inches):			
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes <u>V</u> No		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:		
Remarks:			
Hydrology Indicators are C3, D2,	D5.		

Sampling Point: wetland

2010	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30'C)	% Cover Species? Status	Number of Dominant Species 3
		That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant
3		Species Across All Strata: (B)
4		Percent of Dominant Species
5		That Are OBL, FACW, or FAC:(A/B)
6	· · · · · · · · · · · · · · · · · · ·	Desustance in des werden heeds
7		Prevalence Index worksheet:
	= Total Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15/		FACW species x 2 =
1. none		FAC species x 3 =
2		FACU species x 4 =
3		UPL species x 5 =
4		Column Totals: (A) (B)
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1- Rapid Test for Hydrophytic Vegetation
8		2 - Dominance Test is >50%
9		3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)		Problematic Hydrophytic Vegetation ¹ (Explain)
1. Juncus ettusus	40 V Fach	
2. Scirbus arbernaus	40 Y Fact	
3. Fugativium perfoliatum	20 V Fach	¹ Indicators of hydric soil and wetland hydrology must
4		be present, unless disturbed or problematic.
5		Definitions of Four Vegetation Strata:
5		Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
6		more in diameter at breast height (DBH), regardless of
7		height.
8		Sapling/Shrub - Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11		Herb – All herbaceous (non-woody) plants, regardless
	00 = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	
Woody Vine Stratum (Plot size: 30'r)		Woody vine – All woody vines greater than 3.28 ft in height.
1. None		logn
2.		
a		
3		
4		Hydrophytic
5	~	Vegetation Present? Yes No
	= Total Cover	
50% of total cover:		
Remarks: (Include photo numbers here or on a separate s	•	
	-0-	
Wetland veg 15 domi	none,	
0		

SOIL

Sampling Point: wetland

	20 15 	Color (moist)	e (S7) elow Surfac urface (S9) ed Matrix (F trix (F3) Surface (F rk Surface essions (F8	 	ILRA 147, 47, 148)		Remarks Matrix Matrix Or Problematic Hydric Soils ³ : ck (A10) (MLRA 147) rairie Redox (A16) A 147, 148) It Floodplain Soils (F19) A 136, 147) allow Dark Surface (TF12) xplain in Remarks)
4) (A12)	20 15 	2.S. [K3] (Reduced Matrix, MS _	e (S7) elow Surfac urface (S9) ed Matrix (F trix (F3) Surface (F rk Surface essions (F8	C Sand Gra Sand Gra (MLRA 1 F2) 6) (F7) 3)	ains.	Image: Construction 2Location: PL=Pore Indicators for 2 cm Mu 2 cm Mu	Lining, M=Matrix. pr Problematic Hydric Soils ³ : ck (A10) (MLRA 147) rairie Redox (A16) A 147, 148) It Floodplain Soils (F19) A 136, 147) allow Dark Surface (TF12)
4) RR N) k Surface ((A12)	20 15 	Reduced Matrix, MS 	e (S7) elow Surfac urface (S9) ed Matrix (F trix (F3) Surface (F rk Surface essions (F8	ce (S8) (M (MLRA 1 F2) 6) (F7) 3)	ains.	Image: Construction 2Location: PL=Pore Indicators for 2 cm Mu 2 cm Mu	Lining, M=Matrix. pr Problematic Hydric Soils ³ : ck (A10) (MLRA 147) rairie Redox (A16) A 147, 148) It Floodplain Soils (F19) A 136, 147) allow Dark Surface (TF12)
4) RR N) k Surface ((A12)	<u></u> etion, RM=	 Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Mai Redox Dark S Depleted Dar Redox Depre 	e (S7) elow Surfac urface (S9) ed Matrix (F trix (F3) Surface (F rk Surface essions (F8	ce (S8) (M (MLRA 1 F2) 6) (F7) 3)	ILRA 147, 47, 148)		Lining, M=Matrix. pr Problematic Hydric Soils ³ : ck (A10) (MLRA 147) rairie Redox (A16) A 147, 148) It Floodplain Soils (F19) A 136, 147) allow Dark Surface (TF12)
4)) RR N) k Surface (A12)	ə (A11)	 Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Mai Redox Dark S Depleted Dar Redox Depre 	e (S7) elow Surfac urface (S9) ed Matrix (F trix (F3) Surface (F rk Surface essions (F8	ce (S8) (M (MLRA 1 F2) 6) (F7) 3)	ILRA 147, 47, 148)	² Location: PL=Pore Indicators for 2 cm Mu 2 cm Mu 2 cm Mu 2 coast Pr 0 MLR/ Piedmon 0 MLR/ Very Sha	Lining, M=Matrix. or Problematic Hydric Soils ³ : ck (A10) (MLRA 147) rairie Redox (A16) A 147, 148) It Floodplain Soils (F19) A 136, 147) allow Dark Surface (TF12)
4)) RR N) k Surface (A12)	ə (A11)	 Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Mai Redox Dark S Depleted Dar Redox Depre 	e (S7) elow Surfac urface (S9) ed Matrix (F trix (F3) Surface (F rk Surface essions (F8	ce (S8) (M (MLRA 1 F2) 6) (F7) 3)	ILRA 147, 47, 148)	Indicators fo 2 cm Mu Coast Pr (MLR/ Piedmon (MLR/ Very Sha	or Problematic Hydric Soils ³ : ck (A10) (MLRA 147) cairie Redox (A16) A 147, 148) at Floodplain Soils (F19) A 136, 147) allow Dark Surface (TF12)
4)) RR N) k Surface (A12)	ə (A11)	 Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Mai Redox Dark S Depleted Dar Redox Depre 	e (S7) elow Surfac urface (S9) ed Matrix (F trix (F3) Surface (F rk Surface essions (F8	ce (S8) (M (MLRA 1 F2) 6) (F7) 3)	ILRA 147, 47, 148)	Indicators fo 2 cm Mu Coast Pr (MLR/ Piedmon (MLR/ Very Sha	or Problematic Hydric Soils ³ : ck (A10) (MLRA 147) cairie Redox (A16) A 147, 148) at Floodplain Soils (F19) A 136, 147) allow Dark Surface (TF12)
4)) RR N) k Surface (A12)	ə (A11)	 Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Mai Redox Dark S Depleted Dar Redox Depre 	e (S7) elow Surfac urface (S9) ed Matrix (F trix (F3) Surface (F rk Surface essions (F8	ce (S8) (M (MLRA 1 F2) 6) (F7) 3)	ILRA 147, 47, 148)	Indicators fo 2 cm Mu Coast Pr (MLR/ Piedmon (MLR/ Very Sha	or Problematic Hydric Soils ³ : ck (A10) (MLRA 147) cairie Redox (A16) A 147, 148) at Floodplain Soils (F19) A 136, 147) allow Dark Surface (TF12)
4) () RR N) k Surface ((A12)		Polyvalue Be Thin Dark Su Loamy Gleye Depleted Mai Redox Dark S Depleted Dar Redox Depre	elow Surfac urface (S9) ed Matrix (F trix (F3) Surface (F rk Surface essions (F8	(MLRA 1 F2) 6) (F7) 3)	47, 148)	2 cm Mu Coast Pr Piedmon Very Sha	ck (A10) (MLRA 147) rairie Redox (A16) A 147, 148) It Floodplain Soils (F19) A 136, 147) allow Dark Surface (TF12)
k (S4)	RR N,	MLRA 13 Umbric Surfa Piedmont Flo Red Parent M	6) ace (F13) (l podplain So	oils (F19)	6, 122) (MLRA 14	18) wetland h	of hydrophytic vegetation and ydrology must be present, turbed or problematic.
served):						1	
		1.0					/
						Hydric Soil Preser	nt? Yes 📈 No 🔜
eets	,F3.						

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WETLAND DETERMINATION DAT	A FORM – Eastern Mounta	ains and Piedmont Region
Project/Site: CrubksvillcPhilo	City/County: Musking	JumCo. Sampling Date: 5/18/20
Applicant/Owner:		State: OH Sampling Point wetland
Investigator(s): KUV	Section, Township, Range:	• •
Landform (hillslope, terrace, etc.): Depterssion	Local relief (concave, convex, n	none): Contave Slope (%): 01
	199773 Long 8	2,005052 Datum: NAD83
	A 111 1	NWI classification: PUPGX
Are climatic / hydrologic conditions on the site typical for this tim	1	(If no, explain in Remarks.) /
10 IO NO		al Circumstances" present? Yes No
Are Vegetation $\underline{n_{0}}$, soil $\underline{n_{0}}$, or Hydrology $\underline{n_{0}}$ natur		, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sho	wing sampling point locat	ions, transects, important leatures, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Bemerke: No No	Is the Sampled Area within a Wetland?	Yes No
Remarks: Wettand data for W007-PE	M/PUB-CATMOD2	
Natanaria la		Diel
Datutakenwithin transmission	shine Row open	field.
15 volue (vol.)		
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is reouired: check all that a	(ylgge	Surface Soil Cracks (B6)
	uatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
	n Sulfide Odor (C1)	Drainage Patterns (B10)
Communication of the communica	Rhizospheres on Living Roots (C3)	
	e of Reduced Iron (C4)	Dry-Season Water Table (C2)
	ron Reduction in Tilled Soils (C6)	Crayfish Burrows (C8)
	ck Surfac e (C7) xplain in Remarks)	Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1)
Iron Deposits (B5)	kpiain in Kenarks)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Water-Stained Leaves (B9)		Microtopographic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutral Test (D5)
Field Observations:	A /I	<u> </u>
Surface Water Present? Yes No Depth (i	nches): 21	
Water Table Present? Yes Ves Depth (i	0	/
Saturation Present? Yes No Depth (i	nches): 0 Wetland	Hydrology Present? Yes Ves
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aeria	Lobates provinus inspections), if a	reilable
besche Recorded bata (stream gauge, monitoring weit, aena	r priotos, previous inspections), ir av	
Remarks:	17 17 07 Dr 0-	
Hydrology Indicators are AI,	AL, AS, US, UL, US,	
, 01		

2010	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30'V)	% Cover Species? Status	Number of Dominant Species
1. nove		That Are OBL, FACW, or FAC: (A)
2		0
		Total Number of Dominant 3
3		Species Across All Strata: (B)
4		Percent of Dominant Species
5		Percent of Dominant Species
6		
		Prevalence Index worksheet:
7		Total % Cover of: Multiply by:
	= Total Cover	
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 5/		FACW species x 2 =
10010		FAC species x 3 =
		FACU species x 4 =
2		
3		UPL species x 5 =
4		Column Totals: (A) (B)
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		- 1- Rapid Test for Hydrophytic Vegetation
8		
		$\sqrt{2}$ - Dominance Test is >50%
9	0	3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	
Herb Stratum (Plot size: 0)		data in Remarks or on a separate sheet)
Phalacis arundinaced	35 V Fach	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Inputiens capensis	10	
	to y tach	¹ Indicators of hydric soil and wetland hydrology must
3. Carex 1. Vulip hordog	40 4 001	be present, unless disturbed or problematic.
4. Tupha xalauca	10 N 001	Definitions of Four Vegetation Strata:
5. Dicharthelium clandestinu	M 5 N Fac	Demnitions of Pour Vegetation Strata.
. Charlette betrate charles contractions		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6		more in diameter at breast height (DBH), regardless of
7		height.
8		
		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11		Herb – All herbaceous (non-woody) plants, regardless
	00 = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	
West Was Obstant (Plat and 2000		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 301)		height.
1. noue		
2		
3		
4		Hydrophytic
5		Vegetation /
	= Total Cover	Present? Yes <u>No</u>
50% of total cover:	20% of total cover:	
Pomarka: (Include photo numbers here or on a congrate		
Remarks: (Include photo numbers here or on a separate s	sneet.)	
	<u></u>	
Wettanol vezis domin	ant	

epth Matrix	Redo	ment the indicato			
nches) Color (moist) %	Color (moist)	% Type'	Loc	Texture	Remarks
5-16 104B412 35	254R36	15 C	- H_	jL	
	-				
pe: C=Concentration, D=Depletion, R	RM=Reduced Matrix, M	S=Masked Sand G	rains. ² L		ore Lining, M=Matrix.
dric Soil Indicators:					s for Problematic Hydric Soils ³
Histosol (A1)	Dark Surface				Muck (A10) (MLRA 147)
Histic Epipedon (A2)		elow Surface (S8) (t Prairie Redox (A16)
Black Histic (A3)		urface (S9) (MLRA	147, 148)		LRA 147, 148) nont Floodplain Soils (F19)
Hydrogen Sulfide (A4) Stratified Layers (A5)	Depleted Ma	ed Matrix (F2)			LRA 136, 147)
2 cm Muck (A10) (LRR N)	Redox Dark				Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A11)		rk Surface (F7)			r (Explain in Remarks)
Thick Dark Surface (A12)	Redox Depre				, , ,
Sandy Mucky Mineral (S1) (LRR N,		ese Masses (F12)	(LRR N,		
MLRA 147, 148)	MLRA 13	6)			
Sandy Gleyed Matrix (S4)		ace (F13) (MLRA 1			ors of hydrophytic vegetation and
Sandy Redox (S5)		oodplain Soils (F19			d hydrology must be present,
Stripped Matrix (S6)	Red Parent f	Material (F21) (ML	RA 127, 147)	unless	disturbed or problematic.
strictive Layer (if observed):					
				Hydric Soil Pre	esent? Yes V No
Depth (inches):					
Depth (inches): narks:	[7]				
Depth (inches):	oF3.				
Depth (inches): narks:	5 F3.				
Depth (inches): narks:	5F3.				
Depth (inches): narks:	5F3.				
Depth (inches):	5 F3.				
Depth (inches):	5 F3.				
Depth (inches):	5 F3.				
Depth (inches): narks:	5F3.				
Depth (inches): narks:	5F3.				
Depth (inches): narks:	5F3.				
Depth (inches): narks:	5F3.				
Depth (inches): narks:	5 F3.				
Depth (inches): narks:	5 F3.				
Depth (inches): marks:	5 F3.				
Type: Depth (inches): marks: Mect	5 F3.				
Depth (inches): narks:	5 F3.				
Depth (inches): marks:	5F3.				
Depth (inches): narks:	5F3.				
Depth (inches): narks:	5F3.				

WETLAND DETERMINATION		
Project/Site: CruckSVIILe Philo	City/County: MUSKI	NOUMCO. Sampling Date: 5/18/20
Applicant/Owner: ALP		State: OH Sampling Point upland
nvestigator(s): KLV	Section, Township, Rang	16:
andform (hillslope, terrace, etc.):	Local relief (concave, conve	and the second sec
Subregion (LRR or MLRA): LBR N Lat:		-82.004319 Datum NAD 8
Soil Map Unit Name: Bet Berks Chumery		NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for the		(If no, explain in Remarks.)
Are Vegetation \underline{n} , Soil \underline{n} , or Hydrology \underline{n}		ormal Circumstances" present? Yes No
Are Vegetation \underline{NO} , Soil \underline{NO} , or Hydrology \underline{NO}	naturally problematic? (If need	ded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing sampling point loc	cations, transects, important features, e
Hydrophytic Vegetation Present? Yes	No Is the Sampled A	100
Hydric Soil Present? Yes	No within a Wetland	
Wetland Hydrology Present? Yes	No_V_	
Remarks: Upland data for W006 Datu taken within transmi	Ssion Line Row ope	infield.
YDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required
Primary Indicators (minimum of one is reouired; check al	I that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Tru	ue Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hy	drogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Ox	idized Rhizospheres on Living Roots ((C3) Moss Trim Lines (B16)
Water Marks (B1) Pre	esence of Reduced Iron (C4)	Dry-Season Water Table (C2)
	cent Iron Reduction in Tilled Soils (C6	
	in Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
	ner (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)		Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)		Shallow Aquitard (D3) Microtopographic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes No Do	epth (inches):	
1	epth (inches):	
	· · · /	and Hydrology Present? Yes No \vee
includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well,	aerial photos, previous inspections), i	if available:
Remarks:	1	
the late it is all plass		
Hydrology is not prese	M.	
01		

Sampling Point: upland

Tree Stratum (Plot size: 301)	Absolute Dominant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>)</u>) 1()	% Cover Species? Status	Number of Dominant Species (A)
2		Total Number of Dominant
3		Species Across All Strata: (B)
5		Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6		Prevalence Index worksheet:
7	0	Total % Cover of: Multiply by:
50% of total cover	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 50)		FACW species x 2 =
1NUL		FAC species x 3 =
2		FACU species x 4 =
3		UPL species x 5 =
4		Column Totals: (A) (B)
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1 - Rapid Test for Hydrophytic Vegetation
8		2 - Dominance Test is >50%
9		3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 01	an N Fal	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Anthoxanthum coloratum	30 Y Fach	
2. Mantugo lanceplatu	- LO - Y Fact	¹ Indicators of hydric soil and wetland hydrology must
3. pritoklum pratense	30 y tad	be present, unless disturbed or problematic.
4. Vaucus carata	10 NI UPI	Definitions of Four Vegetation Strata:
5. Achilled milletolium	_ IO_ N_ HULU	Tree Mindu plants evaluating vince 2 in (7.6 pm) and
6		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7		height.
8		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11	100 = Total Cover	Herb – All herbaceous (non-woody) plants, regardless
50% of total cover:		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: 30)		Woody vine – All woody vines greater than 3.28 ft in height.
1. None		neight.
2		
3	the second s	
4		Hudron hudio
5		Hydrophytic Vegetation /
	= Total Cover	Present? Yes No
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet.)	
Uplanel vez is domini	140	
Chorol 1. 0 12	and .	

Sampling Point: upland

Profile Description: (Describe to the dept Depth Matrix		Feature				
(inches) Color (moist) %	Color (moist)	%		Loc ²	Texture	Remarks
2-16 104R412 (00					SL	
101243 40			_			comatrix rolar
TO TO			_			L'amatrix l'olor
						+ F
			-	-		
					-	
			-			
		_	_	_		
						-
					2	
Type: C=Concentration, D=Depletion, RM=	Reduced Matrix, MS=	-Masked	Sand Gra	uns.		PL=Pore Lining, M=Matrix. cators for Problematic Hydric Soils ³ :
lydric Soil Indicators:	Deals Overfront /	67)				
Histosol (A1)	Dark Surface (aa (CO) /F	DA 447		2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)	Polyvalue Belo				146)	Coast Prairie Redox (A16)
Black Histic (A3)	Thin Dark Surf			47, 146J		(MLRA 147, 148) Piedmont Floodplain Soils (F19)
_ Hydrogen Sulfide (A4) _ Stratified Layers (A5)	Loarny Gleyed Depleted Matri		- 2)		_	(MLRA 136, 147)
2 cm Muck (A10) (LRR N)	Redox Dark Su		(G)			Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A11)	Depleted Dark	•				Other (Explain in Remarks)
_ Depleted Below Dark Sunace (ATT) _ Thick Dark Surface (A12)	Redox Depres					
Sandy Mucky Mineral (S1) (LRR N,	Iron-Manganes			RR N		
MLRA 147, 148)	MLRA 136)		cs (i 12) (i			
_ Sandy Gleyed Matrix (S4)	Umbric Surface		MLRA 13	6, 122)	³ ln	dicators of hydrophytic vegetation and
Sandy Redox (S5)	Piedmont Floo					etland hydrology must be present,
Stripped Matrix (S6)	Red Parent Ma					nless disturbed or problematic.
Restrictive Layer (if observed):				,	1	
Туре:					17	
	_				Hydria So	il Present? Yes No _//
Depth (inches):					Hyune So	
Remarks: Hydric Soils r	1 Anveseur)				
Adame sousi	In chicago -	,				

W I

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

10	County: Muskingum Co Sampling Date: 5/18/20
Applicant/Owner:	State: OH Sampling Point wetland
	on, Township, Range:
	ief (concave, convex, none): Concave Slope (%): 01
Subregion (LRR or MLRA): LBBN Lat: 39,799267	Long: -82,00(507 Datum: NAD 83
Soil Map Unit Name: BhK4F-Bethesda Channery Si Had mi	25-767.SlopesNWI classification: PUBGX
Are climatic / hydrologic conditions on the site typical for this time of year? Y	es No (If no, explain in Remarks.)
Are Vegetation No_, Soil NO_, or Hydrology NO_ significantly distur	bed? Are "Normal Circumstances" present? Yes Ves No
Are Vegetation \underline{NO} , Soil \underline{NO} , or Hydrology \underline{NO} naturally problema	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area
Hydric Soil Present? Yes Ves No	within a Wetland? Yes <u>No</u> No
Wetland Hydrology Present? Yes <u>No</u>	
Remarks: Wetland data for W008-PUB-C. Datatakin within PUBGX wetlan	
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 (I	
High Water Table (A2) Saturation (A3) Hydrogen Sulfide Odd Oxidized Rhizosphere	or (C1) Drainage Patterns (B10) es on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced	
Sediment Deposits (B2)	
Drift Deposits (B3)	
Algal Mat or Crust (B4) Other (Explain in Ren	marks)Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13) Field Observations:	
Surface Water Present? Yes <u>Vo</u> Depth (inches): <u>12</u>	n"+
Water Table Present? Yes <u>No</u> Depth (inches): <u>C</u>	2
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre-	
Remarks:	
Kemanks: Hydrology Indicators are AI, AZ, A	3, B7, C3, C9, D2, D5.

2010	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'C</u>) 1. Nove	<u>% Cover</u> <u>Species?</u> <u>Status</u>	Number of Dominant Species 2 (A)
2 3		Total Number of Dominant Species Across All Strata: (B)
4 5		Percent of Dominant Species 1001 (A/B)
6		Desuglament in des substitute acts
7		Prevalence Index worksheet:
	= Total Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15'C)		FACW species x 2 =
1. None		FAC species x 3 =
2		FACU species x 4 =
3		UPL species x 5 =
4		Column Totals: (A) (B)
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1-Rapid Test for Hydrophytic Vegetation
8		2 - Dominance Test is >50%
9		3 - Prevalence Index is $\leq 3.0^{1}$
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	a	Problematic Hydrophytic Vegetation ¹ (Explain)
1_ Carex vulpinoidea	30 Y 061	
2. <u>Sparganium americanun</u> 3.	A COMPANY OF A COM	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4		Definitions of Four Vegetation Strata:
5		
6		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7		height.
8		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10	· · · · · · · · · · · · · · · · · · ·	m) tall.
11		Herb – All herbaceous (non-woody) plants, regardless
	501, = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 30) (height.
1. none		
2		
3		
4		Hydrophytic
5		Vegetation
	= Total Cover	Present? Yes No
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate s	sheet.)	
Wettandveg 15 dominer	£.	
0		

			- 1	-	indicator			
Depth (inches)	Color (moist)	9/4	Color (moist)	x Feature %	Type ¹	Loc ²	Texture Remar	ks
0-16	104R411	35	2.54R36	15	C	PL	Claylean	
				_	_	=		
		=		_		2		
				_	=	_		
		oletion, RM	A=Reduced Matrix, M	S=Maske	d Sand Gr	ains.	² Location: PL=Pore Lining, M=Mat	
-	Indicators:			(07)			Indicators for Problematic	-
Histosol Histic E	(A1) pipedon (A2)		Dark Surface Polyvalue Be		ACA (58) (8	II RA 147	2 cm Muck (A10) (MLR 148) Coast Prairie Redox (A	
	pipedon (A2) istic (A3)		Polyvalue Be				(MLRA 147, 148)	,
	en Sulfide (A4)		Loamy Gleye			···, ··-,	Piedmont Floodplain So	oils (F19)
	d Layers (A5)		V Depleted Ma	trix (F3)			(MLRA 136, 147)	
	uck (A10) (LRR N)		Redox Dark	•	,		Very Shallow Dark Surf	
	d Below Dark Surfac	e (A11)	Depleted Da				Other (Explain in Rema	irks)
	ark Surface (A12)		Redox Depro					
	/lucky Mineral (S1) (A 147, 148)	LKK N,	MLRA 13		ses (F12) (LKK N,		
	Bleyed Matrix (S4)		Umbric Surfa	•	(MLRA 13	6. 122)	³ Indicators of hydrophytic	vegetation and
	Redox (S5)		Piedmont Flo					
	Matrix (S6)		Red Parent I					
	Layer (if observed)	:						
Type:								1
Depth (in	ches):						Hydric Soil Present? Yes	No
Remarks: N	lectsF3.							

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Crub/sml/ Philo City/	County: MUSLINGUMCo Sampling Date: 5/18/20
Applicant/Owner: ACP	State: OH Sampling Point upland
Investigator(s): KUV Section	ion, Township, Range:
Landform (hillslope, terrace, etc.): Hat Local re	lief (concave, convex, none): <u>Nava</u> Slope (%): <u>01</u>
Subregion (LRR or MLRA): LBBN Lat: 39. 799093	Long: -82.006427 Datum: NAD 83
	MN 25-76/Slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation \underline{ND} , Soil \underline{ND} , or Hydrology \underline{ND} significantly distu	
Are vegetation \underline{NO} , soil \underline{NO} , or Hydrology \underline{NO} naturally problem	
	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area
Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	within a Wetland? Yes No
V	
Data taken within transmission	Line Bowlopenfield.
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	
High Water Table (A2) Hydrogen Sulfide Oc	
Saturation (A3) Oxidized Rhizosphere Water Marks (B1) Presence of Reduce	res on Living Roots (C3) Moss Trim Lines (B16) ad Iron (C4) Dry-Season Water Table (C2)
	on in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	
Algal Mat or Crust (B4) Other (Explain in Re	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches): Octuation Present? Vac Na Depth (inches):	
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	
Hydrology not present.	
I I I I I I I I I I I I I I I I I I I	
	· · · · · · · · · · · · · · · · · · ·

Sampling Point: upland

2010	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'r</u>) 1N	% Cover	Species?	<u>Status</u>	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2 3			_	Total Number of Dominant Species Across All Strata: 3 (B)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7	0			Total % Cover of: Multiply by:
50% of total cover:		= Total Cov total cover	-	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 57	20 % 01	IOIAI COVEI		FACW species x 2 =
. h h . o				FAC species x 3 =
				FACU species x 4 =
2		-		UPL species x 5 =
3		-		
4				Column Totals: (A) (B)
5		_		Prevalence Index = B/A =
6		1000		Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9		_		
	0	= Total Cov	er	3 - Prevalence Index is <3.0 ¹
50% of total cover:	20% of	total cover		4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5/)				data in Remarks or on a separate sheet)
1. Dadylis alomerata	30	V	Facl	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Trifolium pratense.	30	12	Facl	
3. Taratacum officiale	10	N	Fact	¹ Indicators of hydric soil and wetland hydrology must
4. Anthoxanthum adoration	30		Fact	be present, unless disturbed or problematic.
Contraction of the second s			FULL	Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9			_	than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11	_			Herb – All herbaceous (non-woody) plants, regardless
	100	= Total Cov	er	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		
Woody Vine Stratum (Plot size: 30)				Woody vine – All woody vines greater than 3.28 ft in height.
1. none				
2				·
3				
4				
				Hydrophytic
J	0	T.1.1.0		Vegetation Present? Yes No
50% of total cover:		= Total Cov total cover:		
		total cover.		
Remarks: (Include photo numbers here or on a separate s	,			
Upland veg is dominat	Q			
Upland Vegels dominar	М			

	h needed to document the indicator or confir Redox Features		
Depth <u>Matrix</u> (inches) Color (moist) %	Color (moist) % Type ¹ Loc ²	Texture	Remarks
0-16 1018413 100		SL	
to the total			
		•)	
Type: C=Concentration, D=Depletion, RM=F	Reduced Matrix, MS=Masked Sand Grains.	² Location: F	PL=Pore Lining, M=Matrix.
ydric Soil Indicators:		Indic	ators for Problematic Hydric Soils ³ :
Histosol (A1)	Dark Surface (S7)	2	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)	Polyvalue Below Surface (S8) (MLRA 14	7, 148) (Coast Prairie Redox (A16)
Black Histic (A3)	Thin Dark Surface (S9) (MLRA 147, 148)		(MLRA 147, 148)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	F	Piedmont Floodplain Soils (F19)
Stratified Layers (A5)	Depleted Matrix (F3)		(MLRA 136, 147)
_ 2 cm Muck (A10) (LRR N)	Redox Dark Surface (F6)		/ery Shallow Dark Surface (TF12)
 Depleted Below Dark Surface (A11) 	Depleted Dark Surface (F7)	(Other (Explain in Remarks)
Thick Dark Surface (A12)	Redox Depressions (F8)		
Sandy Mucky Mineral (S1) (LRR N,	Iron-Manganese Masses (F12) (LRR N,		
MLRA 147, 148)	MLRA 136)	2	
Sandy Gleyed Matrix (S4)	Umbric Surface (F13) (MLRA 136, 122)		dicators of hydrophytic vegetation and
Sandy Redox (S5)	Piedmont Floodplain Soils (F19) (MLRA 1		etland hydrology must be present,
			less disturbed or problematic.
Stripped Matrix (S6)	Red Parent Material (F21) (MLRA 127, 14	+/) ur	
	Red Parent Material (F21) (MLRA 127, 14	+/) ur	
Stripped Matrix (S6)	Red Parent Material (F21) (MLRA 127, 14		
Stripped Matrix (S6) Restrictive Layer (if observed):	Red Parent Material (F21) (MLRA 127, 14		I Present? Yes No
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) te strictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) lestrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) lestrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) lestrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
_ Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes <u>No</u>
Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes <u>No</u>
Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes <u>No</u>
Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
_ Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes <u>No</u>
Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes <u>No</u>
Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) lestrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) lestrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
_ Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No
_ Stripped Matrix (S6) estrictive Layer (if observed): Type: Depth (inches):	-		I Present? Yes No

WETLAND DETERMINATION DATA FO	RM – Eastern Mountains and Piedmont Region
Project/Site: Crocksville Philo	City/County: MuskingumCo- Sampling Date: 5/19/20
Applicant/Owner: APP	State: OH Sampling Point: wetland
	Section, Township, Range:
Subregion (LRR or MLRA): LRP.N LaP.1.791555	Long: -82010696 Datum: NAD83
Soil Map Unit Name: NUV2-West mare a not Cuorrego	14 Journ 25-401. Slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of ye	ar? Yes No (If no, explain in Remarks.)
Are Vegetation \underline{ND} , Soil \underline{ND} , or Hydrology \underline{NQ} significantly	disturbed? Are "Normal Circumstances" present? Yes V No
Are Vegetation $\underline{n_{l}}$, Soil $\underline{n_{l}}$, or Hydrology $\underline{n_{l}}$ naturally provide the second se	blematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes V No Hydric Soil Present? Yes V No Wetland Hydrology Present? Yes V No	Is the Sampled Area within a Wetland? Yes <u>No</u>
Remarks: Welland clatter for W009-PEM-0	CATMOD2
Datutaken within transmosion Live	Swillanen field
Datutuken Withintransmosion Live	100 garrent there is
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 Pl	ants (B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfid	
- /	spheres on Living Roots (C3) Moss Trim Lines (B16)
	duced Iron (C4) Dry-Season Water Table (C2)
	duction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	
Algal Mat or Crust (B4) Other (Explain i	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches)	
Water Table Present? Yes Vo Depth (inches)	
Saturation Present? Yes Ves Depth (inches)	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photo	
Describe recorded Data (stream gauge, monitoring weil, dena prote	
Remarks:	
Hydrology Indicators are AZ, A3	C2 M CC
infining influentos are HL HS	$, C_2, VL, VS$
° (

Tree Stratum (Plot size: 30')	Absolute Dominant Indicator % Cover Species? Status	Dominance Test worksheet:
1. None		Number of Dominant Species 4 That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant
3		Species Across All Strata: (B)
4 5		Percent of Dominant Species
6		That Are OBL, FACW, or FAC: (A/B)
7		Prevalence Index worksheet:
	= Total Cover	Total % Cover of: Multiply by:
	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 5^{\prime}) 1. NOV		FACW species x 2 = FAC species x 3 =
1. <u>NW</u> 2 2.		FACU species x 4 =
3		UPL species x 5 =
4		Column Totals: (A) (B)
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1 - Rapid Test for Hydrophytic Vegetation
8	,	2 - Dominance Test is >50%
9	0	3 - Prevalence Index is ≤3.0 ¹
50% of total cover:	= Total Cover 20% of total cover:	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5/)		data in Remarks or on a separate sheet)
1. Phalans arundinaced	20 V Fach	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Importunes Captines	20 Y Fuch	¹ Indicators of hydric soil and wetland hydrology must
3. Chocked sensibilis	10 N Fach	be present, unless disturbed or problematic.
4. ancus ettusus	20 y tach	Definitions of Four Vegetation Strata:
5. Agrimonia parvitlora 6. Packera aureci	10 N Fach	Tr ee – Woody plants, excluding vines, 3 in. (7.6 cm) or
-		more in diameter at breast height (DBH), regardless of
8		height.
9		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11		Herb – All herbaceous (non-woody) plants, regardless
	100 = Total Cover	of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:)	20% of total cover:	Woody vine - All woody vines greater than 3.28 ft in
1. Nul		height.
2.		
3		
4		Hydrophytic
5		Vegetation
	= Total Cover	Present? Yes <u>No</u> No
50% of total cover:		
Remarks: (Include photo numbers here or on a separate		
Wetland vez 15 damine	art.	
0		

epth	Matrix			x Feature		aliter	the absence o	
nches)	Color (moist)	%	Color (moist)	%	Type'	Loc2	Texture	Remarks
-160	IOYB411	85	2.54R3/6	15	C	PL_	_50	
				-				
				_				
						-		
						1 A		
_								
_				_				
pe: C=C	Concentration, D=De	pletion, RM	=Reduced Matrix, M	S=Masked	d Sand Gr	ains.	² Location: PL=	Pore Lining, M=Matrix.
	Indicators:							ors for Problematic Hydric Soils ³
Histoso	l (A1)		Dark Surface	e (S7)			2 ci	m Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be		ice (S8) (N	ILRA 147,		ast Prairie Redox (A16)
	listic (A3)		Thin Dark Su					MLRA 147, 148)
	en Sulfide (A4)		Loamy Gleye	ed Matrix ((F2)			dmont Floodplain Soils (F19)
	ed Layers (A5)		Depleted Ma					MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark					y Shallow Dark Surface (TF12)
	d Below Dark Surfac	ce (A11)	Depleted Da				Oth	er (Explain in Remarks)
	ark Surface (A12)		Redox Depre					
-	Mucky Mineral (S1) (LKK N,	Iron-Mangan		es (F12) (LKK N,		
	A 147, 148) Gleyed Matrix (S4)		MLRA 13 Umbric Surfa			6 122)	³ Indic	ators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo					and hydrology must be present,
oundyi						A 127, 147		ss disturbed or problematic.
Strippe	d Matrix (S6)		Red Parent i) unie:	ss disturbed of problematic.
	d Matrix (S6) Layer (if observed)):				,		ss disturbed of problematic.
strictive	d Matrix (S6) La yer (if observ ed)):	Red Parent I			,		ss disturbed of problematic.
strictiv e Typ e :	Layer (if observed)					,		1
strictiv e Typ e : Depth (ir					- , (
strictive Type: Depth (ir marks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
trictiv e Гуре: Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1
strictiv e Typ e : Depth (ir marks:	Layer (if observed)							1
strictiv e Typ e : Depth (ir marks:	Layer (if observed)							1
strictiv e Typ e : Depth (ir marks:	Layer (if observed)							1
strictive Type: Depth (ir marks:	Layer (if observed)							1
s trictiv e Typ e : Depth (ir narks:	Layer (if observed)							1

WETLAND DETERMINATION DATA FORM -	- Eastern Mountains and Piedmont Region
Project/Site: Crooksville Philo City/C	ounty: Muskingum CO Sampling Date:5/19/20
Applicant/Owner: AP	State: OH Sampling Point upland
	n, Township, Range:
0.	ef (concave, convex, none): Slope (%):
Subregion (LRR or MLRA): URR N Lat: 39.791269	Long: -82.017064 Datum: NAD 33
Soil Map Unit Name: BEF-Berks Channey Silloum 25-	
Are climatic / hydrologic conditions on the site typical for this time of year? Ye	
Are Vegetation \underline{ND} , Soil \underline{ND} , or Hydrology \underline{ND} significantly disturb	•
Are Vegetation \underline{NO} , Soil \underline{NO} , or Hydrology \underline{NO} naturally problema	
SUMMARY OF FINDINGS – Attach site map showing sam	
	ping point locations, transcers, important leatures, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks:	MOD2
Upland data for wood I Em ont	
Remarks: Upland data for W009-PEM-CAT Datataken within transmission	ine Kow;
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 (E	
High Water Table (A2) Hydrogen Sulfide Odd	
Saturation (A3) Oxidized Rhizosphere	es on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced	
Sediment Deposits (B2) Recent Iron Reduction	
Drift Deposits (B3) Thin Muck Surface (C	
Algal Mat or Crust (B4) Other (Explain in Rem	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3) Microtopographic Relief (D4)
Water-Stained Leaves (B9) Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No V Depth (inches):	
Saturation Present? Yes No Depth (inches):	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, prev	
Describe Recorded Data (stream gauge, monitoring weil, aenai priotos, prev	
Remarks:	
Hydrology is not present.	

Sampling Point: upland

3

2212	Absolute	Dominant	Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size: <u>20'1</u>) 1. <u>NONL</u>				Number of Dominant Species That Are OBL, FACW, or FAC:	(A)
2 3		_	_	Total Number of Dominant Species Across All Strata:	(B)
4 5			_	Percent of Dominant Species That Are OBL, FACW, or FAC:	(A/B)
6				Prevalence index worksheet:	
7				Total % Cover of: Multiply by:	
		= Total Cov			
50% of total cover:	20% of	total cover:		OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 150)				FACW species x 2 =	
1. None				FAC species x 3 =	-
2				FACU species x 4 =	_
3				UPL species x 5 =	_
2				Column Totals: (A)	
4					— · /
5				Prevalence Index = B/A =	-
6				Hydrophytic Vegetation Indicators:	1
7				1 - Rapid Test for Hydrophytic Vegetation	
8		_		2 - Dominance Test is >50%	
9				3 - Prevalence Index is $\leq 3.0^{1}$	
	0 :	= Total Cov	er		
50% of total cover:	20% of	total cover:		4 - Morphological Adaptations ¹ (Provide su	
Herb Stratum (Plot size: 5/		1000		data in Remarks or on a separate sheet	·
1. Anthoxanthum odoratum	20	Y	Facl	Problematic Hydrophytic Vegetation ¹ (Expla	ain)
2. Diosdaus tullonum	20	1	Face		
3 Setaria faberi	75	V	Ibl	¹ Indicators of hydric soil and wetland hydrology	must
4. Lamium puraireum	16	N	FIL	be present, unless disturbed or problematic.	
	18	DI	Euch	Definitions of Four Vegetation Strata:	
5. Volystichum acrostichoides	10	14	Hace,	Tree – Woody plants, excluding vines, 3 in. (7.6	
6. Barbared Vulgaris	_10_	N	tad	more in diameter at breast height (DBH), regard	
7				height.	
8		-			
9				Sapling/Shrub – Woody plants, excluding vines than 3 in. DBH and greater than or equal to 3.28	
			_	m) tall.	5
10				,	
11,	1185			Herb – All herbaceous (non-woody) plants, rega	ardless
		Total Cove	er	of size, and woody plants less than 3.28 ft tall.	
50% of total cover:	20% of	total cover:		Woody vine - All woody vines greater than 3.2	8 ft in
Woody Vine Stratum (Plot size: <u>30'</u> ℃)				height.	
1. none					
2					
3.					
4					
E				Hydrophytic	
5	0			Vegetation Present? Yes No	
		Total Cove			
50% of total cover:		total cover:			
Remarks: (Include photo numbers here or on a separate si Updanol Vez 15 dominant	0				

Sampling Point: upland

	needed to document the indicator or confi	rm the absence of	indiduction of y
Depth Matrix	Redox Features	Tatelor	Remarks
(inches) Color (moist) %	Color (moist) % Type ¹ Loc ²		Remarks
0-16 104R412 100			
1 1			
· · · · · · · · · · · · · · · · · · ·			
¹ Type: C=Concentration, D=Depletion, RM=R	educed Matrix, MS=Masked Sand Grains.		Pore Lining, M=Matrix.
Hydric Soil Indicators:			rs for Problematic Hydric Soils ³ :
Histosol (A1)	Dark Surface (S7)		n Muck (A10) (MLRA 147)
Histic Epipedon (A2)	Polyvalue Below Surface (S8) (MLRA 14		st Prairie Redox (A16)
Black Histic (A3)	Thin Dark Surface (S9) (MLRA 147, 148) (N	/LRA 147, 148)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Pied	lmont Floodplain Soils (F19)
Stratified Layers (A5)	Depleted Matrix (F3)		/LRA 136, 147)
2 cm Muck (A10) (LRR N)	Redox Dark Surface (F6)		/ Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	Othe	er (Explain in Remarks)
Thick Dark Surface (A12)	Redox Depressions (F8)		
Sandy Mucky Mineral (S1) (LRR N,	Iron-Manganese Masses (F12) (LRR N,		
MLRA 147, 148)	MLRA 136)	3	
Sandy Gleyed Matrix (S4)	Umbric Surface (F13) (MLRA 136, 122)		tors of hydrophytic vegetation and
Sandy Redox (S5)	Piedmont Floodplain Soils (F19) (MLRA		nd hydrology must be present,
			s disturbed or problematic.
Stripped Matrix (S6)	Red Parent Material (F21) (MLRA 127, 1	47) unles	
	Red Parent Material (F21) (MLRA 127, 1	47) unles	
Stripped Matrix (S6)	Red Parent Material (F21) (MLRA 127, 1		
Stripped Matrix (S6) Restrictive Layer (if observed):	Red Parent Material (F21) (MLRA 127, 1 	Hydric Soil Pr	esent? Yes No <u>\/</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type:	Red Parent Material (F21) (MLRA 127, 1 		esent? Yes No
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			resent? Yes No
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			resent? Yes No <u>\</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches):			resent? Yes No <u>\</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No <u>1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No <u>1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes <u>No 1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes <u>No 1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes <u>No 1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes <u>No 1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes <u>No 1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes <u>No 1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes <u>No 1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes <u>No 1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes <u>No 1</u>
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No 1
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No 1
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No 1
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No 1
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No 1
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No 1
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No 1
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No 1
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			esent? Yes No 1

WETLAND DETERMINATION DATA FORM	I – Eastern Mountains and Piedmont Region
Project/Site: CrookSville Philo City	County: MUSKINGUMCO Sampling Date: 5/20/20
Applicant/Owner: ACP	State: OH Sampling Point wetland
	tion, Township, Range:
	elief (concave, convex, none): <u>CUNCUVE</u> Slope (%): <u>O1</u>
Subregion (LRR or MLRA): LBBN Lat: 39.734484	Long: 82.026613 Datum: NAD 83
Soil Map Unit Name: BKF - Berks - Westmare land Complete	
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation \underline{N}_{0} , Soil \underline{N}_{0} , or Hydrology \underline{N}_{0} significantly dist	
Are Vegetation \underline{NO} , Soil \underline{NO} , or Hydrology \underline{NO} naturally problem	natic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sa	mpling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks: Wettand data for W010-PFO-CAT	2
Datutaken within forestal area.	
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 C	odor (C1) Drainage Patterns (B10)
Saturation (A3)	eres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduc	ed Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduct	ion in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface	(C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in R	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes Ves Depth (inches):	
Water Table Present? Yes Ves No Depth (inches):	
Saturation Present? Yes Ves Depth (inches): (Wetland Hydrology Present? Yes Ves
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:
Remarks:	
Hydrokeyy Indicators are Al, AZ, A	3, 03, 02, 05

Tree Stratum (Plot size: 30%) 1. 2. Yaxinus pennsylvanica 3. 4. 5. 6. 7. Sapling/Shrub Stratum (Plot size: 5r) 1. Yaxinus pennsylvanica 3. 4. 5. 6. 7. 1. Yaxinus pennsylvanica 2. Fraxinus pennsylvanica 3. 4. 5. 5.	40 40 20% of 30		Status Factus Factus Factus er	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: U (A) Total Number of Dominant Species Across All Strata: (B) Percent of Dominant Species That Are OBL, FACW, or FAC: DDD (. (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species X 1 = FACW species X 2 = FAC species X 3 = FACU species X 4 = UPL species X 5 = Column Totals: (A) Drevalence Index = B(A =
				Prevalence Index = B/A =
6 7 8 9	40	= Total Cov		Hydrophytic Vegetation Indicators:
2. Carox vupinoiara	20	¥	Facul	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5.	40	= Total Cov total cover;		 Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
23 45 50% of total cover:		Total Cov		Hydrophytic Vegetation Present? Yes <u>V</u> No
Remarks: (Include photo numbers here or on a separate s Wettand Vegris domina				

Profile Description: (Describe to the Depth Matrix	Redox Feature			
(inches) Color (moist)	% Color (moist) %	Type' Loc ²	Texture	Remarks
2-16 IOYR4/1 8		<u>C</u> PL	lødm	
	n, RM=Reduced Matrix, MS=Maske	d Sand Grains.		re Lining, M=Matrix. for Problematic Hydric Soils ³ :
ydric Soil Indicators: Histosol (A1)	Dark Surface (S7)			Muck (A10) (MLRA 147)
 Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR MLRA 147, 148) 	 Redox Depressions (F Iron-Manganese Mass MLRA 136) 	(F2) (F2) (F3) (F7) (F7) (F7) (F7) (F7) (F7) (F7) (F7	(ML Piedm (ML Very S Other	Prairie Redox (A16) RA 147, 148) ont Floodplain Soils (F19) RA 136, 147) Shallow Dark Surface (TF12) (Explain in Remarks)
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)	Umbric Surface (F13) Piedmont Floodplain S Red Parent Material (f	Soils (F19) (MLRA 1	48) wetland	rs of hydrophytic vegetation and hydrology must be present, disturbed or problematic.
Restrictive Layer (if observed):				
Type: Depth (inches):			Hydric Soil Pres	sent? Yes <u>No</u> No
Meets F	3.			

WETLAND DETERMINATION DATA FORM	 Eastern Mountains and Piedmont Region
Project/Site: CrookSville Philo City/	County: MUSKINGUMCO Sampling Date: 520/20
Applicant/Owner: ACP	State: OH Sampling Point upland
Investigator(s): KU Sect	ion, Township, Range:
	lief (concave, convex, none): CONVOX Slope (%): 101
Subregion (LRR or MLRA): LRRN Lat: 391. 784143	Long: <u>-82,024652</u> Datum: NAD83
Soil Map Unit Name Gt C2-Guernsey-Upshur Silly Chaylo	Um Lo-15 1 Slopes_ NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No (If no, explain in Remarks.)
Are Vegetation \underline{ND} , Soil \underline{ND} , or Hydrology \underline{ND} significantly distu	rbed? Are "Normal Circumstances" present? Yes No
Are Vegetation \underline{N} , Soil \underline{N} , or Hydrology \underline{N} naturally problem	natic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sar	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks: Uplanel data for W010-PFO-CAT2 Data tuken within transmission Lin	
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	
High Water Table (A2) Hydrogen Sulfide Oc	
Saturation (A3) Oxidized Rhizosphere Water Marks (B1) Presence of Reduce	res on Living Roots (C3) Moss Trim Lines (B16) d Iron (C4) Dry-Season Water Table (C2)
	on in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	
Algal Mat or Crust (B4) Other (Explain in Re	marks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13) Field Observations:	FAC-Neutral Test (D5)
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No , Depth (inches):	/
Saturation Present? Yes No Ves Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:
Remarks:	
Hydrology Indicator not present	

Sampling Point: upland

The	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30'r)	<u>% Cover Species? Status</u>	Number of Dominant Species That Are OBL, FACW, or FAC:
23		Total Number of Dominant Species Across All Strata:
4 5		Percent of Dominant Species (A/B)
6		
7		Prevalence Index worksheet:
	= Total Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15/)		FACW species x 2 =
1. NOUL		FAC species x 3 =
2		FACU species x 4 =
		UPL species x 5 =
3		Column Totals: (A) (B)
4		
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1 - Rapid Test for Hydrophytic Vegetation
8		2 - Dominance Test is >50%
9	- <u> </u>	3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	25 N E.11	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Andropodon urginicuus	30 Y LULU	
2. Trifolium Pratinge	30 Y Hack	The discharge of the data with an december of the dealers are set.
3. Achilled mill etolium	20 Y Fact	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. Leycanthemum vulgare	20 Y 101	Definitions of Four Vegetation Strata:
5.		Deminitions of Four Vegetation Strata.
6		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7		more in diameter at breast height (DBH), regardless of height.
8		noight.
9		Sapling/Shrub – Woody plants, excluding vines, less
		than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
10	· · · ·	, ·
11	Total Cover	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 301)		height.
1. none		
2		
3		
4.		
5.		Hydrophytic Vegetation
	= Total Cover	Present? Yes No
50% of total cover:		
Remarks: (Include photo numbers here or on a separate		
Upland vez 15 dominant		
	*	

Sampling Point: upland

Profile Description: (Describe to the depth Depth Matrix	needed to document the indicator or confir Redox Features	m the absence of indicators.)
<u>(inches)</u> <u>Cotor (moist)</u> <u>%</u> <u>0-16</u> <u>10464[3</u> 100	Color (moist) % Type ¹ Loc ²	Texture Remarks SU
¹ Type: C=Concentration, D=Depletion, RM=R Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4)	 Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 14' Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) 	
 Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): 	 Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 127, 14) 	 Very Shallow Dark Surface (TF12) Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present,
Type: Depth (inches): Remarks:		Hydric Soil Present? Yes No
Hydric Soils n	of preservit.	
		÷

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| WETLAND DETERMINATION DATA FORM                                                                                                          | <ul> <li>Eastern Mountains and Piedmont Region</li> </ul>   |
|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Project/Site: Croptsville Philo City/C                                                                                                   | County: MUSKINGUMCO Sampling Date: 5/20/20                  |
| Applicant/Owner: ACP                                                                                                                     | State: OH Sampling Point wetland                            |
| N                                                                                                                                        | on, Township, Range:                                        |
| Landform (hillslope, terrace, etc.): Deptession Local rel                                                                                | ief (concave, convex, none): CMCUVE Slope (%):O1            |
| Subregion (LRR or MLRA): LBRN Lat: 39.778162                                                                                             | Long: -82.034133 Datum: NAD 83                              |
| Soil Map Unit Name: BKF-Berks Westmarcland Comp                                                                                          | 11X 40-701 Sland NWI classification: N/A                    |
| Are climatic / hydrologic conditions on the site typical for this time of year? Y                                                        |                                                             |
|                                                                                                                                          |                                                             |
| Are Vegetation $\frac{\eta_0}{\eta_0}$ , Soil $\underline{\eta_0}$ , or Hydrology $\underline{\eta_0}$ significantly distur              |                                                             |
| Are Vegetation $\underline{MD}$ , Soil $\underline{MD}$ , or Hydrology $\underline{MD}$ naturally problems                               |                                                             |
| SUMMARY OF FINDINGS – Attach site map showing sam                                                                                        | ppling point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present?     Yes     No       Hydric Soil Present?     Yes     No       Wetland Hydrology Present?     Yes     No | Is the Sampled Area<br>within a Wetland? Yes No             |
| Remarks: Wettand date for W011-PEM-CAT                                                                                                   | MOD2                                                        |
| Data taken within transmission Line                                                                                                      | 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 Od                                                                                                 | or (C1) Drainage Patterns (B10)                             |
| Saturation (A3) Saturation (A3)                                                                                                          | es on Living Roots (C3) Moss Trim Lines (B16)               |
| Water Marks (B1) Presence of Reduced                                                                                                     | d Iron (C4) Dry-Season Water Table (C2)                     |
| Sediment Deposits (B2) Recent Iron Reduction                                                                                             | n in Tilled Soils (C6) Crayfish Burrows (C8)                |
| Drift Deposits (B3) Thin Muck Surface (C                                                                                                 | C7) Saturation Visible on Aerial Imagery (C9)               |
| Algal Mat or Crust (B4) Other (Explain in Rer                                                                                            | marks) Stunted or Stressed Plants (D1)                      |
| Iron Deposits (B5)                                                                                                                       | Geomorphic Position (D2)                                    |
| Inundation Visible on Aerial Imagery (B7)                                                                                                | Shallow Aquitard (D3)                                       |
| Water-Stained Leaves (B9)                                                                                                                | Microtopographic Relief (D4)                                |
| Aquatic Fauna (B13)                                                                                                                      | FAC-Neutral Test (D5)                                       |
| Field Observations:                                                                                                                      |                                                             |
| Surface Water Present? Yes No 📈 Depth (inches):                                                                                          | <u> </u>                                                    |
| Water Table Present? Yes Ves No Depth (inches):                                                                                          |                                                             |
| Saturation Present? Yes No Depth (inches):                                                                                               | Wetland Hydrology Present? Yes V No                         |
| (includes capillary fringe)<br>Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre                                 | wigue inspections) if available:                            |
| Describe Recorded Data (stream gauge, monitoring well, aenai photos, pre                                                                 |                                                             |
| Remarks:                                                                                                                                 |                                                             |
| Hydrology Indicatos are AZ, A3,                                                                                                          | (3, <b>C</b> 2, D5.                                         |
|                                                                                                                                          |                                                             |
|                                                                                                                                          |                                                             |
|                                                                                                                                          |                                                             |
|                                                                                                                                          |                                                             |
|                                                                                                                                          |                                                             |
|                                                                                                                                          |                                                             |
| and a second                           |                                                             |
| 1                                                                                                                                        |                                                             |

| Tree Stratum (Plot size: 300)<br>1. NSNE                | Absolute Dominant Indicator<br>% Cover Species? Status | Dominance Test worksheet:           Number of Dominant Species           That Are OBL, FACW, or FAC:              |
|---------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 2<br>3                                                  |                                                        | Total Number of Dominant Species Across All Strata: (B)                                                           |
| 4<br>5                                                  |                                                        | Percent of Dominant Species 100 / (A/B)                                                                           |
| 6                                                       |                                                        | Prevalence Index worksheet:                                                                                       |
| 7                                                       |                                                        | Total % Cover of: Multiply by:                                                                                    |
| 50% of total cover:                                     | = Total Cover<br>20% of total cover:                   | OBL species x 1 =                                                                                                 |
| Sapling/Shrub Stratum (Plot size: 50)                   |                                                        | FACW species x 2 =                                                                                                |
| I NAV                                                   |                                                        | FAC species x 3 =                                                                                                 |
| 2                                                       |                                                        | FACU species x 4 =                                                                                                |
| 3                                                       |                                                        | UPL species x 5 =                                                                                                 |
| 4                                                       |                                                        | Column Totals: (A) (B)                                                                                            |
| 5                                                       |                                                        | Prevalence Index = B/A =                                                                                          |
| 6                                                       |                                                        | Hydrophytic Vegetation Indicators:                                                                                |
| 7                                                       |                                                        | 1- Rapid Test for Hydrophytic Vegetation                                                                          |
| 8                                                       |                                                        | 1/2 - Dominance Test is >50%                                                                                      |
| 9                                                       | T-t-t-D-                                               | 3 - Prevalence Index is ≤3.0 <sup>1</sup>                                                                         |
| 50% of total cover:                                     | = Total Cover<br>20% of total cover:                   | 4 - Morphological Adaptations <sup>1</sup> (Provide supporting                                                    |
| Herb Stratum, (Plot size: 50, )                         |                                                        | data in Remarks or on a separate sheet)                                                                           |
| . Phalaris arundinacea                                  | 30 V Full                                              | Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)                                                         |
| 2. Impations Capensis                                   | 25 Y Fuch                                              | 1                                                                                                                 |
| 3. Ondeled sensibilis                                   | 15 N Fuch                                              | <sup>1</sup> Indicators of hydric soil and wetland hydrology must<br>be present, unless disturbed or problematic. |
| 4. lypha xalauca                                        | 20 Y 061                                               | Definitions of Four Vegetation Strata                                                                             |
| 5. Eupartonum pertoliatum                               | 10 N Facu                                              | Tree Meedy plants evaluating vines 2 in (7.6 cm) or                                                               |
| 6                                                       |                                                        | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or<br>more in diameter at breast height (DBH), regardless of |
| 7                                                       |                                                        | height.                                                                                                           |
| 8                                                       |                                                        | Sapling/Shrub – Woody plants, excluding vines, less                                                               |
| 9                                                       |                                                        | than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.                                                   |
| 10                                                      |                                                        |                                                                                                                   |
|                                                         | 00 = Total Cover                                       | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.            |
| 50% of total cover:                                     | 20% of total cover:                                    | Woody vine – All woody vines greater than 3.28 ft in                                                              |
| Woody Vine Stratum (Plot size: 30')                     |                                                        | height.                                                                                                           |
| 1. None                                                 |                                                        |                                                                                                                   |
| 2                                                       |                                                        |                                                                                                                   |
| 3                                                       |                                                        |                                                                                                                   |
| 4                                                       |                                                        | Hydrophytic                                                                                                       |
| -D                                                      | = Total Cover                                          | Vegetation<br>Present? Yes No                                                                                     |
| 50% of total cover:                                     |                                                        |                                                                                                                   |
| Remarks: (Include photo numbers here or on a separate s |                                                        |                                                                                                                   |
| Wetland veg is domi                                     | vart.                                                  |                                                                                                                   |
| A                                                       |                                                        |                                                                                                                   |

| ofile Description: (Describe to the path Matrix                                                                                                      | Red                                            | ox Features                                                          |                    |                       |                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------|--------------------|-----------------------|---------------------------------------------------------------------------------------------|
| $\frac{\text{ches}}{1000} 2000000000000000000000000000000000000$                                                                                     | $\frac{\text{Color (moist)}}{\text{ISUR UI(}}$ | <u>%</u> <u>Type'</u>                                                | Loc <sup>2</sup> - | Texture               | Remarks                                                                                     |
| toto the toto                                                                                                                                        | 24110                                          | <u>15</u> <u>C</u>                                                   | cept -             | 1001111               |                                                                                             |
|                                                                                                                                                      |                                                |                                                                      |                    |                       |                                                                                             |
|                                                                                                                                                      |                                                |                                                                      |                    |                       |                                                                                             |
|                                                                                                                                                      |                                                |                                                                      |                    |                       |                                                                                             |
|                                                                                                                                                      |                                                |                                                                      |                    |                       |                                                                                             |
|                                                                                                                                                      |                                                |                                                                      |                    |                       |                                                                                             |
|                                                                                                                                                      |                                                |                                                                      |                    |                       |                                                                                             |
|                                                                                                                                                      |                                                |                                                                      |                    |                       |                                                                                             |
|                                                                                                                                                      |                                                |                                                                      |                    |                       |                                                                                             |
| pe: C=Concentration, D=Depletion                                                                                                                     | , RM=Reduced Matrix, M                         | S=Masked Sand Gr                                                     | ains. <sup>2</sup> |                       | re Lining, M=Matrix.                                                                        |
| fric Soil Indicators:                                                                                                                                |                                                |                                                                      |                    |                       | for Problematic Hydric Soils <sup>3</sup>                                                   |
| Histosol (A1)                                                                                                                                        | Dark Surfac                                    |                                                                      | AL DA 447 4        |                       | /luck (A10) <b>(MLRA 147)</b><br>Prairie Redox (A16)                                        |
| Histic Epipedon (A2)<br>Black Histic (A3)                                                                                                            |                                                | elow Surface (S8) <b>(N</b><br>urface (S9) <b>(MLRA</b> <sup>·</sup> |                    | •                     | RA 147, 148)                                                                                |
| Hydrogen Sulfide (A4)                                                                                                                                | Jzoamy Gley                                    | ed Matrix (F2)                                                       |                    | Piedm                 | ont Floodplain Soils (F19)                                                                  |
| Stratified Layers (A5)                                                                                                                               | ↓ Depleted Ma                                  |                                                                      |                    | •                     | RA 136, 147)                                                                                |
| 2 cm Muck (A10) (LRR N)<br>Depleted Below Dark Surface (A1                                                                                           |                                                | Surface (F6)<br>ark Surface (F7)                                     |                    |                       | shallow Dark Surface (TF12)<br>(Explain in Remarks)                                         |
| Thick Dark Surface (A12)                                                                                                                             | · _ ·                                          | ressions (F8)                                                        |                    |                       | (                                                                                           |
| Sandy Mucky Mineral (S1) (LRR M                                                                                                                      | <b>I</b> , Iron-Manga                          | nese Masses (F12) (                                                  | LRR N,             |                       |                                                                                             |
|                                                                                                                                                      |                                                |                                                                      |                    |                       |                                                                                             |
| MLRA 147, 148)                                                                                                                                       | MLRA 13                                        |                                                                      | 16 122)            | <sup>3</sup> Indicato | rs of hydrophytic vegetation and                                                            |
| MLRA 147, 148)<br>Sandy Gleyed Matrix (S4)                                                                                                           | Umbric Surf                                    | ace (F13) (MLRA 13                                                   |                    |                       |                                                                                             |
| MLRA 147, 148)                                                                                                                                       | Umbric Surf<br>Piedmont Fi                     |                                                                      | (MLRA 148)         | wetland               | rs of hydrophytic vegetation and<br>hydrology must be present,<br>disturbed or problematic. |
| MLRA 147, 148)<br>Sandy Gleyed Matrix (S4)<br>Sandy Redox (S5)                                                                                       | Umbric Surf<br>Piedmont Fi                     | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland               | hydrology must be present,                                                                  |
| MLRA 147, 148)<br>Sandy Gleyed Matrix (S4)<br>Sandy Redox (S5)<br>Stripped Matrix (S6)<br>strictive Layer (if observed):<br>Type:                    | Umbric Surf<br>Piedmont Fi                     | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148)<br>Sandy Gleyed Matrix (S4)<br>Sandy Redox (S5)<br>Stripped Matrix (S6)<br>strictive Layer (if observed):<br>Type:<br>Depth (inches): | Umbric Surf<br>Piedmont Fi                     | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland               | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): marks:            | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148)<br>Sandy Gleyed Matrix (S4)<br>Sandy Redox (S5)<br>Stripped Matrix (S6)<br>strictive Layer (if observed):<br>Type:                    | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): marks:            | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | disturbed or problematic.                                                                   |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): marks:            | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): marks:            | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148)<br>Sandy Gleyed Matrix (S4)<br>Sandy Redox (S5)<br>Stripped Matrix (S6)<br>trictive Layer (if observed):<br>Type:                     | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148)<br>Sandy Gleyed Matrix (S4)<br>Sandy Redox (S5)<br>Stripped Matrix (S6)<br>trictive Layer (if observed):<br>Type:                     | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) trictive Layer (if observed): Type: Depth (inches): narks:             | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) trictive Layer (if observed): Type: Depth (inches): narks:             | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148)<br>Sandy Gleyed Matrix (S4)<br>Sandy Redox (S5)<br>Stripped Matrix (S6)<br>trictive Layer (if observed):<br>Type:                     | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148)<br>Sandy Gleyed Matrix (S4)<br>Sandy Redox (S5)<br>Stripped Matrix (S6)<br>trictive Layer (if observed):<br>Type:                     | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): marks:            | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): marks:            | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): marks:            | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): marks:            | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): marks:            | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): marks:            | Umbric Surf<br>Piedmont Fi<br>Red Parent       | ace (F13) <b>(MLRA 1</b> 3<br>oodplain Soils (F19)                   | (MLRA 148)         | wetland<br>unless     | hydrology must be present,<br>disturbed or problematic.                                     |

| WETLAND DETERMINATION DATA FORM                                                                                                                                  | – Eastern Mountains and Piedmont Region                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Project/Site: CrackSyllePhiloCity/C                                                                                                                              | County: MUSLI MAUM CO Sampling Date: 5/20/20                |
| Applicant/Owner: ALP                                                                                                                                             | State: OI Sampling Point: upland                            |
| 1. 2. 2                                                                                                                                                          | on, Township, Range:                                        |
|                                                                                                                                                                  |                                                             |
|                                                                                                                                                                  | 22 22 12 9                                                  |
| Subregion (LRR or MLRA): URBN Lat: 39. 778008                                                                                                                    | Long: 84.044850 Datum: NAD 62                               |
| Soil Map Unit Name: BA-BenKSINJestmore land comple                                                                                                               | <u>× 40-701</u>                                             |
| Are climatic / hydrologic conditions on the site typical for this time of year? Y                                                                                | /es No (If no, explain in Remarks.) /                       |
| Are Vegetation $\underline{NO}$ , Soil $\underline{NO}$ , or Hydrology $\underline{NO}$ significantly distur                                                     |                                                             |
| Are Vegetation $\underline{N}_{\underline{\cup}}$ , Soil $\underline{N}_{\underline{\cup}}$ , or Hydrology $\underline{M}_{\underline{\cup}}$ naturally problem: |                                                             |
|                                                                                                                                                                  | npling point locations, transects, important features, etc. |
|                                                                                                                                                                  |                                                             |
| Hydrophytic Vegetation Present? Yes No                                                                                                                           | Is the Sampled Area /                                       |
| Hydric Soil Present? Yes No.                                                                                                                                     | within a Wetland? Yes No                                    |
| Wetland Hydrology Present? Yes No                                                                                                                                |                                                             |
| Remarks: Upland data for W011-PEM-CATN                                                                                                                           | IOD2                                                        |
| Remarks: Upland data for WO11-PEM-CATA<br>Datataken within transmission Lin                                                                                      | LROW.                                                       |
| 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 Od                                                                                                                        | lor (C1) Drainage Patterns (B10)                            |
| Saturation (A3) Oxidized Rhizospher                                                                                                                              | es on Living Roots (C3) Moss Trim Lines (B16)               |
| Water Marks (B1) Presence of Reduced                                                                                                                             | d Iron (C4) Dry-Season Water Table (C2)                     |
| Sediment Deposits (B2) Recent Iron Reduction                                                                                                                     | on in Tilled Soils (C6) Crayfish Burrows (C8)               |
| Drift Deposits (B3) Thin Muck Surface (                                                                                                                          | C7) Saturation Visible on Aerial Imagery (C9)               |
| Algal Mat or Crust (B4) Other (Explain in Res                                                                                                                    |                                                             |
| Iron Deposits (B5)                                                                                                                                               | Geomorphic Position (D2)                                    |
| Inundation Visible on Aerial Imagery (B7)                                                                                                                        | Shallow Aquitard (D3)                                       |
| Water-Stained Leaves (B9)                                                                                                                                        | Microtopographic Relief (D4)                                |
| Aquatic Fauna (B13)                                                                                                                                              | FAC-Neutral Test (D5)                                       |
| Field Observations:                                                                                                                                              |                                                             |
| Surface Water Present? Yes No Depth (inches):                                                                                                                    |                                                             |
| Water Table Present? Yes No Depth (inches):                                                                                                                      |                                                             |
| Saturation Present? Yes No Depth (inches):                                                                                                                       | Wetland Hydrology Present? Yes No                           |
| (includes capillary fringe)<br>Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre                                                         | ∋vious inspections), if available:                          |
|                                                                                                                                                                  |                                                             |
| Remarks:                                                                                                                                                         |                                                             |
| Hydrology not present.                                                                                                                                           |                                                             |
|                                                                                                                                                                  |                                                             |
|                                                                                                                                                                  |                                                             |
|                                                                                                                                                                  |                                                             |
|                                                                                                                                                                  |                                                             |
|                                                                                                                                                                  |                                                             |
|                                                                                                                                                                  |                                                             |
|                                                                                                                                                                  |                                                             |
|                                                                                                                                                                  |                                                             |
|                                                                                                                                                                  |                                                             |
|                                                                                                                                                                  |                                                             |

Sampling Point:upland

| 2010                                                                                                             | Absolute Dominant Indicator          | Dominance Test worksheet:                                                                                         |
|------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Tree Stratum (Plot size: <u>2017</u> )<br>1)                                                                     |                                      | Number of Dominant Species<br>That Are OBL, FACW, or FAC:(A)                                                      |
| 2<br>3                                                                                                           |                                      | Total Number of Dominant<br>Species Across All Strata:                                                            |
| 4<br>5                                                                                                           |                                      | Percent of Dominant Species<br>That Are OBL, FACW, or FAC: (A/B)                                                  |
| 6                                                                                                                |                                      | Prevalence Index worksheet:                                                                                       |
| 7                                                                                                                |                                      | Total % Cover of: Multiply by:                                                                                    |
| and the second | = Total Cover                        |                                                                                                                   |
|                                                                                                                  | 20% of total cover:                  | OBL species x 1 =                                                                                                 |
| Sapling/Shrub Stratum (Plot size: 5/ )                                                                           |                                      | FACW species x 2 =                                                                                                |
| 1. none                                                                                                          |                                      | FAC species x 3 =                                                                                                 |
| 2                                                                                                                |                                      | FACU species x 4 =                                                                                                |
| 3                                                                                                                |                                      | UPL species x 5 =                                                                                                 |
| 4                                                                                                                |                                      | Column Totals: (A) (B)                                                                                            |
| 5                                                                                                                |                                      |                                                                                                                   |
| 6                                                                                                                |                                      | Prevalence Index = B/A =                                                                                          |
| 7                                                                                                                |                                      | Hydrophytic Vegetation Indicators:                                                                                |
| 8                                                                                                                |                                      | 1 - Rapid Test for Hydrophytic Vegetation                                                                         |
|                                                                                                                  |                                      | 2 - Dominance Test is >50%                                                                                        |
| 9                                                                                                                |                                      | 3 - Prevalence Index is ≤3.0 <sup>1</sup>                                                                         |
| EOR/ of total action                                                                                             | = Total Cover<br>20% of total cover: | 4 - Morphological Adaptations <sup>1</sup> (Provide supporting                                                    |
| Herb Stratum (Plot size: 5 )                                                                                     | 20% of total cover                   | data in Remarks or on a separate sheet)                                                                           |
| 1. Andropadon viramicuo                                                                                          | IN N Full                            | Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)                                                         |
| - Ananovanovi virannacion                                                                                        | - 10 N tack                          |                                                                                                                   |
| 2. Daciyiis alangada                                                                                             | 20 Y Fach                            | <sup>1</sup> Indicators of hydric soil and wetland hydrology must                                                 |
| 3. Trituliuma pratarise                                                                                          | 20 Y Hack                            | be present, unless disturbed or problematic.                                                                      |
| 4. Dancus carota                                                                                                 | IO N UPL                             | Definitions of Four Vegetation Strata:                                                                            |
| 5. Mantago lanceolata                                                                                            | 20 Y Fact                            |                                                                                                                   |
| 6                                                                                                                |                                      | <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or                                                    |
| 7                                                                                                                |                                      | more in diameter at breast height (DBH), regardless of<br>height.                                                 |
| 8                                                                                                                |                                      |                                                                                                                   |
| 9                                                                                                                |                                      | <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 |
| 10                                                                                                               |                                      | man s m. DBH and greater than of equal to 5.26 ft (1<br>m) tall.                                                  |
| 11                                                                                                               |                                      |                                                                                                                   |
| 10                                                                                                               | Total Cover                          | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.            |
| 50% of total cover:                                                                                              | 20% of total cover:                  |                                                                                                                   |
| Woody Vine Stratum (Plot size: 30 ( )                                                                            |                                      | Woody vine – All woody vines greater than 3.28 ft in                                                              |
| 1. Nove                                                                                                          |                                      | height.                                                                                                           |
| 1                                                                                                                |                                      |                                                                                                                   |
| 2                                                                                                                |                                      |                                                                                                                   |
| 3                                                                                                                |                                      |                                                                                                                   |
| 4                                                                                                                |                                      | Hydrophytic                                                                                                       |
| 5                                                                                                                |                                      | Vegetation                                                                                                        |
|                                                                                                                  | = Total Cover                        | Present? Yes No                                                                                                   |
| 50% of total cover:                                                                                              | 20% of total cover:                  |                                                                                                                   |
| 50% of total cover:<br>Remarks: (Include photo numbers here or on a separate                                     | sheet.)                              |                                                                                                                   |
| Upland ver is dor                                                                                                | MAULE                                |                                                                                                                   |
| 1                                                                                                                |                                      |                                                                                                                   |
|                                                                                                                  |                                      |                                                                                                                   |
|                                                                                                                  |                                      |                                                                                                                   |
|                                                                                                                  |                                      |                                                                                                                   |
|                                                                                                                  |                                      |                                                                                                                   |
|                                                                                                                  |                                      |                                                                                                                   |
|                                                                                                                  |                                      |                                                                                                                   |

# Sampling Point: upland

| Profile Description: (Describe to the dep                                            |                           |                 |                        | or confirm       | the absence      | of indicators   | s.)                                    |      |
|--------------------------------------------------------------------------------------|---------------------------|-----------------|------------------------|------------------|------------------|-----------------|----------------------------------------|------|
| Depth <u>Matrix</u><br>(inches) Color (moist) %                                      | Color (moist)             | ox Feature<br>% | S<br>Type <sup>1</sup> | Loc <sup>2</sup> | Texture          |                 | Remarks                                |      |
| 0-16 101R413 60                                                                      |                           | /0              | Type                   |                  | 31               | -               |                                        |      |
| OTO DIANT UD                                                                         |                           |                 |                        |                  |                  | C               | i las adas                             | -    |
| 104K410_40                                                                           |                           |                 |                        |                  |                  | CO-MIC          | thx colov                              |      |
|                                                                                      |                           |                 |                        |                  |                  |                 |                                        |      |
|                                                                                      | -                         |                 | -                      |                  |                  |                 |                                        |      |
|                                                                                      |                           |                 |                        |                  |                  |                 |                                        |      |
|                                                                                      | -                         |                 |                        |                  |                  |                 |                                        | _    |
|                                                                                      |                           |                 |                        |                  |                  |                 |                                        |      |
|                                                                                      |                           | -               |                        |                  |                  |                 |                                        |      |
|                                                                                      |                           |                 |                        |                  |                  |                 |                                        |      |
|                                                                                      |                           |                 |                        |                  |                  |                 |                                        |      |
|                                                                                      | -                         |                 | -                      |                  |                  | -               |                                        |      |
|                                                                                      |                           |                 |                        |                  |                  |                 |                                        |      |
|                                                                                      |                           |                 |                        |                  |                  |                 |                                        |      |
| 'Type: C=Concentration, D=Depletion, RM                                              | Reduced Matrix, M         | S=Masked        | d Sand Gr              | ains.            |                  | L=Pore Lining   |                                        | . 3  |
| Hydric Soil Indicators:                                                              |                           |                 |                        |                  |                  |                 | plematic Hydric So                     | ls°: |
| Histosol (A1)                                                                        | Dark Surfac               | . ,             |                        |                  |                  |                 | 0) <b>(MLRA 147)</b>                   |      |
| Histic Epipedon (A2)                                                                 | Polyvalue B               |                 |                        |                  | 148) (           | Coast Prairie R |                                        |      |
| Black Histic (A3)                                                                    | Thin Dark S               | urface (S9      | ) <b>(MLRA</b> 1       | 47, 148)         |                  | (MLRA 147,      |                                        |      |
| Hydrogen Sulfide (A4)                                                                | Loamy Gley                | ed Matrix (     | (F2)                   |                  | F                | Piedmont Floo   | dplain Soils (F19)                     |      |
| Stratified Layers (A5)                                                               | Depleted Ma               |                 |                        |                  |                  | (MLRA 136,      | 147)                                   |      |
| 2 cm Muck (A10) (LRR N)                                                              | Redox Dark                | Surface (F      | -6)                    |                  | \                | /ery Shallow D  | ark Surface (TF12)                     |      |
| Depleted Below Dark Surface (A11)                                                    | Depleted Da               | ark Surface     | e (F7)                 |                  | 0                | Other (Explain  | in Remarks)                            |      |
| Thick Dark Surface (A12)                                                             | Redox Depr                | essions (F      | 8)                     |                  |                  |                 |                                        |      |
| Sandy Mucky Mineral (S1) (LRR N,                                                     | Iron-Mangar               | nese Mass       | es (F12) (             | LRR N,           |                  |                 |                                        |      |
| MLRA 147, 148)                                                                       | MLRA 1                    |                 |                        |                  |                  |                 |                                        |      |
| Sandy Gleyed Matrix (S4)                                                             | Umbric Surf               |                 | (MLRA 13               | 6, 122)          | <sup>3</sup> Inc | licators of hyd | rophytic vegetation a                  | and  |
|                                                                                      |                           |                 |                        |                  |                  | -               |                                        |      |
| Sandy Redox (S5)                                                                     | Piedmont Fl               | oodplain S      | Soils (F19)            | (MLRA 14         | 8) w             | etland hydrolo  | gy must be present,                    |      |
| Sandy Redox (S5)<br>Stripped Matrix (S6)                                             | Piedmont Fl<br>Red Parent |                 |                        |                  |                  | -               | gy must be present,<br>or problematic. |      |
| Stripped Matrix (S6)                                                                 | Piedmont Fl<br>Red Parent |                 |                        |                  |                  | -               |                                        |      |
| Stripped Matrix (S6) Restrictive Layer (if observed):                                |                           |                 |                        |                  |                  | -               |                                        | /    |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:                    |                           |                 |                        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | less disturbed  |                                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |
| Stripped Matrix (S6)<br>Restrictive Layer (if observed):<br>Type:<br>Depth (inches): | Red Parent                | Material (F     | 21) <b>(MLR</b>        |                  | 7) ur            | iless disturbed | or problematic.                        |      |

|                                                                                                              | ORM – Eastern Mountains and Piedmont Region                                                                |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Project/Site: CrockSville Philo                                                                              | City/County: MUSKINGUMCO Sampling Date: 5/20/20                                                            |
| Applicant/Owner: ACP                                                                                         | State: OIL Sampling Point wetland                                                                          |
| Investigator(s): KU                                                                                          | Section, Township, Range:                                                                                  |
|                                                                                                              | ocal relief (concave, convex, none): CANCAVE Slope (%):01.                                                 |
| Subregion (LRR or MLRA): LAR N Lat: 391. T                                                                   | CRRL Long: BZ, BLAZB Datum: NADB3                                                                          |
| Soil Map Unit Name: WmC2-Westadte SIHloam                                                                    | 10-151.51005 NWI classification: N/A                                                                       |
| Are climatic / hydrologic conditions on the site typical for this time of                                    | - /1                                                                                                       |
| Are Vegetation $\underline{ND}_{}$ , Soil $\underline{ND}_{}$ , or Hydrology $\underline{NU}_{}$ significant |                                                                                                            |
| Are Vegetation $\underline{NO}$ , Soil $\underline{NO}$ , or Hydrology $\underline{NO}$ naturally p          |                                                                                                            |
|                                                                                                              | g sampling point locations, transects, important features, etc.                                            |
|                                                                                                              |                                                                                                            |
| Hydrophytic Vegetation Present? Yes <u>No</u> No                                                             | is the Sampled Area                                                                                        |
| Hydric Soil Present?     Yes No       Wetland Hydrology Present?     Yes No                                  | within a Wetland? Yes <u>No</u>                                                                            |
| Pamatia:                                                                                                     |                                                                                                            |
| Wetland data for W012-PEM-                                                                                   | CATMOD2                                                                                                    |
|                                                                                                              | DAG                                                                                                        |
| Data taken within transmission Li                                                                            | Le how.                                                                                                    |
|                                                                                                              |                                                                                                            |
| HYDROLOGY                                                                                                    |                                                                                                            |
| 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      High Water Table (A2)    Hydrogen Su                                 | Plants (B14)     Sparsely Vegetated Concave Surface (B8)       Ifide Odor (C1)     Drainage Patterns (B10) |
|                                                                                                              | cospheres on Living Roots (C3) Moss Trim Lines (B16)                                                       |
|                                                                                                              | Reduced Iron (C4) Dry-Season Water Table (C2)                                                              |
|                                                                                                              | Reduction in Tilled Soils (C6) Crayfish Burrows (C8)                                                       |
| Drift Deposits (B3) Thin Muck Su                                                                             |                                                                                                            |
|                                                                                                              | n in Remarks) Stunted or Stressed Plants (D1)                                                              |
| Iron Deposits (B5)                                                                                           | ✓ Geomorphic Position (D2)                                                                                 |
| Inundation Visible on Aerial Imagery (B7)                                                                    | Shallow Aquitard (D3)                                                                                      |
| Water-Stained Leaves (B9)                                                                                    | Microtopographic Relief (D4)                                                                               |
| Aquatic Fauna (B13)                                                                                          | FAC-Neutral Test (D5)                                                                                      |
| Surface Water Present? Yes No V Depth (inche                                                                 |                                                                                                            |
| Water Table Present? Yes Vo Depth (inche                                                                     |                                                                                                            |
| Saturation Present? Yes V No Depth (inche                                                                    |                                                                                                            |
| (includes capillary fringe)                                                                                  |                                                                                                            |
| Describe Recorded Data (stream gauge, monitoring well, aerial pho                                            | tos, previous inspections), il avaliable.                                                                  |
| Remarks:                                                                                                     |                                                                                                            |
| Hydrology Indicators cive AZ, AB, C                                                                          | 3. DL. DS                                                                                                  |
| Induring houses are in this                                                                                  |                                                                                                            |
|                                                                                                              |                                                                                                            |
|                                                                                                              |                                                                                                            |
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| 2010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Absolute Dominant Indicator    | Dominance Test worksheet:                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Tree Stratum (Plot size: <u>30'C</u> )<br>1N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <u>% Cover Species? Status</u> | Number of Dominant Species 3 (A) That Are OBL, FACW, or FAC:                                                      |
| 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                | Total Number of Dominant<br>Species Across All Strata:                                                            |
| 4<br>5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                | Percent of Dominant Species<br>That Are OBL, FACW, or FAC: (A/B)                                                  |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | Dravalance index workshoets                                                                                       |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | Prevalence Index worksheet:                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | = Total Cover                  | Total % Cover of: Multiply by:                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 20% of total cover:            | OBL species x 1 =                                                                                                 |
| Sapling/Shrub Stratum (Plot size:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | FACW species x 2 =                                                                                                |
| 1. hove                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                | FAC species x 3 =                                                                                                 |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | FACU species x 4 =                                                                                                |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | UPL species x 5 =                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                | Column Totals: (A) (B)                                                                                            |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |                                                                                                                   |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | Prevalence Index = B/A =                                                                                          |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | Hydrophytic Vegetation Indicators:                                                                                |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | $f$ - Rapid Test for Hydrophytic Vegetation                                                                       |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | · · · ·                        | 2 - Dominance Test is >50%                                                                                        |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | 3 - Prevalence Index is ≤3.0 <sup>1</sup>                                                                         |
| and the second sec | = Total Cover                  | 4 - Morphological Adaptations <sup>1</sup> (Provide supporting                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 20% of total cover:            | data in Remarks or on a separate sheet)                                                                           |
| Herb Stratum (Plot size: DY )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 26 [.]]                        | Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)                                                         |
| 1. Juncus effusus,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 30 y tack                      |                                                                                                                   |
| 2. Carex vulpinoided                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 30 V 061                       |                                                                                                                   |
| 3. Impattens capensis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 30 Y Fuch                      | <sup>1</sup> Indicators of hydric soil and wetland hydrology must<br>be present, unless disturbed or problematic. |
| 4. Onocled Sensibilis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10 N Fach                      |                                                                                                                   |
| 5. Dichanthelium clandestinun                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                | Definitions of Four Vegetation Strata:                                                                            |
| 6.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                | more in diameter at breast height (DBH), regardless of                                                            |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | height.                                                                                                           |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | Sapling/Shrub – Woody plants, excluding vines, less                                                               |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | than 3 in. DBH and greater than or equal to 3.28 ft (1                                                            |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                | m) tall.                                                                                                          |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                | Herb – All herbaceous (non-woody) plants, regardless                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | _00_ = Total Cover             | of size, and woody plants less than 3.28 ft tall.                                                                 |
| 50% of total cover:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 20% of total cover:            | Woody vine – All woody vines greater than 3.28 ft in                                                              |
| Woody Vine Stratum (Plot size: 30 (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                | height.                                                                                                           |
| 1. nore                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                |                                                                                                                   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |                                                                                                                   |
| 3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |                                                                                                                   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |                                                                                                                   |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                | Hydrophytic<br>Vegetation                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | = Total Cover                  | Present? Yes No                                                                                                   |
| 50% of total cover:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                                                                                                                   |
| Remarks: (Include photo numbers here or on a separate s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                |                                                                                                                   |
| Wettand Vez-15 durnin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A                              |                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                |                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                | - 6.0                                                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                |                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                |                                                                                                                   |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | epth <u>Matrix</u><br>color (moist) %                                | Color (moist)      | x Features<br>% Tvi | pe <sup>1</sup> Loc <sup>2</sup> | Texture                     | Remarks                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------|---------------------|----------------------------------|-----------------------------|---------------------------|
| Tric Soil Indicators:       Indicators:       Indicators for Problematic Hydric Soils <sup>3</sup> Histosol (A1)       Dark Surface (S7)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Polyvalue Below Surface (S8) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Other (Explain in Remarks)         Thick Dark Surface (A12)       Redox Depressions (F8)       Other (Explain in Remarks)         Sandy Mucky Mineral (S1) (LRR N,       Iron-Manganese Masses (F12) (LRR N,       Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Stripped Matrix (S6)       Red Parent Material (F21) (MLRA 127, 147)       Indicators of problematic.         Type:                             | 1018412 .85                                                          | 0                  | 15 C                |                                  | SL_                         | Kemano                    |
| Irric Soil Indicators:       Indicators:       Indicators for Problematic Hydric Soils <sup>3</sup> Histosol (A1)       Dark Surface (S7)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Polyvalue Below Surface (S8) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Other (Explain in Remarks)         Sandy Mucky Mineral (S1) (LRR N,       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       Umbric Surface (F13) (MLRA 136, 122) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Stripped Matrix (S6)       Red Parent Material (F21) (MLRA 127, 147)       Inless disturbed or problematic.         Type: |                                                                      |                    |                     |                                  |                             |                           |
| ric Soil Indicators:       Indicators for Problematic Hydric Soils <sup>3</sup> Histosol (A1)       Dark Surface (S7)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Polyvalue Below Surface (S8) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Other (Explain in Remarks)         Sandy Mucky Mineral (S1) (LRR N,       Iron-Manganese Masses (F12) (LRR N,       Sindicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Sandy Gleyed Matrix (S6)       Red Parent Material (F21) (MLRA 127, 147)       Sindicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Ype:                                                        |                                                                      |                    |                     |                                  |                             |                           |
| ric Soil Indicators:       Indicators for Problematic Hydric Soils <sup>3</sup> Histosol (A1)       Dark Surface (S7)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Polyvalue Below Surface (S8) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Other (Explain in Remarks)         Sandy Mucky Mineral (S1) (LRR N,       Iron-Manganese Masses (F12) (LRR N,       Sindicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Sandy Gleyed Matrix (S6)       Red Parent Material (F21) (MLRA 127, 147)       Sindicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Ype:                                                        |                                                                      |                    |                     |                                  |                             |                           |
| ric Soil Indicators:       Indicators for Problematic Hydric Soils <sup>3</sup> Histosol (A1)       Dark Surface (S7)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Polyvalue Below Surface (S8) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Other (Explain in Remarks)         Sandy Mucky Mineral (S1) (LRR N,       iron-Manganese Masses (F12) (LRR N,       other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       Umbric Surface (F13) (MLRA 136, 122) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Stripped Matrix (S6)       Red Parent Material (F21) (MLRA 127, 147)       unless disturbed or problematic.         Ype:                      |                                                                      |                    |                     |                                  |                             |                           |
| ric Soil Indicators:       Indicators for Problematic Hydric Soils         Histosol (A1)       Dark Surface (S7)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Polyvalue Below Surface (S8) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Opeleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Other (Explain in Remarks)         Sandy Mucky Mineral (S1) (LRR N,       Iron-Manganese Masses (F12) (LRR N,       Sindicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Sandy Gleyed Matrix (S6)       Red Parent Material (F21) (MLRA 127, 147)       Sindicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Ype:                                                             |                                                                      |                    |                     |                                  |                             |                           |
| ric Soil Indicators:       Indicators for Problematic Hydric Soils         Histosol (A1)       Dark Surface (S7)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Polyvalue Below Surface (S8) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Other (Explain in Remarks)         Sandy Mucky Mineral (S1) (LRR N,       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       Umbric Surface (F13) (MLRA 136, 122) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Stripped Matrix (S6)       Red Parent Material (F21) (MLRA 127, 147)       Inless disturbed or problematic.         ype:                           |                                                                      |                    |                     |                                  |                             |                           |
| ric Soil Indicators:       Indicators for Problematic Hydric Soils         Histosol (A1)       Dark Surface (S7)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Polyvalue Below Surface (S8) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Other (Explain in Remarks)         Sandy Mucky Mineral (S1) (LRR N,       iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       Umbric Surface (F13) (MLRA 136, 122) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Stripped Matrix (S6)       Red Parent Material (F21) (MLRA 127, 147)       Inless disturbed or problematic.         Ype:                           | ne: C=Concentration D=Depletion RM                                   | =Reduced Matrix MS |                     | d Grains                         | <sup>2</sup> Location: PL=P | ore Lining, M=Matrix.     |
| Histosol (A1)       Dark Surface (S7)       2 cm Muck (A10) (MLRA 147)         Histosol (A2)       Polyvalue Below Surface (S8) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Other (Explain in Remarks)         Thick Dark Surface (A12)       Redox Depressions (F8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                      | -Reduced Mains, Mc | -wasked oan         | u oruns.                         |                             |                           |
| Black Histic (A3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                      | Dark Surface       | (S7)                |                                  | 2 cm                        | Muck (A10) (MLRA 147)     |
| Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Piedmont Floodplain Soils (F19)         Stratified Layers (A5)      Depleted Matrix (F3)      (MLRA 136, 147)         2 cm Muck (A10) (LRR N)      Redox Dark Surface (F6)      Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)      Depleted Dark Surface (F7)      Other (Explain in Remarks)         Thick Dark Surface (A12)      Redox Depressions (F8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                      |                    |                     |                                  |                             |                           |
| Stratified Layers (A5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                      |                    |                     | RA 147, 148)                     |                             |                           |
| 2 cm Muck (A10) (LRR N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                      |                    |                     |                                  |                             |                           |
| Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Other (Explain in Remarks)         Thick Dark Surface (A12)       Redox Depressions (F8)       Iron-Manganese Masses (F12) (LRR N,         Sandy Mucky Mineral (S1) (LRR N,       Iron-Manganese Masses (F12) (LRR N,       Iron-Manganese Masses (F12) (LRR N,         MLRA 147, 148)       MLRA 136)       Sandy Gleyed Matrix (S4)       Umbric Surface (F13) (MLRA 136, 122) <sup>3</sup> Indicators of hydrophytic vegetation and         Sandy Redox (S5)       Piedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be present,         Stripped Matrix (S6)       Red Parent Material (F21) (MLRA 127, 147)       unless disturbed or problematic.         Type:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                      |                    |                     |                                  |                             |                           |
| Thick Dark Surface (A12) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) MLRA 136) 3Indicators of hydrophytic vegetation and Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) 3Indicators of hydrophytic vegetation and Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, unless disturbed or problematic Inticators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Inticators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Inticators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic wetland hydrology must be present, unless disturbed or problematic                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                      |                    |                     |                                  |                             |                           |
| MLRA 147, 148)       MLRA 136)         Sandy Gleyed Matrix (S4)      Umbric Surface (F13) (MLRA 136, 122) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, stripped Matrix (S6)         Stripped Matrix (S6)      Red Parent Material (F21) (MLRA 127, 147)       unless disturbed or problematic.         tricttive Layer (if observed):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                      |                    |                     |                                  | _                           |                           |
| Sandy Gleyed Matrix (S4)      Umbric Surface (F13) (MLRA 136, 122) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Sandy Redox (S5)      Piedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be present, unless disturbed or problematic.         Stripped Matrix (S6)      Red Parent Material (F21) (MLRA 127, 147)       unless disturbed or problematic.         strictive Layer (if observed):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Sandy Mucky Mineral (S1) (LRR N,                                     | Iron-Mangan        | ese Masses (F       | 12) <b>(LRR N,</b>               |                             |                           |
| Sandy Redox (S5)        Piedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be present, unless disturbed or problematic.         Stripped Matrix (S6)        Red Parent Material (F21) (MLRA 127, 147)       unless disturbed or problematic.         strictive Layer (if observed):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                      |                    |                     |                                  | 2                           |                           |
| Stripped Matrix (S6)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                      |                    |                     |                                  |                             |                           |
| strictive Layer (if observed):       Type:       Depth (inches):       marks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                      |                    |                     |                                  |                             |                           |
| Type:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 01                                                                   | Red Parent iv      |                     | MLRA 127, 14                     |                             | disturbed of problematic. |
| Depth (inches): No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                      |                    |                     |                                  |                             |                           |
| narks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | strictive Layer (if observed):                                       |                    |                     |                                  |                             | /                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | strictive Layer (if observed):<br>Type:                              | 1                  |                     |                                  | Hydric Soil Pre             | sent? Yes No              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | strictive Layer (if observed):<br>Гуре:<br>Depth (inches):           | _                  |                     |                                  | Hydric Soil Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks:  | _                  |                     |                                  | Hydric Soil Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soil Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soll Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soll Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>ype:<br>Depth (inches):<br>narks:   |                    |                     |                                  | Hydric Soil Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>-ype:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soil Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soil Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soil Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>-ype:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soll Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soll Pre             | esent? Yes <u>No</u>      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soll Pre             | esent? Yes <u>No</u>      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soil Pre             | esent? Yes <u>No</u>      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | trictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks:  |                    |                     |                                  | Hydric Soil Pre             | esent? Yes <u>No</u>      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | strictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks: |                    |                     |                                  | Hydric Soll Pre             | esent? Yes <u>No</u> No   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | strictive Layer (if observed):<br>Гуре:<br>Depth (inches):<br>marks: |                    |                     |                                  | Hydric Soll Pre             | esent? Yes <u>No</u>      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | strictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks: |                    |                     |                                  | Hydric Soll Pre             | esent? Yes <u>No</u>      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | strictive Layer (if observed):<br>Type:<br>Depth (inches):<br>narks: |                    |                     |                                  | Hydric Soll Pre             | esent? Yes <u>No</u>      |

| WETLAND DETERMINATION DATA FORM -                                                                                                                        | - Eastern Mountains and Piedmont Region                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Project/Site: Croblesville Philo City/Ca                                                                                                                 | ounty: MUSKINGUMCO. Sampling Date: 5/20/20                  |
| Applicant/Owner: AEP                                                                                                                                     | State: OH Sampling Point wetland                            |
|                                                                                                                                                          | on, Township, Range:                                        |
|                                                                                                                                                          | ef (concave, convex, none): Concave Slope (%): O (          |
| Subregion (LRR or MLRA): LBBN Lat: 391, 775234                                                                                                           | Long: 32.038189 Datum: NAD 83                               |
| Soil Map Unit Name: BKF-Berts Westmore and Comple                                                                                                        | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1                     |
| Are climatic / hydrologic conditions on the site typical for this time of year? Yo                                                                       |                                                             |
| Are vegetation $\underline{ND}_{-}$ , Soil $\underline{ND}_{-}$ , or Hydrology $\underline{ND}_{-}$ significantly disturb                                |                                                             |
|                                                                                                                                                          |                                                             |
| Are Vegetation $\underline{ND}$ , Soil $\underline{ND}$ , or Hydrology $\underline{ND}$ naturally problema                                               |                                                             |
| SUMMARY OF FINDINGS – Attach site map showing sam                                                                                                        | ipling point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present?       Yes       No         Hydric Soil Present?       Yes       No         Wetland Hydrology Present?       Yes       No | Is the Sampled Area<br>within a Wetland? Yes <u>No</u>      |
| Remarks: Wetland dala fin W013-PEM-CA                                                                                                                    | TMOD2                                                       |
| wenangalana                                                                                                                                              |                                                             |
| Data taken within transmission Li                                                                                                                        | ne KOW.                                                     |
| 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 (I                                                                                                                |                                                             |
| High Water Table (A2) Hydrogen Sulfide Odd                                                                                                               |                                                             |
|                                                                                                                                                          | es on Living Roots (C3) Moss Trim Lines (B16)               |
| Water Marks (B1) Presence of Reduced                                                                                                                     |                                                             |
| Sediment Deposits (B2) Recent Iron Reduction                                                                                                             |                                                             |
| Drift Deposits (B3)     Thin Muck Surface (C     Algal Mat or Crust (B4)     Other (Explain in Ren                                                       |                                                             |
| Alga Martor Close (04) Outer (Explain in Non                                                                                                             | Geomorphic Position (D2)                                    |
| Inundation Visible on Aerial Imagery (B7)                                                                                                                | Shallow Aquitard (D3)                                       |
| Water-Stained Leaves (B9)                                                                                                                                | Microtopographic Relief (D4)                                |
| Aquatic Fauna (B13)                                                                                                                                      | FAC-Neutral Test (D5)                                       |
| Field Observations: /                                                                                                                                    |                                                             |
| Surface Water Present? Yes, No Depth (inches):                                                                                                           | <u> </u>                                                    |
| Water Table Present? Yes Ves Depth (inches):                                                                                                             |                                                             |
| Saturation Present? Yes Ves Depth (inches):                                                                                                              | Wetland Hydrology Present? Yes V No                         |
| (includes capillary fringe)<br>Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre                                                 | vious inspections), if available:                           |
| Describe Recorded Data (stream gauge, mornering went donar protoc) pro                                                                                   |                                                             |
| Remarks:                                                                                                                                                 |                                                             |
| Hydrology Indicators are AZ, A3, C                                                                                                                       | 3,02,05.                                                    |
| Additional manuality and methods                                                                                                                         |                                                             |
|                                                                                                                                                          |                                                             |
|                                                                                                                                                          |                                                             |
|                                                                                                                                                          |                                                             |
|                                                                                                                                                          |                                                             |
|                                                                                                                                                          |                                                             |
|                                                                                                                                                          |                                                             |
|                                                                                                                                                          |                                                             |
|                                                                                                                                                          |                                                             |

| 2010                                                    | Absolute Dominant Indicator | Dominance Test worksheet:                                                                                         |
|---------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------|
| Tree Stratum (Plot size: 30'r)<br>1)                    | % Cover Species? Status     | Number of Dominant Species<br>That Are OBL, FACW, or FAC:(A)                                                      |
| 2<br>3                                                  |                             | Total Number of Dominant<br>Species Across All Strata: (B)                                                        |
| 4<br>5                                                  | ·                           | Percent of Dominant Species 100/ (A/B)                                                                            |
| 6                                                       |                             | Prevalence Index worksheet:                                                                                       |
| 7                                                       |                             |                                                                                                                   |
|                                                         | = Total Cover               |                                                                                                                   |
| 50% of total cover:                                     | 20% of total cover:         | OBL species x 1 =                                                                                                 |
| Sapling/Shrub Stratum (Plot size: 57)                   |                             | FACW species x 2 =                                                                                                |
| 1. Nove                                                 |                             | FAC species x 3 =                                                                                                 |
| 2,                                                      |                             | FACU species x 4 =                                                                                                |
| 3                                                       |                             | UPL species x 5 =                                                                                                 |
| 4                                                       |                             | Column Totals: (A) (B)                                                                                            |
| 5                                                       |                             | Prevalence Index = B/A =                                                                                          |
| 6                                                       |                             | Hydrophytic Vegetation Indicators:                                                                                |
| 7                                                       |                             | 1 - Rapid Test for Hydrophytic Vegetation                                                                         |
| 8                                                       |                             | 2 - Dominance Test is >50%                                                                                        |
| 9                                                       |                             | $3$ - Prevalence Index is $\leq 3.0^1$                                                                            |
|                                                         | = Total Cover               | 4 - Morphological Adaptations <sup>1</sup> (Provide supporting                                                    |
| 50% of total cover:                                     | 20% of total cover:         | data in Remarks or on a separate sheet)                                                                           |
| Herb Stratum (Plot size:)                               | 10 11 51                    | Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)                                                         |
| 1. Khalaris arundinacea                                 | 20 1 tach                   |                                                                                                                   |
| 2. Uncus ettusus                                        | 20 Y Fuch                   | The discovery of the data with an discovery based by dealers are not                                              |
| 3. Inpotens raponsis                                    | 10 y tau                    | <sup>1</sup> Indicators of hydric soil and wetland hydrology must<br>be present, unless disturbed or problematic. |
| 4. Eupatonium perfolicitum                              | 10 Y Fach                   | Definitions of Four Vegetation Strata:                                                                            |
| 5. Onliced sensibilis                                   | 15 y Fach                   |                                                                                                                   |
| 6. Persicana sagittatum                                 | 15 V Obl                    | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or                                                           |
| 7. Agrimonia parviflord                                 | 10 Y Facti                  | more in diameter at breast height (DBH), regardless of<br>height.                                                 |
| 8. Barbared Vulgaris                                    | TO Y FACE                   |                                                                                                                   |
| 9                                                       |                             | Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1        |
| 10                                                      |                             | man s m. DBH and greater man of equal to 5.26 tt (1<br>m) tall.                                                   |
|                                                         |                             | ,                                                                                                                 |
| 11                                                      | 150 = Total Cover           | Herb – All herbaceous (non-woody) plants, regardless<br>of size, and woody plants less than 3.28 ft tall.         |
| 50% of total cover:                                     | 20% of total cover:         |                                                                                                                   |
| Woody Vine Stratum (Plot size: 301/ )                   |                             | Woody vine – All woody vines greater than 3.28 ft in                                                              |
| 1. NOVE                                                 |                             | height.                                                                                                           |
| 2                                                       |                             |                                                                                                                   |
| 2                                                       | ·                           |                                                                                                                   |
| 3                                                       |                             |                                                                                                                   |
| 4                                                       |                             | Hydrophytic                                                                                                       |
| 5                                                       |                             | Vegetation<br>Present? Yes No                                                                                     |
|                                                         | = Total Cover               | Present? Yes <u>V</u> No                                                                                          |
| 50% of total cover:                                     |                             |                                                                                                                   |
| Remarks: (Include photo numbers here or on a separate s | heet.)                      |                                                                                                                   |
|                                                         | 0                           |                                                                                                                   |
| Welland veg is dun                                      | Vingal                      |                                                                                                                   |
| Weining very is brown                                   | ili on ai                   |                                                                                                                   |
|                                                         |                             |                                                                                                                   |
|                                                         |                             |                                                                                                                   |
|                                                         |                             |                                                                                                                   |
|                                                         |                             |                                                                                                                   |
|                                                         |                             |                                                                                                                   |

|                                          | pth needed to docum  | x Features  |                    |                  | II THE ADSENC |                                                                      |
|------------------------------------------|----------------------|-------------|--------------------|------------------|---------------|----------------------------------------------------------------------|
| Depth Matrix<br>(inches) Color (moist) % | Color (moist)        | x reatures  | Type'              | Loc <sup>2</sup> | Texture       | Remarks                                                              |
| 0-8 10VR412 100                          |                      |             |                    |                  | SL            |                                                                      |
| 211 301 00                               | 15/12210             | 10          | 0                  | M                | Tailo         |                                                                      |
| 8-110 -10                                | wienper              | 10          | C                  | 10.1             | loum          |                                                                      |
|                                          |                      |             |                    |                  |               |                                                                      |
|                                          |                      |             |                    |                  |               |                                                                      |
|                                          |                      |             |                    |                  | -             |                                                                      |
|                                          |                      |             |                    | -                |               |                                                                      |
|                                          |                      |             |                    |                  |               |                                                                      |
|                                          |                      |             |                    |                  |               |                                                                      |
|                                          |                      |             |                    |                  | -             |                                                                      |
|                                          |                      |             |                    |                  |               |                                                                      |
|                                          |                      |             |                    |                  |               |                                                                      |
|                                          |                      |             |                    |                  |               |                                                                      |
| Type: C=Concentration, D=Depletion, RM   | A=Reduced Matrix, MS | S=Masked    | Sand Gr            | ains.            |               | PL=Pore Lining, M=Matrix.                                            |
| Hydric Soil Indicators:                  |                      |             |                    |                  | India         | cators for Problematic Hydric Soils <sup>3</sup> :                   |
| Histosol (A1)                            | Dark Surface         | (S7)        |                    |                  | :             | 2 cm Muck (A10) <b>(MLRA 147)</b>                                    |
| Histic Epipedon (A2)                     | Polyvalue Be         | low Surfa   | ce (S8) <b>(</b> M | ILRA 147         | , 148)        | Coast Prairie Redox (A16)                                            |
| Black Histic (A3)                        | Thin Dark Su         | rface (S9)  | (MLRA 1            | 47, 148)         |               | (MLRA 147, 148)                                                      |
| Hydrogen Sulfide (A4)                    | Loamy Gleye          | d Matrix (  | F2)                |                  |               | Piedmont Floodplain Soils (F19)                                      |
| Stratified Layers (A5)                   | Depleted Mat         | trix (F3)   |                    |                  |               | (MLRA 136, 147)                                                      |
| 2 cm Muck (A10) (LRR N)                  | Redox Dark S         | Surface (F  | 6)                 |                  |               | Very Shallow Dark Surface (TF12)                                     |
| Depleted Below Dark Surface (A11)        | Depleted Dar         |             |                    |                  |               | Other (Explain in Remarks)                                           |
| Thick Dark Surface (A12)                 | Redox Depre          | •           |                    |                  |               |                                                                      |
| Sandy Mucky Mineral (S1) (LRR N,         | Iron-Mangane         |             | es (F12) <b>(</b>  | LRR N,           |               |                                                                      |
| MLRA 147, 148)                           | MLRA 13              |             |                    |                  | 3.            |                                                                      |
| Sandy Gleyed Matrix (S4)                 | Umbric Surfa         |             |                    |                  |               | dicators of hydrophytic vegetation and                               |
| Sandy Redox (S5)                         | Piedmont Flo         |             |                    |                  |               | etland hydrology must be present,<br>nless disturbed or problematic. |
| Stripped Matrix (S6)                     | Red Parent M         | laterial (F |                    | A 127, 14        | () u          | mess disturbed of problematic.                                       |
| Restrictive Layer (if observed):         |                      |             |                    |                  | 1             |                                                                      |
| Туре:                                    |                      |             |                    |                  |               |                                                                      |
|                                          |                      |             |                    |                  | Hydric So     | il Present? Yes Vo No                                                |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |
| Depth (inches):                          |                      |             |                    |                  |               |                                                                      |

| WETLAND DETERMINATION DATA FORM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | I – Eastern Mountains and Piedmont Region                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Project/Site: CrookSVIIL, Philo City                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | County: MUSKINGUMCO Sampling Date: 5/20/20                      |
| Applicant/Owner: ALP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | State: OIL Sampling Point: upland                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ction, Township, Range:                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | relief (concave, convex, none): <u>NOMO</u> Slope (%): <u>O</u> |
| Subregion (LRR or MLRA): LRRN Lat: 39. TIGLe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5 Long: 82. 786961 Datum: NAVD 83                               |
| Soil Map Unit Name: NMC2 - Westucite Sittled m Lots / Sloves NWI classification: N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                 |
| Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |
| Are Vegetation <u>NO</u> , Soil <u>NO</u> , or Hydrology <u>NO</u> significantly disturbed? Are "Normal Circumstances" present? Yes <u>V</u> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                 |
| Are vegetation $\underline{MU}$ , soil $\underline{MU}$ , or Hydrology $\underline{MU}$ as a significantly dist<br>Are Vegetation $\underline{MU}$ , soil $\underline{NU}$ , or Hydrology $\underline{MU}$ naturally problem                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                 |
| SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                 |
| SUMMARY OF FINDINGS – Attach site map showing sa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | impling point locations, transects, important features, etc.    |
| Hydrophytic Vegetation Present? Yes No Yes N | Is the Sampled Area<br>within a Wetland? Yes <u>No</u>          |
| Data taken within transmission Line 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 Roots (C3) Moss Trim Lines (B16)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 |
| Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                 |
| Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                 |
| Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                 |
| Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                 |
| Iron Deposits (B5) Geomorphic Position (D2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                 |
| Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                 |
| Water-Stained Leaves (B9) Microtopographic Relief (D4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                 |
| Aquatic Fauna (B13)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | FAC-Neutral Test (D5)                                           |
| Field Observations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |
| Surface Water Present? Yes No V Depth (inches):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | E.A.                                                            |
| Water Table Present? Yes No Depth (inches):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | /                                                               |
| Saturation Present? Yes No V Depth (inches):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Wetland Hydrology Present? Yes No                               |
| (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                 |
| Remarks:<br>Hydrology not present.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                 |

#### **VEGETATION** (Four Strata) – Use scientific names of plants.

Sampling Point:upland

| 2010                                                  | Absolute Dominant Indicator    | Dominance Test worksheet:                                                                                             |
|-------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Tree Stratum (Plot size: <u>3017</u> )<br>1. howe     | <u>% Cover Species? Status</u> | Number of Dominant Species (A)                                                                                        |
| 2                                                     |                                | Total Number of Dominant 5 (B)                                                                                        |
| 4                                                     |                                | Percent of Dominant Species<br>That Are OBL, FACW, or FAC:                                                            |
| 6                                                     |                                |                                                                                                                       |
| 7                                                     |                                | Prevalence Index worksheet:                                                                                           |
|                                                       | = Total Cover                  | Total % Cover of: Multiply by:                                                                                        |
|                                                       | 20% of total cover:            | OBL species x 1 =                                                                                                     |
| Sapling/Shrub Stratum (Plot size: 150)                |                                | FACW species x 2 =                                                                                                    |
| 1. hove                                               |                                | FAC species x 3 =                                                                                                     |
| 2                                                     |                                | FACU species x 4 =                                                                                                    |
| 3                                                     |                                | UPL species x 5 =                                                                                                     |
| 4                                                     |                                | Column Totals: (A) (B)                                                                                                |
| 5                                                     |                                | Prevalence Index = B/A =                                                                                              |
| 7                                                     |                                | Hydrophytic Vegetation Indicators:                                                                                    |
| 8                                                     |                                | 1 - Rapid Test for Hydrophytic Vegetation                                                                             |
|                                                       |                                | 2 - Dominance Test is >50%                                                                                            |
| 9                                                     | = Total Cover                  | 3 - Prevalence Index is ≤3.0 <sup>1</sup>                                                                             |
| 50% of total cover                                    | 20% of total cover:            | 4 - Morphological Adaptations <sup>1</sup> (Provide supporting                                                        |
| Herb Stratum, (Plot size: 5 ( )                       |                                | data in Remarks or on a separate sheet)                                                                               |
| 1. Dactulisalumerata                                  | 30 VI Fach                     | Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)                                                             |
| 2. Achilled milletohum                                | 10 1 600                       |                                                                                                                       |
| A:                                                    | Huco                           | <sup>1</sup> Indicators of hydric soil and wetland hydrology must                                                     |
| 3. Cirsium arverse                                    | - to - y tacy                  | be present, unless disturbed or problematic.                                                                          |
| 4. Barbared Vulgaris                                  | -12 - Y Laa                    | Definitions of Four Vegetation Strata:                                                                                |
| 5. Verbascum thapsus                                  | 15 Y Face                      |                                                                                                                       |
| 6                                                     |                                | <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of |
| 7                                                     |                                | height.                                                                                                               |
| 8                                                     |                                | -                                                                                                                     |
| 9                                                     |                                | Sapling/Shrub – Woody plants, excluding vines, less<br>than 3 in. DBH and greater than or equal to 3.28 ft (1         |
| 10                                                    |                                | man sin. DBH and greater than of equal to 5.26 tr (1                                                                  |
|                                                       |                                | , , , , , , , , , , , , , , , , , , ,                                                                                 |
| 11,                                                   | 100                            | Herb – All herbaceous (non-woody) plants, regardless                                                                  |
|                                                       | <u> </u>                       | of size, and woody plants less than 3.28 ft tall.                                                                     |
| 50% of total cover:                                   | 20% of total cover:            | Woody vine – All woody vines greater than 3.28 ft in                                                                  |
| Woody Vine Stratum (Plot size: 201)                   |                                | height.                                                                                                               |
| 1. NONQ                                               | · · · ·                        |                                                                                                                       |
| 2                                                     |                                |                                                                                                                       |
| 3                                                     |                                |                                                                                                                       |
| 4                                                     |                                | Hydrophytic /                                                                                                         |
| 5                                                     |                                | Vegetation                                                                                                            |
|                                                       | = Total Cover                  | Present? Yes No V                                                                                                     |
| 50% of total cover:                                   | 20% of total cover:            |                                                                                                                       |
| Remarks: (Include photo numbers here or on a separate | sheet.)                        |                                                                                                                       |
|                                                       | 0                              |                                                                                                                       |
| Upland veg is domina                                  | 1 f                            |                                                                                                                       |
|                                                       | Sec. 1                         |                                                                                                                       |
|                                                       |                                |                                                                                                                       |
|                                                       |                                |                                                                                                                       |
|                                                       |                                |                                                                                                                       |
|                                                       |                                |                                                                                                                       |
|                                                       |                                |                                                                                                                       |
|                                                       |                                |                                                                                                                       |

#### SOIL

## Sampling Point: upland

| Profile Description: (Describe to the dept                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                           |                                                                                                                  |                                                 | or contirm         | the absence of                             | indicators.)                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|--------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Matrix       (inches)     Color (moist)     %       O-16     104R43     100                                                                                                                                                                                                                                                                                            | Color (moist)                                                                                                                                                                             | <u>Features</u>                                                                                                  | Type <sup>1</sup>                               | Loc <sup>2</sup>   | <u>Texture</u><br>SU                       | Remarks                                                                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                           |                                                                                                                  |                                                 |                    |                                            |                                                                                                                                                                                                         |
| Type: C=Concentration, D=Depletion, RM=<br>Hydric Soil Indicators:                                                                                                                                                                                                                                                                                                     | Reduced Matrix, MS                                                                                                                                                                        | =Masked                                                                                                          | Sand Gra                                        | ains.              |                                            | Pore Lining, M=Matrix.<br>Irs for Problematic Hydric Soils <sup>3</sup> :                                                                                                                               |
| <ul> <li>Histosol (A1)</li> <li>Histic Epipedon (A2)</li> <li>Black Histic (A3)</li> <li>Hydrogen Sulfide (A4)</li> <li>Stratified Layers (A5)</li> <li>2 cm Muck (A10) (LRR N)</li> <li>Depleted Below Dark Surface (A11)</li> <li>Thick Dark Surface (A12)</li> <li>Sandy Mucky Mineral (S1) (LRR N,<br/>MLRA 147, 148)</li> <li>Sandy Gleyed Matrix (S4)</li> </ul> | Dark Surface     Polyvalue Bele     Thin Dark Sur     Loamy Gleyee     Depleted Matr     Redox Dark S     Depleted Dark     Redox Depres     Iron-Mangane     MLRA 136     Umbric Surface | ow Surfac<br>face (S9)<br>d Matrix (F<br>rix (F3)<br>surface (F6<br>& Surface (<br>ssions (F8<br>ese Masse<br>s) | (MLRA 1<br>52)<br>5)<br>(F7)<br>)<br>s (F12) (I | 47, 148)<br>_RR N, | 148) Coa<br>(1<br>Piec<br>(1<br>Ven<br>Oth | n Muck (A10) <b>(MLRA 147)</b><br>ast Prairie Redox (A16)<br><b>MLRA 147, 148)</b><br>dmont Floodplain Soils (F19)<br><b>MLRA 136, 147)</b><br>y Shallow Dark Surface (TF12)<br>er (Explain in Remarks) |
| Sandy Redox (S5)<br>Stripped Matrix (S6)<br>Restrictive Layer (if observed):                                                                                                                                                                                                                                                                                           | Piedmont Floo                                                                                                                                                                             | odplain So                                                                                                       | ils (F19)                                       | (MLRA 14           | 8) wetla                                   | nd hydrology must be present,<br>s disturbed or problematic.                                                                                                                                            |
| Type:<br>Depth (inches):                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                           |                                                                                                                  |                                                 |                    | Hydric Soil Pi                             | resent? Yes No                                                                                                                                                                                          |
| Remarks:<br>Hydric Soils N                                                                                                                                                                                                                                                                                                                                             | of present                                                                                                                                                                                | ¢.                                                                                                               |                                                 |                    |                                            |                                                                                                                                                                                                         |

010

#### WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

| Project/Site:                           |                          | City/C               | ounty:                   |                     | Sampling Date:             |
|-----------------------------------------|--------------------------|----------------------|--------------------------|---------------------|----------------------------|
| Applicant/Owner:                        |                          |                      |                          | State:              | Sampling Point:            |
| Investigator(s):                        |                          | Section              | n, Township, Range:      |                     |                            |
| Landform (hillslope, terrace, etc.):    |                          | Local reli           | ef (concave, convex, non | e):                 | Slope (%):                 |
| Subregion (LRR or MLRA):                | Lat:                     |                      | Long:                    |                     | Datum:                     |
| Soil Map Unit Name:                     |                          |                      |                          | NWI classific       | cation:                    |
| Are climatic / hydrologic conditions or | the site typical for thi | s time of year? Y    | es No (I                 | lf no, explain in R | Remarks.)                  |
| Are Vegetation, Soil,                   | or Hydrologys            | significantly distur | bed? Are "Normal         | Circumstances"      | present? Yes No            |
| Are Vegetation, Soil,                   | or Hydrology r           | naturally problema   | tic? (If needed, ex      | xplain any answe    | ers in Remarks.)           |
| SUMMARY OF FINDINGS -                   | Attach site map          | showing sam          | pling point location     | ns, transects       | s, important features, etc |
| Hydrophytic Vegetation Present?         | Yes N                    | lo                   | Is the Sampled Area      |                     |                            |
| Hydric Soil Present?                    | Yes N                    |                      | within a Wetland?        | Yes                 | No                         |
| Wetland Hydrology Present?              | Yes N                    | lo                   |                          |                     |                            |

#### HYDROLOGY

Remarks:

| Wetland Hydrology Indicato                                                         |                    |                                           | Secondary Indicators (minimum of two required) |
|------------------------------------------------------------------------------------|--------------------|-------------------------------------------|------------------------------------------------|
| Primary Indicators (minimum                                                        | of one is required | Surface Soil Cracks (B6)                  |                                                |
| Surface Water (A1)                                                                 |                    | Sparsely Vegetated Concave Surface (B8)   |                                                |
| High Water Table (A2)                                                              |                    | Drainage Patterns (B10)                   |                                                |
| Saturation (A3)                                                                    |                    | ng Roots (C3) Moss Trim Lines (B16)       |                                                |
| Water Marks (B1) Presence of Reduced Iron (C4)                                     |                    |                                           | ) Dry-Season Water Table (C2)                  |
| Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6)                  |                    | Soils (C6) Crayfish Burrows (C8)          |                                                |
| Drift Deposits (B3) Thin Muck Surface (C7)                                         |                    | Saturation Visible on Aerial Imagery (C9) |                                                |
| Algal Mat or Crust (B4) Other (Explain in Remarks)                                 |                    |                                           | Stunted or Stressed Plants (D1)                |
| Iron Deposits (B5)                                                                 |                    | Geomorphic Position (D2)                  |                                                |
| Inundation Visible on Aer                                                          | rial Imagery (B7)  |                                           | Shallow Aquitard (D3)                          |
| Water-Stained Leaves (B                                                            | 39)                |                                           | Microtopographic Relief (D4)                   |
| Aquatic Fauna (B13)                                                                |                    |                                           | FAC-Neutral Test (D5)                          |
| Field Observations:                                                                |                    |                                           |                                                |
| Surface Water Present?                                                             | Yes No             | Depth (inches):                           | _                                              |
|                                                                                    |                    |                                           |                                                |
| Water Table Present?                                                               | Yes No             | Depth (inches):                           | _                                              |
| Saturation Present?                                                                |                    | Depth (inches):<br>Depth (inches):        |                                                |
| Saturation Present?<br>(includes capillary fringe)                                 | Yes No             |                                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)                                 | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)                                 | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |
| Saturation Present?<br>(includes capillary fringe)<br>Describe Recorded Data (stre | Yes No             | Depth (inches):                           | _ Wetland Hydrology Present? Yes No            |

## **VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: \_\_\_\_\_

|                                   | Absolute Dominant Indicate     | Dominance Test worksheet:                                                                  |
|-----------------------------------|--------------------------------|--------------------------------------------------------------------------------------------|
| Tree Stratum (Plot size:)         | <u>% Cover Species? Status</u> | Number of Dominant Species                                                                 |
| 1                                 |                                | That Are OBL, FACW, or FAC: (A)                                                            |
| 2                                 |                                | <ul> <li>Total Number of Dominant</li> </ul>                                               |
| 3                                 |                                | Species Across All Strata: (B)                                                             |
| 4                                 |                                |                                                                                            |
| 5                                 |                                | <ul> <li>Percent of Dominant Species</li> <li>That Are OBL, FACW, or FAC: (A/B)</li> </ul> |
| 6                                 |                                | That Are OBL, FACW, or FAC: (A/B)                                                          |
|                                   |                                | Prevalence Index worksheet:                                                                |
| 7                                 |                                |                                                                                            |
| 8                                 |                                | OBL species x 1 =                                                                          |
| Conling/Chruh Stratum (Distaire)  | = Total Cover                  | FACW species x 2 =                                                                         |
| Sapling/Shrub Stratum (Plot size: |                                |                                                                                            |
| 1                                 |                                | FAC species x 3 =                                                                          |
| 2                                 |                                | FACU species x 4 =                                                                         |
| 3                                 |                                | UPL species x 5 =                                                                          |
| 4                                 |                                | Column Totals: (A) (B)                                                                     |
| 5                                 |                                |                                                                                            |
| 6                                 |                                | Prevalence Index = B/A =                                                                   |
| 7                                 |                                | Hydrophytic Vegetation Indicators:                                                         |
|                                   |                                | 1 - Rapid Test for Hydrophytic Vegetation                                                  |
| 8                                 |                                | 2 - Dominance Test is >50%                                                                 |
| 9                                 |                                | 3 - Prevalence Index is ≤3.0 <sup>1</sup>                                                  |
| 10                                |                                | 4 - Morphological Adaptations <sup>1</sup> (Provide supporting                             |
| Llorh Strotum (Diot size)         | = Total Cover                  | data in Remarks or on a separate sheet)                                                    |
| Herb Stratum (Plot size:)         |                                | Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)                                  |
| 1                                 |                                |                                                                                            |
| 2                                 |                                | <sup>1</sup> Indicators of hydric soil and wetland hydrology must                          |
| 3                                 |                                | <ul> <li>be present, unless disturbed or problematic.</li> </ul>                           |
| 4                                 |                                |                                                                                            |
| 5                                 |                                |                                                                                            |
| 6                                 |                                | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or                                    |
| 7                                 |                                | <ul> <li>more in diameter at breast height (DBH), regardless of<br/>height.</li> </ul>     |
|                                   |                                |                                                                                            |
| 8                                 |                                | <ul> <li>Sapling/Shrub – Woody plants, excluding vines, less</li> </ul>                    |
| 9                                 |                                | than 3 in. DBH and greater than 3.28 ft (1 m) tall.                                        |
| 10                                |                                | Herb – All herbaceous (non-woody) plants, regardless                                       |
| 11                                |                                | <ul> <li>of size, and woody plants less than 3.28 ft tall.</li> </ul>                      |
| 12                                |                                | — We a device All we advantage of the test of the second state                             |
|                                   | = Total Cover                  | <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.                        |
| Woody Vine Stratum (Plot size:    | )                              | noight.                                                                                    |
| 1                                 |                                | _                                                                                          |
| 2                                 |                                | _                                                                                          |
| 3                                 |                                | _                                                                                          |
| 4                                 |                                |                                                                                            |
| 5                                 |                                | Hydrophytic                                                                                |
| •                                 |                                | Vegetation     Present? Yes No                                                             |
| 6                                 |                                |                                                                                            |
| 6                                 | = Total Cover                  | —                                                                                          |

| Depth                  | Matrix                                    | Redox Features                                       |                                                                                          |
|------------------------|-------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------|
| inches)                | Color (moist)                             | % Color (moist) % Type <sup>1</sup> Loc <sup>2</sup> | Texture Remarks                                                                          |
|                        |                                           |                                                      |                                                                                          |
|                        | ·                                         |                                                      |                                                                                          |
|                        | ·                                         |                                                      |                                                                                          |
|                        | ·                                         |                                                      |                                                                                          |
|                        |                                           |                                                      |                                                                                          |
|                        |                                           |                                                      |                                                                                          |
|                        | Concentration, D=Depletior<br>Indicators: | n, RM=Reduced Matrix, MS=Masked Sand Grains.         | <sup>2</sup> Location: PL=Pore Lining, M=Matrix.<br>Indicators for Problematic Hydric So |
| Histoso                | l (A1)                                    | Dark Surface (S7)                                    | 2 cm Muck (A10) (MLRA 147)                                                               |
| Histic E               | pipedon (A2)                              | Polyvalue Below Surface (S8) (MLRA 147               |                                                                                          |
| Black H                | listic (A3)                               | Thin Dark Surface (S9) (MLRA 147, 148)               | (MLRA 147, 148)                                                                          |
| Hydrog                 | en Sulfide (A4)                           | Loamy Gleyed Matrix (F2)                             | Piedmont Floodplain Soils (F19)                                                          |
| Stratifie              | d Layers (A5)                             | Depleted Matrix (F3)                                 | (MLRA 136, 147)                                                                          |
| _                      | uck (A10) (LRR N)                         | Redox Dark Surface (F6)                              | Very Shallow Dark Surface (TF12)                                                         |
|                        | ed Below Dark Surface (A1                 |                                                      | Other (Explain in Remarks)                                                               |
| Thick D                | ark Surface (A12)                         | Redox Depressions (F8)                               |                                                                                          |
| Sandy I                | Mucky Mineral (S1) (LRR I                 | N, Iron-Manganese Masses (F12) (LRR N,               |                                                                                          |
| MLR                    | A 147, 148)                               | MLRA 136)                                            |                                                                                          |
|                        | Gleyed Matrix (S4)                        | Umbric Surface (F13) (MLRA 136, 122)                 | <sup>3</sup> Indicators of hydrophytic vegetation                                        |
| Sandy                  | Redox (S5)                                | Piedmont Floodplain Soils (F19) (MLRA 1              | 148) wetland hydrology must be presen                                                    |
|                        |                                           |                                                      | 47) unless disturbed or problematic.                                                     |
| _ Sandy                | d Matrix (S6)                             | Red Parent Material (F21) (MLRA 127, 14              |                                                                                          |
| Sandy Sandy            |                                           | Red Parent Material (F21) (MLRA 127, 14              |                                                                                          |
| _ Sandy  <br>_ Strippe | d Matrix (S6)                             | Red Parent Material (F21) (MLRA 127, 14              |                                                                                          |

# APPENDIX C Primary Headwater Habitat Evaluation (HHEI/QHEI) Data Forms



Version 4.0 October 2018

| hio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ñZ.                                              |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | RIVER BASIN 050400040201 RIVER CODE DRAINAGE AREA (MP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | uctions                                          |
| (Max of 32). A<br>TYPE<br>BLDR SLA<br>BOULDER<br>BOULDER<br>BEDROCK<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COBBLE<br>COB | PERCENT     TYPE     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Substrate types found (max of s) Plinal mentic score is subility founds at a B     PERCENT       BS [16 pts]     Image: Su | HHEI<br>Aetric<br>Points<br>ubstrate<br>Aax = 40 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ion Avoid plunge pools from road culverts or storm water pipes)         (Check ONLY one box).         N           s [20 pts]         5 cm - 10 cm [15 pts]         [30 pts]         < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ax = 30                                          |
| > 4.0 meters (> > 3.0 m - 4.0 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 13') [30 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Sankfull<br>Width<br>Max=30                      |
| COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | U                                                |
| L R (F<br>- Wid<br>- Wid<br>- Wid<br>- Nar<br>- Nar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                  |
| FLOW<br>Stream<br>COMM<br>SINUO<br>SINUO<br>0 5<br>STREAM GRA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | acc flow with isolated pools (interstitial)       Dry channel. no water (ephemeral)         NTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                  |
| Dottoper 2013 Revisio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Flat to Moderate Πoderate 2 τ100 τ Moderate to Severe Severe 10 τ100 τ<br>Pege I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                  |

| USGS Quadrangle Name:       NRCS Soil Map Page:       NRCS Soil Map Stream Order:         County:       MUSKINGUMCO       Township/City:         MISCELLANEOUS       Base Flow Conditions? (Y/N):       Date of last precipitation:       5/14/20       Quantity:       6/25/1         Photo-documentation Notes                                                                                                                                                                                   | /       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| MISCELLANEOUS         Base Flow Conditions? (Y/N):       Date of last precipitation:       5114120       Quantity:       6251         Photo-documentation Notes                                                                                                                                                                                                                                                                                                                                    | /       |
| Photo-documentation Notes         Elevated Turbidity?(Y/N):       Canopy (% open):         Were samples collected for water chemistry? (Y/N):       Lab Sample # or ID (attach results):         Field Measures:Temp (*C)       Dissolved Oxygen (mg/l)       pH (S.U)         Stell sampling reach representative of the stream (Y/N)       If not, explain:         Additional comments/description of pollution impacts         BIOLOGICAL OBSERVATIONS         (Record all observations below) |         |
| Elevated Turbidity?(Y/N):       Canopy (% open):       5011.         Were samples collected for water chemistry?(Y/N):       Lab Sample # or ID (attach results):         Field Measures:Temp (*C)       Dissolved Oxygen (mg/l)       pH (S.U.)         Conductivity (umbos/cm)       is the sampling reach representative of the stream (Y/N)       If not, explain:         Additional comments/description of pollution impacts                                                                |         |
| Were samples collected for water chemistry? (Y/N):       Lab Sample # or ID (attach results):         Field Measures:Temp (*C)       Dissolved Oxygen (mg/l)       pH (S.U.)         Is the sampling reach representative of the stream (Y/N)       If not, explain:         Additional comments/description of pollution impacts.         Biol OGICAL OBSERVATIONS (Record all observations below)                                                                                                |         |
| Field Measures:Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umbos/cm)         Is the sampling reach representative of the stream (Y/N) If not, explain:         Additional comments/description of pollution impacts                                                                                                                                                                                                                                                                  |         |
| Is the sampling reach representative of the stream (Y/N)<br>Additional comments/description of pollution impacts           BioLOGICAL OBSERVATIONS           (Record all observations below)                                                                                                                                                                                                                                                                                                       |         |
| Additional comments/description of pollution impacts BIOLOGICAL OBSERVATIONS (Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                       |         |
| BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| (Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| Fish Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |
| Frogs or Tadpoles Observed? (Y/N) N Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |
| Salamanders Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |
| Aquatic Macroinvertebrates Observed? (Y/N) M Species observed (if known)                                                                                                                                                                                                                                                                                                                                                                                                                           |         |
| Comments Regarding Biology:                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location                                                                                                                                                                                                                                                                                                                                                                | eted)   |
| openfield/lown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |
| () () Operation ()                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |
| NO PONTO ALXY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| FLOW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Deation |
| FLOW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |

.

| SITE NAME/LOCATIONSITE NUMBE                                                                        | R                          | HHEI Score                                      | 801 DRAINAG                                  | E AREA (mi <sup>2</sup> ) | 5.<br>Sami          |
|-----------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------|----------------------------------------------|---------------------------|---------------------|
| LENGTH OF STREAM REACH (ft) 334<br>DATE 518 20 SCORER KU                                            |                            | 0000                                            | ER CODE                                      | _ RIVER MILE              |                     |
| DATE DIG COMPLETE SCORER SCO<br>NOTE: Complete All Items On This                                    | COMN                       | IENTS                                           | Obio's PHWH Str                              | eame" for Instru          | uctions             |
|                                                                                                     |                            |                                                 |                                              |                           |                     |
| STREAM CHANNEL DIANONE<br>MODIFICATIONS:                                                            | / NATURAL CHANN            |                                                 | OVERING LJ RECI                              | ENT OR NO RECO            | DVERY               |
|                                                                                                     |                            |                                                 |                                              |                           |                     |
| <ol> <li>SUBSTRATE (Estimate percent of signal of 40). Add total number of signal of 40.</li> </ol> |                            |                                                 |                                              |                           | HHE                 |
| TYPE                                                                                                | PERCENT                    | TYPE                                            |                                              | PERCENT                   | Metri<br>Point      |
| BLDR SLABS [16 pts]                                                                                 |                            | SILT [3 pt]                                     | DEBRIS [3 ots]                               | 10                        | FOIII               |
| BEDROCK [16 pt]                                                                                     |                            |                                                 |                                              |                           | Substra<br>Max = 4  |
| COBBLE (65-256 mm) [12 pts]                                                                         | 15                         |                                                 | [0 pt]                                       |                           | 10                  |
| GRAVEL (2-64 mm) [9 pts]                                                                            | 30                         | MUCK [0 pts]                                    |                                              |                           | 13                  |
| Total of Percentages of                                                                             | (A                         |                                                 |                                              | (B)                       |                     |
| Bldr Slabs, Boulder, Cobble, Bedro                                                                  | ck                         | 9                                               |                                              | 4                         | A + B               |
| SCORE OF TWO MOST PREDOMINATE S                                                                     | SUBSTRATE TYPES            | TOTAL NUMBER                                    | R OF SUBSTRATE T                             | YPES:                     |                     |
| <ol> <li>Maximum Pool Depth (Measure a<br/>evaluation. Avoid plunge pools from</li> </ol>           |                            |                                                 |                                              | he time of                | Pool Dep<br>Max = 3 |
| > 30 centimeters [20 pts]                                                                           |                            | > 5 cm - 10 cm [15 p                            |                                              |                           | Max -               |
| > 22.5 - 30 cm [30 pts]<br>> 10 - 22.5 cm [25 pts]                                                  |                            | < 5 cm [5 pts] NO WATER OR MO                   | IST CHANNEL 10 pt                            |                           | 15                  |
| COMMENTS                                                                                            |                            |                                                 | OL DEPTH (centim                             |                           |                     |
| BANK FULL WIDTH (Measured a > 4.0 meters (> 13') [30 pts]                                           | s the average of 3-4       | measurements) (Check<br>> 1.0 m - 1.5 m (> 3' 3 | ONLY one box):                               |                           | Bankfu<br>Width     |
| > 3.0 m - 4 0 m (> 9' 7" - 13') [25 pts                                                             |                            | $\square \le 1.0 \text{ m} (\le 3'3'')$ [5 pt   |                                              |                           | Max=30              |
| > 1.5 m - 3 0 m (> 4' 8" - 9' 7") [20 pt                                                            | s]                         |                                                 |                                              | 41                        | 15                  |
| COMMENTS                                                                                            |                            | AVERAGE BA                                      | NKFULL WIDTH (m                              | eters)                    | 1.5                 |
|                                                                                                     | The last                   |                                                 |                                              |                           |                     |
| RIPARIAN ZONE AND FLO                                                                               | OODPLAIN QUALITY           |                                                 |                                              | lownstream☆               |                     |
| RIPARIAN WIDTH                                                                                      | <u>FLOODPLAI</u><br>L R (M | IN QUALITY<br>lost Predominant per Bank)        | I D                                          |                           |                     |
| Wide >10m                                                                                           |                            | ature Forest, Wetland                           |                                              | rvation Tillage           |                     |
| Moderate 5-10m                                                                                      |                            | mature Forest, Shrub or Old<br>eld              | Urban                                        | or Industrial             |                     |
| Narrow <5m                                                                                          | /                          | esidential, Park, New Field                     |                                              | Pasture, Row              |                     |
|                                                                                                     |                            | nced Pasture                                    | Crop                                         | or Construction           |                     |
| COMMENT'S                                                                                           |                            |                                                 |                                              |                           |                     |
| FLOW REGIME (At Time o<br>Stream Flowing<br>Subsurface flow with isolate<br>COMMENTS                |                            | 🔲 🛛 Moist Channe                                | el, isolated pools, no<br>no water (Ephemera |                           |                     |
| SINUOSITY (Number of be                                                                             | nds per 61 m (200 ft)      | of channel) (Check ONLY one b                   | ox)                                          |                           |                     |
| None None                                                                                           | 1.0                        | 2.0                                             | 3,0                                          |                           |                     |
| 0.5                                                                                                 |                            | 2.5                                             | >3                                           |                           |                     |
|                                                                                                     |                            |                                                 |                                              |                           |                     |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                | (If Yes, Attach Completed QHEI Form)                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE(S)                                                                                                                                                                                                                                                                                                                                                                                                                   | Distance from Evaluated Others                                                                                                                                                                                                                                                               |
| SWWH Name: BrushCreek                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                              |
| EWH Name:                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                              |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE W                                                                                                                                                                                                                                                                                                                                                                                         | ATERSHED AREA. CLEARLY MARK THE SITE LOCATION                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                | S Soil Map Page: NRCS Soil Map Stream Order                                                                                                                                                                                                                                                  |
| County: <u>MUSEINGUMLO</u> Township / Ci                                                                                                                                                                                                                                                                                                                                                                                                       | ity:                                                                                                                                                                                                                                                                                         |
| MISCELLANEOUS                                                                                                                                                                                                                                                                                                                                                                                                                                  | E()                                                                                                                                                                                                                                                                                          |
| Base Flow Conditions? (Y/N): Date of last precipitation:B                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                              |
| Photograph Information:                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                              |
| Elevated Turbidity? (Y/N); N Canopy (% open): 160 / .                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                              |
| Nere samples collected for water chemistry? (Y/N): <u>M</u> (Note lab sample                                                                                                                                                                                                                                                                                                                                                                   | e no, or id, and attach results) Lab Number:                                                                                                                                                                                                                                                 |
| Field Measures: Temp (°C) Dissolved Oxygen (mg/l) p                                                                                                                                                                                                                                                                                                                                                                                            | pH (S.U.)Conductivity (μmhos/cm)                                                                                                                                                                                                                                                             |
| s the sampling reach representative of the stream (Y/N)                                                                                                                                                                                                                                                                                                                                                                                        | explain                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                | олриян                                                                                                                                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                              |
| BIOTIC EVALUATION                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                              |
| Performed? (Y/N): (If Yes, Record all observations. Voucher collecti                                                                                                                                                                                                                                                                                                                                                                           | oinvertebrates Observed? (Y/N) Voucher? (Y/N)                                                                                                                                                                                                                                                |
| Performed? (Y/N): (If Yes, Record all observations. Voucher collecti<br>ID number. Include appropriate field data sheets<br>Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro                                                                                                                                                                                         | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) M Voucher? (Y/N) Voucher? (Y/N)<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N)                                                                                                                                           |
| Performed? (Y/N): (If Yes, Record all observations. Voucher collecti<br>ID number. Include appropriate field data sheets<br>Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro                                                                                                                                                                                         | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) M Voucher? (Y/N) Voucher? (Y/N)<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N)                                                                                                                                           |
| Performed? (Y/N): (If Yes, Record all observations. Voucher collecti<br>ID number, Include appropriate field data sheets<br>Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro<br>Comments Regarding Biology:                                                                                                                                                          | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) N Voucher? (Y/N) Voucher? (Y/N)<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N)                                                                                                                                           |
| Performed? (Y/N): (If Yes, Record all observations. Voucher collecti<br>ID number. Include appropriate field data sheets<br>Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro                                                                                                                                                                                         | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N)<br>cinvertebrates Observed? (Y/N) Voucher? (Y/N)<br>TREAM REACH (This must be completed):                                                                                                    |
| Performed? (Y/N): (If Yes, Record all observations. Voucher collecti<br>ID number. Include appropriate field data sheets<br>Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed?<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro<br>Comments Regarding Biology:<br>Comments Regarding Biology:<br>DRAWING AND NARRATIVE DESCRIPTION OF S<br>Include important landmarks and other features of interest for site ev      | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) M<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N) M<br><b>TREAM REACH (This <u>must</u> be completed):</b><br>valuation and a narrative description of the stream's location |
| Performed? (Y/N): (If Yes, Record all observations. Voucher collecti<br>ID number. Include appropriate field data sheets<br>Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed?<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro<br>Comments Regarding Biology:<br>Comments Regarding Biology:<br>DRAWING AND NARRATIVE DESCRIPTION OF S<br>Include important landmarks and other features of interest for site ev      | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) M<br>invertebrates Observed? (Y/N) Voucher? (Y/N) M<br>TREAM REACH (This <u>must</u> be completed):<br>valuation and a narrative description of the stream's location         |
| Performed? (Y/N): (If Yes, Record all observations. Voucher collecti<br>ID number. Include appropriate field data sheets<br>Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed?<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro<br>Comments Regarding Biology:<br>Comments Regarding Biology:<br>DRAWING AND NARRATIVE DESCRIPTION OF S<br>Include important landmarks and other features of interest for site ev      | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) M<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N) M<br><b>TREAM REACH (This <u>must</u> be completed):</b><br>valuation and a narrative description of the stream's location |
| Performed? (Y/N): (If Yes, Record all observations. Voucher collecti<br>ID number. Include appropriate field data sheets<br>Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed?<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro<br>Comments Regarding Biology:<br>Comments Regarding Biology:<br>DRAWING AND NARRATIVE DESCRIPTION OF S<br>Include important landmarks and other features of interest for site ex-<br> | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) M<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N) M<br><b>TREAM REACH (This <u>must</u> be completed):</b><br>valuation and a narrative description of the stream's location |
| Performed? (Y/N):                                                                                                                                                                                                                                                                                                                                                                                                                              | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) M<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N) M<br><b>TREAM REACH (This <u>must</u> be completed):</b><br>valuation and a narrative description of the stream's location |
| Performed? (Y/N):                                                                                                                                                                                                                                                                                                                                                                                                                              | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) M<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N) M<br><b>TREAM REACH (This <u>must</u> be completed):</b><br>valuation and a narrative description of the stream's location |
| Performed? (Y/N):                                                                                                                                                                                                                                                                                                                                                                                                                              | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) M<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N) M<br><b>TREAM REACH (This <u>must</u> be completed):</b><br>valuation and a narrative description of the stream's location |
| Performed? (Y/N):                                                                                                                                                                                                                                                                                                                                                                                                                              | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) M<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N) M<br><b>TREAM REACH (This <u>must</u> be completed):</b><br>valuation and a narrative description of the stream's location |
| Performed? (Y/N):                                                                                                                                                                                                                                                                                                                                                                                                                              | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) M<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N) M<br><b>TREAM REACH (This <u>must</u> be completed):</b><br>valuation and a narrative description of the stream's location |
| Performed? (Y/N):                                                                                                                                                                                                                                                                                                                                                                                                                              | from the Primary Headwater Habitat Assessment Manual)<br>d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) M<br>oinvertebrates Observed? (Y/N) Voucher? (Y/N) M<br><b>TREAM REACH (This <u>must</u> be completed):</b><br>valuation and a narrative description of the stream's location |

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| DATE 518                                                                           | SITE NUMBER                                                                                                                                   | LAT <u>91.8</u>               | RIVER BASIN 504000408<br>RIVER BASIN 504000408<br>DOMENTS                                                                                                                                                                                       | ÆR CODE                                        |                                                                                                                         |                                         |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| STREAM CI                                                                          |                                                                                                                                               | NATURAL CHA                   |                                                                                                                                                                                                                                                 | OVERING                                        | RECENT OR NO RECO                                                                                                       | OVERY                                   |
| (Max<br>TYPE B<br>B B<br>C C<br>C C<br>C C<br>C C<br>C C<br>C C<br>C C<br>C C<br>C |                                                                                                                                               | PERCENT                       | substrate present. Check ONLY two<br>e types found (Max of 8). Final metric<br>TYPE<br>SILT [3 pt]<br>LEAF PACK/WOODY<br>FINE DETRITUS [3<br>CLAY or HARDPAN<br>MUCK [0 pts]<br>ARTIFICIAL [3 pts]<br>(A)<br>DES:<br>TOTAL NUMBE                | DEBRIS [3 pl<br>DEBRIS [3 pl<br>pts]<br>[0 pt] | of boxes A & B.  PERCENT  s] (B) (B)                                                                                    | HHE<br>Metr<br>Poin<br>Substr:<br>Max = |
| evalu:<br>> 30 cc<br>> 22.5<br>> 10 -                                              |                                                                                                                                               |                               | ol depth within the 61 meter (200 ft<br>storm water pipes) (Check ONLY of<br>5 cm - 10 cm [15 g<br>5 cm [5 pts]<br>NO WATER OR MO                                                                                                               | one box):<br>pts]<br>NST CHANNE                | [0 pts]                                                                                                                 | Pool De<br>Max =                        |
| ⇒ 4.0 m > 3.0 m > 1.5 m                                                            | K FULL WIDTH (Measured as t<br>heters (> 13') [30 pts]<br>h - 4.0 m (> 9' 7" - 13') [25 pts]<br>h - 3.0 m (> 4' 8" - 9' 7") [20 pts]<br>MENTS | he average of                 | 3-4 measurements) (Checl                                                                                                                                                                                                                        | ts]                                            | ts]                                                                                                                     | Bankfu<br>Width<br>Max=3                |
|                                                                                    | None                                                                                                                                          | DPLAIN QUAI                   | Information <u>must</u> also be complete<br>LTY ☆NOTE: River Left (L) and<br>PLAIN QUALITY<br>(Most Predominant per Bank)<br>Mature Forest, Wetland<br>Immature Forest, Shrub or Old<br>Field<br>Residential, Park, New Field<br>Fenced Pasture |                                                | oking downstream☆<br>Conservation Tillage<br>Urban or Industrial<br>Open Pasture, Row<br>Crop<br>Mining or Construction |                                         |
| ×                                                                                  | COMMENTS<br>FLOW REGIME (At Time of E<br>Stream Flowing<br>Subsurface flow with isolated p<br>COMMENTS                                        | , ,                           | 🔲 🛛 Moist Chann                                                                                                                                                                                                                                 | el, isolated poo<br>no water (Epi              | ols, no flow (Intermittent)<br>nemeral)                                                                                 |                                         |
| STRE                                                                               | SINUO SITY (Number of bend<br>None<br>0.5                                                                                                     | sper61 m (200<br>1 1.0<br>1.5 | 0 ft) of channel) (Check ONLY one b<br>☐ 2.0<br>☐ 2.5                                                                                                                                                                                           | Dox):                                          | 3.0<br>>3                                                                                                               |                                         |

| ADDITIONAL STREAM INFORMATION (Th                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | s Information Must Also be Completed):                      |                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| QHEI PERFORMED? - 🗖 Yes>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No QHEI Score (If Yes, Attach Complete                      | d QHEI Form)                                                                                             |
| DOWNSTREAM DESIGNATED U                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | E(S)                                                        |                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Distance Distance                                           |                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Distance f                                                  |                                                                                                          |
| MAPPING: ATTACH COPIES OF M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | APS, INCLUDING THE ENTIRE WATERSHED AREA. CLE               | ARLY MARK THE SITE LOCATION                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | NRCS Soil Map Page:                                         |                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             |                                                                                                          |
| County: MIDE May MM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | C Township / City:                                          |                                                                                                          |
| MISCELLANEOUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -112/2                                                      | GAU                                                                                                      |
| Base Flow Conditions? (Y/N):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | of last precipitation: 51320 Quantit                        | y: <u>•</u> <u> </u>                                                                                     |
| Photograph Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                             | - 0                                                                                                      |
| Elevated Turbidity? (Y/N): <u>N</u> Ca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 10py (% open): <u>100 /</u>                                 |                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | (Y/N): Note lab sample no. or id. and attach re             | sults) Lab Number:                                                                                       |
| Field Measures: Temp (°C) Diss                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | blved Oxygen (mg/l) pH (S_U_) Con                           | ductivity (µmhos/cm)                                                                                     |
| s the sampling reach representative of the si                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ream (Y/N) If not, please explain:                          |                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             |                                                                                                          |
| Additional comments/description of pollution i                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mpacts:                                                     |                                                                                                          |
| ID number In Fish Observed? (Y/N) Voucher? (Y/ Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) | IVE DESCRIPTION OF STREAM REACH (T                          | ter Habitat Assessment Manual)<br>? (Y/N)<br>? (Y/N)<br>Woucher? (Y/N)<br>his <u>must</u> be completed): |
| Include important landmarks and oth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | er features of interest for site evaluation and a narrative | 2770val                                                                                                  |
| $\sqrt{\leq}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | E Transmissimline                                           | ROW                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             |                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             | +                                                                                                        |
| Frest                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | openfield                                                   |                                                                                                          |
| $\mathcal{L}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                                                                                          |

June 20, 2008 Revision

| SITE NUMBER<br>LENGTH OF STREAM REACH (ft) 325<br>DATE 518 20 SCORER KUV<br>NOTE: Complete All Items On This Form -                                                              |                                                                                                                                                                                                                                                                                          | VER CODE RIVER MILE                                                                                                                                  | ructions                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| STREAM CHANNEL DRANNE / NATUR<br>MODIFICATIONS:                                                                                                                                  | RAL CHANNEL CRECOVERED CREC                                                                                                                                                                                                                                                              |                                                                                                                                                      | OVERY                                                      |
| (Max of 40). Add total number of significant                                                                                                                                     | type of substrate present. Check ONLY two         substrate types found (Max of 8). Final metric         CENT       TYPE         SILT [3 pt]         LEAF PACK/WOOD         FINE DETRITUS [3         CLAY or HARDPAN         MUCK [0 pts]         ARTIFICIAL [3 pts]         CATE TYPES: | C score is sum of boxes A & B.<br>PERCENT<br>Y DEBRIS [3 pts]<br>pts]                                                                                | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>A + B |
|                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                          | one box):                                                                                                                                            | Pool Depth<br>Max = 30                                     |
| 3. BANK FULL WIDTH (Measured as the ave<br>> 4.0 meters (> 13) [30 pts]<br>> 3.0 m - 4.0 m (> 9' 7'' - 13') [25 pts]<br>> 1.5 m - 3.0 m (> 4' 8'' - 9' 7'') [20 pts]<br>COMMENTS | □ > 1.0 m - 1.5 m (> 3<br>≤ 1.0 m (≤ 3'3") [5 p                                                                                                                                                                                                                                          |                                                                                                                                                      | Bankfull<br>Width<br>Max=30                                |
|                                                                                                                                                                                  | This Information must also be complete         IN QUALITY                                                                                                                                                                                                                                | d<br>Right (R) as looking downstream☆<br>L R<br>Conservation Tillage<br>Urban or Industrial<br>Open Pasture, Row<br>Crop<br>L Mining or Construction |                                                            |
| FLOW REGIME (At Time of Evaluation<br>Stream Flowing<br>Subsurface flow with isolated pools (In<br>COMMENTS                                                                      | 🔲 📃 Moist Chann                                                                                                                                                                                                                                                                          | el, isolated pools, no flow (Intermittent)<br>no water (Ephemeral)<br>pox):                                                                          |                                                            |

|    | ADDITIONAL STREAM INFORMATION (This Information Must A                                                                                            | lso be Completed):                                                                                                                                                                                                                                      |  |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|    | QHEI PERFORMED? - 🗍 Yes 🖂 No QHEI Score _                                                                                                         | (If Yes, Attach Completed QHEI Form)                                                                                                                                                                                                                    |  |
|    | DOWNSTREAM DESIGNATED USE(S)                                                                                                                      |                                                                                                                                                                                                                                                         |  |
|    |                                                                                                                                                   | Distance from Evaluated Stream<br>Distance from Evaluated Stream                                                                                                                                                                                        |  |
|    |                                                                                                                                                   | Distance from Evaluated Stream                                                                                                                                                                                                                          |  |
|    | MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE                                                                                                     | ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION                                                                                                                                                                                                   |  |
|    |                                                                                                                                                   | NRCS Soil Map Page: NRCS Soil Map Stream Order                                                                                                                                                                                                          |  |
|    | County: Muskingum Co                                                                                                                              | wnship / City:                                                                                                                                                                                                                                          |  |
|    | MISCELLANEOUS                                                                                                                                     |                                                                                                                                                                                                                                                         |  |
|    | Base Flow Conditions? (Y/N): Date of last precipitation:                                                                                          | Quantity: 6 20                                                                                                                                                                                                                                          |  |
|    | Photograph Information:                                                                                                                           | <u></u>                                                                                                                                                                                                                                                 |  |
|    | Elevated Turbidity? (Y/N): Canopy (% open):                                                                                                       |                                                                                                                                                                                                                                                         |  |
|    |                                                                                                                                                   | lab sample no, or id, and attach results) Lab Number                                                                                                                                                                                                    |  |
|    |                                                                                                                                                   | pH (S,U,) Conductivity (µmhos/cm)                                                                                                                                                                                                                       |  |
|    | Is the sampling reach representative of the stream (Y/N)                                                                                          | ot, please explain:                                                                                                                                                                                                                                     |  |
|    |                                                                                                                                                   |                                                                                                                                                                                                                                                         |  |
|    | Additional comments/description of pollution impacts:                                                                                             |                                                                                                                                                                                                                                                         |  |
|    | ID number. Include appropriate field of<br>Fish Observed? (Y/N) Voucher? (Y/N) Salamander:<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aq | ther collections optional. NOTE: all voucher samples must be labeled with the site<br>lata sheets from the Primary Headwater Habitat Assessment Manual)<br>is Observed? (Y/N) Voucher? (Y/N)<br>Jatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) |  |
|    |                                                                                                                                                   | ON OF STREAM REACH (This <u>must</u> be completed):<br>for site evaluation and a narrative description of the stream's location                                                                                                                         |  |
| in | (Shialds)                                                                                                                                         | open postul                                                                                                                                                                                                                                             |  |
|    | FLOW                                                                                                                                              | 3011                                                                                                                                                                                                                                                    |  |

| ONDEERA       Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3)         SITE NAME/LOCATION       OVERATION         SITE NUMBER       RIVER BASIN         STREAM REACH (ft)       271         LATE       COMMENTS         SO06       RIVER M         NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for         STREAM CHANNEL       NONE / NATURAL CHANNEL       RECOVERED         MODIFICATIONS:       RECENT OR NO                                                                                                                                                                                                                                                                                                                                                                                                                                                | ni?) <u>LSqM</u> i<br>IILE<br>r Instructions                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 1.       SUBSTRATE (Estimate percent of every type of substrate present. Check ONL Y two predominant substrate TYPE book (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.         1.       SUBSTRATE (Estimate percent of every type of substrate present. Check ONL Y two predominant substrate TYPE box (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.         1.       BLDR SLABS [16 pts]       PERCENT       TYPE         1.       BOULDER (>256 mm) [16 pts]       Image: Sill T [3 pt]       Image: Sill T [3 pt]         1.       COBBLE (65-256 mm) [12 pts]       Image: Sill T [3 pt]       Image: Sill T [3 pt]         1.       COBBLE (65-256 mm) [12 pts]       Image: Sill T [3 pt]       Image: Sill T [3 pt]         1.       COBBLE (65-256 mm) [12 pts]       Image: Sill T [3 pt]       Image: Sill T [3 pt]         1.       COBBLE (65-256 mm) [12 pts]       Image: Sill T [3 pt]       Image: Sill T [3 pt]         1.       GRAVEL (2-64 mm) [9 pts]       Image: Sill T [3 pts]       Image: Sill T [3 pts]         1.       SAND (<2 mm) [6 pts]       Image: Sill T [3 pts]       Image: Sill T [3 pts]         1.       Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock       Image: Sill T [3 pts]       Image: Sill T [3 pts]         2.       SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:       Total N | HHEI                                                                                                                  |
| <ul> <li>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):         <ul> <li>&gt; 30 centimeters [20 pts]</li> <li>&gt; 22.5 - 30 cm [30 pts]</li> <li>&gt; 10 - 22.5 cm [25 pts]</li> <li>&gt; 10 - 22.5 cm [25 pts]</li> <li>&gt; COMMENTS</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Pool Depth<br>Max = 30<br>5<br>5<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8 |
| AVERAGE BANKFULL WIDTH (meters)         This Information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY       MOTE: River Left (L) and Right (R) as looking downstream         RIPARIAN WIDTH       FLOODPLAIN QUALITY       MOTE: River Left (L) and Right (R) as looking downstream         Wide >10m       L       R       (Most Predominant per Bank)       L       R         Wide >10m       Immature Forest, Wetland       Conservation Till       Immature Forest, Shrub or Old       Urban or Industri         Immature Som       Immature Forest, Shrub or Old       Open Pasture, R       Crop       Open Pasture, R       Crop         None       Immature       Fenced Pasture       Imming or Construction Till                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | age<br>al<br>ow                                                                                                       |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools, no flow (Interm Dry channel, no water (Ephemeral)         COMMENTS       Dry channel, no water (Ephemeral)         SINUOSITY (Number of bends per 61 m (200 ft) of channel)       (Check ONLY one box):         None       1.0         0.5       1.5         STREAM GRADIENT ESTIMATE         Flat to Moderate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                       |

| ADDITIONAL STREAM INFORMA                                        | ATION (This Information M   | lust Also be Completed):               |                                  |                            |
|------------------------------------------------------------------|-----------------------------|----------------------------------------|----------------------------------|----------------------------|
| QHEI PERFORMED?                                                  | TYes No QHEI Sco            | ore (If Yes, Atta                      | ch Completed QHEI Form)          |                            |
| DOWNSTREAM DESIG                                                 | NATED USE(S)                |                                        |                                  |                            |
| WWH Name:                                                        | THER                        | <u></u>                                | Distance from Evaluated Stre     |                            |
| CWH Name:     EWH Name:                                          |                             |                                        |                                  |                            |
|                                                                  |                             |                                        |                                  |                            |
|                                                                  |                             |                                        | AREA. CLEARLY MARK THE SI        |                            |
| USGS Quadrangle Name:                                            | um Co.                      |                                        | age: NRCS Soil Map S             |                            |
| 0                                                                | um co.                      | _ Township / City:                     |                                  |                            |
| MISCELLANEOUS                                                    | ,                           | 5/10/20                                | 5011                             |                            |
| Base Flow Conditions? (Y/N):                                     | Date of last precipitati    | ion:10_140                             | Quantity:0                       |                            |
| Photograph Information:                                          |                             | LAST                                   |                                  |                            |
| Elevated Turbidity? (Y/N):                                       | Canopy (% open):            |                                        |                                  |                            |
| Were samples collected for water c                               | chemistry? (Y/N): (         | (Note lab sample no. or id. a          | nd attach results) Lab Number:_  |                            |
| Field Measures: Temp (°C)                                        | Dissolved Oxygen (m         | g/l) pH (S.U.)                         | Conductivity (µmhos/cm           | 1)                         |
| Is the sampling reach representativ                              | e of the stream (Y/N)       | If not, please explain:                |                                  |                            |
| N(F) (1                                                          |                             |                                        | 1                                |                            |
| Additional comments/description of                               | pollution impacts:          |                                        |                                  |                            |
|                                                                  |                             |                                        |                                  |                            |
| BIOTIC EVALUATION                                                |                             | 2                                      |                                  |                            |
| Performed? (Y/N): N (If Y                                        | (as Report all observations | Voucher collections optional           | NOTE: all voucher samples mus    | t he labeled with the site |
|                                                                  |                             |                                        | nary Headwater Habitat Assessm   |                            |
| Fish Observed? (Y/N) Vou                                         | ucher? (Y/N) 🚹 Salama       | anders Observed? (Y/N) $\underline{N}$ |                                  |                            |
| Frogs or Tadpoles Observed? (Y/N)<br>Comments Regarding Biology. | • ····· · ···· ·            |                                        | -                                | her? (Y/N) <u>I N</u>      |
| comments regarding biology.                                      |                             |                                        |                                  |                            |
|                                                                  | <u></u>                     |                                        |                                  |                            |
| -                                                                | 1                           |                                        | 1                                | +                          |
|                                                                  |                             |                                        | EACH (This <u>must</u> be co     |                            |
| include important landmark                                       |                             |                                        | d a narrative description of the | stream's location          |
|                                                                  | E-Tra                       | nsmissionle                            | NO DOW-                          |                            |
|                                                                  |                             |                                        |                                  |                            |
|                                                                  |                             |                                        |                                  | A K                        |
| FLOW                                                             |                             |                                        | 1                                |                            |
|                                                                  |                             | - 6                                    | $\searrow$                       | Fivesteel                  |
| 1                                                                |                             | en field                               | X                                |                            |
| 2                                                                | OF                          |                                        |                                  | M o/                       |
|                                                                  |                             |                                        |                                  |                            |
|                                                                  |                             |                                        |                                  |                            |
| June 20, 2008 Revision                                           |                             | PHWH Form Page - 2                     |                                  | 1                          |

| SITE NUMBER<br>LENGTH OF STREAM REACH (ft) 214<br>DATE 6820 SCORER 444<br>NOTE: Complete All Items On This F                                                                                                                                                                                                       | LAT 39.8026                                                                                 | sS007                                                                                                               | IVER CODE _                                           | RIVER MILE                                                                                                               |                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| STREAM CHANNEL MODIFICATIONS:                                                                                                                                                                                                                                                                                      | NATURAL CHANNEL                                                                             |                                                                                                                     | COVERING                                              | RECENT OR NO REC                                                                                                         | OVERY                                             |
| 1. SUBSTRATE (Estimate percent of e<br>(Max of 40). Add total number of sign<br>TYPE<br>BLDR SLABS [16 pts]<br>BOULDER (>256 mm) [16 pts]<br>BEDROCK [16 pt]<br>COBBLE (65-256 mm) [12 pts]<br>GRAVEL (2-64 mm) [9 pts]<br>SAND (<2 mm) [6 pts]<br>Total of Percentages of<br>Bldr Slabs, Boulder, Cobble, Bedrock | PERCENT     TYP                                                                             | Dund (Max of 8) Final metri<br>SILT [3 pt]<br>LEAF PACK/WOOD<br>FINE DETRITUS [3<br>CLAY or HARDPAN<br>MUCK [0 pts] | c score is sum<br>Y DEBRIS [3  <br>I pts]<br>I [0 pt] | n of boxes A & B,                                                                                                        | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| SCORE OF TWO MOST PREDOMINATE SUB Maximum Pool Depth (Measure the evaluation. Avoid plunge pools from re > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS                                                                                                                        | BSTRATE TYPES:                                                                              | Iter pipes)         (Check ONLY           > 5 cm - 10 cm [15           < 5 cm [5 pts]                               | ft) evaluation r<br>´one box):<br>pts]<br>DIST CHANNE | each at the time of                                                                                                      | Pool Depti<br>Max = 30                            |
| 3. BANK FULL WIDTH (Measured as th<br>> 4.0 meters (> 13') [30 pts]<br>> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]<br>> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]<br>COMMENTS                                                                                                                                          | he average of 3-4 meas                                                                      | ☐ > 1.0 m - 1.5 m (> 3<br>☐ ≤ 1.0 m (≤ 3'3')[5                                                                      | pts]                                                  |                                                                                                                          | Bankfull<br>Width<br>Max=30                       |
| RIPARIAN ZONE AND FLOOD<br><u>RIPARIAN WIDTH</u><br>(Per Bank)<br>Wide >10m<br>Moderate 5-10m<br>Narrow <5m<br>None<br>COMMENTS                                                                                                                                                                                    | DPLAIN QUALITY<br>FLOODPLAIN QU<br>L R (Most Pr<br>Mature I<br>Mature I<br>Immatur<br>Field | redominant per Bank)<br>Forest, Wetland<br>re Forest, Shrub or Old<br>tial, Park, New Field                         |                                                       | ooking downstream☆<br>Conservation Tillage<br>Urban or Industrial<br>Open Pasture, Row<br>Crop<br>Mining or Construction |                                                   |
| FLOW REGIME (At Time of Ev<br>Stream Flowing<br>Subsurface flow with isolated po<br>COMMENTS                                                                                                                                                                                                                       |                                                                                             | 🔲 🛛 Moist Chanr                                                                                                     | nel, isolated po<br>, no water (Ep                    | ools, no flow (Intermittent)<br>hemeral)                                                                                 |                                                   |

| ADDITIONAL STREAM INFORMATION (This Information Must Also                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| QHEI PERFORMED? - TYes XNo QHEI Score                                                                                                                                                                                                                                                                                                                                                                                                                                            | (If Yes, Attach Completed QHEI Form)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Distance from Evaluated Stream                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Distance from Evaluated Stream                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| _J EVVH Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Distance from Evaluated Stream                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE EN                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b><u>NTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| JSGS Quadrangle Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                            | NRCS Soil Map Page: NRCS Soil Map Stream Order                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| County: MUSKINGIMACO, Town:                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ship / City                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| MISCELLANEOUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 12] CA!                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Base Flow Conditions? (Y/N): Date of last precipitation:                                                                                                                                                                                                                                                                                                                                                                                                                         | 0 20 Quantity: 3 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Photograph Information                                                                                                                                                                                                                                                                                                                                                                                                                                                           | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Elevated Turbidity? (Y/N): Canopy (% open): _50                                                                                                                                                                                                                                                                                                                                                                                                                                  | (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| N I                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | o sample no, or id. and attach results) Lab Number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Field Measures: Temp (°C) Dissolved Oxygen (mg/l)                                                                                                                                                                                                                                                                                                                                                                                                                                | pH (S.U.) Conductivity (µmhos/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| s the sampling reach representative of the stream (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                          | please explain:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Additional comments/description of pollution impacts:                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| BIOTIC EVALUATION<br>Performed? (Y/N): (If Yes, Record all observations. Vouche<br>ID number. Include appropriate field data<br>ish Observed? (Y/N) Voucher? (Y/N) Salamanders O<br>rogs or Tadpoles Observed? (Y/N) Aquat                                                                                                                                                                                                                                                       | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| BIOTIC EVALUATION         Performed? (Y/N):       (If Yes, Record all observations. Vouche ID number. Include appropriate field data strish Observed? (Y/N)         Voucher? (Y/N)       Salamanders O rogs or Tadpoles Observed? (Y/N)                                                                                                                                                                                                                                          | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| BIOTIC EVALUATION         Verformed? (Y/N):       (If Yes, Record all observations. Vouche<br>ID number. Include appropriate field data<br>ish Observed? (Y/N)         vish Observed? (Y/N)       Voucher? (Y/N)         voucher? (Y/N)       Salamanders O<br>voucher? (Y/N)         voucher? (Y/N)       Aquat         comments Regarding Biology:                                                                                                                             | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Vouche ID number. Include appropriate field data ish Observed? (Y/N) Voucher? (Y/N) Salamanders O rogs 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                                                                                                                       | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| BIOTIC EVALUATION         Performed? (Y/N):       (If Yes, Record all observations. Vouche ID number. Include appropriate field data ish Observed? (Y/N)         Voucher? (Y/N)       Voucher? (Y/N)         rogs or Tadpoles Observed? (Y/N)       Voucher? (Y/N)         Comments Regarding Biology:       Voucher? (Y/N)         DRAWING AND NARRATIVE DESCRIPTION                                                                                                            | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y |
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| BIOTIC EVALUATION         Performed? (Y/N):       (If Yes, Record all observations. Voucher ID number. Include appropriate field data ish Observed? (Y/N)         Voucher? (Y/N)       Voucher? (Y/N)         Salamanders O rogs or Tadpoles Observed? (Y/N)       Voucher? (Y/N)         Comments Regarding Biology:       Voucher? (Y/N)         DRAWING AND NARRATIVE DESCRIPTION         Include important landmarks and other features of interest for         Transmission | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y |
| BIOTIC EVALUATION         Performed? (Y/N):       (If Yes, Record all observations. Voucher ID number. Include appropriate field data ish Observed? (Y/N)         Voucher? (Y/N)       Voucher? (Y/N)         Salamanders O rogs or Tadpoles Observed? (Y/N)       Voucher? (Y/N)         Comments Regarding Biology:       Voucher? (Y/N)         DRAWING AND NARRATIVE DESCRIPTION         Include important landmarks and other features of interest for         Transmission | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y |
| BIOTIC EVALUATION Performed? (Y/N):                                                                                                                                                                                                                                                                                                                                                                                                                                              | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y |
| BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Vouche ID number. Include appropriate field data sish Observed? (Y/N) Voucher? (Y/N) Saiamanders O irogs 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 Tammissian Standard Comments Regarding Biology                                                                      | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y |
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| BIOTIC EVALUATION         Derformed? (Y/N):       (If Yes, Record all observations. Voucher ID number. Include appropriate field data         Dish Observed? (Y/N)       Voucher? (Y/N)       Salamanders O         Strogs 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         Transmission                  | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y |
| BIOTIC EVALUATION Performed? (Y/N): (if Yes, Record all observations. Vouche ID number. Include appropriate field data sish Observed? (Y/N) Voucher? (Y/N) Saiamanders O rogs 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 Tammissian Standard Comments Regarding Comments Regarding Comments Regarding Comments Regarding Biology:             | er collections optional. NOTE: all voucher samples must be labeled with the site<br>a sheets from the Primary Headwater Habitat Assessment Manual)<br>observed? (Y/N) Voucher? (Y |

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| SITE NAME/LOCATION                                                                                                                                                            | Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3) :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| DATE 518 20 SCORER KW                                                                                                                                                         | COMMENTS S008<br>The set of "Field Evaluation Manual for Ohio's PHWH Streams" for Instru-<br>TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | uctions                                           |
| (Max of 40). Add total number of signific                                                                                                                                     | ery type of substrate present. Check ONLY two predominant substrate TYPE boxes cant substrate types found (Max of 8). Final metric score is sum of boxes A & B.         PERCENT       TYPE         SILT [3 pt]       PERCENT         Image: CLAY or HARDPAN [0 pt] | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
|                                                                                                                                                                               | haximum pool depth within the 61 meter (200 ft) evaluation reach at the time of<br>d culverts or storm water pipes) (Check ONLY one box):<br>> 5 cm - 10 cm [15 pts]<br>> 5 cm [5 pts]<br>NO WATER OR MOIST CHANNEL [0 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Pool Depth<br>Max = 30                            |
| 3. BANK FULL WIDTH (Measured as the<br>> 4.0 meters (> 13') [30 pts]<br>> 3.0 m - 4.0 m (> 9' 7'' - 13') [25 pts]<br>> 1.5 m - 3.0 m (> 4' 8'' - 9' 7'') [20 pts]<br>COMMENTS | average of 3-4 measurements) (Check ONLY one box):<br>> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]<br>AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Bankfull<br>Width<br>Max=30                       |
| RIPARIAN ZONE AND FLOODP<br>RIPARIAN WIDTH<br>L R (Per Bank)<br>Wide >10m<br>Moderate 5-10m<br>Narrow <5m<br>None<br>COMMENTS                                                 | This Information must also be completed         PLAIN QUALITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Stream Flowing<br>Subsurface flow with isolated pool<br>COMMENTS                                                                                                              | er 61 m (200 ft) of channel) (Check <i>ONLY</i> one box):<br>1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   |
| STREAM GRADIENT ESTIMATE                                                                                                                                                      | Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ) ft)                                             |

|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -                                                                                                                                                  | ie (ii res,                                                                                                                                             | Attach Completed QHEI                                                                                                                               |                                                                  |                      |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|----------------------|
| DO                                                                | WNSTREAM DESIGN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | TED USE(S)                                                                                                                                         |                                                                                                                                                         |                                                                                                                                                     |                                                                  |                      |
|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                    |                                                                                                                                                         | Distance from Eva                                                                                                                                   |                                                                  |                      |
|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                    |                                                                                                                                                         | Distance from Eva                                                                                                                                   |                                                                  |                      |
|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                    |                                                                                                                                                         | HED AREA. CLEARLY M                                                                                                                                 |                                                                  |                      |
| JSGS Quadra                                                       | angle Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                    | NRCS Soil M                                                                                                                                             | ap Page: NRCS                                                                                                                                       | Soil Map Stream Ord                                              | der                  |
| County:                                                           | E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ~                                                                                                                                                  |                                                                                                                                                         | <u></u>                                                                                                                                             |                                                                  |                      |
| MIS                                                               | CELLANEOUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Â.                                                                                                                                                 | Τ r                                                                                                                                                     |                                                                                                                                                     | 5 <i>1</i> 1                                                     |                      |
| ase Flow Co                                                       | nditions? (Y/N):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | _ Date of last precipitation                                                                                                                       | on: <u>5 8 70</u>                                                                                                                                       | Quantity:                                                                                                                                           | <u>0'</u> ' ' '                                                  |                      |
|                                                                   | formation:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                    | <u></u>                                                                                                                                                 |                                                                                                                                                     |                                                                  |                      |
| levated Turbi                                                     | idity? (Y/N):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Canopy (% open):                                                                                                                                   | 1001                                                                                                                                                    |                                                                                                                                                     | ~                                                                |                      |
| /ere samples                                                      | collected for water che                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | mistry? (Y/N): <u>    </u> (I                                                                                                                      | Note lab sample no, or                                                                                                                                  | id: and attach results) La                                                                                                                          | b Number:                                                        | <u></u>              |
| ield Measure                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2 2                                                                                                                                                |                                                                                                                                                         | .) Conductivity                                                                                                                                     |                                                                  |                      |
| the sampling                                                      | g reach representative                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | of the stream (Y/N)                                                                                                                                | If not, please explain                                                                                                                                  |                                                                                                                                                     | · · · · · · · · · · · · · · · · · · ·                            |                      |
|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | L                                                                                                                                                  |                                                                                                                                                         |                                                                                                                                                     |                                                                  |                      |
| BIO <sup>-</sup>                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ollution impacts:                                                                                                                                  |                                                                                                                                                         |                                                                                                                                                     |                                                                  |                      |
| erformed? (Y<br>ish Observed<br>rogs or Tadpo                     | TIC EVALUATION           /N):         (If Year ID number 10 number 1 | , Record all observations,<br>nber. Inslude appropriate f                                                                                          | Voucher collections opti<br>field data sheets from the<br>nders Observed? (Y/N)<br>_ Aquatic Macroinverte                                               | onal. NOTE: all voucher s<br>e Primary Headwater Habit<br>Voucher? (Y/N)<br>brates Observed? (Y/N)                                                  | amples must be labeled<br>at Assessment Manual                   | d with the site<br>) |
| Performed? (Y<br>ish Observed<br>rogs or Tadpo                    | TIC EVALUATION           /N):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | , Record all observations,<br>nber. Include appropriate f<br>er? (Y/N) Salama<br>Voucher? (Y/N)                                                    | Voucher collections opti<br>field data sheets from the<br>nders Observed? (Y/N)<br>_ Aquatic Macroinverte                                               | onal. NOTE: all voucher s<br>e Primary Headwater Habit<br>Voucher? (Y/N)<br>brates Observed? (Y/N)                                                  | amples must be labeled<br>at Assessment Manual                   | d with the site<br>) |
| Performed? (Y<br>ish Observed<br>rogs or Tadpo                    | TIC EVALUATION           /N):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | , Record all observations,<br>nber. Include appropriate f<br>er? (Y/N) Salama<br>Voucher? (Y/N)                                                    | Voucher collections opti<br>field data sheets from the<br>nders Observed? (Y/N)<br>_ Aquatic Macroinverte                                               | onal. NOTE: all voucher s<br>e Primary Headwater Habit<br>Voucher? (Y/N)<br>brates Observed? (Y/N)                                                  | amples must be labeled<br>at Assessment Manual                   | d with the site<br>) |
| erformed? (Y<br>ish Observed<br>rogs or Tadpo                     | TIC EVALUATION           /N):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | , Record all observations,<br>nber. Include appropriate f<br>er? (Y/N) Salama<br>Voucher? (Y/N)                                                    | Voucher collections opti<br>field data sheets from the<br>nders Observed? (Y/N)<br>_ Aquatic Macroinverte                                               | onal. NOTE: all voucher s<br>e Primary Headwater Habit<br>Voucher? (Y/N)<br>brates Observed? (Y/N)                                                  | amples must be labeled<br>at Assessment Manual                   | d with the site<br>) |
| Performed? (Y.<br>Fish Observed<br>Frogs or Tadpo<br>Comments Reg | TIC EVALUATION (If Yee ID nur (If Yee ID nur (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Record all observations.<br>her. Include appropriate f<br>rer? (Y/N) Salama<br>Voucher? (Y/N)                                                      | Voucher collections opti<br>field data sheets from the<br>nders Observed? (Y/N)<br>_ Aquatic Macroinverte                                               | onal. NOTE: all voucher s<br>e Primary Headwater Habit<br>Voucher? (Y/N)<br>brates Observed? (Y/N)<br>MREACH (This <u>mu</u>                        | amples must be labeler<br>at Assessment Manual<br>Voucher? (Y/N) | d with the site      |
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| Performed? (Y.<br>ish Observed<br>irogs or Tadpo<br>comments Reg  | TIC EVALUATION (If Yee ID nur (If Yee ID nur (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Record all observations.<br>hber. Include appropriate f<br>rer? (Y/N) Salamar<br>Voucher? (Y/N)<br>RRATIVE DESCRIF<br>and other features of inter- | Voucher collections opti<br>field data sheets from the<br>nders Observed? (Y/N)<br>_ Aquatic Macroinverte<br>PTION OF STREA<br>Prest for site evaluatio | onal. NOTE: all voucher s<br>e Primary Headwater Habit<br>Voucher? (Y/N)<br>brates Observed? (Y/N)<br>M REACH (This mu<br>n and a narrative descrip | amples must be labeler<br>at Assessment Manual<br>Voucher? (Y/N) | d with the site      |
| Performed? (Y.<br>ish Observed<br>irogs or Tadpo<br>comments Reg  | TIC EVALUATION (If Yee ID nur (If Yee ID nur (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Record all observations.<br>hber. Include appropriate f<br>rer? (Y/N) Salamar<br>Voucher? (Y/N)<br>RRATIVE DESCRIF<br>and other features of inter- | Voucher collections opti<br>field data sheets from the<br>nders Observed? (Y/N)<br>_ Aquatic Macroinverte<br>PTION OF STREA<br>Prest for site evaluatio | onal. NOTE: all voucher s<br>e Primary Headwater Habit<br>Voucher? (Y/N)<br>brates Observed? (Y/N)<br>M REACH (This mu<br>n and a narrative descrip | amples must be labeler<br>at Assessment Manual<br>Voucher? (Y/N) | d with the site      |
| Performed? (Y.<br>Fish Observed<br>Frogs or Tadpo<br>Comments Reg | TIC EVALUATION (If Yee ID nur (If Yee ID nur (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Record all observations.<br>hber. Include appropriate f<br>rer? (Y/N) Salamar<br>Voucher? (Y/N)<br>RRATIVE DESCRIF<br>and other features of inter- | Voucher collections opti<br>field data sheets from the<br>nders Observed? (Y/N)<br>_ Aquatic Macroinverte<br>PTION OF STREA<br>Prest for site evaluatio | onal. NOTE: all voucher s<br>e Primary Headwater Habit<br>Voucher? (Y/N)<br>brates Observed? (Y/N)<br>M REACH (This mu<br>n and a narrative descrip | amples must be labeler<br>at Assessment Manual<br>Voucher? (Y/N) | d with the site      |
| Performed? (Y.<br>Fish Observed<br>Frogs or Tadpo<br>Comments Reg | TIC EVALUATION (If Yee ID nur (If Yee ID nur (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Record all observations.<br>hber. Include appropriate f<br>rer? (Y/N) Salamar<br>Voucher? (Y/N)<br>RRATIVE DESCRIF<br>and other features of inter- | Voucher collections opti<br>field data sheets from the<br>nders Observed? (Y/N)<br>_ Aquatic Macroinverte<br>PTION OF STREA<br>Prest for site evaluatio | onal. NOTE: all voucher s<br>e Primary Headwater Habit<br>Voucher? (Y/N)<br>brates Observed? (Y/N)<br>M REACH (This mu<br>n and a narrative descrip | amples must be labeler<br>at Assessment Manual<br>Voucher? (Y/N) | d with the site      |

3

June 20, 2008 Revision

# **ChieEPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) :

| SITE NAME/LOCATIONSITE NUMBERRIVER BASIN 05040004080DRAINAGE AREA (mi <sup>2</sup> )<br>LENGTH OF STREAM REACH (ft)218LAT29.7993LONG_82.0059 CRIVER CODERIVER MILE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | sqmi.                    |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |
| NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ructions                 |
| STREAM CHANNEL STREAM CHANNEL NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERED RECOVERING RECOVERING RECENT OR NO RECOVERED RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERING RECOVERING RECENT OR NO RECOVERED RECOVERING RECOVERING RECENT OR NO RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERIONS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | OVERY                    |
| 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |
| (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.          TYPE       PERCENT       TYPE       PERCENT         D       BLDR SLABS [16 pts]       D       SILT [3 pt]       ZO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HHEI<br>Metric<br>Points |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Substrate<br>Max = 40    |
| COBBLE (65-256 mm) [12 pts]       CLAY or HARDPAN [0 pt]         GRAVEL (2-64 mm) [9 pts]       MUCK [0 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 20                       |
| SAND (<2 mm) [6 pts] 30 ARTIFICIAL [3 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | $\omega$                 |
| Total of Percentages of<br>Bidr Slabs, Boulder, Cobble, Bedrock 10 (A)<br>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | A + B                    |
| 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]         > 22.5 - 30 cm [30 pts]       - < 5 cm [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Max = 30                 |
| > 22.5 - 30 cm [30 pts]        < 5 cm [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 15                       |
| COMMENTSMAXIMUM POOL DEPTH (centimeters):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                          |
| 3.         BANK FULL WIDTH (Measured as the average of 3-4 measurements)         (Check ONLY one box):           > 4.0 meters (> 13') [30 pts]         > 1.0 m - 1.5 m (> 3' 3" - 4'8") [15 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Bankfull<br>Width        |
| □       >3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]         □       >1.5 m - 3.0 m (> 4' 8'' - 9' 7'') [20 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Max=30                   |
| COMMENTSAVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 15                       |
| This Information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆           RIPARIAN WIDTH         FLOODPLAIN QUALITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          |
| L R (Most Predominant per Bank) L R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                          |
| Moderate 5-10m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          |
| Image: State of Form     Image: State of Field     Image: State of Field     Image: State of Field       Image: State of Field     Image: State of Field     Image: State of Field     Image: State of Field       Image: State of Field     Image: State of Field     Image: State of Field     Image: State of Field       Image: State of Field     Image: State of Field     Image: State of Field     Image: State of Field       Image: State of Field     Image: State of Field     Image: State of Field     Image: State of Field       Image: State of Field     Image: State of Field     Image: State of Field     Image: State of Field       Image: State of Field     Image: State of Field     Image: State of Field     Image: State of Field                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          |
| None     Fenced Pasture     Crop       COMMENTS     Mining or Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                          |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Image: Comparison of the solution of t |                          |
| SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          |
| $\square$ None $\square$ $1.0$ $\square$ $2.0$ $\square$ $3.0$ $\square$ $0.5$ $\square$ $1.5$ $\square$ $2.5$ $\square$ $>3$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |

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| DOWNSTREAM DESIGNATED USE(S)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Distance from Evaluated Stream                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| Nuclaus Co                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | NRCS Soil Map Page: NRCS Soil Map Stream Order                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| county:USKINGUMCO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Township / City:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| MISCELLANEOUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ation: 5/8/20 Quantity: 50''                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Base Flow Conditions? (Y/N): Date of last precipita                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ition:Quantity:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Photograph Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1107                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Elevated Turbidity? (Y/N): Canopy (% open):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <u></u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 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 (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ng/l) pH (S.U.) Conductivity (µmhos/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| s the sampling reach representative of the stream (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | If not, please explain:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Additional comments/description of pollution impacts:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5 C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| Performed? (Y/N): (If Yes, Record all observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ID number. Include appropriat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | s. Voucher collections optional, NOTE: all voucher samples must be labeled with the site<br>e field data sheets from the Primary Headwater Habitat Assessment Manual)<br>anders Observed? (Y/N)<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Voucher? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salar<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | e field data sheets from the Primary Headwater Habitat Assessment Manual)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salar<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | e field data sheets from the Primary Headwater Habitat Assessment Manual)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salar<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | e field data sheets from the Primary Headwater Habitat Assessment Manual)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| ID number. Include appropriat<br>Tish Observed? (Y/N) Voucher? (Y/N) Salar<br>Trogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)<br>Comments Regarding Biology<br>DRAWING AND NARRATIVE DESCR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | e field data sheets from the Primary Headwater Habitat Assessment Manual) anders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salar<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)<br>Comments Regarding Biology.<br>DRAWING AND NARRATIVE DESCR<br>Include Important landmarks and other features of in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | e field data sheets from the Primary Headwater Habitat Assessment Manual)  anders Observed? (Y/N) Voucher? (Y/N |
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| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salar<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)<br>Comments Regarding Biology.<br>DRAWING AND NARRATIVE DESCR<br>Include Important landmarks and other features of in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | e field data sheets from the Primary Headwater Habitat Assessment Manual)  anders Observed? (Y/N) Voucher? (Y/N |
| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salar<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)<br>Comments Regarding Biology.<br>DRAWING AND NARRATIVE DESCR<br>Include Important landmarks and other features of in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | e field data sheets from the Primary Headwater Habitat Assessment Manual)  anders Observed? (Y/N) Voucher? (Y/N |
| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salam<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)<br>Comments Regarding Biology<br>DRAWING AND NARRATIVE DESCR<br>Include important landmarks and other features of in<br>TanSmitston Une Kerner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | e field data sheets from the Primary Headwater Habitat Assessment Manual)  anders Observed? (Y/N) Voucher? (Y/N |
| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salam<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)<br>Comments Regarding Biology<br>DRAWING AND NARRATIVE DESCR<br>Include important landmarks and other features of in<br>TanSmitston Une Kerner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | e field data sheets from the Primary Headwater Habitat Assessment Manual)  anders Observed? (Y/N) Voucher? (Y/N |
| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salar<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)<br>Comments Regarding Biology<br>DRAWING AND NARRATIVE DESCR<br>Include important landmarks and other features of in<br>TanSmission Uncharted<br>Include important landmarks and other features of in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | e field data sheets from the Primary Headwater Habitat Assessment Manual)  anders Observed? (Y/N) Voucher? (Y/N |
| ID number. Include appropriat Fish Observed? (Y/N) Voucher? (Y/N) Salam Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology DRAWING AND NARRATIVE DESCR Include important landmarks and other features of in TanSmitster Under Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | e field data sheets from the Primary Headwater Habitat Assessment Manual)  anders Observed? (Y/N) Voucher? (Y/N |
| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salar<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)<br>Comments Regarding Biology<br>DRAWING AND NARRATIVE DESCR<br>Include Important landmarks and other features of in<br>TanSmission Under Statement<br>Include Important landmarks and other features of in<br>TanSmission Under Statement<br>Include Important landmarks and other features of in<br>TanSmission Under Statement<br>Include Important landmarks and other features of in<br>TanSmission Under Statement<br>Include Important landmarks and other features of in<br>TanSmission Under Statement<br>Include Important landmarks and other features of in<br>TanSmission Under Statement<br>Include Important landmarks and other features of in<br>TanSmission Under Statement<br>Include Important Include Important Im | e field data sheets from the Primary Headwater Habitat Assessment Manual)  anders Observed? (Y/N) Voucher? (Y/N |
| ID number. Include appropriat<br>Fish Observed? (Y/N) Voucher? (Y/N) Salar<br>Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)<br>Comments Regarding Biology<br>DRAWING AND NARRATIVE DESCR<br>Include important landmarks and other features of in<br>TanSmission Uncharted<br>Include important landmarks and other features of in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | e field data sheets from the Primary Headwater Habitat Assessment Manual)  anders Observed? (Y/N) Voucher? (Y/N |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 54                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| SITE NAME/LOCATION CLOOK ALLE PHILO<br>SITE NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | or Instructions                                              |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8         TYPE       BLDR SLABS [16 pts]       PERCENT       TYPE       PERCENT         BOULDER (>256 mm) [16 pts]       BEDROCK [16 pts] | B HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>A + B |
| Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):     > 30 centimeters [20 pts] 5 cm - 10 cm [15 pts]     > 22.5 - 30 cm [30 pts] 3 c 5 cm [5pts]     > 10 - 22.5 cm [25 pts] 8 NO WATER OR MOIST CHANNEL [0pts]     COMMENTS     MAXIMUM POOL DEPTH (centimeters):     A Avoid plunge pools the average of 3 - 4 measurements) (Check ONLY one box):     > 4.0 meters (> 13') [30 pts] 3 10 - 15 m (> 3' 3' - 4' 8') [15 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Pool Depth<br>Max = 30<br>25<br>Bankfull<br>Width            |
| <pre>&gt; 3.0 m - 4.0 m (&gt; 9' 7"- 13') [25 pts]<br/>&gt; 1.5 m - 3.0 m (&gt; 4' 8" - 9' 7") [20 pts]</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Max=30                                                       |
| This information <u>must</u> also be completed<br>RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstru-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                              |
| RIPARIAN 2010 AND FLOODFLAIN QUALITY       INOTE: River Len(L) and Right (R) as socially downshift         RIPARIAN 2010 AND FLOODFLAIN QUALITY       (Most Predominant per Bank)         L R       L R         Vide >10m       Mature Forest, Wetland         Moderate 5-10m       Immature Forest, Shrub or Old Field         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ge<br>31<br>w Crop                                           |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools, no flow (integration)         Subsurface flow with isolated pools (interstitial)       Dry channel, no water (ephemeral)         COMMENTS       SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):         None       1.0       2.0       3.0         0.5       1.5       2.5       >3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | rmatent)                                                     |
| STREAM GRADIENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 10 10 10 10                                                  |
| October 2013 Revision Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                              |

| NOCA                       | TIONAL STREAM INFORMATION (This Information Must Also be Completed):                                                |
|----------------------------|---------------------------------------------------------------------------------------------------------------------|
| QHEI PERFORME              | D? Yes The QHEI Score (If Yes. Attach Completed QHEI form)                                                          |
| DOWNSTREAM D               | DESIGNATED USE(S)                                                                                                   |
| CWH Name:                  | ShCreek         Distance fromEvaluated Stream           Distance fromEvaluated Stream                               |
| ] EWH Name:                | Distance from Evaluated Stream                                                                                      |
|                            | H COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION                               |
|                            | NRCS Soil Map Page NRCS Soil Map Stream Order:                                                                      |
| county: MUSKING            | JUMACO . Township/City:                                                                                             |
| MISCELLANEOU               |                                                                                                                     |
| lase Flow Conditions? (Y/A | N Date of last precipitation 5 19 20 Quantity 50"                                                                   |
| hoto-documentation Notes   |                                                                                                                     |
|                            | N Canopy (% open): 801.                                                                                             |
|                            | water chemistry? (Y/N): Lab Sample # or ID (attach results):                                                        |
| ield Measures:Temp (°C)    | Dissolved Oxygen (mg/l) pH_(S.U.) Conductivity (umhos/cm)                                                           |
| the sampling reach repres  | sentative of the stream (Y/N) If not, explain:                                                                      |
|                            |                                                                                                                     |
| ish Observed? (Y/N) N      | BIOLOGICAL OBSERVATIONS (Record a# observations below)  Species observed (if known):                                |
| rogs or Tadpoles Observer  | d? (Y/N) N Species observed (if known)                                                                              |
|                            | (N) M Species observed (if known);                                                                                  |
| quatic Macroinvertebrates  | Observed? (Y/N) N Species observed (if known):                                                                      |
| omments Regarding Biolog   | Jy:                                                                                                                 |
|                            |                                                                                                                     |
|                            | ND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                   |
| Include important          | t landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
| 7 Foresteel                | < E Transmissimline Row /                                                                                           |
|                            |                                                                                                                     |
| 1                          | hard and a second                                                                                                   |
| w                          |                                                                                                                     |
| 1                          | ) openfield (Foresteet                                                                                              |
|                            | per man foresteel                                                                                                   |
| $\langle \langle \rangle$  |                                                                                                                     |
|                            |                                                                                                                     |

| Phio<br>Designed to Agency                                                                                                                               | Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 37                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| DATE 51917<br>NOTE: Complete                                                                                                                             | TION CION SMILE POID<br>RIVER BASIN BUSCINCE RIVER CODE 0.504000 BRAINAGE AREA (mif)<br>AM REACH (ft) 161 LAT 9, POILOU LONG -82,0085671 RIVER MILE<br>O SCORER KUY COMMENTS S011<br>All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst<br>EL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ructions                                          |
| (Max of 32'<br>TYPE<br>BLDR S<br>BOULD<br>BEDRO<br>COBBL<br>COBBL<br>COBBL<br>COBBL<br>COBBL<br>COBBL<br>COBBL<br>BLDR SAND<br>Total of<br>Bidr Slabs, B | SLABS [16 pts] SLT [3 pt] BUT [3 pt] BUT [3 pts] BUT | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| time of eva<br>> 30 centim<br>> 22.5 - 30                                                                                                                | stuation Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):<br>eters [20 pts] 5 cm - 10 cm [15 pts]<br>cm [30 pts] 5 cm [5pts]<br>cm [25 pts] NO WATER OR MOIST CHANNEL [0pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Pool Depth<br>Max = 30                            |
| > 4.0 meters<br>> 3.0 m - 4.0                                                                                                                            | LL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):<br>s (> 13') [30 pts]<br>0 m (> 9' 7'-13') [25 pts]<br>0 m (> 4' 8' - 9' 7') [20 pts]<br>□ 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Bankfull<br>Width<br>Max=30                       |
| COMMENT                                                                                                                                                  | TS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   |
| RiP                                                                                                                                                      | This information <u>mustalso becompleted</u> ARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: RiverLeft(L) and Right (R) as looking downstream*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                   |
|                                                                                                                                                          | IPARIAN WIDTH<br>(Per Bank)       FLOODPLAIN QUALTY<br>(Most Predominant per Bank)         (Per Bank)       L R         Wide >10m       Imature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | )                                                 |
| Stree<br>Subs<br>COM                                                                                                                                     | DW REGIME (At Time of Evaluation) (Check ONLY one box):         am Flowing       Moist Channel, solated pools no flow (intermittent surface flow with isolated pools (interstitial)         Dry channel, no water (ephemeral)         MMENTS         UOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | )                                                 |
| None                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| Flat 05 \$100 \$                                                                                                                                         | Flat to Moderate Severe Severe Severe Severe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | *                                                 |
| Octoper 2018 Rev                                                                                                                                         | Alson Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   |

|                                                                                                                                                        | FORMATION (This Information Must Also be Completed):                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| QHEI PERFORMED? Yes No Q                                                                                                                               | QHEI Score (If Yes, Attach Completed QHEI form)                                                                                                          |
| DOWNSTREAM DESIGNATED USE(S) WWH Name: DIUSH CIRCLE CWH Name:                                                                                          | Distance fromEvaluated Stream                                                                                                                            |
|                                                                                                                                                        | INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION                                                                                      |
| SGS Quadrangle Name<br>County:                                                                                                                         | NRCS Soil Map Page:NRCS Soil Map Stream Order:<br>Township/City:                                                                                         |
| MISCELLANEOUS                                                                                                                                          |                                                                                                                                                          |
| ase Flow Conditions? (Y/N) Date of la                                                                                                                  | last precipitation: 5/19/20 Quantity: 50"                                                                                                                |
| Photo-documentation Notes                                                                                                                              | 2-1                                                                                                                                                      |
| levated Turbidity?(Y/N) N Canopy (                                                                                                                     | (% open): <u>351.</u>                                                                                                                                    |
| Vere samples collected for water chemistry? (Y/N                                                                                                       | (N): Lab Sample # or ID (attach results):                                                                                                                |
| ield Measures(Temp (°C) Dissolved 0:                                                                                                                   | Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                          |
| s the sampling reach representative of the stream                                                                                                      | am (Y/N) 🔀 If not, explain:                                                                                                                              |
| rogs or Tadpoles Observed? (Y/N) <u>N</u> Spec<br>alamanders Observed? (Y/N) <u>N</u> Species of<br>quatic Macroinvertebrates Observed? (Y/N) <u>N</u> | ecies observed (if known):                                                                                                                               |
| comments Regarding Biology:                                                                                                                            |                                                                                                                                                          |
|                                                                                                                                                        |                                                                                                                                                          |
|                                                                                                                                                        | E DESCRIPTION OF STREAM REACH (This must be completed)<br>(features of interest for site evaluation and a narrative description of the stream's location |
| Forestal                                                                                                                                               | BA                                                                                                                                                       |
| ) - / n t                                                                                                                                              |                                                                                                                                                          |
| wo the second                                                                                                                                          | Transmissionline Row<br>Openfield                                                                                                                        |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 26                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION <u>CYOOKSVILU</u> Philo<br>SITE NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | structions                                        |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B         TYPE       BLDR SLABS [16 pts]       PERCENT       TYPE         BOULDER (>256 mm) [16 pts]       BEDROCK [16 pts]       BEDROCK [16 pts]       PERCENT         COBBLE (65-256 mm) [12 pts]       File DETRITUS [3 pts]       BUCK [0 pts]         GRAVEL (2-64 mm) [6 pts]       MUCK [0 pts]       MUCK [0 pts]         Total of Percentages of       [5       (A)       TOTAL NUMBER OF SUBSTRATE TYPES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):     30 centimeters [20 pts]     30 cent | Pool Depth<br>Max = 30                            |
| 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 - 15 m (> 3' 3' - 4' 8') [45 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       > 1.0 m (≤ 3' 3') [5 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       ≤ 1.0 m (≤ 3' 3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Bankfull<br>Width<br>Max=30                       |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |
| 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       (Most Predominant per Bank)         L_R       (Per Bank)       L_R       L_R         Wide =10m       Immature Forest, Wetland       Conservation Tillage         Moderate S-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <sm< td="">       Residential, Park, New Field       Open Pasture, Row Cr         None       Fenced Pasture       Mining or Construction         COMMENTS      </sm<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                   |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools, no flow (intermitte         Subsurface flow with isolated pools (interstitial)       Dry channel no water (ephemeral)         COMMENTS       SiNUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):         None       1.0       2.0       3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | nt)<br>—                                          |
| Image: Stream GRADIENT ESTIMATE     Image: Stream GRADIENT ESTIMATE       Image: Flat to Moderate     Moderate 2 % 100 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |

| CWH Name:       Distance from Evaluated Stream         EWH Name:       Distance from Evaluated Stream         Distance from Evaluated Stream       Distance from Evaluated Stream         MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.         ISGS Quadrangie Name:       NRCS Soil Map Page:         MISCELLANEOUS       Township/City:         Miscellaneous       Date of last precipitation:         Mono-documentation Notes       Canopy (% open):         levated Turbidity ?(YAI):       Canopy (% open):         Vere samples collected for waterchemistry?(Y/N):       Lab Sample # or ID (attach results):         ieid Measures:Temp (*C)       Dissolved Oxygen (mg/l)       pH (S.U.)         St the sampling reach representative of the stream (Y/N)       If not, explain:         Record all observed? (Y/N)       Species observed (if known);         rogs or Tadpoles Observed? (Y/N)       Species observed (if known);         alamanders Observed? (Y/N)       Species observed (if known);                                                                                                                   |                                                                                           | REAM INFORMATION (This Information Must Also be Completed):                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CWH Name:       Distance from Evaluated Stream         EVH Name:       Distance from Evaluated Stream         Distance from Evaluated Stream       Distance from Evaluated Stream         MAPPING: ATTACH COPIES OF MAPS. INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION         USGS Quadrangie Name:       NRCS Soil Map Page:         County:       MUSCHLANEOUS         Base Flow Conditions? (Y/N):       Date of last precipitation:         Shade Flow Conditions? (Y/N):       Date of last precipitation:         Shade Flow Conditions? (Y/N):       Canopy (% open):         Photo-documentation Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | QHEI PERFORMED?                                                                           | s No QHEI Score (If Yes, Attach Completed QHEI form)                                                                                                                                                                                                             |
| CWH Name:       Distance from Evaluated Stream         EWH Name:       Distance from Evaluated Stream         Distance from Evaluated Stream       Distance from Evaluated Stream         MAPPING: ATTACH COPIES OF MAPS. INCLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION.         USGS Quadrangie Name:       NRCS Soil Map Page:         MISCELLANEOUS         Base Flow Conditions? (V/N)       Date of last precipitation:         Shote-documentation Notes         Elevated Turbidity?(Y/A):       Canopy (% open):         Photo-documentation Notes         Elevated Turbidity?(Y/A):       Canopy (% open):         State samples collected for water chemistry? (Y/A):       Lab Sample # or D (attach results):         Field Measures: Temp (*C)       Dissolved Oxygen (mg/l)       pH (S.U.)         Conductivity (umhos/cm)       if not, explain:         Additional comments/description of pollution impacts       If not, explain:         Fish Observed? (Y/A):       Species observed (if known)         Frage or Tadpoles Observed? (Y/A):       Species observed (if known)         Satamanders Observed? (Y/A):       Species observed (if known) | DOWNSTREAM DESIGNATE                                                                      | D USE(S)                                                                                                                                                                                                                                                         |
| BWH Name:       Distance from Evaluated Stream         MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION.         USGS Quadrangle Name:       NRCS Soil Map Page:       NRCS Soil Map Stream Order:         County:       MUSCINGUMCO-       Township/City:         MISCELLANEOUS       Township/City:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                           | City of English Change                                                                                                                                                                                                                                           |
| USGS Quadrangie Name:NRCS Soil Map Page:NRCS Soil Map Stream Order:<br>County:MUSHINGUMTownship/City:<br>MISCELLANEOUS Base Flow Conditions? (Y/N) Date of last precipitation: 5/19/20 Quantity: _50 <sup>//</sup><br>Photo-documentation Notes<br>Elevated Turbidity?(Y/N): Canopy (% open) _90 <sup>//</sup><br>Were samples collected for water chemistry?(Y/N): Lab Sample # or ID (attach results):<br>Field Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)<br>a the sampling reach representative of the stream (Y/N) If not, explain:<br>Additional comments/description of pollution impacts<br>(Record all observations below)<br>Fish Observed? (Y/N) Species observed (if known):<br>Stalamanders Observed? (Y/N) Species observed (if known):<br>Stalamanders Observed? (Y/N) Species observed (if known):<br>Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                               |                                                                                           |                                                                                                                                                                                                                                                                  |
| County:       MUSLINgumCo       Township/City:         MISCELLANEOUS         Base Flow Conditions? (Y/N)       Date of last precipitation:       519120       Quantity.       50 <sup>11</sup> Photo-documentation Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | MAPPING: ATTACH COPIES O                                                                  | OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                                                                                                                    |
| County:       MUSLINgumCo       Township/City:         MISCELLANEOUS         Base Flow Conditions? (Y/N)       Date of last precipitation:       519120       Quantity.       50 <sup>11</sup> Photo-documentation Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | USGS Quadrangle Name:                                                                     | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                                                                                                                                                                                  |
| MISCELLANEOUS         Base Flow Conditions? (Y/N)         Photo-documentation Notes         Photo-documentation Notes         Elevated Turbidity?(Y/N):         Canopy (% open):         901.         Were samples collected for waterchemistry? (Y/N):         It ab Sample * or D (attach results):         Field Measures: Temp (°C)         Dissolved Oxygen (mg/l)         Photo, explain:         Additional Comments/description of pollution impacts         Record all observations below!         Fish Observed? (Y/N)       Species observed (if known):         Frags or Tadpoles Observed? (Y/N)       Species observed (if known):         Salamanders Observed? (Y/N)       Species observed (if known):         Salamanders Observed? (Y/N)       Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                           | 2                                                                                                                                                                                                                                                                |
| Base Flow Conditions? (Y/N):       Date of last precipitation:       519120       Quantity:       50"         Photo-documentation Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0                                                                                         |                                                                                                                                                                                                                                                                  |
| Photo-documentation Notes  Elevated Turbidity?(Y/N): NCanopy (% open): 907                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                           | Data of last accompation: 5/19/20 Quantity 50"                                                                                                                                                                                                                   |
| Elevated Turbidity?(Y/N): NCanopy (% open): 9074<br>Nere samples collected for water chemistry?(Y/N): NLab Sample # or ID (attach results):<br>Field Measures: Temp (°C)Dissolved Oxygen (mg/l)pH (S.U.)Conductivity (umhos/cm)<br>as the sampling reach representative of the stream (Y/N) If not, explain:<br>Additional comments/description of pollution impacts<br>BioLOGICAL OBSERVATIONS<br>(Record all observations below)<br>Fish Observed? (Y/N) Species observed (if known):<br>Secies observed (if known):<br>Stalamanders Observed? (Y/N) Species observed (if known):<br>Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1                                                                                         |                                                                                                                                                                                                                                                                  |
| Were samples collected for water chemistry? (Y/N):       Lab Sample # or ID (attach results):         Field Measures:Temp (TC)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (umhos/cm)         is the sampling reach representative of the stream (Y/N)       If not, explain:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Photo-documentation Notes                                                                 | 901                                                                                                                                                                                                                                                              |
| Field Measures:Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)   a the sampling reach representative of the stream (°/N) Additional comments/description of pollution impacts   Additional comments/description of pollution impacts     BioLOGICAL OBSERVATIONS   (Record all observed? (°/N) Species observed (if known): Frogs or Tadpoles Observed? (°/N) Species observed (if known): Stalamanders Observed? (°/N) Species observed (if known): Aquatic Macroinvertebrates Observed? (°/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                           |                                                                                                                                                                                                                                                                  |
| s the sampling reach representative of the stream (Y/N)<br>Additional comments/description of pollution impacts           BiOLOGICAL OBSERVATIONS           (Record all observations below)           Fish Observed? (Y/N) Species observed (if known):           Frogs or Tadpoles Observed? (Y/N) Species observed (if known):           Salamanders Observed? (Y/N) Species observed (if known):           Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                           |                                                                                                                                                                                                                                                                  |
| Additional comments/description of pollution impacts         Biol OGICAL OBSERVATIONS<br>(Record all observations below)         Fish Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Field Measures:Temp (°C) Di                                                               | issolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                                                                                                                         |
| Additional comments/description of pollution impacts         Biol OGICAL OBSERVATIONS<br>(Record all observations below)         Fish Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | is the sampling reach representative of                                                   | f the stream (Y/N) If not, explain:                                                                                                                                                                                                                              |
| BIOL OGICAL OBSERVATIONS<br>(Record all observations below)         Fish Observed? (Y/N) N       Species observed (if known):         Frogs or Tadpoles Observed? (Y/N) N       Species observed (if known):         Salamanders Observed? (Y/N) N       Species observed (if known):         Aquatic Macroinvertebrates Observed? (Y/N) N       Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                           | *                                                                                                                                                                                                                                                                |
| Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Frogs or Tadpoles Observed? (Y/N)                                                         | es observed (if known):<br>V Species observed (if known):                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Salamanders Observed? (Y/N)                                                               |                                                                                                                                                                                                                                                                  |
| Comments Regarding Biology:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                           | 2 (Y/N) Species observed (if known):                                                                                                                                                                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Aquatic Macroinvertebrates Observed?                                                      |                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                           |                                                                                                                                                                                                                                                                  |
| DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Comments Regarding Biology:                                                               |                                                                                                                                                                                                                                                                  |
| DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)<br>Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Comments Regarding Biology:<br>DRAWING AND NAR                                            | RATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Comments Regarding Biology:<br>DRAWING AND NAR                                            | RATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Comments Regarding Biology:<br>DRAWING AND NAR                                            | RATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Comments Regarding Biology:<br>DRAWING AND NAR                                            | RATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Comments Regarding Biology:<br>DRAWING AND NAR                                            | RATIVE 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<br>TransmissionLiveRPW<br>openfield                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Comments Regarding Biology:<br>DRAWING AND NAR                                            | RATIVE 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<br>TransmissionLiveRPW<br>openfield                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Comments Regarding Biology:<br>DRAWING AND NAR<br>Include important landmarks<br>Transfor | RATIVE 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<br>TransmissionLiveRPW<br>openfield                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Comments Regarding Biology:<br>DRAWING AND NAR<br>Include important landmarks<br>Transfor | RATIVE DESCRIPTION OF STREAM REACH (This must be completed)<br>and other features of interest for site evaluation and a narrative description of the stream's location<br>infoston Line Republic<br>and all and a narrative description of the stream's location |
| Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>TransmissionLiveRely<br>openfield                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Comments Regarding Biology:<br>DRAWING AND NAR<br>Include important landmarks<br>Transfor | RATIVE DESCRIPTION OF STREAM REACH (This must be completed)<br>and other features of interest for site evaluation and a narrative description of the stream's location<br>infoston Line Republic<br>and all and a narrative description of the stream's location |
| Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>TransmissionLiveRely<br>openfield                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Comments Regarding Biology:<br>DRAWING AND NAR<br>Include important landmarks<br>Transfor | RATIVE DESCRIPTION OF STREAM REACH (This must be completed)<br>and other features of interest for site evaluation and a narrative description of the stream's location<br>infoston Line Republic<br>and all and a narrative description of the stream's location |

| hio                                                            | Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 4                                                 |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| DATE 519/20                                                    | AM REACH (11) 74 LAT 39, 795910 LONG 82,00003 RIVER MILE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                   |
|                                                                | All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   |
| STREAM CHANNE                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | RECOVERY                                          |
| (Max of 32) TYPE BLDR S BOULDE BEDROC GCOBBLE GRAVE            | SLABS [16 pts]     SLT [3 pt]     300       ER (>256 mm) [16 pts]     Image: SLT [3 pt]     300       CK [16 pts]     Image: SLT [3 pt]     100       CK [16 pts]     Image: SLT [3 pt]     100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| Bidr Slabs, Bo                                                 | (Percentages of oulder, Cobble, Bedrock 10 (A) (A) OTAL NUMBER OF SUBSTRATE TYPES: (B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | A + B                                             |
| time of eval<br>> 30 centime<br>> 22.5 - 30 c<br>> 10 - 22.5 c | Iuation Avoid plunge pools from road culverts or storm water pipes)       (Check ONLY one box):         eters [20 pts]       5 cm - 10 cm [15 pts]         cm [30 pts]       < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pool Depth<br>Max = 30                            |
| COMMENT                                                        | L WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Bankfull                                          |
| > 4.0 meters                                                   | s (> 13') [30 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Width<br>Max=30                                   |
| COMMENT                                                        | AVERAGE BANKFULL WIDTH (meters) 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5                                                 |
| RIPA                                                           | This information <u>must</u> also be completed<br>ARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as tooking downstream*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                   |
|                                                                | PARIAN WIDTH<br>(Per Bank)       FLOODPLAIN_QUALITY<br>(Most Predominant_per Bank)         Vide >10m       L       R         Vide >10m       Mature Forest, Wetland       Conservation Tillage         Noderate 5–10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Iarrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0                                                 |
| Strea                                                          | W REGIME (At Time of Evaluation) (Check ONLY one box):<br>am Flowing<br>surface flow with isolated pools (interstitial) Dry channel, isolated pools no flow (intermittent<br>Dry channel, no water (ephemeral)<br>IMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | D                                                 |
| None<br>0 5                                                    | UOSITY         (Number of bends per 61 m (200 ft) of channel)         (Check ONLY one box):           Image: the structure of |                                                   |
| Flat 05 %100 %                                                 | Flat to Moderate Moderate 2 9 100 9 Inderate to Severe Severe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1.7)                                              |
| October 2018 Rea                                               | raion Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   |

| lame:D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | istance from Evaluated Stream                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Name:     Bush Criteria       Iame:     D       Iame:     D       MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER SHED ARE       adrangle Name:     NRCS Soil Map Page:       MUSKINGUM CO     Township/City:       MISCELLANEOUS     Township/City:       V Conditions? (Y/N)     Date of last precipitation:     5/19/20       Humentation Notes     Soil Canopy (% open):     355/1.       ples collected for water chemistry? (Y/N):     Lab Sample # or ID (a       sures:Temp (°C)     Dissolved Oxygen (mg/l)     pH (S.U.)                                                                                                                                                                                                                                                                                                                                                                                                                                                           | istance from Evaluated Stream                                              |
| Iame:       D         Iame:       D         MAPPING: ATTACH_COPIES OF MAPS, INCLUDING THE ENTIRE WATER SHED ARE         adrangle Name:       NRCS Soil Map Page:         MUSKINGUM (O)       Township/City:         MISCELLANEOUS         / Conditions? (Y/N)       Date of last precipitation:         Sumentation Notes         // urbidity?(Y/N):       Canopy (% open):         2557(         ples collected for water chemistry? (Y/N):       Lab Sample # or ID (a         sures:Temp (*C)       Dissolved Oxygen (mg/l)       pH (S.U.)                                                                                                                                                                                                                                                                                                                                                                                                                                                          | istance from Evaluated Stream                                              |
| Iame:       D         MAPPING: ATTACH_COPIES OF MAPS, INCLUDING THE ENTIRE WATER SHED ARE         adrangle Name:       NRCS Soil Map Page:         MUSKINGUM CO.       Township/City:         MISCELLANEOUS       Township/City:         V Conditions? (Y/N)       Date of last precipitation:       5/9/20         Sumentation Notes       3557         ples collected for water chemistry? (Y/N):       Lab Sample # or ID (at sures: Temp (°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | A. CLEARLY MARK THE SITE LOCATIONNRCS Soil Map Stream Order: Quantity:SO'' |
| adrangle Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | NRCS Soil Map Stream Order:<br>Quantity:                                   |
| MUSKINgum CO. Township/City:<br>MISCELLANEOUS<br>(Conditions? (Y/N)) Date of last precipitation: 5/19/20<br>sumentation Notes<br>(urbidity?(Y/N)) Canopy (% open): 355 (<br>ples collected for water chemistry?(Y/N): Lab Sample # or ID (a<br>sures:Temp (FC) Dissolved Oxygen (mg/l) pH (S.U.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Quantity: 50''                                                             |
| MISCELLANEOUS         / Conditions? (Y/N)         Date of last precipitation:         Sumentation Notes         'urbidity?(Y/N):         Date collected for water chemistry?(Y/N):         Notes         'urbidity?(Y/N):         Date collected for water chemistry?(Y/N):         Date collected for water chemistry?(Y/N): | Quantity:                                                                  |
| MISCELLANEOUS         / Conditions? (Y/N)         Date of last precipitation:         Sumentation Notes         'urbidity?(Y/N):         Date collected for water chemistry?(Y/N):         Notes         'urbidity?(Y/N):         Date collected for water chemistry?(Y/N):         Date collected for water chemistry?(Y/N): | Quantity:                                                                  |
| umentation Notes<br>urbidity?(Y/N): Canopy (% open):355 (<br>ples collected for water chemistry?(Y/N): Lab Sample # or ID (a<br>sures:Temp (FC) Dissolved Oxygen (mg/l) pH (S.U.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ttach results):                                                            |
| 'urbidity?(Y/N):       N       Canopy (% open):       355 (         ples collected for water chemistry?(Y/N):       N       Lab Sample # or ID (a         sures:Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                            |
| ples collected for water chemistry? (Y/N): Lab Sample # or ID (a<br>sures:Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                            |
| ples collected for water chemistry? (Y/N): Lab Sample # or ID (a<br>sures:Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Conductivity (umhos/cm)                                                    |
| pling_reach representative of the stream (Y/N) 📈 If not, explain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
| comments/description of pollution impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
| BIOLOGICAL OBSERVATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                            |
| (Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
| rved? (Y/N) Species observed (if known);                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <u> </u>                                                                   |
| adpoles Observed? (Y/N) N Species observed (If known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                            |
| ers Observed? (Y/N) 🔼 Species observed (if known)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                            |
| acroinvertebrates Observed? (Y/N) N Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                            |
| Regarding Biology:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                            |
| Regarding blobby                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
| DRAWING AND NARRATIVE DESCRIPTION OF STREAM F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 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                           |
| line a ( ) ) (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                            |
| nostinue )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2 5 7                                                                      |
| HOW - J                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
| v n                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                            |
| -Kn n l'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | $() \rightarrow ($                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
| / / / lorotco                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                            |
| 14 1/2 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 24                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | structions                                        |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY Ywo predominant substrate TYPE boxes<br>(Max of 32) Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A & B         TYPE       BLDR SLABS [16 pts]       PERCENT       TYPE         BOULDER (>256 mm) [16 pts]       SLT [3 pt]       PERCENT         BEDROCK [16 pts]       FINE DETRITUS [3 pts]       PERCENT         BEDROCK [16 pts]       SLT [3 pt]       PERCENT         BEDROCK [2-64 mm] [9 pts]       SCORE of TWO MOST PREDOMINATE SUBSTRATE TYPES:       AND (         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:       TOTAL NUMBER OF SUBSTRATE TYPES:       SLT [3 pts] | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| 2.       Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):         > 30 centimeters [20 pts]       5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Pool Depth<br>Max = 30                            |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       ≤ 1.0 m (< 3' 3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Bankfull<br>Width<br>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         L R       FLOODPLAIN QUALITY       (Most Predominant per Bank)         L R       L R       L R         Moderate 5-10m       Immature Forest, Wetland       Conservation Tillage         Narrow <5m       Residential, Park, New Field       Open Pasture, Row Critical         None       Fenced Pasture       Mining or Construction         COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2p                                                |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools in flow (intermitte         Subsurface flow with isolated pools interstitial)       Dry channel, no water (ephemeral)         COMMENTS       SiNUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):         None       1.0       2.0       3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -<br>nt)<br>-                                     |
| 05 15 25 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                   |
| STREAM GRADIENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 00 *                                              |
| Ostober 2018 Revision Page I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                   |

| ADDIT                        | ONAL STREAM INFORMATION (This Information Must Also be Completed):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| QHEI PERFORMED               | ?  Yes XNo QHEI Score (If Yes, Attach Completed QHEI form)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2(WWH Name:                  | SIGNATED_USE(S) Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                              | COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                              | UMCO Township/City: NRCS Soil Map Stream Order:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| MISCELLANEOUS                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Base Flow Conditions? (Y/N)  | Date of last precipitation: $5/19/20$ Quantity: $50''$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| hoto-documentation Notes.    | 2,1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| levated Turbidity?(Y/N):     | Сапору (% ореп):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                              | vater chemistry? (Y/N): Lab Sample # or ID (attach results):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                              | Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (unhos/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| s the sampling reach repres  | entative of the stream (Y/N) If not, explain:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Additional comments/descrip  | tion of pollution impacts:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                              | BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| ish Observed? (YAN) N        | Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| rogs or Tadpoles Observed    | (VIN) N Species observed (If known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                              | 4) N Species observed (If known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| vquatic Macroinvertebrates ( | Observed? (Y/N) <u>IV</u> Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| omments Regarding Biology    | <u></u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                              | ID NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                              | landmarks and other features of interest for site evaluation and a narrative description of the stream's location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| insmission live              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ROW                          | 1 The                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ow ~~~                       | The second secon |
|                              | Forestad B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| doper 2015 Revision          | Page 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Primary H                                                                                                                                                                    | Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 24                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| LENGTH OF STREAM REACH (1) 190<br>DATE 51920 SCORER KLV                                                                                                                      | BAUSIA CARELE RIVER CODE (SOUCH) OF RAINAGE AREA (MP)<br>LAT 291.794(1048 LONG 82.019(14 RIVER MILE<br>COMMENTS SO15<br>m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins                                                                                                                                                                                                                                                                                                                                                                                        | _                                                 |
| STREAM CHANNEL MODIFICATIONS:                                                                                                                                                | NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | O RECOVER                                         |
| (Max of 32). Add total number of sign                                                                                                                                        | f every type present). Check ONL Y two predominant substrate TYPE boxes         nificant substrate types found (Max of 8) Final metric score is sum of boxes A & B         PERCENT       TYPE         Image: Substrate types found (Max of 8) Final metric score is sum of boxes A & B         PERCENT       TYPE         Image: Substrate types found (Max of 8) Final metric score is sum of boxes A & B         PERCENT       TYPE         Image: Substrate types found (Max of 8) Final metric score is sum of boxes A & B         PERCENT       Total NUMBER OF SUBSTRATE TYPES: | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
|                                                                                                                                                                              | he <u>maximum pool depth within the 61 meter (200 feet)</u> evaluation reach at the<br>Is from road culverts or storm water pipes) (Check ONLY one box):<br>5 cm - 10 cm [15 pts]<br>< 5 cm [5pts]<br>NO WATER OR MOIST CHANNEL [0pts]<br>MAXIMUM POOL DEPTH (centimeters):                                                                                                                                                                                                                                                                                                           | Pool Dept<br>Max = 30                             |
| BANK FULL WIDTH (Measured as           > 4.0 meters (> 13') [30 pts]           > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]           > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Bankfull<br>Width<br>Max=30                       |
| COMMENTS                                                                                                                                                                     | AVERAGE BANKFULL WIDTH (meters) 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5                                                 |
| RIPARIAN ZONE AND FLOO<br><u>RIPARIAN WIDTH</u><br>L R (Per Bank)<br>Wide > 10m<br>Moderate 5-10m<br>Narrow <5m<br>None<br>COMMENTS                                          | This information mustalso be completed         DDPLAIN QUALITY       * NOTE: River Left (L) and Right (R) as looking downstream*         FLOODPLAIN QUALITY       (Most Predominant per Bank)         L       R       L         Mature Forest, Wetland       Conservation Tillage         Mature Forest, Shrub or Old Field       Urban or Industrial         Residential, Park, New Field       Open Pasture, Row Cro         Fenced Pasture       Mining or Construction                                                                                                            | q                                                 |
| COMMENTS                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                   |
| FLOW REGIME (At Time of E<br>Stream Flowing<br>Subsurface flow with isolated p<br>COMMENTS                                                                                   | Maist Channel, isolated pools, no flow (intermitter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | nt)<br>-                                          |

| Gill Pour Oran D: Tres King Uner Score                                     | (If Yes, Attach Completed QHEI form)                                                                            |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE(S)                                               |                                                                                                                 |
| (WWH Name: BUSHCKER                                                        |                                                                                                                 |
| ] CWH Name:                                                                | Distance fromEvaluated Stream                                                                                   |
|                                                                            | ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                                          |
|                                                                            | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                                 |
| ounty: Muskingum CO. To                                                    | wwnship/City:                                                                                                   |
| MISCELLANEOUS                                                              |                                                                                                                 |
| ase Flow Conditions? (V/N)                                                 | n: 5/19/20 Quantity: 50"                                                                                        |
| hoto-documentation Notes                                                   | $< \cdot /$                                                                                                     |
| evated Turbidity?(Y/N): Canopy (% open):                                   |                                                                                                                 |
| ere samples collected for water chemistry? (Y/N):                          |                                                                                                                 |
| eid Measures:Temp (°C) Dissolved Oxygen (mg/l)                             | pH (S.U.) Conductivity (umhos/cm)                                                                               |
| the sampling reach representative of the stream (Y/N) $\underline{\qquad}$ | If not, explain                                                                                                 |
| (Resord all obs-                                                           | DBSERVATIONS<br>vervations below)                                                                               |
| sh Observed? (Y/N) N Species observed (if known)                           |                                                                                                                 |
|                                                                            | (if known);                                                                                                     |
| alamanders Observed? (Y/N) C Species observed (if kno                      | (nwo                                                                                                            |
| quatic Macroinvertebrates Observed? (Y/N) N_ Species of                    | bserved (if known):                                                                                             |
| omments Regarding Biology:                                                 |                                                                                                                 |
|                                                                            |                                                                                                                 |
| DRAWING AND NARRATIVE DESCRIPT                                             | TION OF STREAM REACH (This must be completed)                                                                   |
|                                                                            | est for site evaluation and a narrative description of the stream's location                                    |
| Transmis                                                                   | simbline ROW open field                                                                                         |
|                                                                            |                                                                                                                 |
| W                                                                          |                                                                                                                 |
|                                                                            | and and a second and |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 65                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| SITE NAME/LOCATION <u>CYOUS VILLO Philo</u><br>SITE NUMBER <u>RIVER BASIN BUSACICCUC</u> RIVER CODE 050400)4080 RAINAGE AREA (mF) <u>LENGTH OF STREAM REACH (N) 242</u> LAT <u>29, 7945944</u> LONG <u>82,0173944</u> RIVER MILE <u>DATE 519120</u> SCORER <u>KUU</u> <u>COMMENTS</u> S016<br>NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins<br>STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR N                                                                                                                                                                                                                                                                                                                                                                                     | structions                                                       |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY Ywo predominant substrate TYPE boxes.<br>(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B         TYPE       BLDR SLABS [16 pts]       PERCENT       TYPE         BOULDER (>256 mm) [16 pts]       LEAF PACKWOODY DEBRIS [3 pts]       PERCENT         BEDROCK [16 pts]       LEAF PACKWOODY DEBRIS [3 pts]       DEBRIS [3 pts]         COBBLE (65-256 mm) [12 pts]       DEBRIS [12 pts]       DEBRIS [12 pts]         GRAVEL (2-64 mm) [9 pts]       DEBRIS [12 pts]       DEBRIS [13 pts]         Total of Percentages of<br>Bkdr Slabs. Boulder, Cobble, Bedrock       S       (A)       [15]         Total of Percentages of<br>Bkdr Slabs. Boulder, Cobble, Bedrock       (A)       [16]       TOTAL NUMBER OF SUBSTRATE TYPES: | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>20<br>A + B |
| Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):     > 30 centimeters [20 pts] 5 cm - 10 cm [15 pts]     > 22.5 - 30 cm [30 pts] 5 cm - 10 cm [5pts]     > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts]     COMMENTS MAXIMUM POOL DEPTH (centimeters): 15                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Pool Depth<br>Max = 30                                           |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       > 1.0 m (> 3' 3' ) [5 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       \$ 1.0 m (< 3' 3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Bankfull<br>Width<br>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 (Most Predominant per Bank)         L R       (Per Bank)       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <sm< td="">       Residential, Park, New Field       Open Pasture, Row Cr         None       Fenced Pasture       Mining or Construction         COMMENTS      </sm<>                                                                                                                                                                                                                                                                                                         | op<br>-                                                          |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools in flow (intermitte Dry channel, no water (ephemeral)         COMMENTS       Dry channel, no water (ephemeral)         COMMENTS       SINUO SITY (Number of bends per 61 m (200 ft) of channel)       (Check ONLY one box)         None       10       2.0       30         0.5       15       2.5       >3         STREAM GRADIENT ESTIMATE       Moderate 2 ±100 ±       Moderate to Severe       Severe 10 ±10                                                                                                                                                                                                                                                                                                                                          | -                                                                |
| Catober 2018 Reviewon Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | see tr                                                           |

| QHEI PERFORMED? Yes No QHEI Sci                            | ore (if Yes, Attach Completed QHEI form)                                             |
|------------------------------------------------------------|--------------------------------------------------------------------------------------|
| DOWNSTREAM, DESIGNATED USE(S)                              |                                                                                      |
|                                                            | Distance from Evaluated Stream                                                       |
| CWH Name:                                                  |                                                                                      |
| EWH Name:                                                  | Distance from Evaluated Stream                                                       |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDIN                   | NG THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                        |
| USGS Quadrangle Name:                                      | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                      |
| county: MUSKINGUM CO-                                      | Township/City:                                                                       |
| MISCELLANEOUS                                              |                                                                                      |
| Base Flow Conditions? (Y/N) Date of last precis            | 5/19/70 50"                                                                          |
| )                                                          | pration, duantity.                                                                   |
| Photo-documentation Notes                                  | 1:01                                                                                 |
| Elevated Turbidity?(Y/N): Canopy (% open)                  | <u>, 001.</u>                                                                        |
| Were samples collected for water chemistry? (Y/N):         | Lab Sample # or ID (attach results):                                                 |
| Field Measures:Temp (°C) Dissolved Oxygen (                | mg/l) pH (S.U.) Conductivity (umhos/cm)                                              |
|                                                            | If not, explain:                                                                     |
| is the sampling react representative of the stream ( rm) ; |                                                                                      |
|                                                            |                                                                                      |
| Additional comments/description of pollution impacts       |                                                                                      |
|                                                            |                                                                                      |
| BIOLOGH                                                    | CAL OBSERVATIONS                                                                     |
|                                                            | all observations below)                                                              |
| Fish Observed? (Y/N) 1 Species observed (if know           | wn):                                                                                 |
|                                                            | served (if known):                                                                   |
| Salamanders Observed? (V/N) Species observed               | d (if known)                                                                         |
| Aquatic Macroinvertebrates Observed? (Y/N) N Spe           | cies observed (if known):                                                            |
| Comments Regarding Biology:                                |                                                                                      |
|                                                            |                                                                                      |
|                                                            |                                                                                      |
|                                                            | RIPTION OF STREAM REACH (This must be completed)                                     |
|                                                            | of interest for site evaluation and analyzative description of the stream's location |
| I tot E Trans                                              | penfield .                                                                           |
| Forester                                                   | Coll 1                                                                               |
| 6                                                          | formation 192                                                                        |
|                                                            |                                                                                      |
| LOW                                                        | VVVC J.V                                                                             |
|                                                            |                                                                                      |
| 1)                                                         |                                                                                      |
| <   <                                                      |                                                                                      |
| A A A A A A A A A A A A A A A A A A A                      | Foresteel -                                                                          |
|                                                            |                                                                                      |
|                                                            | ( ) and (                                                                            |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 55                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| SITE NAME/LOCATION RIVER BASIN BY SALVER RIVER CODE() SUBJOUR ANAGE AREA (MF)<br>SITE NUMBER RIVER BASIN BY SALVER RIVER CODE() SUBJOUR ANAGE AREA (MF)<br>LENGTH OF STREAM REACH (II) 230 LAT 39.791948 LONG 32.01(033 RIVER MILE<br>DATE 519100 SCORER KUV COMMENTS S017<br>NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins                                                                                                                                                                                                                          | _                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | O RECOVERY                                                       |
| 1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes.<br>(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         BOULDER (>256 mm) [16 pts]       LEAF PACKWOODY DEBRIS [3 pts]         BEDROCK (16 pts)       LEAF PACKWOODY DEBRIS [3 pts]         COBBLE (65-256 mm) [12 pts]       CLAY or HARDPAN [0 pt]         GRAVEL (2-64 mm) [9 pts]       MUCK [0 pts]         Total of Percentages of<br>Bidr Slabs, Boulder, Cobble, Bedrock       S | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>26<br>A + B |
| SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                  |
| Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):     > 30 centimeters [20 pts]                                                                                                                                                                                                                                                                                                                                                                     | Pool Depth<br>Max = 30                                           |
| 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]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       ≤ 1.0 m (≤ 3' 3') [5 pts]         > 1 5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       ≤ 1.0 m (≤ 3' 3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                | Width<br>Max=30                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 20                                                               |
| This information must also be completed<br>RIPARIAN ZONE AND FLOODPLAIN QUALITY - + NOTE: River Left (L) and Right (R) as looking downstream+                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                  |
| RIPARIAN WIDTH       FLOODPLAIN QUALITY (Most Predominant per Bank)         L R       (Per Bank)       L R         Moderate 5-10m       Mature Forest, Wetland       Conservation Tillage         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                      | - qc                                                             |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box);         Stream Flowing       Moist Channel, isolated pools, no flow (intermitter         Subsurface flow with isolated pools (interstitial)       Dry channel, no water (ephemeral)         COMMENTS                                                                                                                                                                                                                                                                                                                                              | nt)<br>-                                                         |
| SINUO SITY         (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         2.5         3.0                                                                                                                                                                                                                                                                                                                                                     |                                                                  |
| Flat 05 % 100 % Flat to Moderate Moderate 2 % 100 % Moderate to Severe Severe 10 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | * 00                                                             |
| October 2018 Revision Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                  |

|                                                     | QHEI Score (if Yes, Attach Completed QHEI form)                       |
|-----------------------------------------------------|-----------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE                           | (S)                                                                   |
| BOWWH Name: Brush Creek                             | Distance from Evaluated Stream                                        |
|                                                     | Distance fromEvaluated Stream                                         |
| EWH Neme:                                           |                                                                       |
|                                                     | INCLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION. |
|                                                     | NRCS Soil Map Page:NRCS Soil Map Stream Order:                        |
| county: MUSKINGUM (0.                               | Township/City:                                                        |
| MISCELLANEOUS                                       |                                                                       |
| Base Flow Conditions? (Y/N) Date of                 | flast precipitation: 5/19/20 Quantity: 50"                            |
| Photo-documentation Notes                           | 251                                                                   |
| Elevated Turbidity?(Y/N) Canopy                     | y (% open): 51.                                                       |
| Were samples collected for water chemistry? (Y      | Y/N): N Lab Sample # or ID (attach results):                          |
|                                                     | Oxygen (mg/l) pH (S U ) Conductivity (umbos/cm)                       |
| s the sampling reach representative of the strea    | eam (Y/N) If not, explain:                                            |
|                                                     |                                                                       |
| Additional comments/description or poliution imp    | pacts:                                                                |
|                                                     | BIOLOGICAL OBSERVATIONS                                               |
|                                                     | (Record all observations below)                                       |
| Fish Observed? (Y/N) N Species observ               | ved (if known):                                                       |
| From or Tadooles Observed? (VIN) N So               | pecies observed (If known):                                           |
|                                                     |                                                                       |
|                                                     | s observed (ifknown)                                                  |
| Aquatic Macroinvertebrates Observed? (Y/N) <u>[</u> | Species observed (if known):                                          |
| Comments Regarding Biology:                         |                                                                       |
|                                                     |                                                                       |
|                                                     |                                                                       |
|                                                     | TE DESCRIPTION OF STREAM REACH (This must be completed)               |
|                                                     |                                                                       |
|                                                     | -Travomissimline Row Forostal                                         |
|                                                     | Cild L                                                                |
| . 2/1                                               | openticia                                                             |
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| ow                                                  |                                                                       |
| $\sim$                                              | N S                                                                   |
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|                                                     |                                                                       |
| -10                                                 |                                                                       |
| Total                                               | Y                                                                     |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -7                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION <u>CYOOKSVILLE PHILD</u><br>SITE NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | _                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | RECOVERY                                          |
| (Max or 32). Add total number of significant substrate types found (Max or 3) Final metric score is sum of occess A & B         TYPE       PERCENT         BLDR SLABS [16 pts]       PERCENT         BOULDER (>256 mm) [16 pts]       Image: Superscript significant substrate types found (Max or 3) Final metric score is sum of occess A & B         PERCENT       TYPE         PERCENT       SLT [3 pt]         PERCENT       Final metric score is som of occess A & B         PERCENT       SLT [3 pt]         PERCENT       Final metric score is som of occess A & B         PERCENT       SLT [3 pt]         PERCENT       Final metric score is som of occess A & B         PERCENT       SLT [3 pt]         PERCENT       Final metric score is som of occes         PERCENT <td>HHEI<br/>Metric<br/>Points<br/>Substrate<br/>Max = 40</td> | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ool Depth<br>Max = 30                             |
| □       > 4.0 meters (> 13') [30 pts]       >> 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         □       > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       □       ≤ 1.0 m (≤ 3' 3') [5 pts]         □       > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       □       ≤ 1.0 m (≤ 3' 3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Bankfull<br>Width<br>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       (Most Predominant per Bank)         L R       (Per Bank)       L R       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate S-10m       Immature Forest, Shrub or Old Field       Urban or industrial         Narrow <sm< td="">       Residential, Park, New Field       Open Pasture, Row Crop         None       Fenced Pasture       Mining or Construction         COMMENTS      </sm<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                   |
| 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 (ephemaral)         COMMENTS       SINUO SITY (Number of bends per 61 m (200 ft) of channel)         None       10       20       30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                   |
| □ 0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                   |
| Flat os enco en Elat to Moderate Moderate 2 enco en El Moderate to Severe Severe Severe enco enco enco enco enco enco enco enc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 41                                                |

| QHEI PERFORMED? Yes No QHEI Score                                                                                                                                                                                                       | (If Yes, Attach Completed QHEI form)                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE(S)                                                                                                                                                                                                            |                                                                                                                                           |
| ZWWH Name: Brush Creek                                                                                                                                                                                                                  | Distance from Evaluated Stream                                                                                                            |
| ] CWH Name:                                                                                                                                                                                                                             | Distance fromEvaluated Stream                                                                                                             |
| ] EWH Name:                                                                                                                                                                                                                             | Distance fromEvaluated Stream                                                                                                             |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE                                                                                                                                                                                    |                                                                                                                                           |
| SGS Quadrangle Name: NRCS S                                                                                                                                                                                                             |                                                                                                                                           |
| ounty: MUSKINgUMCO Township                                                                                                                                                                                                             | /City:                                                                                                                                    |
| MISCELLANEOUS                                                                                                                                                                                                                           |                                                                                                                                           |
| ase Flow Conditions? (Y/N): Date of last precipitation:                                                                                                                                                                                 | 19 20 Quantity: .50"                                                                                                                      |
| hoto-documentation Notes:                                                                                                                                                                                                               |                                                                                                                                           |
| levated Turbidity?(Y/N) N Canopy (% open): LOOL.                                                                                                                                                                                        | -                                                                                                                                         |
| Vere samples collected for water chemistry? (Y/N):                                                                                                                                                                                      | Sample # or ID (attach results):                                                                                                          |
| ield Measures:Temp (°C) Dissolved Oxygen (mg/l)                                                                                                                                                                                         | pH (S U.) Conductivity (umhos/cm)                                                                                                         |
| , the sampling reach representative of the stream (V/N) $\square$ . If not, (                                                                                                                                                           | explain:                                                                                                                                  |
|                                                                                                                                                                                                                                         |                                                                                                                                           |
| dditional comments/description of pollution impacts:                                                                                                                                                                                    |                                                                                                                                           |
| ish Observed? (Y/N) Species observed (if known);<br>rogs or Tadpoles Observed? (Y/N) Species observed (if know<br>alamanders Observed? (Y/N) Species observed (if known);<br>quatic Macroinvertebrates Observed? (Y/N) Species observed | vn):                                                                                                                                      |
| omments Regarding Biology:                                                                                                                                                                                                              |                                                                                                                                           |
| Include important landmarks and other features of interest for s                                                                                                                                                                        | DF STREAM REACH (This must be completed)<br>its evaluation and a narrative description of the stream's instation<br>in line ROW/openfield |
| ow yo                                                                                                                                                                                                                                   |                                                                                                                                           |
| $\langle \rangle$                                                                                                                                                                                                                       |                                                                                                                                           |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 7                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| SITE NAME/LOCATION CYCOLS VILLE Philo<br>SITE NUMBERRIVER BASIN BY USA CYCLIC RIVER CODE OF OUTHORRAINAGE AREA (mif)<br>LENGTH OF STREAM REACH (N) 102 LAT 39. 701743 LONG 32.00000 RIVER MILE<br>DATE 51920 SCORER KUV COMMENTS S019<br>NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Onio's PHWH Streams" for Instru<br>STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | uctions                                                   |
| Image: Display the intervence inter | HHEI<br>Metric<br>Points<br>ubstrate<br>Aax = 40<br>A + B |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ool Depth<br>Max = 30                                     |
| > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Bankfull<br>Width<br>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 (Most Predominant per Bank)         L R       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                           |
| 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       SINUO SITY (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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | t)<br>                                                    |

| Distance from Evaluated Stream         NRCS Soil Map Page:         MISCELLANEOUS         Base Flow Conditions? (YN)         Date of last precipitation:         Distance from Evaluated Turbidity? (YN)         Miscellulation         Noto-documentation Notes         levated Turbidity? (YN)         Miscellulation         Noto-documentation Notes         levated Turbidity? (YN)         Leb samples collected for water chemistry? (YN)         Leb sampling reach representative of the stream (YN)         Vit not, explain:         Stol Doserved? (YN)         Species observed (if Nown):         conductive (if Nown):         assenders Observed? (YN)         Species observed (if Nown):         qualitic Macroin vertebra                                                                                                         | OHEL DEDG                                                                                                           | OPMER? The OHEL Soore                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BALLSAN CIPCLY       Distance from Evaluated Stream         DWH Name       Distance from Evaluated Stream         EWH Name       Distance from Evaluated Stream         BEWH Name       Distance from Evaluated Stream         BEWH Name       Distance from Evaluated Stream         Stance from Evaluated Stream       Distance from Evaluated Stream         MAPPING. ATTACH COPIES OF MAPS. INCLUDING THE ENTIRE WATER SHED AREA CLEARLY MARK THE STE LOCATION.         JSGS Quadrangie Name       NRCS Soil Map Page.         County:       MUS KINGUM (O)         Township/City:       MISCELLANEOUS         Date of lisst precipitation:       Stream         Distance from Evaluated Stream       Order:         County:       MUS KINGUM (O)       Township/City:         MISCELLANEOUS       Name:       Outstance from Evaluated Stream         Date of lisst precipitation:       Stream       Quanity:         Stream Temp (C):       Distonce proping (% open):       Quanity:         Were samples collected for water chemistry? (YA):       Lab Sample # or ID (attach results):                                                                                                                                                                                                                                       |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Distance from Evaluated Stream         EVH Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| EVH Name       Distance from Evaluated Stream         MAPPING: ATTACH: COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.         USGS: Quadrangle Name       NRCS: Sol Map Page:         MUSK KINGUM:       NRCS: Sol Map Page:         MISCELLANEOUS         Base Flow Conditions? (V/N)       Date of last precipitation:         Status       Status         Photo-documentation Notes         Elevated Turbidity?(V/N)       Campy (% open)         Status       Canopy (% open)         Additional comments/description of pollution impacts         Record all observations below)         Field Measures?         Species observed (if known)         Additional comments/description of pollution impacts         (Record all observations below)         Field Observed? (V/N)       Species observed (if known)         Aquatic Macroinvertebrates Observed? (V/N)       Species observed (if known)         Aquatic Macroinvertebrates Observed? (V/N)       Species observed (if known) </th <th></th> <th></th> |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| USGS Quadrangle Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | EWH Name:                                                                                                           | Distance from Evaluated Stream                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| County:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MAPPING:                                                                                                            | ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| CountyMUS KINGUYTownship/City                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | USGS Quadrangle Na                                                                                                  | Ime: NRCS_Soil Map Page: NRCS_Soil Map Stream Order:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MISCELLANEOUS         Base Flow Conditions? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | County: Mus                                                                                                         | SKingumCO, Township/City                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Photo-documentation Notes         Elevated Turbidity?(Y/N)       Canopy (% open):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | MISCELLA                                                                                                            | NEOUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Elevated Turbidity?(Y/N) Canopy (% open):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Base Flow Conditions                                                                                                | 2 (V/N) Date of last precipitation: [9] [20 Quantity: SO''                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Were samples collected for water chemistry?(Y/N):       Lab Sample # or ID (attach results);         Field Measures:Temp (*C)       Dissolved Oxygen (mg/l)       pH (S U.)       Conductivity (umhos/cm)         is the sampling reach representative of the stream (Y/N)       If not, explain:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Were samples collected for water chemistry?(Y/N):       Lab Sample # or ID (attach results);         Field Measures:Temp (*C)       Dissolved Oxygen (mg/l)       pH (S U.)       Conductivity (umhos/cm)         is the sampling reach representative of the stream (Y/N)       If not, explain:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Elevated Turbidity?(Y)                                                                                              | (N) Свлору (% open):О (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| s the sampling reach representative of the stream (Y/N) $4$ if not, explain:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Were samples collect                                                                                                | ed for water chemistry? (Y/N): N Lab Sample # or ID (attach results):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Additional comments/description of pollution impacts:<br>BIOLOGICAL OBSERVATIONS<br>(Record all observations below)<br>Fish Observed? (Y/N) M_Species observed (if known):<br>Frogs or Tadpoles Observed? (Y/N) M_Species observed (if known):<br>Salamanders Observed? (Y/N) M_Species observed (if known):<br>Salamanders Observed? (Y/N) M_Species observed (if known):<br>Comments Regarding Biology:<br>DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)<br>Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>Transmission We Row open field                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Field Measures:Temp                                                                                                 | (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| BIOLOGICAL OBSERVATIONS<br>(Record all observations below)<br>Frish Observed? (Y/N) Species observed (if known)<br>Frogs or Tadpoles Observed? (Y/N) Species observed (if known):<br>Salamanders Observed? (Y/N) Species observed (if known):<br>Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known):<br>Comments Regarding Biology:<br>DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)<br>Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>Transmission Unclude important landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>Transmission Unclude Keel (Stream Reach (Stream Reach))                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | s the sampling reach                                                                                                | representative of the stream (Y/N) If not, explain:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (Record all observations below)         Fish Observed? (Y/N) M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Additional commenta/                                                                                                | description of pollution impacts:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Fish Observed? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Frogs or Tadpoles Observed? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                     | BIOLOGICAL OBSERVATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Frogs or Tadpoles Observed? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                     | (Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Aquatic Macroinvertebrates Observed? (Y/N)_N_Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Fish Observed? (Y/N)                                                                                                | (Record all observations below) NSpecies observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Aquatic Macroinvertebrates Observed? (Y/N)_N_Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Fish Observed? (Y/N)<br>Frogs or Tadpoles Ob                                                                        | (Record all observations below) NSpecies observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Comments Regarding Biology:<br>DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed)<br>Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>Transmission Une Row/openfield                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Frogs or Tadpoles Ob                                                                                                | (Record all observations below)     N Species observed (if known): served? (V(N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed)<br>Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>Transmission Line Row (penfield                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Frogs or Tadpoles Ob<br>Salamanders Observe                                                                         | (Record all observations below)          MSpecies observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Include important Landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>Transmission Line ROW (openfield)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Frogs or Tadpoles Ob<br>Salamanders Observe<br>Aquatic Macroinvertel                                                | (Record all observations below)         (Record all observations below)         (VIN)         Species observed (if known):         (VIN)         (Y/N)         (Y/N) |
| Include important Landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>Transmission Line ROW (openfield)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Frogs or Tadpoles Ob<br>Salamanders Observe<br>Aquatic Macroinvertel                                                | (Record all observations below)         (Record all observations below)         (VIN)         Species observed (if known):         (VIN)         (Y/N)         (Y/N) |
| Transmissionline ROW/openfield                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Frogs or Tadpoles Ob<br>Salamanders Observe<br>Aquatic Macroinvertel                                                | (Record all observations below)         (Record all observations below)         (VIN)         Species observed (if known):         (VIN)         (Y/N)         (Y/N) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Frogs or Tadpoles Ob<br>Salamanders Observe<br>Aquatic Macroinvertel<br>Comments Regarding<br>DRAWII                | (Record all observations below)         M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Frogs or Tadpoles Ob<br>Salamanders Observe<br>Aquatic Macroinvertel<br>Comments Regarding<br>DRAWII                | (Record all observations below)         N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ow                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Frogs or Tadpoles Ob<br>Salamanders Observe<br>Aquatic Macroinvertel<br>Comments Regarding<br>DRAWII                | (Record all observations below)         N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ow                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Frogs or Tadpoles Ob<br>Salamanders Observe<br>Aquatic Macroinvertel<br>Comments Regarding<br>DRAWII                | (Record all observations below)         N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Frogs or Tadpoles Ob<br>Salamanders Observe<br>Aquatic Macroinvertel<br>Comments Regarding<br>DRAWII                | (Record all observations below)         N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Frogs or Tadpoles Ob<br>Galamanders Observe<br>Aquatic Macroinvertet<br>Comments Regarding<br>DRAWII<br>Include imp | (Record all observations below)         N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Frogs or Tadpoles Ob<br>Salamanders Observe<br>Aquatic Macroinvertet<br>Comments Regarding<br>DRAWII<br>Include imp | (Record all observations below)         N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Frogs or Tadpoles Ob<br>Salamanders Observe<br>Aquatic Macroinvertel<br>Comments Regarding<br>DRAWII                | (Record all observations below)         N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Frogs or Tadpoles Ob<br>Galamanders Observe<br>Aquatic Macroinvertet<br>Comments Regarding<br>DRAWII<br>Include imp | (Record all observations below)         N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| hio                                                                                                                             | Primary Headwater Habitat Field Evaluation For<br>HHEI Score (sum of metrics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                              |
|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| SITE NUMBER                                                                                                                     | 20 -10 - 00 - 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                              |
| STREAM CHANNEL                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | RECENT OR NO RECOVERY                                        |
| (Max of 32) A<br>TYPE<br>BLDR SL<br>BOULDER<br>BEDROCK<br>COBBLE<br>COBBLE<br>GRAVEL<br>SAND (<br>Total of P<br>Bldr Slabs, Bou | ABS [16 pts]       SILT [3 pt]         Ic (>256 mm) [16 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (>256 mm) [12 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (16 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (16 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (16 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (16 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (16 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (16 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (2-64 mm) [9 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (2-64 mm) [9 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (2-64 mm) [9 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (2-64 mm) [9 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (2-64 mm) [9 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (2-64 mm) [9 pts]       Ic LEAF PACK/WOODY DEBRIS [3 pts]         Ic (2-64 mm) [9 pts]       Ic (A) [17] | (B) C A + B                                                  |
| 2. Maximum Pe                                                                                                                   | ST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                              |
| time of evalua<br>> 30 centimete<br>> 22.5 - 30 cm<br>> 10 - 22.5 cm                                                            | [30 pts]         -         5 cm [5pts]           [25 pts]         NO WATER OR MOIST CHANNEL [0pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Max = 30                                                     |
| COMMENTS<br>3. BANK FULL                                                                                                        | WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Bankfull                                                     |
| > 4.0 meters (<br>> 3.0 m - 4.0 m                                                                                               | > 13') [30 pts]<br>n (> 9' 7'- 13') [25 pts]<br>n (> 4' 8' - 9' 7') [20 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Width<br>Max=30                                              |
| COMMENTS                                                                                                                        | AVERAGE BANKFULL WIDTH (met                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ers) 3                                                       |
| RIPAR                                                                                                                           | This information mustalso be completed<br>NAN ZONE AND FLOODPLAIN QUALITY + NOTE: River Left (L) and Right (R) as looking d                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ownstream*                                                   |
| L R (I<br>Wite<br>Mon<br>Nar<br>Nor                                                                                             | derate 5-10m Immature Forest, Shrub or Old Field I Urban or 3<br>row <5m III Residential, Park, New Field III Open Pas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | tion Tillage<br>Industrial<br>ture, Row Crop<br>Construction |
| FLOW<br>Stream<br>Subsur<br>COMM                                                                                                | IF REGIME (At Time of Evaluation) (Check ONLY one box):<br>IF lowing Moist Channel, isolated pools in of fk<br>rface flow with isolated pools (interstitial) Dry channel, no water (ephemeral)<br>IENTS<br>DSITY (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ow (intermittent)                                            |
| None<br>0 5                                                                                                                     | 10         20         30           15         2.5         30           ADJENT ESTIMATE         30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                              |
| Elat 05 \$100 *                                                                                                                 | Flat to Moderate Severe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Severe 10 1100 1                                             |
| Optoper 2018 Revisio                                                                                                            | Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                              |

|       | 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 fromEvaluated Stream         CWH Name:       Distance fromEvaluated Stream         EWH Name:       Distance fromEvaluated Stream                    |
|       | MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                                              |
|       | 3S Quadrangle Name:NRCS Soil Map Page:NRCS Soil Map Stream Order:<br>inty:MUSE Negum CoTownship/City:                                                                                                             |
|       | MISCELLANEOUS<br>See Flow Conditions? (Y/N): Date of last precipitation: Quantity: Quantity:                                                                                                                      |
|       | to-documentation Notes                                                                                                                                                                                            |
|       | re samples collected for water chemistry? (Y/N): N Lab Sample # or D (attach results):                                                                                                                            |
|       |                                                                                                                                                                                                                   |
|       | d Measures:Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)<br>te sampling reach representative of the stream (Y/N) If not, explain:                                                           |
| an ui | re sampling reach representative of the stream (1704) if not, explain                                                                                                                                             |
|       | BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                                                                                                        |
| ish   | Observed? (Y/N) Species observed (if known):                                                                                                                                                                      |
| iroç  | gs or Tadpoles Observed? (Y/N) N Species observed (if known);                                                                                                                                                     |
| iala  | manders Observed? (Y/N) Species observed (if known);                                                                                                                                                              |
| Aqu   | atic Macroinvertebrates Observed? (Y/N) N Species observed (if known):                                                                                                                                            |
| lom   | ments Regarding Biology:                                                                                                                                                                                          |
| _     |                                                                                                                                                                                                                   |
|       | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)<br>Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
| 下で    | Wetland Transmissin Line ROW/openfield                                                                                                                                                                            |
| 2     | X                                                                                                                                                                                                                 |
|       | $\int$                                                                                                                                                                                                            |
|       |                                                                                                                                                                                                                   |

Octoper 2018 Revision

Page 2

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3                                                                                                                                                                                                                                                                                                     | 27                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                      | r Instructions                                    |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes<br>(Max of 32). Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A & & & & & & & & & & & & & & & & & &                                                                                                                  | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):     > 30 centimeters [20 pts] 5 cm - 10 cm [15 pts]     > 22.5 - 30 cm [30 pts] < 5 cm [5pts]     > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts]     COMMENTS | Pool Depth<br>Max = 30                            |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8') [15 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       > 1.0 m (≤ 3' 3") [5 pts]         > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]       > 1.0 m (≤ 3' 3") [5 pts]                               | Bankfull<br>Width<br>Max=30                       |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                |                                                   |
| This information <u>must</u> also be completed<br>RIPARIAN ZONE AND FLOODPLAIN QUALITY + NOTE: River Laft (L) and Right (R) as booking downstre                                                                                                                                                                                                                                         | am*                                               |
| RIPARIAN WIDTH<br>(Per Bank)       FLOODPLAIN QUALITY (Most Predominant per Bank)         U R       (Per Bank)       L R         Wide > 10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industriai         Narrow <5m                                                                       | м Сгор                                            |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Image: Moist Channel, isolated pools in flow (inter Subsurface flow with isolated pools (interstitlar)         Subsurface flow with isolated pools (interstitlar)       Image: Dry channel, no water (ephemeral)         COMMENTS       Image: Dry channel, no water (ephemeral)           | mittent)                                          |
| 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 05 % 100 % Flat to Moderate Moderate 2 % 100 % Moderate to Severe Severe                                                                                                                                                                                                                                                                                                           | 10 1/100 15                                       |
| October 2018 Revision Page 1                                                                                                                                                                                                                                                                                                                                                            |                                                   |

|                                     | es XNo QHEI Score (If Yes, Attach Completed QHEI form)                                                                                                                    |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATE                | ED (USE(S)                                                                                                                                                                |
| IWWH Name BrushCIP                  | Distance from Evaluated Stream                                                                                                                                            |
| ] CWH Name:                         | Distance from Evaluated Stream                                                                                                                                            |
|                                     | Distance fromEvaluated Stream                                                                                                                                             |
| MAPPING: ATTACH COPIES              | OF MAPS, INCLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                            |
| SGS Quadrangle Name:                | NRCS Soil Map Page NRCS Soil Map Stream Order:                                                                                                                            |
| ounty: MUSKINGLIN                   | CO. Township/City:                                                                                                                                                        |
| MISCELLANEOUS                       |                                                                                                                                                                           |
|                                     | Date of last precipitation: $52070$                                                                                                                                       |
| hoto-documentation Notes            |                                                                                                                                                                           |
|                                     |                                                                                                                                                                           |
|                                     | emistry?(Y/N): NLab Sample # or ID (attach results):                                                                                                                      |
| eld Measures:Temp (°C) [            | Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                                 |
| the sampling reach representative o | of the stream (Y/N) If not, explain:                                                                                                                                      |
|                                     |                                                                                                                                                                           |
|                                     | BIOLOGICAL OBSERVATIONS                                                                                                                                                   |
|                                     | (Record all observations below)                                                                                                                                           |
| sh Observed? (Y/N) Specie           | ies observed (if known):                                                                                                                                                  |
| rogs or Tadpoles Observed? (Y/N)    | Species observed (if known):                                                                                                                                              |
| siamanders Observed? (Y/N) <u>N</u> | Species observed (if known)                                                                                                                                               |
| quatic Macroinvertebrates Observed  | 1? (Y/N) N Species observed (if known):                                                                                                                                   |
| omments Regarding Biology:          |                                                                                                                                                                           |
|                                     |                                                                                                                                                                           |
|                                     |                                                                                                                                                                           |
|                                     | RRATIVE DESCRIPTION OF STREAM REACH (This must be completed)<br>s and other features of interest for site evaluation and a narrative description of the stream's location |
|                                     |                                                                                                                                                                           |
| /                                   |                                                                                                                                                                           |
| 6                                   | - Transmissionline ROW.<br>Open (shrubby field                                                                                                                            |
|                                     | open (shrubba) Hera                                                                                                                                                       |
| w                                   | opention                                                                                                                                                                  |
| N                                   |                                                                                                                                                                           |
|                                     |                                                                                                                                                                           |

October 2018 Revision

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                  | 0                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| SITE NAME/LOCATION <u>CYOOKSULLE Philo</u><br>SITE NUMBER <u>RIVER BASIN BRUSHCYPEL</u> RIVER CODE <u>CTHODOHOBRAINAGE AREA (MF)</u><br>LENGTH OF STREAM REACH (N) 106 LAT <u>31.786544</u> LONG <u>82.02371B</u> RIVER MILE <u>DATE 52070</u> SCORER <u>KLV</u> <u>COMMENTS</u> S022<br>NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr |                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                       | RECOVERY                                                         |
| TYPE     PERCENT     TYPE     PERCENT       BLDR SLABS [16 pts]     SILT [3 pt]     SILT [3 pt]       BOULDER (>256 mm) [16 pts]     ENF DETERTUS [3 pts]                                                                                                                                                                                                                                             | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>20<br>A + B |
|                                                                                                                                                                                                                                                                                                                                                                                                       | Pool Depth<br>Max = 30                                           |
| > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3' - 4' 8") [15 pts]                                                                                                                                                                                                                                                                                                                              | Bankfull<br>Width<br>Max=30                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                       | $\mathcal{O}$                                                    |
| This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*         RIPARIAN WDTH       FLOODPLAIN QUALITY (Most Predominant per Bank)         L R       L R         Vide >10m       Mature Forest, Wetland         Moderate 5-10m       Immature Forest, Shrub or Old Field         Narrow <5m                  |                                                                  |
| FLOW REGIME (At Time of Evaluation)       (Chack ONL Yone box):         Stream Flowing       Moist Channel, isolated pools, no flow (intermittent)         Subsurface flow with isolated pools (interstitial)       Dry channel, no water (ephemeral)         COMMENTS       SINUO SITY (Number of bends per 61 m (200 ft) of channel)         None       10         0.5       15                     | )                                                                |
| STREAM GRADIENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                              | ₹:                                                               |
| Dotoper 2018 Revision Page 1                                                                                                                                                                                                                                                                                                                                                                          | -                                                                |

| ZAWWH Name:       Brush Creck       Distance from Evaluated Stream         CWH Name:       Distance from Evaluated Stream         EWH Name:       Distance from Evaluated Stream         Busch Creck       Distance from Evaluated Stream <th></th> |         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| SGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Orde                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Orde                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | N.      |
| county: Mushingum Co Township/City:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |
| MISCELLANEOUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| Base Flow Conditions? (Y/N) Date of last precipitation: Quantity:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |
| Photo-documentation Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |
| Elevated Turbidity?(Y/N): Canopy (% open): 90-(                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |
| Vere samples collected for water chemistry? (Y/N): Lab Sample # or ID (attach results):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ~       |
| Tield Measures:Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umbos/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| the sampling reach representative of the stream (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |
| BIOLOGICAL OBSERVATIONS         (Record all observations below)         ish Observed? (Y/N) Species observed (if known);                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |
| rogs or Tadpoles Observed? (Y/N) N Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |
| Salamanders Observed? (Y/N) Species observed (if known);                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |
| Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |
| DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be comple                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |         |
| Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | scation |
| Transmission Line ROW/ Reld                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | -       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 66                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| SITE NAME/LOCATION CTUDIES UNITED BASIN BUILD OF CODE OF COD | structions                                                      |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes<br>(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B         TYPE       BLDR SLABS [16 pts]         BUDR SLABS [16 pts]       BLDR SLABS [16 pts]         BEDROCK [16 pts]       BLDR SLABS [16 pts]         COBBLE (65-256 mm) [12 pts]       BLDR SLABS [16 pts]         GRAVEL (2-64 mm) [9 pts]       BLDR SLABS [16 pts]         SAND (<2 mm) [6 pts]       BLDR SLABS [16 pts]         Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock       35         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPEs:       Image: Substrate types:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>Z<br>A + B |
| Maximum Pool Depth (Measure the <u>maximum pool depth within the 61 meter (200 feet</u> ) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):     > 30 centimeters [20 pts] 5 cm - 10 cm [15 pts]     > 22.5 - 30 cm [30 pts] 5 cm - 10 cm [15 pts]     > 10 - 22 5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts]     COMMENTS MAXIMUM POOL DEPTH (centimeters):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Pool Depth<br>Max = 30                                          |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box);         □       > 4.0 meters (> 13') [30 pts]       □       > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         □       > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       □       > 1.0 m (≤ 3' 3') [5 pts]         □       > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       □       ≤ 1.0 m (≤ 3' 3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Bankfull<br>Width<br>Max=30                                     |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | - and a second                                                  |
| 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 (Most Predominant per Bank)         L R       (Per Bank)       L R         L R       Wide >10m       Mature Forest Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Fleid       Urban or industriat         Narrow <sm< td="">       Residential, Park, New Fleid       Open Pasture, Row C         None       Fenced Pasture       Mining or Construction</sm<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | гор                                                             |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools in flow (intermitt Subsurface flow with isolated pools (interstitial)         COMMENTS       Dry channel, no water (ephemeral)         COMMENTS       SINUOSITY (Number of bends per 61 m (200 ft) of channel)         None       10       2.0         No       1.5       2.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ent)                                                            |
| STREAM GRADIENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 101 *                                                           |
| Flat 05 % 100 T Flat to Moderate Moderate 11 100 T Moderate to Severe Severe Severe Severe 10 *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                 |
| October 2018 Revision Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                 |

|                                                  | QHEI Score (If Yes, Attach Completed QHEI form)                                                 |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USES                       |                                                                                                 |
| CWH Name:                                        | Distance fromEvaluated Stream                                                                   |
| ] EWH Name:                                      | Distance from Evaluated Stream                                                                  |
|                                                  | INCLUDING THE ENTIRE WATER SHED AREA, CLEARLY MARK THE SITE LOCATION,                           |
|                                                  | NRCS Soil Map Page NRCS Soil Map Stream Order:                                                  |
| county: <u>MUSKINOIUM CO *</u>                   | Township/City:                                                                                  |
| MISCELLANEOUS                                    | -124/24 544                                                                                     |
| lase Flow Conditions? (Y/N) Date of              | flast precipitation: 5/20/20 quantity: 50"                                                      |
| hoto-documentation Notes                         |                                                                                                 |
| levated Turbidity?(Y/N): Canopy                  | y (% open): <u>40(.</u>                                                                         |
|                                                  | Y/N): Lab Sample # or ID (attach results):                                                      |
| ield Measures:Temp (*C) Dissolved                | Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                 |
| the sampling reach representative of the stree   | am (Y/N) If not, explain                                                                        |
|                                                  | 1                                                                                               |
| Additional comments/description of pollution imp | pacts:                                                                                          |
|                                                  |                                                                                                 |
|                                                  | BIOLOGICAL OBSERVATIONS                                                                         |
| NI                                               | (Record all observations below)                                                                 |
| ish Observed? (Y/N) 11 Species observ            | ved (if known):                                                                                 |
|                                                  | becies observed (if known):                                                                     |
|                                                  | s opserved (if known):                                                                          |
| Aquatic Macroinvertebrates Observed? (Y/N)       | Species observed (if known):                                                                    |
| omments Regarding Biology:                       |                                                                                                 |
|                                                  |                                                                                                 |
| DRAWING AND NARRATIV                             | E DESCRIPTION OF STREAM REACH (This must be completed)                                          |
| Include important landmarks and other            | r features of interest for site evaluation and a narrative description of the stream's location |
| Forestat                                         | -Transmission Line Role -> 1                                                                    |
|                                                  | Harithout (                                                                                     |
| 9 0 0                                            |                                                                                                 |
|                                                  |                                                                                                 |
| ow the second                                    |                                                                                                 |
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| A                                                | Λ                                                                                               |
| 12                                               | IT-A V                                                                                          |
| 625                                              | [ For office (-                                                                                 |
| 63                                               | Finesteel-                                                                                      |

| hio                                                                                                                                          | Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 51                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
|                                                                                                                                              | RIVER BASIN BUS MCVECK RIVER CODE 00040 PRAINAGE AREA (mi)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | tructions                                         |
| (Max of 32). /<br>TYPE<br>BLDR SL<br>BOULDER<br>BEDROCI<br>BEDROCI<br>COBBLE<br>GRAVEL<br>GRAVEL<br>SAND (<<br>Total of P<br>Bldr Slabs, Bou | E (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes         Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B         PERCENT       TYPE         ABS [16 pts]       SLT [3 pt]         R (>256 mm) [16 pts]       LEAF PACK/WOODY DEBRIS [3 pts]         (65-256 mm) [12 pts]       CLAY or HARDPAN [0 pt]         (2-84 mm) [9 pts]       MUCK [0 pts]         Percentages of ulder, Cobble, Bedrock       SS         (A)       ST PREDOMINATE SUBSTRATE TYPES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
|                                                                                                                                              | ation Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):<br>ers [20 pts] 5 cm - 10 cm [15 pts]<br>n [30 pts] < 5 cm [5pts]<br>n [25 pts] NO WATER OR MOIST CHANNEL [0pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Pool Depth<br>Max = 30                            |
| > 4.0 meters<br>> 3.0 m - 4.0 r                                                                                                              | WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 13') [30 pts]         (> 9' 7' - 13') [25 pts]         (> 4' 8' - 9' 7'') [20 pts]         (> 4' 8' - 9' 7'') [20 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Bankfull<br>Width<br>Max=30                       |
| COMMENTS                                                                                                                                     | This information must also be completed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |
| L R C                                                                                                                                        | RIAN ZONE AND FLOODPLAIN QUALITY <ul> <li>NOTE: River Left (L) and Right (R) as looking downstream.</li> <li>ARIAN WIDTH</li> <li>Per Bank)</li> <li>L R</li> <li>L R</li> <li>L R</li> <li>Mature Forest, Wetland</li> <li>L Conservation Tillage</li> <li>Merator S-10m</li> <li>Mature Forest, Shrub or Old Field</li> <li>Urban or industrial</li> <li>Residential, Park, New Field</li> <li>Open Pasture, Row Crone</li> <li>Fenced Pasture</li> <li>Mining or Construction</li> <li>Mining or Construction</li> <li>Mental Science</li> <li>Mental Science</li></ul> | p                                                 |
| Stream<br>Subsu<br>COMM                                                                                                                      | REGIME (At Time of Evaluation) (Check ONLY one box):     a Flowing Moist Channel, isolated pools, no flow (intermitten     rface flow with isolated pools (interstitial) Dry channel, no water (ephemeral)     MENTS     OSITY (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | t)                                                |
| None<br>0 5<br>STREAM GR                                                                                                                     | 10 20 30<br>15 25 3<br>ADIENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   |
| Flat 05 \$100 \$                                                                                                                             | Flat to Moderate Moderate 2 5100 7 Moderate to Severe Severe Severe 10 510                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0 *                                               |

| QHEI PERFORMED?                       | es No QHEI Score                                   | (If Yes, Attach Complete-     | f QHEI form)                                       |
|---------------------------------------|----------------------------------------------------|-------------------------------|----------------------------------------------------|
| DOWNSTREAM DESIGNAT                   | V A 25 W                                           |                               |                                                    |
| ELWWH Name: Drush C                   |                                                    | Distance from                 | Evaluated Stream                                   |
|                                       |                                                    |                               | Evaluated Stream                                   |
|                                       |                                                    |                               |                                                    |
| MAPPING: ATTACH COPIES                | OF MAPS, INCLUDING THE ENTIRE V                    |                               |                                                    |
| USGS Quadrangle Name:                 | 0.                                                 | il Map Page: NRC              | S Soil Map Stream Order:                           |
| County: <u>MUSKINGUW</u>              | MCO Township/C                                     | Dity:                         |                                                    |
| MISCELLANEOUS                         | c l                                                | 2.10.                         |                                                    |
| Base Flow Conditions? (Y/N)           | _ Date of last precipitation:                      |                               |                                                    |
| Photo-documentation Notes             | 012.1                                              |                               |                                                    |
| Elevated Turbidity?(Y/N):             | Canopy (% open): 901                               |                               |                                                    |
| Were samples collected for water chi  | emistry?(Y/N): N Lab Si                            | ample # or ID (attach results | a):                                                |
| Field Measures:Temp (°C)              | Dissolved Oxygen (mg/l)                            | pH (S.U.) Co                  | nductivity (umhos/cm)                              |
| is the sampling reach representative  | of the stream $(Y/N)$ $\longrightarrow$ If not, ex | uplain                        |                                                    |
| Additional comments/description of pr | )llution impacts                                   |                               |                                                    |
|                                       | BIOLOGICAL OBSERVA                                 |                               |                                                    |
|                                       | (Record all observations t                         | ,                             |                                                    |
| Fish Observed? (Y/N)                  |                                                    |                               |                                                    |
| Frogs or Tadpoles Observed? (Y/N)     |                                                    |                               |                                                    |
| Salamanders Observed? (Y/N)           | _ Species observed (if known):                     |                               |                                                    |
| Aquatic Macroinvertebrates Observe    | d? (Y/N) Species observed (                        | (if known):                   |                                                    |
| Comments Regarding Biology:           |                                                    |                               |                                                    |
|                                       |                                                    |                               |                                                    |
|                                       |                                                    |                               |                                                    |
|                                       | RRATIVE DESCRIPTION O                              | send of the first on the set  | a sume sufficient a descenario e sentencia. Il 191 |
| /                                     | is and other features of interest for site         |                               |                                                    |
| 1                                     | - Transmission Li                                  | ne KOW/open<br>Shr            | itield                                             |
|                                       |                                                    |                               |                                                    |
|                                       |                                                    |                               |                                                    |

-

| Primary Headwa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ter Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -toles to to -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                               |
| STREAM CHANNEL MODIFICATIONS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Aresent). Check ONLY two predominant substrate TYPE boxes         TYPE         SLT [3 pt]         LEAF PACKWOODY DEBRIS [3 pts]         FINE DETRITUS [3 pts]         ARTIFICIAL [3 pts]         ARTIFICIAL [3 pts]         ARTIFICIAL NUMBER OF SUBSTRATE TYPES:                                             |
| 2. Maximum Pool Depth (Measure the maximum)<br>time of evaluation. Avoid plunge pools from road of<br>> 30 centimeters [20 pts]<br>> 22 5 - 30 cm [30 pts]<br>> 10 - 22 5 cm [25 pts]<br>COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | pool depth within the 61 meter (200 feet) evaluation reach at the subverts or storm water pipes) (Check ONLY one box):       Pool Depth Max = 30         S cm - 10 cm [15 pts]       < S cm [5pts]                                                                                                            |
| 3. BANK FULL WIDTH (Measured as the average<br>> 4.0 meters (> 13') [30 pts]<br>> 3.0 m - 4.0 m (> 9' 7'- 13') [25 pts]<br>> 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | of 3 - 4 measurements) (Check ONL Yone box):<br>$\begin{array}{c} > 1.0 \text{ m} - 1.5 \text{ m} (> 3' 3' - 4' 8') [15 \text{ pts}] \\ \hline \leq 1.0 \text{ m} (\leq 3' 3') [5 \text{ pts}] \end{array}$ Bankfull<br>Width<br>Max=30<br>70                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                               |
| RIPARIAN ZONE AND FLOODPLAIN QUA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | nformation <u>must</u> also becompleted<br>ALITY + NOTE: River Left (L) and Right (R) as looking downstream*                                                                                                                                                                                                  |
| RIPARIAN WIDTH           L R         (Per Bank)         L R           Wide >10m         Image: Comparison of the state s | FLOODPLAIN_QUALITY       (Most Predominant per Bank)         L       R         Mature Forest, Wetland       Image         Immature Forest, Shrub or Old Field       Urban or industrial         Residential, Park, New Field       Open Pasture, Row Crop         Fenced Pasture       Mining or Construction |
| FLOW REGIME (At Time of Evaluation) ( Stream Flowing Subsurface flow with isolated pools (interstit COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Itoist Channel, isolated pools, no flow (intermittent)                                                                                                                                                                                                                                                        |
| SINUOSITY         (Number of bends per 61 m (2)           None         1.0           0.5         1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 00 ft) of channel) (Check ONLY one box):<br>2 0 3 0<br>2 5 3 3                                                                                                                                                                                                                                                |
| STREAM GRADIENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | rate 2 % 100 % Moderate to Severe Severe 10 % 100 %                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                               |

| WHEN PERFORMED?                                                                                                                                                            | TYes No QHE! Score (If Yes Attach Completed QHE! form)                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESK                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                     |
| WWH Name Brush                                                                                                                                                             | Distance from Evolution Otronom                                                                                                                                                                                                                                                                                                     |
| CWH Name:                                                                                                                                                                  | Distance from Evaluated Stream                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                            | OPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                                                                                                                                                                                 |
| USGS Quadrangle Name:                                                                                                                                                      | NRCS Soil Map Page NRCS Soil Map Stream Order:                                                                                                                                                                                                                                                                                      |
| county Muskingu                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                     |
| 0                                                                                                                                                                          | Townshipuny                                                                                                                                                                                                                                                                                                                         |
| MISCELLANEOUS                                                                                                                                                              | Date of last precipitation: 5 20 20 Quantity: 50"                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                            | Date of last precipitation:                                                                                                                                                                                                                                                                                                         |
| Photo-documentation Notes                                                                                                                                                  | 1001                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                            | Сапору (% ореп): 100 (                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                            | er chemistry? (Y/N): Lab Sample # or D (attach results):                                                                                                                                                                                                                                                                            |
| Field Measures:Temp (*C)                                                                                                                                                   | Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                                                                                                                                                                                           |
| s the sampling reach represent                                                                                                                                             | ative of the stream (Y/N) If not, explain:                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                     |
| Additional comments/description                                                                                                                                            | of pollution impacts.                                                                                                                                                                                                                                                                                                               |
|                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                            | BIOLOGICAL OBSERVATIONS                                                                                                                                                                                                                                                                                                             |
| N N                                                                                                                                                                        | (Record all observations below)                                                                                                                                                                                                                                                                                                     |
| Han Ubserved? (YAN) I M                                                                                                                                                    | Species observed (if known)                                                                                                                                                                                                                                                                                                         |
| Taxaa ay Tadaalaa Akaan ada A                                                                                                                                              | ZIND IN Consistent advantable set (Id Intervent)                                                                                                                                                                                                                                                                                    |
| Frogs or Tadpoles Observed? ()                                                                                                                                             | (/N) Species observed (if known);                                                                                                                                                                                                                                                                                                   |
| Frogs or Tadpoles Observed? (\<br>Salamanders Observed? (\/N)                                                                                                              | (/N) N Species observed (if known):<br>Species observed (if known):                                                                                                                                                                                                                                                                 |
| Frogs or Tadpoles Observed? (\<br>Salamanders Observed? (\/N)                                                                                                              | (/N) Species observed (if known);                                                                                                                                                                                                                                                                                                   |
| Frogs or Tadpoles Observed? (\<br>Salamanders Observed? (\/N)<br>Aquatic Macroinvertebrates Obs                                                                            | (/N) N Species observed (if known):<br>Species observed (if known):                                                                                                                                                                                                                                                                 |
| Frogs or Tadpoles Observed? (\<br>Salamanders Observed? (\/N)<br>Aquatic Macroinvertebrates Obs                                                                            | (/N) N Species observed (if known):<br>Species observed (if known):                                                                                                                                                                                                                                                                 |
| Frogs or Tadpoles Observed? (\//N)<br>Salamanders Observed? (\//N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:                                        | (/N) N Species observed (if known):<br>Species observed (if known):                                                                                                                                                                                                                                                                 |
| Frogs or Tadpoles Observed? (V/N)<br>Salamanders Observed? (V/N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:<br>DRAWING AND                           | (/N)       Species observed (if known):         Species observed (if known):         served? (Y/N)       Species observed (if known):         NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         dmarks and other features of interest for site evaluation and a narrative description of the stream's focation |
| Frogs or Tadpoles Observed? (V/N)<br>Salamanders Observed? (V/N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:<br>DRAWING AND                           | (/N)       Species observed (if known):         Species observed (if known):         served? (Y/N)       Species observed (if known):         NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         dmarks and other features of interest for site evaluation and a narrative description of the stream's focation |
| Frogs or Tadpoles Observed? (V/N)<br>Salamanders Observed? (V/N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:<br>DRAWING AND                           | (/N)       Species observed (if known):         Species observed (if known):         served? (Y/N)       Species observed (if known):         NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         dmarks and other features of interest for site evaluation and a narrative description of the stream's focation |
| Frogs or Tadpoles Observed? (V/N)<br>Salamanders Observed? (V/N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:<br>DRAWING AND                           | (/N)       Species observed (if known):         Species observed (if known):         served? (Y/N)       Species observed (if known):         NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         dmarks and other features of interest for site evaluation and a narrative description of the stream's focation |
| Frogs or Tadpoles Observed? (V/N)<br>Salamanders Observed? (V/N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:<br>DRAWING AND                           | X(N) Species observed (if known);                                                                                                                                                                                                                                                                                                   |
| Frogs or Tadpoles Observed? (\/<br>Salamanders Observed? (\/N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:<br>DRAWING AND<br>Include important land   | (/N)       Species observed (if known):         Species observed (if known):         served? (Y/N)       Species observed (if known):         NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         dmarks and other features of interest for site evaluation and a narrative description of the stream's focation |
| Frogs or Tadpoles Observed? (\/<br>Salamanders Observed? (\/N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:<br>DRAWING AND<br>Include important land   | (/N)       Species observed (if known):         Species observed (if known):         served? (Y/N)       Species observed (if known):         NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         dmarks and other features of interest for site evaluation and a narrative description of the stream's focation |
| Frogs or Tadpoles Observed? (V/N)<br>Salamanders Observed? (V/N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:<br>DRAWING AND                           | (/N)       Species observed (if known):         Species observed (if known):         served? (Y/N)       Species observed (if known):         NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         dmarks and other features of interest for site evaluation and a narrative description of the stream's focation |
| Frogs or Tadpoles Observed? (\/N)<br>Salamanders Observed? (\/N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:<br>DRAWING AND<br>Include important land | (/N)       Species observed (if known):         Species observed (if known):         served? (Y/N)       Species observed (if known):         NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         dmarks and other features of interest for site evaluation and a narrative description of the stream's focation |
| Frogs or Tadpoles Observed? (\/N)<br>Salamanders Observed? (\/N)<br>Aquatic Macroinvertebrates Obs<br>Comments Regarding Biology:<br>DRAWING AND<br>Include important land | (/N)       Species observed (if known):         Species observed (if known):         served? (Y/N)       Species observed (if known):         NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         dmarks and other features of interest for site evaluation and a narrative description of the stream's focation |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 37                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | tructions                                         |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B         TYPE       PERCENT       TYPE         BLDR SLABS [16 pts]       BOULDER (>256 mm) [16 pts]       ELEAF PACK/WOODY DEBRIS [3 pts]         BEDROCK [16 pts]       ELEAF PACK/WOODY DEBRIS [3 pts]       ELEAF PACK/WOODY DEBRIS [3 pts]         COBBLE (65-256 mm) [12 pts]       ELEAF PACK/WOODY DEBRIS [3 pts]       ELEAF PACK/WOODY DEBRIS [3 pts]         GRAVEL (2-64 mm) [9 pts]       ELEAF PACK/L (2 pts)       ELEAF PACK/WOODY DEBRIS [3 pts]         Total of Percentages of Bkir Slabs, Boulder, Cobble, Bedrock       S       (A)         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPEs:       CA       (B) | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):     > 30 centimeters [20 pts] S cm - 10 cm [15 pts]     > 22.5 - 30 cm [30 pts] S cm - 10 cm [5pts]     > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts]     COMMENTS MAXIMUM POOL DEPTH (centimeters): [0]                                                                                                                                                                                                                                                                                                                                                                                                                                   | Pool Depth<br>Max = 30                            |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       > 1.0 m (≤ 3' 3') [5 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       2 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Bankfull<br>Width<br>Max=30                       |
| COMMENTS AVERAGE BANKFULL WIDTH (meters) 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                   |
| This information mustalso be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as boking downstream*         RIPARIAN WIDTH       FLOODPLAIN QUALITY       (Most Predominant per Bank)         L R       L R       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                              | p                                                 |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools no flow (intermitter Dry channel, no water (ephemeral)         COMMENTS       Dry channel, no water (ephemeral)         SINUOSITY (Number of bends per 61 m (200 ft) of channel)       (Check ONLY one box):         None       10       20       30         0 5       1 5       2 5       >3                                                                                                                                                                                                                                                                                                                                                                                                                                              | tì                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                   |

| QHEI PERFORMED?                 | Ves No QHEI Score                                             | (If Yes, Attach Com  | pleted QHEI form)     |             |
|---------------------------------|---------------------------------------------------------------|----------------------|-----------------------|-------------|
| DOWNSTREAM DESK                 | GNATED USE(S)                                                 |                      |                       |             |
| E-WWH Name: Brus                |                                                               |                      | fromEvaluated Stream  |             |
| CWH Name:                       |                                                               | Distance<br>Distance | from Evaluated Stream |             |
|                                 | OPIES OF MAPS, INCLUDING THE                                  |                      |                       |             |
|                                 | NR(                                                           |                      |                       |             |
|                                 | im CO, Town                                                   |                      |                       |             |
| MISCELLANEOUS                   |                                                               | terriprony.          |                       |             |
|                                 | Date of last precipitation                                    | 5/20/20 94           | antity: .50"          |             |
| Photo-documentation Notes       |                                                               |                      |                       |             |
|                                 | Canopy (% open): 90                                           | <i>i</i> (           |                       |             |
|                                 | erchemistry? (YAN): N                                         |                      | esults):              |             |
|                                 | Dissolved Oxygen (mg/l)                                       |                      |                       |             |
|                                 | ative of the stream $(\forall /H)$                            |                      |                       |             |
|                                 |                                                               |                      |                       |             |
| Additional comments/description | of pollution impacts:                                         |                      |                       |             |
|                                 |                                                               |                      |                       |             |
|                                 | BIOLOGICAL OBS                                                |                      |                       |             |
| Fish Observed? (YAN)            | (Record all observ<br>Species observed (if known):            |                      |                       |             |
|                                 | Y/N) N Species observed (if:                                  |                      |                       |             |
|                                 | Species observed (if know                                     |                      |                       |             |
|                                 |                                                               |                      |                       |             |
|                                 | served? (Y/N) N Species obsi                                  | arved (if known):    |                       |             |
| Comments Regarding Biology:     |                                                               |                      |                       |             |
|                                 |                                                               |                      |                       |             |
|                                 | NARRATIVE DESCRIPTIC<br>dmarks and other features of interest |                      |                       |             |
| Incruar important tan           |                                                               |                      | 0                     | $\sim$      |
| 1                               | Transmissimli                                                 | ne KOW /open         | theld >               | 4)          |
|                                 | Πατιστικών                                                    |                      |                       | C.          |
|                                 |                                                               |                      |                       |             |
| LOW                             |                                                               |                      | ~ ~                   | $\sim$      |
|                                 |                                                               |                      |                       | A           |
| X                               |                                                               |                      |                       | ENC         |
| X                               |                                                               |                      |                       |             |
| X                               |                                                               |                      | 4                     | torestiel - |
|                                 |                                                               |                      | 9                     | prestill -  |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 27                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | tructions                                                  |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONL Y two predominant substrate TYPE boxes<br>(Max of 32) Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B         TYPE       BLDR SLABS [16 pts]       PERCENT       TYPE         BOULDER (>256 mm) [16 pts]       LEAF PACKWOODY DEBRIS [3 pts]       PERCENT         BEDROCK [16 pts]       FINE DETRITUS [3 pts]       D         COBBLE (65-256 mm) [12 pts]       D       MUCK [0 pts]         GRAVEL (2-64 mm) [9 pts]       D       MUCK [0 pts]         SAND (<2 mm) [6 pts] | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>A + B |
| 2.       Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes)       (Check ONLY one box):         > 30 centimeters [20 pts]       5 cm - 10 cm [15 pts]         > 22 5 - 30 cm [30 pts]       < 5 cm [5pts]                                                                                                                                                                                                                                                                  | Pool Depth<br>Max = 30                                     |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > > 4.0 meters (> 13') [30 pts]       > > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         > > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       > ≤ 1.0 m (≤ 3' 3') [5 pts]         > > 1.5 m - 3.0 m (> 4' 8' - 9' 7*) [20 pts]       ≤ 1.0 m (≤ 3' 3') [5 pts]                                                                                                                                                                                                                                               | Bankfull<br>Width<br>Max=30                                |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                            |
| This information <u>must</u> also be completed<br>RIPARIAN ZONE AND FLOODPLAIN QUALITY • NOTE: River Left (L) and Right (R) as looking downstream+                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                            |
| RIPARIAN WIDTH<br>(Per Bank)       FLOODPLAIN QUALITY (Most Predominant per Bank)         U R       U R         Wide > 10m       Immature Forest, Wetland         Moderate 5-10m       Immature Forest, Shrub or Old Field         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                     | р                                                          |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools no flow (intermitter Subsurface flow with isolated pools (interstitial)         COMMENTS       Dry channel, no water (ephemeral)                                                                                                                                                                                                                                                                                                                                                       | nt)                                                        |
| SINUO SITY (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         33           STREAM GRADIENT ESTIMATE         3.0         3.0                                                                                                                                                                                                                                                                                                                                                                    |                                                            |
| Flat 05 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0 *:                                                       |

|           | ADDITIONAL STREAM INFORMATION (This information Must Also be Completed):                                                            |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------|
|           | QHEI PERFORMED? [Yes: Attach Completed QHEI form)                                                                                   |
|           | DOWNSTREAM DESIGNATED USE(S)                                                                                                        |
| T CWH N   | Name: Distance from Evaluated Stream<br>Name: Distance from Evaluated Stream                                                        |
|           | Name: Distance from Evaluated Stream                                                                                                |
|           | MAPPING: ATTACH. COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA, CLEARLY MARK THE SITE LOCATION,                               |
|           | adrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                                      |
| lounty:   | MUSKINglum CO. Township/City:                                                                                                       |
|           | MISCELLANEOUS                                                                                                                       |
| ase Flow  | v Conditions? (Y/N) Date of last precipitation: $5/20/20$ Quantity: $$                                                              |
|           | cumentation Notes                                                                                                                   |
| levated T | Turbidity?(Y/N): N Canopy (% open): LO(.                                                                                            |
| Vere sam  | ples collected for water chemistry? (Y/N): Lab Sample # or ID (attach results):                                                     |
| ïekt Mea: | sures:Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                           |
| the sam   | npling_reach representative of the stream (Y/N) If not, explain:                                                                    |
|           |                                                                                                                                     |
| dditional | comments/description of pollution impacts:                                                                                          |
|           | BIOLOGICAL OBSERVATIONS                                                                                                             |
|           | (Record all observations below)                                                                                                     |
| ish Obse  | rved? (Y/N) Species observed (if known):                                                                                            |
|           | adpoles Observed? (Y/N) N Species observed (if known);                                                                              |
| alamande  | ers Observed? (Y/N) Species observed (if known):                                                                                    |
| quatic Ma | acroinvertebrates Observed? (Y/N) Species observed (if known):                                                                      |
| omments   | Regarding Biology                                                                                                                   |
|           |                                                                                                                                     |
|           | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                          |
|           | Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
|           | - Transmission live Bow / < / 2                                                                                                     |
|           |                                                                                                                                     |
|           |                                                                                                                                     |
| ow -      | The second second                                                                                                                   |
| V         |                                                                                                                                     |
|           | [ Enoted]                                                                                                                           |
|           | TOVEDICE                                                                                                                            |
|           |                                                                                                                                     |
|           |                                                                                                                                     |
|           |                                                                                                                                     |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 59                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | nstructions                                       |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes<br>(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & 8         TYPE       BLDR SLABS [16 pts]         BOULDER (>256 mm) [16 pts]       LEAF PACKWOODY DEBRIS [3 pts]         BEDROCK [16 pts]       FINE DETRITUS [3 pts]         BOULDER (>256 mm) [12 pts]       SLT [2 pts]         BEDROCK [16 pts]       How of HARDPAN [0 pt]         BEDROCK [16 pts]       How of HARDPAN [0 pt] <td>HHEI<br/>Metric<br/>Points<br/>Substrate<br/>Max = 40</td> | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):     30 centimeters [20 pts] 5 cm - 10 cm [15 pts]     22 5 - 30 cm [30 pts] 5 cm - 5 cm [5pts]     310 - 22 5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts]     COMMENTS MAXIMUM POOL DEPTH (centimeters): 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Pool Depth<br>Max = 30                            |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8") [15 pts]         > > 3.0 m - 4.0 m (> 9' 7"- 13') [25 pts]       ≤ 1.0 m (≤ 3' 3') [5 pts]         > > 1.5 m - 3.0 m (> 4' 8' - 9' 7") [20 pts]       ≤ 1.0 m (≤ 3' 3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Bankfull<br>Width<br>Max=30                       |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                   |
| This information mustalso be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream         RIPARIAN WIDTH       FLOODPLAIN QUALITY       (Most Predominant per Bank)         L R       L R       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Сгор                                              |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Image: Moist Channel, isolated pools in a flow (intermit Subsurface flow with isolated pools (interstitial)       Dry channel, no water (ephemeral)         COMMENTS       Image: Sinuo SITY (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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | tent)                                             |
| STREAM GRADIENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5100 th                                           |
| October 2013 Revision Page I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                   |

|                                                         | D? Yes No QHEI Score                                                                                                                        | (If Yes, Attach Complete              | d QHEI form)                        |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------|
|                                                         | ESIGNATED USE(S)                                                                                                                            |                                       |                                     |
|                                                         | ncreek                                                                                                                                      |                                       | nEvaluated Stream                   |
|                                                         |                                                                                                                                             |                                       |                                     |
| MAPPING: ATTACH                                         | COPIES OF MAPS, INCLUDING THE EN                                                                                                            | TIRE WATERSHED AREA. CLEARLY          | MARK THE SITE LOCATION              |
| USGS Quadrangle Name:                                   |                                                                                                                                             |                                       | S Soil Map Stream Order:            |
| county: MUSKING                                         | JUMCO. Town                                                                                                                                 | 1ship/City:                           |                                     |
| MISCELLANEOUS                                           | 5                                                                                                                                           |                                       |                                     |
| Base Flow Conditions? (Y/N                              | Date of last precipitation                                                                                                                  | 5/20/20 Quantit                       | <u>,50</u> ″                        |
| Photo-documentation Notes                               | 1                                                                                                                                           |                                       |                                     |
| Elevated Turbidity?(Y/N):                               | Canopy (% open): 25                                                                                                                         | <u>il.</u>                            |                                     |
| Were samples collected for                              | water chemistry? (V/N):                                                                                                                     | Lab Sample # or ID (attach result     | s):                                 |
| Field Measures:Temp (*C)                                | Dissolved Oxygen (mg/l)                                                                                                                     | pH (S.U.) Cr                          | inductivity (umhos/cm)              |
| is the sampling reach repres                            | sentative of the stream $(Y/N) \longrightarrow$ If (                                                                                        | not, explain                          |                                     |
|                                                         | 1                                                                                                                                           |                                       |                                     |
| Additional comments/descrip                             | ption of pollution impacts.                                                                                                                 |                                       |                                     |
|                                                         |                                                                                                                                             |                                       |                                     |
| Frogs or Tadpoles Observed<br>Salamanders Observed? (V) | Species observed (if known):<br>d? (Y/N)Species observed (if (if )<br>N)Species observed (if known<br>Observed? (Y/N)Species observed<br>N: | known):                               |                                     |
| Comments Regarding Biolog                               |                                                                                                                                             |                                       |                                     |
| Comments Regarding Biolog                               |                                                                                                                                             |                                       |                                     |
|                                                         | ND NARRATIVE DESCRIPTIO                                                                                                                     | N OF STREAM REACH (1                  | his must be completed)              |
|                                                         | ND NARRATIVE DESCRIPTIO                                                                                                                     |                                       |                                     |
|                                                         | Landmarks and other features of interest                                                                                                    | for site evaluation and a narrative d | escription of the stream's lobation |
|                                                         | Landmarks and other features of interest                                                                                                    | for site evaluation and a narrative d |                                     |
|                                                         |                                                                                                                                             | for site evaluation and a narrative d | escription of the stream's lobation |
| DRAWING A                                               | Landmarks and other features of interest                                                                                                    | for site evaluation and a narrative d | escription of the stream's lobation |
|                                                         | Landmarks and other features of interest                                                                                                    | for site evaluation and a narrative d | escription of the stream's lobation |
| DRAWING A                                               | Landmarks and other features of interest                                                                                                    | for site evaluation and a narrative d | escription of the stream's lobation |
| DRAWING A                                               | Landmarks and other features of interest                                                                                                    | for site evaluation and a narrative d | escription of the stream's lobation |
| DRAWING A                                               | Landmarks and other features of interest                                                                                                    | for site evaluation and a narrative d | escription of the stream's lobation |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 24                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | nstructions                                                |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A & B         TYPE       BLDR SLABS [16 pts]         BOULDER (>256 mm) [16 pts]       PERCENT         BEDROCK [16 pts]       FINE DETRITUS [3 pts]         BEDROCK [16 pts]       SLABS [16 pts]         BEDROCK [16 pts]       SLABS [1 | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>A + 8 |
| 2.       Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes)       (Check ONLY one box):         > 30 centimeters [20 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Pool Depth<br>Max = 30                                     |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       > 1.0 m (≤ 3' 3') [5 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       > 1.0 m (≤ 3' 3') [5 pts]         COMMENTS       AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Bankfull<br>Width<br>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       (Most Predominant per Bank)         L R       (Per Bank)       L R       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate S-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <sm< td="">       Residential, Park, New Field       Open Pasture, Row         None       Fenced Pasture       Mining or Construction</sm<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Сгар                                                       |
| FLOW REGIME       (At Time of Evaluation)       (Check ONLY one box);         Stream Flowing       Moist Channel, isolated pools in flow (intermined pools in flow (intermined pools);         Subsurface flow with isolated pools (interstitial)       Dry channel, no water (ephemeral);         COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | itent)                                                     |
| SINUO SITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):<br>None 10 20 30<br>05 15 25 3<br>STREAM GRADIENT ESTIMATE<br>Flat to Moderate 20100 to Moderate to Severe Severe 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 910) ÷                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                            |

Cropper 2013 Reviews

Page 1

| QHEI PERFORMED?                 | Ves No QHEI Score (If Yes, Attach Completed QHEI form)                                                                                                                           |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESK                 |                                                                                                                                                                                  |
|                                 | Distance from Evaluated Stream                                                                                                                                                   |
| J CWH Name:                     | Distance fromEvaluated Stream<br>Distance fromEvaluated Stream                                                                                                                   |
|                                 | PIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                               |
|                                 | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                                                                                                  |
|                                 | M CO - Township/City:                                                                                                                                                            |
| MISCELLANEOUS                   |                                                                                                                                                                                  |
| Base Flow Conditions? (Y/N)     | Date of last precipitation: 5/20/20 Quantity:                                                                                                                                    |
| Photo-documentation Notes       |                                                                                                                                                                                  |
|                                 | Canopy (% open)                                                                                                                                                                  |
| Were samples collected for wate | er chemistry? (Y/N): Lab Sample # or ID (attach results):                                                                                                                        |
| Field Measures:Temp (°C)        | Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                                        |
| s the sampling reach represents | itive of the stream (Y/N) If not, explain                                                                                                                                        |
|                                 | BIOLOGICAL OBSERVATIONS                                                                                                                                                          |
|                                 | (Record all observations below)                                                                                                                                                  |
| Fish Observed? (Y/N)            | Species observed (if known)                                                                                                                                                      |
| Frogs or Tadpoles Observed? (Y  | (N) Species observed (if known):                                                                                                                                                 |
| Salamanders Observed? (Y/N)     | Species opserved (if known):                                                                                                                                                     |
| Aquatic Macroinvertebrates Obs  | erved? (Y/N) N Species observed (if known):                                                                                                                                      |
| Comments Regarding Biology:     |                                                                                                                                                                                  |
|                                 |                                                                                                                                                                                  |
|                                 |                                                                                                                                                                                  |
|                                 | NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)<br>Imarks and other features of interest for site evaluation and a narrative description of the stream's location |
|                                 |                                                                                                                                                                                  |
|                                 | Transmission Line Row (openfield (shrubby                                                                                                                                        |
|                                 | lansmission circa i novo l'operational l                                                                                                                                         |
|                                 |                                                                                                                                                                                  |
| ow                              |                                                                                                                                                                                  |
|                                 |                                                                                                                                                                                  |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 24                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | structions                                        |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes<br>(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         BLDR SLABS [16 pts]       BULDER (>256 mm) [16 pts]       LEAF PACKWOODY DEBRIS [3 pts]         BEDROCK [16 pts]       BEDROCK [16 pts]       BEDROCK [16 pts]         GRAVEL (2-64 mm) [9 pts]       GRAVEL (2-64 mm) [9 pts]       MUCK [0 pts]         SLAND (<2 mm) [6 pts]       GRAVEL [2-64 mm) [9 pts]       GRAVEL [3 pts]         Bidr Slabs, Boulder, Cobble, Bedrock       GRAVEL [4]       GRAVEL [5]         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:       TOTAL NUMBER OF SUBSTRATE TYPES:       GRAVEL TYPES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):     30 centimeters [20 pts]     5 cm - 10 cm [15 pts]     22.5 - 30 cm [30 pts]     30 cm [30 pts]     30 cm [25 pts] | Pool Depth<br>Max = 30                            |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box);         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         > 3.0 m - 4.0 m (> 9' 7"+13') [25 pts]       ≤ 1.0 m (≤ 3' 3') [5 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7") [20 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Bankfull<br>Width<br>Max=30                       |
| COMMENTSAVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   |
| This information <u>must</u> also be completed<br>RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |
| RIPARIAN_WIDTH       FLOODPLAIN_QUALITY       (Most Predominant_per Bank)         L_R       (Per Bank)       L_R       L_R         Wide >10m       Immature Forest, Wetland       Immature Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | төр                                               |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Image: Moist Channel, isolated pools in flow (intermitted pools Channel, isolated pools in flow (intermitted pools Channel, isolated pools (interstitial)         Subsurface flow with isolated pools (interstitial)       Image: Dry channel, no water (ephemeral)         COMMENTS       Image: Dry channel, no water (ephemeral)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ent)                                              |
| 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 03 1100 1 Flat to Moderate Severe 10 11 Koderate 2 1100 1 Moderate to Severe Severe 10 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 100 t                                             |
| October 2013 Revision Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                   |

|                    | ADDITIONAL STREAM INFORMATION (This information Must Also be Completed):                                                      |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------|
| QHEI P             | ERFORMED?  Yes XNo QHEI Score (If Yes. Attach Completed QHEI form)                                                            |
|                    | TREAM DESIGNATED USE(S)                                                                                                       |
| WWH Name:          | Distance from Evaluated Stream                                                                                                |
|                    | Distance fromEvaluated Stream Distance fromEvaluated Stream                                                                   |
|                    |                                                                                                                               |
|                    | NG: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION.                              |
|                    | e Name: NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                                       |
| County: MU         | SKingum Co Township/City:                                                                                                     |
|                    | LANEOUS                                                                                                                       |
| Base Flow Condi    | ions? (Y/N): Date of last precipitation: $52020$ Quantity: $50''$                                                             |
|                    |                                                                                                                               |
| Photo-documenta    | 201                                                                                                                           |
| Elevated Turbidity |                                                                                                                               |
| Were samples co    | flected for water chemistry? (Y/N): Lab Sample ≇ or ID (attach results):                                                      |
| Field Measures:T   | emp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                            |
| a the sampling re  | ach representative of the stream (Y/N)                                                                                        |
|                    |                                                                                                                               |
|                    | BioLOGICAL OBSERVATIONS<br>(Record all observations below)         Y/N)                                                       |
|                    | erved? (Y/N) Species observed (if known);                                                                                     |
|                    | entebrates Observed? (Y/N) N Species observed (if known)                                                                      |
|                    |                                                                                                                               |
| Comments Regar     | Teld provdà.                                                                                                                  |
|                    |                                                                                                                               |
|                    | WING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                       |
| Includ             | e important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
| 1                  | anomposinLineROW )))                                                                                                          |
| 1                  |                                                                                                                               |
|                    |                                                                                                                               |
|                    |                                                                                                                               |
| r                  |                                                                                                                               |
| LOW                |                                                                                                                               |
| LOW                | Foresteel                                                                                                                     |
|                    | Foresteel                                                                                                                     |
|                    | Foresteel (                                                                                                                   |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | tructions                                                                                 |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes<br>(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B         TYPE       BLDR SLABS [16 pts]       PERCENT       TYPE         BOULDER (>256 mm) [16 pts]       ELAF PACKWOODY DEBRIS [3 pts]       PERCENT         BEDROCK [16 pts]       FINE DETRITUS [3 pts]       PERCENT         SAND (<2 mm) [6 pts] | HHE!<br>Metric<br>Points<br>Substrate<br>Max = 40<br>IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII |
| Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):     > 30 centimeters [20 pts]     > 22.5 - 30 cm [30 pts]     > 10 - 22.5 cm [25 pts]     COMMENTS     MAXIMUM POOL DEPTH (centimeters):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Pool Depth<br>Max = 30                                                                    |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Benkfull<br>Width<br>Max=30                                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                           |
| This information <u>mus</u> talso be completed<br>RIPARIAN ZONE AND FLOODPLAIN QUALITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                           |
| RIPARIAN WIDTH<br>(Per Bank)       FLOODPLAIN QUALITY (Most Predominant per Bank)         U R       (Per Bank)       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | qe                                                                                        |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box):     Stream Flowing      Moist Channel, isolated pools in flow (intermitter     Subsurface flow with isolated pools (interstitial)     COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | nt)                                                                                       |
| 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         2.5         2.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                           |
| ☐ Flat p3 \$100 \$1 ☐ Flat to Moderate → Moderate 2 \$100 \$ ☐ Moderate to Severe ☐ Severe 10 \$14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | († 00                                                                                     |
| October 2018 Merilion Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                           |

|                                     | STREAM INFORMATION (This Information Must Also be Completed):                   |
|-------------------------------------|---------------------------------------------------------------------------------|
| QHEI PERFORMED?                     | Yes No QHEI Score (If Yes, Attach Completed QHEI form)                          |
| DOWNSTREAM DESIGNA                  | Distance from Evaluated Stream                                                  |
|                                     | Distance fromEvaluated Stream<br>Distance fromEvaluated Stream                  |
| MAPPING: ATTACH COPIE               | ES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION |
|                                     | MCC Soil Map PageNRCS Soil Map Stream Order:<br>MCCTownship/City:               |
| MISCELLANEOUS                       |                                                                                 |
|                                     | Date of last precipitation: 52020 Quantity: 50"                                 |
| Photo-documentation Notes           | 101                                                                             |
|                                     | Canopy (% open): 401-                                                           |
|                                     | chemistry?(Y/N): Lab Sample # or ID (attach results):                           |
|                                     | _ Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umbos/cm)                     |
| is the sampling reach representativ | re of the stream (Y/N) If not, explain                                          |
| Additional comments/description of  | pollution impacts;                                                              |
|                                     | BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                      |
| Fish Observed? (Y/N) Spe            | ecies observed (if known);                                                      |
|                                     | ) N Species observed (if known):                                                |
|                                     | Species observed (if known)                                                     |
| Aquatic Macroinvertebrates Observ   | ved? (Y/N) Species observed (if known):                                         |
| Comments Regarding Biology:         |                                                                                 |
|                                     | 1                                                                               |
| DRAWING AND N                       | ARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)                   |
| PROW                                | In the stream a location of the stream a location of the stream a location      |
| 14                                  | 11545 Let                                                                       |
| FLOW                                | 1 M FA                                                                          |
|                                     | The firestel                                                                    |
|                                     |                                                                                 |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                     | 4                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                   |
| STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO                                                                                                                                                                                                                                                                                                                                                   | RECOVERY                                          |
| TYPE     PERCENT     TYPE     PERCENT       BLDR SLABS [16 pts]                                                                                                                                                                                                                                                                                                                                                                          | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                          | Pool Depth<br>Max = 30                            |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box);         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8'')[15 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       > 1.0 m (≤ 3' 3')[5 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       ≤ 1.0 m (≤ 3' 3')[5 pts]                                                                                  | Bankfull<br>Width<br>Max=30                       |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                 | and the second                                    |
| Intra montance, may also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*         RIPARIAN WIDTH         L       R         Vide >10m       L         Moderate 5-10m       Immature Forest, Wetland         Narrow <5m                                                                                                                                               | 3                                                 |
| 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)         COMMENTS       Dry channel, no water ephemeral)         SINUOSITY (Number of bends per 61 m (200 ft) of channel);       (Check ONLY one box);         None       10       20       30         05       15       25       >3 | 0                                                 |
| STREAM GRADIENT ESTIMATE  Flat 15 % 100 % Moderate 2 % 100 % Moderate to Severe Severe Severe Severe Severe Severe 10 % 100  Grooper 2018 Revision  Page 1                                                                                                                                                                                                                                                                               |                                                   |

| QHEI PERFORMED? Yes XNo QHEI Score                                | (If Yes, Attach Completed QHEI form)                                             |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE(S)                                      |                                                                                  |
| WWH Name: BrushCretk                                              | Distance from Evaluated Stream                                                   |
|                                                                   | Distance fromEvaluated Stream Distance fromEvaluated Stream                      |
|                                                                   |                                                                                  |
|                                                                   | THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                       |
|                                                                   | _ NRCS Soil Map Page NRCS Soil Map Stream Order:                                 |
| county: MUSKINGUM CO.                                             | Township/City:                                                                   |
| MISCELLANEOUS                                                     |                                                                                  |
| Base Flow Conditions? (Y/N)                                       | ation: 5/20/20 Quantity: 50"                                                     |
| Photo-documentation Notes                                         | • 1                                                                              |
| Elevated Turbidity?(Y/N): Canopy (% open):                        | 50°(.                                                                            |
|                                                                   | Lab Sample # or ID (attach results):                                             |
|                                                                   |                                                                                  |
|                                                                   | /l) pH (S.U ) Conductivity (umhos/cm)                                            |
| is the sampling reach representative of the stream (Y/N) $\Delta$ | If not, explain:                                                                 |
|                                                                   |                                                                                  |
| Additional comments/description of pollution impacts:             |                                                                                  |
|                                                                   |                                                                                  |
| BIOLOGICA                                                         | L OBSERVATIONS                                                                   |
|                                                                   | observations below)                                                              |
|                                                                   | );                                                                               |
|                                                                   | /ed (if known):                                                                  |
|                                                                   | known)                                                                           |
|                                                                   | s observed (if known):                                                           |
| Comments Regarding Biology:                                       |                                                                                  |
|                                                                   | 1                                                                                |
| DRAWING AND NARRATIVE DESCRI                                      | PTION OF STREAM REACH (This must be completed)                                   |
| Include important landmarks and other features of ir              | nterest for site evaluation and a narrative description of the stream's location |
| TransmissionLi                                                    | ind ( )                                                                          |
| Roum                                                              |                                                                                  |
| $X \setminus X \setminus Y$                                       | (Estal A)                                                                        |
|                                                                   | Threstell .                                                                      |
| ow h h                                                            |                                                                                  |
| PERMINEN                                                          |                                                                                  |
| Wetter                                                            |                                                                                  |
| A MAN                                                             | MANA 7                                                                           |
| VIX F                                                             | +/ ) ()                                                                          |
|                                                                   |                                                                                  |
|                                                                   |                                                                                  |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 24                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION CYUNESUILLE, Philo<br>SITE NUMBERRIVER BASIN COULD SO RIVER CODEDRAINAGE AREA (MF)<br>LENGTH OF STREAM REACH (II) 145 LAT 9, 713401 LONG 82.04(984 RIVER MILE<br>DATE 52120 SCORER KUN COMMENTS S033<br>NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins<br>STREAM CHANNEL MODIFICATIONS: THOSE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR N                                                                                                                                                                                                                                                                                                                                                                         | tructions                                         |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes<br>(Max of 32) Additional number of significant substrate types found (Max of 8) Final metric score is sum of boxes A & B         TYPE       PERCENT       TYPE         BLDR SLABS [16 pts]       PERCENT       TYPE         BOULDER (>256 mm) [16 pts]       LEAF PACK/WOODY DEBRIS [3 pts]       PERCENT         BEDROCK [16 pts]       FINE DETRITUS [3 pts]       PERCENT         COBBLE (65-256 mm) [12 pts]       SLT [2 pts]       PERCENT         GRAVEL (2-64 mm) [9 pts]       MUCK [0 pts]       PERCENT         Total of Percentages of<br>Bidr Slabs, Boulder, Cobble, Bedrock       [6]       (A)         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:       (A)       (B) | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| 2.       Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):         > 30 centimeters [20 pts]       5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Pool Depth<br>Max = 30                            |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         > 3.0 m - 4.0 m (> 9' 7'- 13') [25 pts]       > 1.0 m (≤ 3' 3') [5 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       > 1.0 m (≤ 3' 3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                | Bankfull<br>Width<br>Max=30                       |
| COMMENTS AVERAGE BANKFULL WIDTH (meters) 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                   |
| 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 (Most Predominant per Bank)         L R       (Per Bank)       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate S-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <sm< td="">       Residential, Park, New Field       Open Pasture, Row Croc         None       Fenced Pasture       Mining or Construction         COMMENTS      </sm<>                                                                                                                                                                         |                                                   |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools in of flow (intermitted Dry channel, isolated pools no flow (intermitted Dry channel, no water (ephemeral)         COMMENTS       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       3.0                                                                                                                                                                                                                                                                                                                        | nt)                                               |
| STREAM GRADIENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                   |

| QHEI PERFORMED? Yes XINO C                          | HEI Score (If Yes, Attach Comp                       | pleted QHEL form)           |
|-----------------------------------------------------|------------------------------------------------------|-----------------------------|
| DOWNSTREAM DESIGNATED USE(S)                        |                                                      |                             |
| EXWWH Name: EIKRUN                                  | Distance                                             | fromEvaluated Stream        |
|                                                     | Distance                                             | from Evaluated Stream       |
| EWH Name:                                           | Distance                                             | from Evaluated Stream       |
| MAPPING: ATTACH COPIES OF MAPS, IN                  | ICLUDING THE ENTIRE WATER SHED AREA. CLE             | ARLY MARK THE SITE LOCATION |
| USGS Quadrangle Name                                | NRCS Soil Map Page:                                  | NRCS Soil Map Stream Order: |
| county: Muskingum CO.                               | Township/City:                                       |                             |
| MISCELLANEOUS                                       |                                                      |                             |
| Base Flow Conditions? (Y/N): Date of la             | st precipitation: 5/21/20 au                         | antity: 50 <sup>11</sup>    |
| Photo-documentation Notes                           |                                                      |                             |
| Elevated Turbidity?(Y/N): Canopy (                  | 801                                                  |                             |
|                                                     | - 1                                                  |                             |
| Were samples collected for water chemistry? (Y/A    |                                                      |                             |
| Field Measures:Temp (*C) Dissolved O:               | cygen (mg/l) pH (S.U.)                               | Conductivity (umhos/cm)     |
| s the sampling reach representative of the stream   | (Y/N) If not, explain                                |                             |
|                                                     |                                                      |                             |
|                                                     |                                                      |                             |
| Additional comments/description of pollution impact | is:                                                  |                             |
|                                                     |                                                      |                             |
| BI                                                  | OLOGICAL OBSERVATIONS                                |                             |
|                                                     | (Record all observations below)                      |                             |
| Fish Observed? (Y/N) N Species observed             | (ifknown):                                           |                             |
| Frogs or Tadpoles Observed? (Y/N) N_Spec            |                                                      |                             |
| Salamanders Observed? (Y/N) 1 Species of            | served (if known)                                    |                             |
| Aquatic Macroinvertebrates Observed? (Y/N)          | Species observed (if known):                         |                             |
|                                                     |                                                      |                             |
| oninente regularig ziology.                         |                                                      |                             |
|                                                     |                                                      |                             |
| DRAWING AND NARRATIVE                               | DESCRIPTION OF STREAM REACH                          | (This must be completed)    |
|                                                     | atures of interest for site evaluation and a narrati | $\sim$                      |
|                                                     |                                                      |                             |
| Transmiss                                           | on Line ROW                                          |                             |
| ( man                                               | shrubbay field                                       |                             |
| D aperri                                            | 311100 01 110001                                     |                             |
| r 1                                                 |                                                      |                             |
| ow /m                                               | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~              | 1                           |
|                                                     |                                                      |                             |
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|                                                     |                                                      | Treac )                     |
|                                                     |                                                      | I may                       |
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|                                                     |                                                      |                             |
| к 2018 <sup>щ</sup> емієют                          | Pege 2                                               |                             |

| Phio                                                                                            | Primary Headw                                                                                                                                                                                                                                       | vater Hat                                 |                                                                                                                                                                               | aluation Form<br>sum of metrics 1+2+3)                                                      | 491                                               |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NUMBER<br>LENGTH OF STREA<br>DATE <u>2122</u><br>NOTE: Complete A                          | Il Items On This Form - Refer                                                                                                                                                                                                                       | 9.76774<br>COMMENTS                       | LONG <u>32.0</u><br>S036<br>Auation Manual for C                                                                                                                              | Dhio's PHWH Streams" for In                                                                 | structions                                        |
| STREAM CHANNEL                                                                                  | MODIFICATIONS:                                                                                                                                                                                                                                      | / NATURAL CHAN                            |                                                                                                                                                                               |                                                                                             | NO RECOVERY                                       |
| (Max of 32)<br>TYPE<br>BLDR Si<br>BOULDE<br>BEDROC<br>COBBLE<br>GRAVEL<br>SAND (*<br>Total of 1 | E (Estimate percent of every typ         Add total number of significant sub         PERCENT         ABS [16 pts]         R (>256 mm) [16 pts]         (65-256 mm) [12 pts]         (2-64 mm) [9 pts]         (2 mm) [6 pts]         Percentages of | ostrate types fou                         | ck ONLY <u>two</u> predomina<br>nd (Max of 8) Final meti<br>SLT [3 pt]<br>LEAF PACKWOODY 1<br>FINE DETRITUS [3 pt<br>CLAY or HARDPAN [0<br>MUCK [0 pts]<br>ARTIFICIAL [3 pts] | ric score is sum of boxes A & B<br>PERCENT<br>300<br>DEBRIS [3 pts]<br>100<br>s]<br>pt]<br> | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
|                                                                                                 | UKER, COBBIE, BEDROCK                                                                                                                                                                                                                               | (A)<br>TYPES: 9                           | TOTAL NUMBER OF                                                                                                                                                               | (B)<br>F SUBSTRATE TYPES:                                                                   | A + 8                                             |
|                                                                                                 | m [30 pts]<br>m [25 pts]                                                                                                                                                                                                                            |                                           | rm water pipes) (Chi<br>5 cm - 10 cm <b>[15 pts</b><br>< 5 cm <b>[5pts]</b><br>NO WATER OR MOIS                                                                               | eck ÖNLYone box):<br>]                                                                      | Pool Depth<br>Max = 30                            |
| > 4.0 meters<br>> 3.0 m - 4.0                                                                   | . WIDTH (Measured as the avera<br>(> 13') [30 pts]<br>m (> 9' 7'- 13') [25 pts]<br>m (> 4' 8'' - 9' 7') [20 pts]                                                                                                                                    | ge of 3 - 4 mea                           |                                                                                                                                                                               | DNLYonebox):<br>3' - 4' 8') [15 pta]                                                        | Bankfull<br>Width<br>Max=30                       |
| COMMENT                                                                                         | 5                                                                                                                                                                                                                                                   |                                           | AVERAGE BAN                                                                                                                                                                   | KFULL WIDTH (meters) 5                                                                      | 120                                               |
| RIPA                                                                                            | Th<br>RIAN ZONE AND FLOODPLAIN G                                                                                                                                                                                                                    |                                           | mustalso be complete<br>DTE: River Left (L) and (                                                                                                                             |                                                                                             |                                                   |
|                                                                                                 | ARIAN WIDTH<br>(Per Bank)         L R           vde >10m                                                                                                                                                                                            | FLOODPLAIN<br>Mature Fore<br>Immature For | L QUALITY (Most Predo<br>st, Wetland<br>srest, Shrub or Old Field<br>Park, New Field                                                                                          | ominant per Bank)<br>L R<br>D Conservation Tillage                                          | гор                                               |
| Stream<br>Subsu                                                                                 | V REGIME (At Time of Evaluation)<br>n Flowing<br>inface flow with isolated pools (inter<br>MENTS                                                                                                                                                    | rstitial)                                 | Moist Channel,<br>Dry channel, n                                                                                                                                              | , isolated pools no flow (intermit<br>o water (ephemeral)                                   | ent)                                              |
| None<br>05                                                                                      | OSITY (Number of bends per 61 m<br>1 0<br>1 5<br>RADIENT ESTIMATE<br>Flat to Moderate                                                                                                                                                               | n (200 ft) of char<br>oderate ৫ গাত প     | Inel) (Check ONLY one<br>2 0<br>2.5                                                                                                                                           | □ 30<br>□ >3                                                                                | 100 \$;                                           |
| Octoper 2018 Revis                                                                              |                                                                                                                                                                                                                                                     |                                           | ante 1                                                                                                                                                                        | Land of                                                                                     |                                                   |

|                                                                                                                                                                                                       | No QHE! Score (If Yes, Attach Completed QHE! form)                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOWNSTREAM_DESIGNATED                                                                                                                                                                                 |                                                                                                                                                                      |
| WWH Name: EKhun                                                                                                                                                                                       | Distance from Evaluated Stream                                                                                                                                       |
| ] CWH Name:                                                                                                                                                                                           | Distance from Evaluated Stream                                                                                                                                       |
|                                                                                                                                                                                                       | MAPS, INCLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                          |
|                                                                                                                                                                                                       | NRCS Soil Map Page:NRCS Soil Map Stream Order:                                                                                                                       |
|                                                                                                                                                                                                       | Township/City:                                                                                                                                                       |
| MISCELLANEOUS                                                                                                                                                                                         |                                                                                                                                                                      |
| ase Flow Conditions? (Y/N)                                                                                                                                                                            | ate of last precipitation: 52120 Quantity: 50"                                                                                                                       |
| hoto-documentation Notes:                                                                                                                                                                             |                                                                                                                                                                      |
| levated Turbidity?(Y/N): Ca                                                                                                                                                                           | anopy (% open):                                                                                                                                                      |
| /ere samples collected for water chemist                                                                                                                                                              | ry? (Y/N): Lab Sample # or ID (attach results):                                                                                                                      |
| ield Measures:Temp (°C) Disso                                                                                                                                                                         | olved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                                |
| the sampling reach representative of the                                                                                                                                                              | e stream (Y/N) If not, explain:                                                                                                                                      |
|                                                                                                                                                                                                       |                                                                                                                                                                      |
| dditional comments/description of pollutio                                                                                                                                                            | n impacts:                                                                                                                                                           |
|                                                                                                                                                                                                       |                                                                                                                                                                      |
| 2.9.30                                                                                                                                                                                                |                                                                                                                                                                      |
|                                                                                                                                                                                                       | BIOLOGICAL OBSERVATIONS                                                                                                                                              |
|                                                                                                                                                                                                       | (Record all observations below)                                                                                                                                      |
| sh Observed? (Y/N) N Species of                                                                                                                                                                       |                                                                                                                                                                      |
|                                                                                                                                                                                                       | (Record all observations below)                                                                                                                                      |
| rogs or Tadpolas Observed? (Y/N)                                                                                                                                                                      | (Record all observations below) bserved (if known):                                                                                                                  |
| rogs or Tadpoles Observed? (Y/N) <u>N</u><br>alamanders Observed? (Y/N) <u>N</u> Sp                                                                                                                   | (Record all observations below) bserved (if known): Species observed (if known): ecies observed (if known):                                                          |
| rogs or Tadpoles Observed? (Y/N)<br>alamanders Observed? (Y/N) Sp<br>quatic Macroinvertebrates Observed? (Y                                                                                           | (Record all observations below) bserved (if known): Species observed (if known):                                                                                     |
| rogs or Tadpoles Observed? (Y/N)<br>alamanders Observed? (Y/N) Sp<br>quatic Macroinvertebrates Observed? (Y                                                                                           | (Record all observations below) bserved (if known): Species observed (if known): ecies observed (if known):                                                          |
| rogs or Tadpoles Observed? (Y/N)<br>alamanders Observed? (Y/N) Sp<br>quatic Macroinvertebrates Observed? (Y                                                                                           | (Record all observations below) bserved (if known): Species observed (if known): ecies observed (if known):                                                          |
| rogs or Tadpoles Observed? (Y/N)                                                                                                                                                                      | (Record all observations below) bserved (if known):Species observed (if known): ecles observed (if known): TIVE DESCRIPTION OF STREAM REACH (This must be completed) |
| rogs or Tadpoles Observed? (Y/N)                                                                                                                                                                      | (Record all observations below) bserved (if known):                                                                                                                  |
| rogs or Tadpoles Observed? (Y/N)                                                                                                                                                                      | (Record all observations below) bserved (if known):                                                                                                                  |
| rogs or Tadpoles Observed? (Y/N)                                                                                                                                                                      | (Record all observations below) bserved (if known):Species observed (if known): ecles observed (if known): TIVE DESCRIPTION OF STREAM REACH (This must be completed) |
| rogs or Tadpoles Observed? (Y/N)                                                                                                                                                                      | (Record all observations below) bserved (if known):                                                                                                                  |
| rogs or Tadpoles Observed? (Y/N)                                                                                                                                                                      | (Record all observations below) bserved (if known):                                                                                                                  |
| rogs or Tadpoles Observed? (Y/N)                                                                                                                                                                      | (Record all observations below) bserved (if known):                                                                                                                  |
| rogs or Tadpoles Observed? (Y/N) Sp<br>alamanders Observed? (Y/N) Sp<br>aquatic Macroinvertebrates Observed? (Y<br>omments Regarding Biology:<br>DRAWING AND NARRA<br>Include important landmarks and | (Record all observations below) bserved (if known):                                                                                                                  |
| rogs or Tadpoles Observed? (Y/N) Sp<br>alamanders Observed? (Y/N) Sp<br>aquatic Macroinvertebrates Observed? (Y<br>omments Regarding Biology:<br>DRAWING AND NARRA<br>Include important landmarks and | (Record all observations below) bserved (if known):                                                                                                                  |
| rogs or Tadpoles Observed? (Y/N) Sp<br>alamanders Observed? (Y/N) Sp<br>equatic Macroinvertebrates Observed? (Y<br>omments Regarding Biology:<br>ORAWING AND NARRA<br>Include important landmarks and | (Record all observations below) bserved (if known):                                                                                                                  |
| rogs or Tadpoles Observed? (Y/N)                                                                                                                                                                      | (Record all observations below) bserved (if known):                                                                                                                  |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 27                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                            |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONL Y two predominant substrate TYPE boxes<br>(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         BLDR SLABS [16 pts]       SILT [3 pt]       PERCENT         BOULDER (>256 mm) [16 pts]       LEAF PACKWOODY DEBRIS [3 pts]       PERCENT         BEDROCK [16 pts]       FINE DETRITUS [3 pts]       CLAY or HARDPAN [0 pt]         GRAVEL (2-64 mm) [9 pts]       MUCK [0 pts]       ARTIFICIAL [3 pts]         Total of Percentages of       ARTIFICIAL [3 pts]       GB)         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:       CA)       TOTAL NUMBER OF SUBSTRATE TYPES: | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>A + B |
| 2.       Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes)       (Check ONLY one box):         > 30 centimeters [20 pts]       5 cm - 10 cm [15 pts]         > 22 5 - 30 cm [30 pts]       < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                                                                          | Pool Depth<br>Max = 30                                     |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box);         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9 7'-13') [25 pts]       ≤ 1.0 m (≤ 3' 3') [5 pts]         > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Bankfull<br>Width<br>Max=30                                |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                            |
| This information mustalso be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*         RIPARIAN WIDTH         R       FLOODPLAIN QUALITY       (Most Predominant per Bank)         L R       L R       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or industrial -         Narrow <5m       Residential, Park, New Field       Open Pasture, Row Croo         None       Fenced Pasture       Mining or Construction                                                                                                                                                                      | p                                                          |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing       Moist Channel, solated pools no flow (intermitten Subsurface flow with isolated pools (interstitial)         COMMENTS       Dry channel, no water (ephemeral)         COMMENTS       Image: Sinuo Sitty (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):         None       10         05       15         STREAM GRADIENT ESTIMATE         Flat 05 1100 1         Flat 05 1100 1                                                                                                                                                                                                                                                                              | 8                                                          |
| Catober 2018 Revision Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                            |

| ADDITIONAL STREAM IN                                         | FORMATION (This Information Mu             | at Alao be Completed):                        |        |
|--------------------------------------------------------------|--------------------------------------------|-----------------------------------------------|--------|
| QHEI PERFORMED? TYes                                         | QHE! Score (If Yes. A                      | ttach Completed QHEL form)                    |        |
| DOWNSTREAM, DESIGNATED USE(S                                 |                                            |                                               |        |
|                                                              |                                            | Distance from Evaluated Stream                |        |
|                                                              |                                            | Distance from Evaluated Stream                |        |
|                                                              |                                            |                                               |        |
|                                                              |                                            | REAL CLEARLY MARK THE SITE LOCATION           |        |
|                                                              |                                            | NRCS Soil Map Stream Orde                     |        |
| MISCELLANEOUS                                                |                                            |                                               |        |
| Base Flow Conditions? (?//N). Date of                        | last precipitation: $S2120$                | Quantity:50''                                 |        |
| Photo-documentation Notes<br>Elevated Turbidity?(Y/N):Canopy | 501                                        |                                               |        |
|                                                              |                                            |                                               |        |
| Were samples collected for water chemistry? (Y)              |                                            |                                               |        |
| Field Measures:Temp (FC) Dissolved (                         |                                            |                                               |        |
| is the sampling reach representative of the strea            | m (Y/N) If not, explain:                   |                                               |        |
| Additional comments/description of pollution impa            | octs:                                      |                                               |        |
| Ē                                                            | NOLOGICAL OBSERVATIONS                     |                                               |        |
|                                                              | (Record all observations below)            |                                               |        |
| Fish Observed? (Y/N) N Species observe                       | ed (if known):                             |                                               |        |
| Frogs or Tadpoles Observed? (Y/N) N Spe                      |                                            |                                               |        |
| Salamanders Observed? (Y/N) Species (                        | 1                                          |                                               |        |
| Aquatic Macroinvertebrates Observed? (Y/N)                   | Species observed (if known)                |                                               |        |
| Comments Regarding Biology:                                  |                                            |                                               |        |
|                                                              |                                            | 2<br>                                         |        |
|                                                              |                                            | REACH (This must be comple                    |        |
| Include important landmarks and other                        | features of interest for site evaluation a | nd a narrative description of the stream's lo | eation |
| V ( ) ( '                                                    |                                            | 110                                           | /      |
|                                                              |                                            | $\prec$ $\downarrow$ $\downarrow$             | /      |
|                                                              | 4                                          |                                               |        |
|                                                              | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~    | 2                                             |        |
| LOW                                                          |                                            |                                               |        |
|                                                              | $\langle \rangle$                          | 100                                           | /      |
|                                                              |                                            | Fixetral)                                     | /      |
|                                                              | 7 ~                                        | TURACE                                        |        |
| ×(* )                                                        |                                            | $\sim$                                        |        |
|                                                              | $\bigcirc$                                 |                                               |        |
| Databer 2018 Revision                                        | Pape Z                                     |                                               |        |
|                                                              |                                            |                                               |        |

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| Prim Prim                                                                                                                                                     | hary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | T                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| LENGTH OF STREAM REACH (1)                                                                                                                                    | R BASIN 00040000 PRIVER CODE       DRAINAGE AREA (miP)         64       LAT       1.0004000000000000000000000000000000000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | tions                  |
|                                                                                                                                                               | PERCENT     TYPE     PERCENT       [16 pts]     Image: Substrate types found (max of s) Final metric score is solid or boxes A a b     Metric       [16 pts]     Image: Substrate types     Substrate types       [12 pts]     Image: Substrate types     Substrate types       [13 pts]     Image: Substrate types     Substrate types       [14 pts]     Image: Substrate types     Substrate types       [15 minimized types     Image: Substrate types     Substrate types       [16 minimized types     Image: Substrate types     Image: Substrate types       [17 minimized types     Image: Substrate types     Image: Substrate types       [16 minimized types     Image: Substrate types     Image: Substrate types       [17 minimized types     Image: Substrate types     Image: Substrate types       [16 minimized types     Image: Substrate types     Image: Substrate | strate<br>c = 40       |
|                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Depth<br>x = 30        |
| 3.         BANK FULL WIDTH (Mean           > 4.0 meters (> 13') [30 pts]           > 3.0 m - 4.0 m (> 9' 7'- 13')           > 1.5 m - 3.0 m (> 4' 8' - 9' 7') | ] > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts] Wid<br>[25 pts] \(\lambda \leq 1.0 m (\leq 3' 3'') [5 pts] \(\lambda \leq 4'' 8'') [15 pts] \(\lambda \leq 4''' 8'') [15 pts] \(\lambda \leq 4''''''''''''''''''''''''''''''''''''                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | nkfull<br>idth<br>x=30 |
| COMMENTS                                                                                                                                                      | AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                        |
|                                                                                                                                                               | This information mustalso be completed<br>ND FLOODPLAIN QUALITY - + NOTE: River Left (L) and Right (R) as looking downstream+                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                        |
| RIPARIAN WIDTH<br>L R (Per Bank)<br>Wide > 10m<br>Moderate 5-10m<br>Narrow <5m<br>None<br>COMMENTS                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                        |
| Stream Flowing<br>Subsurface flow with<br>COMMENTS<br>SINUOSITY (Numbe                                                                                        | Time of Evaluation)       (Check ONLY one box):         Moist Channel, isolated pools no flow (intermittent)         bisolated pools (interstitiat)         Dry channel, no water (ephemeral)         er of bends per 61 m (200 ft) of channel)         (Check ONLY one box):         10         20         30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                        |
| STREAM GRADIENT ESTI                                                                                                                                          | □ 1.5 □ 2.5 □ →3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                        |
| Elatios #100 # Elatito M                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                        |
| October 2018 Revision                                                                                                                                         | Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                        |

| QHEI PERFORMED? [Yes] No QHEI Score                         | (If Yes, Attach Completed QHEI form)                                        |
|-------------------------------------------------------------|-----------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE(S)                                |                                                                             |
|                                                             | Distance from Evaluated Stream                                              |
| CWH Name:                                                   | Distance from Evaluated Stream                                              |
|                                                             | Distance fromEvaluated Stream                                               |
|                                                             | ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION.                     |
| GS Quadrangle Name                                          | RCS Soil Map Page: NRCS Soil Map Stream Order:                              |
| unty:Morgan CO Tov                                          | RCS Soil Map Page: NRCS Soil Map Stream Order:<br>wnship/City:              |
| MISCELLANEOUS                                               |                                                                             |
| e Flow Conditions? (Y/N)                                    | <u>52120</u> Quantity: <u>50'1</u>                                          |
| to-documentation Notes                                      |                                                                             |
| vated Turbidity?(Y/N): N Canopy (% open): 90                |                                                                             |
| re samples collected for water chemistry? (Y/N):            |                                                                             |
| d Measures:Temp (°C) Dissolved Oxygen (mg/l)                | pH (S.U.)Conductivity (umhos/cm)                                            |
| he sampling reach representative of the stream (Y/N)        | If not, explan:                                                             |
| ditional comments/description of pollution impacts:         |                                                                             |
| BIOLOGICAL O                                                |                                                                             |
| (Record all obse                                            |                                                                             |
| Observed?(Y/N) <u>1</u> Species observed (if known):     N) |                                                                             |
|                                                             | if known):                                                                  |
| amanders Observed? (Y/N) Species observed (If kno           | wn):                                                                        |
| latic Macroinvertebrates Observed? (Y/N)                    | served (if known):                                                          |
| ments Regarding Biology:                                    |                                                                             |
|                                                             |                                                                             |
|                                                             |                                                                             |
|                                                             | ION OF STREAM REACH (This must be completed)                                |
| ,                                                           | st for site evaluation and a narrative description of the stream's location |
| T                                                           | Line Row/openfield ->>                                                      |
| ( Transmission                                              | A CINCE I II                                                                |
|                                                             |                                                                             |
| N                                                           | - IVIA                                                                      |
| $\psi \sim 2$                                               |                                                                             |
|                                                             |                                                                             |

| SITE NAME/LOCATION (YWSVILL Philo)<br>SITE NUMBER RIVER BASIN 050-100040503 RIVER CODE DRAINAGE AREA (mi <sup>2</sup> )<br>LENGTH OF STREAM REACH (II) 238 LAT 291, 767301 LONG 82, 051802 RIVER MILE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DATE 22120 SCORER COMMENTS S037<br>NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions<br>STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes<br>(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       Points       Substrate       Points       Substrate       Substrate       Points       Substrate       Points       Substrate       Max = 40       Max = 40 |
| 2.       Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):       Pool Depth (Max = 30         > 30 centimeters [20 pts]       S cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):       Bankfull $\Rightarrow$ 4.0 meters (> 13') [30 pts] $\Rightarrow$ 1.0 m - 1.5 m (> 3' 3' - 4' 8") [15 pts]       Width $\Rightarrow$ 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] $\leq$ 1.0 m ( $\leq$ 3' 3') [5 pts]       Width $\Rightarrow$ 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] $\leq$ 1.0 m ( $\leq$ 3' 3') [5 pts] $20$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Information mustalso be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*         RIPARIAN WIDTH         L R       FLOODPLAIN QUALITY       (Most Predominant per Bank)         L R       (Per Bank)       L R       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <5m       Residential, Park, New Field       Open Pasture, Row Crop         None       Fenced Pasture       Mining or Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| STREAM GRADIENT ESTIMATE  Flat to Moderate Moderate 2 * 100 * Moderate to Severe Severe Severe to * 100 *  Concer 2018 Revision  Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| dicities charters Thes King ducing                    | Score (If Yes, Attach Completed QHEL form)                                              |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE(S)                          | tore (in real Augen completed data normy                                                |
| EWWH Name: HKRUM                                      | Distance from Evaluated Stream                                                          |
| C/WH Name:                                            | Distance from Evaluated Stream<br>Distance from Evaluated Stream                        |
|                                                       | DING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION                         |
|                                                       |                                                                                         |
|                                                       | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                         |
| bunty: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1          | Township/City:                                                                          |
| MISCELLANEOUS                                         |                                                                                         |
| ase Flow Conditions? (Y/N) Date of last pre           | ecretation: <u>52120</u> Quantity: <u>50"</u>                                           |
| noto-documentation Notes                              | ~~··/                                                                                   |
| evated Turbidity?(Y/N): Canopy (% ope                 | en): <u>501.</u>                                                                        |
|                                                       | Lab Sample # or ID (attach results):                                                    |
| eld Measures:Temp (°C) Dissolved Oxvoen               | n (mg/l) pH (S.U.) Conductivity (umhos/cm)                                              |
|                                                       | If not, explain                                                                         |
| the sampling reactive presentative of the stream (174 |                                                                                         |
| (Reos                                                 | GICAL OBSERVATIONS<br>and all observations below)                                       |
| sh Observed? (YAN) N_ Species observed (if kr         | nown):                                                                                  |
| N I                                                   | bserved (if known)                                                                      |
|                                                       | ved (ifknown);                                                                          |
| quatic Macroinvertebrates Observed? (Y/N) S           | pecies observed (if known):                                                             |
| mments Regarding Biology:                             |                                                                                         |
|                                                       |                                                                                         |
|                                                       | CONDITION OF STREAM REACH (This must be completed)                                      |
| DRAWING AND NARRATIVE DES                             | SCRIPTION OF STREAM REACH (THIS must be completed)                                      |
|                                                       | is of interest for site evaluation and a narrative description of the stream's location |
|                                                       |                                                                                         |
|                                                       | is of interest for site evaluation and a narrative description of the stream's location |
|                                                       | is of interest for site evaluation and a narrative description of the stream's location |
| FireAco                                               | is of interest for site evaluation and a narrative description of the stream's location |
| FireAco                                               | is of interest for site evaluation and a narrative description of the stream's location |
|                                                       | is of interest for site evaluation and a narrative description of the stream's location |

Page 2

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| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 34                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | structions                                        |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes<br>(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         BLDR SLABS [16 pts]       BOULDER (>256 mm) [16 pts]       ELEAF PACK/WOODY DEBRIS [3 pts]         BEDROCK [16 pts]       FINE DETRITUS [3 pts]       PERCENT         BEDROCK [16 pts]       CLAY or HARDPAN [0 pt]       PERCENT         GRAVEL (2-64 mm) [9 pts]       SO       ARTIFICIAL [3 pts]         Total of Percentages of       ARTIFICIAL [3 pts]       PERCENT         Bidr Slabs, Boulder, Cooble, Bedrock       A       (A)       (B)         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPEs:       TOTAL NUMBER OF SUBSTRATE TYPEs:       SUBSTRATE TYPEs: | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road cuiverts or storm water pipes) (Check ONLY one box):     > 30 centimeters [20 pts]     > 30 centimeters [20 pts]     > 22.5 - 30 cm [30 pts]     > 10 - 22.5 cm [25 pts]     NO WATER OR MOIST CHANNEL [0pts]     COMMENTS     MAXIMUM POOL DEPTH (centimeters): 45                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pool Depth<br>Max = 30                            |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       ≤ 1.0 m (≤ 3' 3') [5 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       ∠ 4VERAGE BANKFULL WIDTH (meters)         COMMENTS       AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                       | Bankfull<br>Width<br>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<br>(Per Bank)       FLOODPLAIN QUALITY (Most Predominant per Bank)         Wide >10m       Information Mature Forest, Wetland       Information Conservation Tillage         Moderate 5-10m       Informature Forest, Shrub or Old Field       Urban or industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                  | qo                                                |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools no flow (intermitted Subsurface flow with isolated pools (interstitief)         COMMENTS       Dry channel, no water (ephemeral)         SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | -                                                 |
| None       10       20       30         05       15       2.5       30         STREAM GRADIENT ESTIMATE         Flat 05 100 *       Flat to Moderate       Moderate 2 100 *       Moderate to Severe       Severe 10 101         Gotoper 2013 Meyeron                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | χ <del>τ</del>                                    |

| ADDITIONAL STREAM INF                                                                           | ORMATION (This Information Must Also be Completed):                                          |
|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| QHEI PERFORMED? TYes KNO Q                                                                      | HEI Score (If Yes, Attach Completed QHEI form)                                               |
| DOWNSTREAM DESIGNATED USE(S)                                                                    |                                                                                              |
| DOWNSTREAM DESIGNATED USE(S)                                                                    | Distance from Evaluated Stream                                                               |
| ] CWH Name:                                                                                     | Distance fromEvaluated Stream Distance fromEvaluated Stream                                  |
|                                                                                                 | CLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION                            |
|                                                                                                 | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                              |
| County: MarganCo.                                                                               | Township/City:                                                                               |
|                                                                                                 | TOWNSHIPCRY                                                                                  |
| MISCELLANEOUS                                                                                   | autity: 50"                                                                                  |
| lase Flow Conditions? (ON) Date of la                                                           | st precipitation Quantity:                                                                   |
| hoto-documentation Notes                                                                        |                                                                                              |
| levated Turbidity?(Y/N): Canopy (*                                                              |                                                                                              |
| Vere samples collected for water chemistry? (Y/N                                                | I): Lab Sample # or ID (attach results):                                                     |
| ield Measures:Temp (°C) Dissolved 02                                                            | xygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                               |
| s the sampling reach representative of the stream                                               | n (Y/N) If not, explain                                                                      |
|                                                                                                 | 1                                                                                            |
| ish Observed? (Y/N) <u>M</u> Species observed<br>rogs or Tadpoles Observed? (Y/N) <u>M</u> Spec | (Record all observations below)<br>d (if known):                                             |
| alamanders Observed? (Y/N) <u>N</u> Species of                                                  | bserved (if known);                                                                          |
| vquatic Macroinvertebrates Observed? (Y/N)                                                      | Species observed (if known):                                                                 |
| omments Regarding Biology:                                                                      |                                                                                              |
|                                                                                                 |                                                                                              |
| DRAWING AND NARRATIVE                                                                           | DESCRIPTION OF STREAM REACH (This must be completed)                                         |
| Include important landmarks and other fe                                                        | extures of interest for site evaluation and a narrative description of the stream's location |
| $\langle \cdot \rangle$                                                                         | 11 rialia Bolul                                                                              |
|                                                                                                 | Transmissionlive Row                                                                         |
|                                                                                                 | Grannaal                                                                                     |
|                                                                                                 |                                                                                              |
| J) U                                                                                            |                                                                                              |
| ow De                                                                                           | Andrew                                                                                       |
| ow De                                                                                           | A                                                                                            |
| ow De<br>The A                                                                                  |                                                                                              |
| ow DO                                                                                           |                                                                                              |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 49]                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | structions                                        |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes<br>(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B         TYPE       BLDR SLABS [16 pts]       PERCENT       TYPE         BOULDER (>256 mm) [16 pts]       BEDROCK [16 pts]       ELAF PACK/WOODY DEBRIS [3 pts]         COBBLE (65-256 mm) [12 pts]       FINE DETRITUS [3 pts]       ELAY or HARDPAN [0 pt]         GRAVEL (2-64 mm) [9 pts]       MUCK [0 pts]       MUCK [0 pts]         Total of Percentages of<br>Bidr Slabs, Boukter, Cobble, Bedrock       (A)       (A)         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:       (A)       (B) | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road cutverts or storm water pipes) (Check ONLY one box):     > 30 centimeters [20 pts] 5 cm - 10 cm [15 pts]     > 22.5 - 30 cm [30 pts] 5 cm - 10 cm [5pts]     > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts]     COMMENTS MAXIMUM POOL DEPTH (centimeters): [0]                                                                                                                                                                                                                                                                                                               | Pool Depth<br>Max = 30                            |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Bankfull<br>Width<br>Max=30                       |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                   |
| 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       (Most Predominant per Bank)         L R       (Per Bank)       L R       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate S-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <5m                                                                                                                                                                                                                                                                       | op                                                |
| COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | nt)                                               |
| ☐ Flat 05 %100 % ☐ Flat to Moderate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | £ 00                                              |
| Dottorer 2018 Revision Pege 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   |

| QHEI PERFORMED? Yes No Q                                                                                                                                                                                                                                                              | UHEI Score (If Yes, Attach Completed QHEI form)                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE(S)                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                          |
| ELWWH Name:                                                                                                                                                                                                                                                                           | Distance fromEvaluated Stream Distance fromEvaluated Stream                                                                                                                                                                                                              |
| EWH Name:                                                                                                                                                                                                                                                                             | Distance fromEvaluated Stream                                                                                                                                                                                                                                            |
| MAPPING: ATTACH COPIES OF MAPS, IN                                                                                                                                                                                                                                                    | ICLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                                                                                                                                     |
| ISGS Quadrangle Name:                                                                                                                                                                                                                                                                 | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                                                                                                                                                                                          |
| county: Morgan Co.                                                                                                                                                                                                                                                                    | Township/City:                                                                                                                                                                                                                                                           |
| MISCELLANEOUS                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                          |
| Base Flow Conditions? (Y/N)                                                                                                                                                                                                                                                           | Ist precipitation 521/20 Quantity: 5011                                                                                                                                                                                                                                  |
| Photo-documentation Notes:                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                          |
| Elevated Turbidity?(Y/N) Canopy (*                                                                                                                                                                                                                                                    | % open): 10 (                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                       | N): Lab Sample # or ID (attach results):                                                                                                                                                                                                                                 |
| Field Measures:Temp (*C) Dissolved 0)                                                                                                                                                                                                                                                 | xygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                                                                                                                                           |
| s the sampling reach representative of the stream                                                                                                                                                                                                                                     | n (Y/N) If not, explain:                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                       | 1                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                                                                       | IOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                                                                                                                                                                |
| Fish Observed? (Y/N) Species observed                                                                                                                                                                                                                                                 | (Record all observations below) d (if known)                                                                                                                                                                                                                             |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Spec                                                                                                                                                                                                       | (Record all observations below)<br>d (if known):                                                                                                                                                                                                                         |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species ob<br>Salamanders Observed? (Y/N) Species ob                                                                                                                                                       | (Record all observations below) d (if known)                                                                                                                                                                                                                             |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)                                                                                                         | (Record all observations below) d (if known): ces observed (if known): bserved (if known);                                                                                                                                                                               |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species ob<br>Salamanders Observed? (Y/N) Species ob                                                                                                                                                       | (Record all observations below) d (if known): ces observed (if known): bserved (if known);                                                                                                                                                                               |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Comments Regarding Biology:                                                                          | (Record all observations below) d (if known): ces observed (if known): bserved (if known): Species observed (if known):                                                                                                                                                  |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Comments Regarding Biology:<br><br>DRAWING AND NARRATIVE                                             | (Record all observations below) d (if known): ces observed (if known): bserved (if known);                                                                                                                                                                               |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Comments Regarding Biology:<br><br>DRAWING AND NARRATIVE                                             | (Record all observations below) d (if known): ces observed (if known): bserved (if known): Species observed (if known): DESCRIPTION OF STREAM REACH (This must be completed) eatures of interest for site evaluation and a narrative description of the yteam's location |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Comments Regarding Biology:<br><br>DRAWING AND NARRATIVE                                             | (Record all observations below) d (if known): ces observed (if known): bserved (if known): Species observed (if known): DESCRIPTION OF STREAM REACH (This must be completed) eatures of interest for site evaluation and a narrative description of the yteam's location |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Comments Regarding Biology:<br><br>DRAWING AND NARRATIVE                                             | (Record all observations below) d (if known): cres observed (if known): bserved (if known): Species observed (if known): DESCRIPTION OF STREAM REACH (This must be completed)                                                                                            |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Comments Regarding Biology:<br><br>DRAWING AND NARRATIVE<br>Include important landmarks and other fe | (Record all observations below) d (if known): ces observed (if known): bserved (if known): Species observed (if known): DESCRIPTION OF STREAM REACH (This must be completed) eatures of interest for site evaluation and a narrative description of the yteam's location |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Comments Regarding Biology:<br><br>DRAWING AND NARRATIVE                                             | (Record all observations below) d (if known): ces observed (if known): bserved (if known): Species observed (if known): DESCRIPTION OF STREAM REACH (This must be completed) eatures of interest for site evaluation and a narrative description of the yteam's location |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Comments Regarding Biology:<br><br>DRAWING AND NARRATIVE<br>Include important landmarks and other fe | (Record all observations below) d (if known): ces observed (if known): bserved (if known): Species observed (if known): DESCRIPTION OF STREAM REACH (This must be completed) eatures of interest for site evaluation and a narrative description of the yteam's location |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Comments Regarding Biology:<br><br>DRAWING AND NARRATIVE<br>Include important landmarks and other fe | (Record all observations below) d (if known): ces observed (if known): bserved (if known): Species observed (if known): DESCRIPTION OF STREAM REACH (This must be completed) eatures of interest for site evaluation and a narrative description of the yteam's location |
| Fish Observed? (Y/N) Species observed<br>Frogs or Tadpoles Observed? (Y/N) Species of<br>Salamanders Observed? (Y/N) Species of<br>Aquatic Macroinvertebrates Observed? (Y/N)<br>Comments Regarding Biology:<br><br>DRAWING AND NARRATIVE<br>Include important landmarks and other fe | (Record all observations below) d (if known): ces observed (if known): bserved (if known): Species observed (if known): DESCRIPTION OF STREAM REACH (This must be completed) eatures of interest for site evaluation and a narrative description of the yteam's location |

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Page 2

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SITE NAME/LOCATION <u>CYOULS Ide</u> Rhild<br>SITE NUMBER RIVER BASIN <u>SD-10040501</u> RIVER CODE <u>DRAINAGE AREA (mi<sup>2</sup>)</u><br>LENGTH OF STREAM REACH (ft) <u>126</u> LAT <u>97.768318</u> LONG <u>B2.057817</u> RIVER MILE<br>DATE <u>5121</u> ZO SCORER <u>KUV</u> <u>COMMENTS</u> S039<br>NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                |
| (Max of 32), Add total number of significant substrate types found (Max of 3) Final metric score is sum of boxes A 3 b         TYPE         BLDR SLABS [16 pts]         BOULDER (>256 mm) [16 pts]         BEDROCK [16 pta]         COBBLE (65-256 mm) [12 pts]         GRAVEL (2-64 mm) [9 pts]         SAND (<2 mm) [6 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HHEI<br>Metric<br>Points<br>Gubstrate<br>Max = 40<br>I<br>I<br>I<br>I<br>A + B |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ool Depth<br>Max = 30                                                          |
| 3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Bankfull<br>Width                                                              |
| > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Max=30                                                                         |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
| This information <u>mustalso becompleted</u><br>RIPARIAN ZONE AND FLOODPLAIN QUALITY + NOTE: RiverLeft(L) and Right (R) as woking downstream*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                |
| RIPARIAN WIDTH<br>(Per Bank)       FLOODPLAIN QUALTY (Most Predominant per Bank)         UR       UR         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Image: Moist Channel, isolated pools no flow (intermittent)         Subsurface flow with isolated pools (interstitial)       Image: Dry channel no water (ephemeral)         COMMENTS       Image: Commentation of the state o                                                                                                                                                |                                                                                |
| SINUO SITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):           None         10         2.0         30           05         15         2.5         30           STREAM GRADIENT ESTIMATE         5         5         5         5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                |
| Flat to Moderate Flat | 1                                                                              |

|                                              | ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):                                                                                                                                                                          |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                              | QHEI PERFORMED? Yes XI No QHEI Score (If Yes, Attach Completed QHEI form)                                                                                                                                                                         |
| ,                                            | DOWNSTREAM DESIGNATED USE(S)                                                                                                                                                                                                                      |
| ₩WH                                          | Name: DryRum Distance from Evaluated Stream                                                                                                                                                                                                       |
|                                              | Name:         Distance from Evaluated Stream           Name:         Distance from Evaluated Stream                                                                                                                                               |
|                                              | MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                                                                              |
| USGS Q                                       | uadrangle Name NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                                                                                                                                                    |
| County:_                                     | Township/City:                                                                                                                                                                                                                                    |
|                                              | MISCELLANEOUS                                                                                                                                                                                                                                     |
| Base Flo                                     | w Conditions? (Y/N) Date of last precipitation: 52120 Quantity: 50"                                                                                                                                                                               |
| Photo-do                                     | cumentation Notes                                                                                                                                                                                                                                 |
| Elevated                                     | Turbidity?(Y/N): N Canopy (% open): 70 (                                                                                                                                                                                                          |
| Weresar                                      | nples collected for water chemistry? (Y/N): Lab Sample # or ID (attach results):                                                                                                                                                                  |
| Field Mea                                    | asures:Temp (°C) Dissolved Oxygen (mg/l) pH (S.0.) Conductivity (umhos/cm)                                                                                                                                                                        |
| is the sar                                   | mpling_reach representative of the stream (Y/N) If not, explain:                                                                                                                                                                                  |
|                                              |                                                                                                                                                                                                                                                   |
|                                              | BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                                                                                                                                        |
| Fish Obs                                     | (Record all observations below)                                                                                                                                                                                                                   |
| Fish Obs                                     |                                                                                                                                                                                                                                                   |
| Frogs or 1                                   | (Record all observations below) erved? (Y/N) Species observed (if known):                                                                                                                                                                         |
| Frogs or '<br>Salamand                       | (Record all observations below) erved? (Y/N) Species observed (if known): Tadpoles Observed? (Y/N) Species observed (if known):                                                                                                                   |
| Frogs or 1<br>Salamand<br>Aquatic N          | (Record all observations below) erved? (Y/N) Species observed (if known): Tadpoles Observed? (Y/N) Species observed (if known): ters Observed? (Y/N) Species observed (if known):                                                                 |
| Frogs or 1<br>Salamand<br>Aquatic N          | (Record all observations below) erved? (Y/N) Species observed (if known): Tadpoles Observed? (Y/N) Species observed (if known): ters Observed? (Y/N) Species observed (if known): facroinvertebrates Observed? (Y/N) Species observed (if known): |
| Frogs or 1<br>Salamand<br>Aquatic N          | (Record all observations below)         erved? (Y/N)       Species observed (if known):                                                                                                                                                           |
| Frogs or 1<br>Salamand<br>Aquatic N          | (Record all observations below)         erved? (Y/N)       Species observed (if known):                                                                                                                                                           |
| Frogs or 1<br>Salamand<br>Aquatic N          | (Record all observations below)         erved? (Y/N)       Species observed (if known):                                                                                                                                                           |
| Frogs or 1<br>Salamand<br>Aquatic N          | (Record all observations below)         erved? (Y/N)       Species observed (if known):                                                                                                                                                           |
| Frogs or<br>Salamand<br>Aquatic N<br>Comment | (Record all observations below)         erved? (Y/N)       Species observed (if known):                                                                                                                                                           |
| Frogs or 1<br>Salamand<br>Aquatic N          | (Record all observations below)         erved? (Y/N)       Species observed (if known):                                                                                                                                                           |
| Frogs or<br>Salamand<br>Aquatic N<br>Comment | (Record all observations below)         erved? (Y/N)       Species observed (if known):                                                                                                                                                           |
| Frogs or<br>Salamand<br>Aquatic N<br>Comment | (Record all observations below)         erved? (Y/N)       Species observed (if known):                                                                                                                                                           |
| Frogs or<br>Salamand<br>Aquatic N<br>Comment | (Record all observations below)         erved? (Y/N)       Species observed (if known):                                                                                                                                                           |

| hio                                                                                                                | Primary Hea                                                                                      | dwater Hab                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                  | luation Form<br>um of metrics 1+2+3)                                                | 30                                                               |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|
| -t-t-                                                                                                              | RIVER BASIN ()50<br>REACH (11) 182 L<br>SCORER KUV                                               | COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | S041                                                                                                                                                                             | DRAINAGE AREA (mi <sup>2</sup> )<br>62(922 RIVER MILE<br>hio's PHWH Streams" for In |                                                                  |
|                                                                                                                    |                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                  |                                                                                     |                                                                  |
| (Max of 32). Ad<br>TYPE<br>BLDR SLAE<br>BOULDER<br>BEDROCK<br>COBBLE (6<br>GRAVEL (2<br>SAND (<2 m<br>Total of Per | S [16 pts]<br>>256 mm) [16 pts]<br>16 pts]<br>5-256 mm) [12 pts]<br>64 mm) [9 pts]<br>m) [6 pts] | y type present). Che       nt substrate types (types)       CENT       TYPE       Image: Imag | ck ONLY <u>two</u> predomina<br>nd (Max of 8) Final metri<br>SLT [3 pt]<br>LEAF PACKWOODY D<br>FINE DETRITUS [3 pts<br>CLAY or HARDPAN [0]<br>MUCK [0 pts]<br>ARTIFICIAL [3 pts] | EBRIS [3 pts]                                                                       | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>ZO<br>A + B |
| CORE OF TWO MOST                                                                                                   | PREDOMINATE SUBSTR<br>Depth (Measure the ma<br>on Avoid plunge pools fro<br>[20 pts]<br>00 pts]  | ATE TYPES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | vithin the 61 meter (200<br>rm water pipes) (Che<br>5 cm - 10 cm [15 pts<br>< 5 cm [5 pts]<br>NO WATER OR MOIS                                                                   |                                                                                     | Pool Dept<br>Max = 30                                            |
| > 4.0 meters (><br>> 3.0 m - 4.0 m (                                                                               | 10TH (Measuredas the a<br>3') [30 pts]<br>> 9' 7*- 13') [25 pts]<br>> 4' 8' - 9' 7*) [20 pts]    | iverage of 3 - 4 mea                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | surements) (Check C<br>> 1.0 m - 1.5 m (> 3'3<br>. ≤ 1.0 m (≤ 3'3*)[5 pts                                                                                                        | ' - 4' 8*)[ <b>15 pts</b> ]                                                         | Bankful<br>Width<br>Max=30                                       |
| COMMENTS                                                                                                           |                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | AVERAGE BANK                                                                                                                                                                     | FULL WIDTH (meters)                                                                 |                                                                  |
| DID A BIA                                                                                                          | N ZONE AND FLOODPL                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | mustalso be complete                                                                                                                                                             | d<br>light (R) as looking downstream                                                |                                                                  |
| L R (Pe                                                                                                            | <u>AN WIDTH</u><br>Bank)<br>>10m<br>rate 5–10m<br>w <5m                                          | FLOODPLAIN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | I QUALITY (Most Predo<br>st, Wetland<br>prest, Shrub or Old Field<br>Park, New Field                                                                                             |                                                                                     | rop                                                              |
| Stream F<br>Subsurfa<br>COMME                                                                                      | ce flow with isolated pools                                                                      | (interstitiai)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Moist Channel,<br>Dry channel, n                                                                                                                                                 | isolated pools, no flow (intermit<br>o water (ephemeral)                            | ent)                                                             |
| None<br>0 5                                                                                                        | TY (Number of bends per<br>DENT ESTIMATE<br>Flat to Moderate                                     | 1 0<br>1 5<br>Μoderate 2*10 *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 20<br>25                                                                                                                                                                         | □ 30<br>□ >3                                                                        | 9100 °C                                                          |
|                                                                                                                    | prior to measurate                                                                               | LINAMANAN & HAA !                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | L_ moderate to .                                                                                                                                                                 |                                                                                     |                                                                  |

| QHEI PERFORMED? TYES INO QHEI                         | Score (If Yes, Attach Completed QHEI_form)                                                         |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE(S)                          | Distance from Evaluated Stream<br>Distance from Evaluated Stream<br>Distance from Evaluated Stream |
|                                                       | UDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION.                                  |
|                                                       | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                    |
| 14 1                                                  | Township/City:                                                                                     |
| MISCELLANEOUS                                         |                                                                                                    |
| Base Flow Conditions? (Y/N)                           | recipitation: 5/21/20 Quantity:                                                                    |
| Photo-documentation Notes                             |                                                                                                    |
| Elevated Turbidity?(YAN): Canopy (% or                | pen): <u>10(</u>                                                                                   |
|                                                       | Lab Sample # or ID (attach results):                                                               |
| Field Measures:Temp (*C) Dissolved Oxyge              | en (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                        |
|                                                       | /N) If not, explain                                                                                |
|                                                       | 1                                                                                                  |
| Additional comments/description of pollution impacts: |                                                                                                    |
|                                                       |                                                                                                    |
|                                                       | OGICAL OBSERVATIONS                                                                                |
|                                                       | known):                                                                                            |
| Frogs of Tadpoles Observed? (Y/N) <u>N</u> Species (  | observed (if known);                                                                               |
| Salamanders Observed? (Y/N) Species obser             | rved (if known):                                                                                   |
| Aquatic Macroinvertebrates Observed? (Y/N) 12         | Species observed (if known):                                                                       |
| Comments Regarding Biology:                           |                                                                                                    |
|                                                       |                                                                                                    |
|                                                       | SCRIPTION OF STREAM REACH (This must be completed)                                                 |
| Include important landmarks and other rearun          | res of interest for site evaluation and a narrative description of the stream's location           |
| senter 1                                              | Transmissionling ROW                                                                               |
| or Grades 1 -                                         |                                                                                                    |
|                                                       |                                                                                                    |
| LOW                                                   | Ant                                                                                                |
|                                                       |                                                                                                    |
|                                                       |                                                                                                    |
|                                                       | Exestal -                                                                                          |
| Spero                                                 | Firestal                                                                                           |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3) 34                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | or Instructions                                     |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A 8 (Max of 32). Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A 8 (Max of 32). Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A 8 (Max of 32). Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A 8 (Max of 32). Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A 8 (Max of 32). Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes A 8 (Max of 8) Final metric score is sum of boxes | B HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| 2.       Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation Avoid plunge pools from road culverts or storm water pipes)       (Check ONLY one box):         > 30 centimeters [20 pts]       5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Pool Depth<br>Max = 30                              |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       > 1.0 m (≤ 3' 3') [5 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts]       ≤ 1.0 m (≤ 3' 3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Bankfull<br>Width<br>Max=30                         |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2                                                   |
| This information <u>must</u> also be completed<br>RIPARIAN ZONE AND FLOODPLAIN QUALITY  A NOTE: River Left (L) and Right (R) as looking downstr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | eam.                                                |
| RIPARIAN WIDTH       FLOODPLAIN QUALITY       (Most Predominant per Bank)         L R       L R       L R         Wide >10m       Mature Forest, Wetland       Conservation Till         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industri         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | age<br>al<br>ow Crop                                |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools, no flow (interstriat)         Subsurface flow with isolated pools (interstriat)       Dry channel, no water (ephemeral)         COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ermittent)                                          |
| 0 5 1 5 2.5 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7 0017 01 5                                         |
| Dopper 2018 Revision Page 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                     |

| ADDITIONAL                          | L STREAM INFORMATION (This Information Must Also be Completed):                                              |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------|
| QHEI PERFORMED?                     | Yes KNo QHEI Score (If Yes, Attach Completed QHEI form)                                                      |
| DOWNSTREAM_DESIGN                   |                                                                                                              |
| SWWH Name: 1244                     | Distance from Evaluated Stream                                                                               |
| CWH Name:     EWH Name:             | Distance from Evaluated Stream Distance from Evaluated Stream                                                |
|                                     | IES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                            |
| USGS Quadrangie Name                | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                              |
| 10.1                                | Co Township/City:                                                                                            |
| MISCELLANEOUS                       |                                                                                                              |
| Base Flow Conditions? (Y/N)         | Date of last precipitation: $521/20$ Quantity: $50''$                                                        |
| Photo-documentation Notes           |                                                                                                              |
|                                     | Сапору (% open):                                                                                             |
|                                     | chemistry?(Y/N): Lab Sample # or 10 (attach results):                                                        |
|                                     | Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                    |
| is the sampling reach representativ | ve of the stream (Y/N) 🛁 If not, explain:                                                                    |
| Additional comments/description of  | BIOLOGICAL OBSERVATIONS                                                                                      |
|                                     | (Record all observations below)                                                                              |
| Fish Observed? (Y/N) N Sp           | ecies observed (if known):                                                                                   |
|                                     | 0 M Species observed (If known);                                                                             |
|                                     | Species observed (if known)                                                                                  |
| Aquatic Macroinvertebrates Observ   | ved? (Y/N) Species observed (if known):                                                                      |
| Comments Regarding Biology:         |                                                                                                              |
| A                                   |                                                                                                              |
| DRAWING AND N                       | ARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                |
|                                     | arks and other features of interest for site evaluation and a narrative description of the stream's location |
| open field                          | Treitern 5stenline Rob                                                                                       |
| approx                              |                                                                                                              |
| $\sim$                              |                                                                                                              |
| 9                                   |                                                                                                              |
|                                     |                                                                                                              |
| Low N                               |                                                                                                              |
| Low N                               | Forestra                                                                                                     |
| Low N                               | Forestal                                                                                                     |
|                                     | Foresteel                                                                                                    |

Version 4.0 October 2018

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 37                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | or Instructions                                     |
| 1.       SUBSTRATE (Estimate percent of every type present). Check ONL Ytwo 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 & PERCENT         TYPE       BLDR SLABS [16 pts]       PERCENT         BOULDER (>256 mm) [16 pts]       LEAF PACK/WOODY DEBRIS [3 pts]       PERCENT         BEDROCK [16 pts]       CLAY or HARDPAN [0 pt]       PERCENT         GRAVEL (2-64 mm) [9 pts]       SL       MUCK [0 pts]         SAND (<2 mm) [6 pts] | B HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40 |
| 2.       Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes)       (Check ONLY one box):         > 30 centimeters [20 pts]       5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5pts]                                                                                                                                                                                                    | Pool Depth<br>Max = 30                              |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4" 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]       \$ 1.0 m (< 3' 3') [5 pts]                                                                                                                                                                                                                                                                             | Bankfull<br>Width<br>Max=30                         |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                     |
| This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstree         RIPARIAN WIDTH       FLOODPLAIN QUALITY (Most Predominant per Bank)         L R       L R         Wide >10m       Mature Forest, Wetland         Moderate S-10m       Immature Forest, Shrub or Old Field         Narrow <5m                                                                                                                                                                 | ge<br>I<br>w Crop                                   |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing       Image: Moist Channel, isolated pools, no flow (interstitiat)         Subsurface flow with isolated pools (interstitiat)       Dry channel, no water (ephemeral)         COMMENTS       Image: SiNUO SITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):         None       10       2.0       3.0         0.5       1.5       2.5       >3                                                                                             | mittent)                                            |
| STREAM GRADIENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10 9 100 9;                                         |

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| ADDITIONAL                        | STREAM INFORMATION (This Information Must Also be Completed):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| QHEI PERFORMED?                   | Yes Attach Completed QHEI form)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DOWNSTREAM DESIGNA                | TED USE(S)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| WWH Name: My K                    | Distance from Evaluated Stream                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CWH Name:      EWH Name:          | Distance fromEvaluated Stream Distance fromEvaluated Stream                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                   | S OF MAPS, INCLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                   | NRCS Soil Map Page:NRCS Soil Map Stream Order:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                   | Incomplete to the state of the sta |
|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| MISCELLANEOUS                     | G121120 GAU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Base Flow Conditions? (YAN):      | _ Date of last precipitation: 5/21/20 Quantity: 50"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Photo-documentation Notes:        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Elevated Turbidity?(Y/N):         | Canopy (% open):OO (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                   | nemistry? (Y/N): Lab Sample # or D (attach results):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Field Measures:Temp (°C)          | Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                   | e of the stream (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                   | BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Fish Observed? (Y/N) N Spe        | cies observed (if known)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Frogs or Tadpoles Observed? (Y/N) | N Species observed (if known)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Salamanders Observed? (Y/N)       | Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Aquatic Macroinvertebrates Observ | ed? (Y/N) N Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Comments Regarding Biology:       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                   | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| DRAWING AND NA                    | ARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| $\sim$                            | is and other features of interest for site evaluation and a narrative description of the stream's location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (sile)                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Foresteel                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Y)                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| . ~ ~                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ow                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ())                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| $\langle \langle \rangle$         | E Transmissionline Row )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 7.1                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| SITE NAME/LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ctions                                          |
| STREAM CHANNEL MODIFICATIONS; Chone, Natural Channel Recovered Recovering Recent or no ri                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ECOVERY                                         |
| Imax or 32). Additional number of significant substrate types round (max or 3). Final metric score is sub or boxes A & B       PERCENT       TYPE       PERCENT       PERCENT | AHEI<br>letric<br>oints<br>ubstrate<br>lax = 40 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ax = 30                                         |
| > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ankfull<br>Nidth<br>Iax=30                      |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                 |
| This information <u>mus</u> talso be completed<br>RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: RiverLeft (L) and Right (R) as looking downstream*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                 |
| RIPARIAN WIDTH<br>(Per Bank)       FLOODPLAIN QUALITY (Most Predominant per Bank)         L R       L R         Wide > 10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <sm< td="">       Residential, Park, New Field       Open Pasture, Row Crop         None       Fenced Pasture       Mining or Construction</sm<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                 |
| FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Image: Moist Channel, isolated pools, no flow (intermittent)         Subsurface flow with isolated pools (interstitial)       Image: Dry channel, no water (ephemeral)         COMMENTS       Image: Dry channel, isolated pools (interstitial)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                 |
| 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         3.0           STREAM GRADIENT ESTIMATE         3.0         3.0         3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                 |
| Flat 05 9100 9 Flat to Moderate Moderate 2 9100 9 Moderate to Severe Severe Severe 10 9100 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                 |
| October 2015 Revision Page I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                 |

| QHEI PERFORMED? Yes No QHEI Sco                                       | ore (If Yes. Attach Completed QHEI form)                                             |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| DOWNSTREAM_DESIGNATED USE(S)                                          |                                                                                      |
| WWH Name: Dry Ru                                                      | Distance from Evaluated Stream                                                       |
| ] CWH Name:                                                           | Distance fromEvaluated Stream                                                        |
|                                                                       | IN THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION                        |
|                                                                       | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                      |
|                                                                       | Township/City:                                                                       |
| ()                                                                    | łownsnip/city:                                                                       |
| MISCELLANEOUS                                                         | 5171170 501                                                                          |
|                                                                       |                                                                                      |
| Photo-documentation Notes                                             | 511                                                                                  |
| Elevated Turbidity?(Y/N) Canopy (% open):                             |                                                                                      |
|                                                                       | Lab Sample # or D (attach results):                                                  |
|                                                                       | ng/l) pH (S.U.) Conductivity (umhos/cm)                                              |
| s the sampling-reach representative of the stream (Y/N) $\frac{1}{2}$ | If not, explain:                                                                     |
|                                                                       | ,                                                                                    |
| Additional comments/description of pollution impacts                  |                                                                                      |
|                                                                       |                                                                                      |
|                                                                       | CAL OBSERVATIONS                                                                     |
|                                                                       | all observations below)                                                              |
| -ish Observed? (Y/N) Species observed (if know                        | wn):                                                                                 |
|                                                                       | erved (if known);                                                                    |
|                                                                       | (ifknown)                                                                            |
| Aquatic Macroinvertebrates Observed? (Y/N) Spec                       | cies observed (if known):                                                            |
| Comments Regarding Biology                                            |                                                                                      |
|                                                                       | 1                                                                                    |
| DRAMING AND NARRATIVE DESCI                                           | RIPTION OF STREAM REACH (This must be completed)                                     |
|                                                                       | of interest for site evaluation and a narrative description of the stream's location |
| Fichiol                                                               | Ession Live Ride /                                                                   |
|                                                                       | DIGNUMETING                                                                          |
| Honorum ( Iransmi                                                     |                                                                                      |
| Horizona Iransmi                                                      |                                                                                      |
| Horrolas (ransmi                                                      |                                                                                      |
| Jul                                                                   |                                                                                      |
| Jul                                                                   |                                                                                      |
| Jul                                                                   |                                                                                      |
| ow 2                                                                  | Frield                                                                               |
| Jel                                                                   |                                                                                      |

| Sentine Agent                                                                                | Primary Headwa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                      | Field Evaluat<br>IEI Score (sum of                                                      |                                                        | 27                                                         |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------|
| LENGTH DF STREAM R                                                                           | RIVER BASIN (5040)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DIMMENTS S044                                                        | LONG                                                                                    | RIVER MILE                                             |                                                            |
|                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                      |                                                                                         |                                                        |                                                            |
| (Max of 32) Add<br>TYPE<br>BLDR SLABS<br>BOULDER (><br>BEDROCK I <sup>4</sup><br>COBBLE (65- | 256 mm) [16 pts]           6 pts]           -256 mm) [12 pts]           -256 mm) [12 pts]           -4 mm) [9 pts]           -1 [6 pts]           -5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | trate types found (Ma<br>TYPE<br>SLT  <br>LEAF<br>CLAY               | k of 8) Final metric score                                                              | e is sum of boxes A & B<br>PERCENT<br>30               | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>A + B |
| 2. Maximum Pool                                                                              | pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | t pool depth within t<br>culverts or storm wa<br>S cr<br>< 5 c<br>NO |                                                                                         | valuation reach at the<br>LY one box):<br>NNEL [Opts]  | Pool Dept<br>Max = 30                                      |
| 3. BANK FULL WI<br>> 4.0 meters (> 13<br>> 3.0 m - 4.0 m (>                                  | 0TH (Measured as the average<br>(*) [30 pts]<br>9' 7"- 13') [25 pts]<br>4' 8' - 9' 7') [20 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | e of 3 - 4 measurem                                                  | mts) (Check <i>ONL</i> Yon<br>m - 1.5 m (> 3' 3' - 4' 8'<br>m (≤ 3' 3')[5 pts]          | ne box):<br>)[15 pts]                                  | Bankfull<br>Width<br>Max=30                                |
| COMMENTS                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                      | AVERAGE BANKFULL                                                                        | WIDTH (meters)                                         | 1                                                          |
| L R (Per                                                                                     | I ZONE AND FLOODPLAIN QUAN WIDTH           Bank)         L R           10m         Image: Compare the second sec |                                                                      | Iver Left (L) and Right (R<br>ITT (Most Predominant<br>L R<br>land<br>hrub or Old Field | рег Валк)                                              | rop                                                        |
| FLOW RE<br>Stream Flo<br>Subsurfac<br>COMMENT                                                | GIME (Ac Time of Evaluation)<br>wing<br>e flow with isolated pools (inters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | titiai)                                                              | Moist Channel, isolate<br>Dry channel, no water                                         | d pools no flow (intermit<br>rephemeral)<br>3 0<br>> 3 | ent)                                                       |
| STREAM GRAD                                                                                  | ENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | derate 2 % 100 %                                                     | Moderate to Severe                                                                      | _                                                      | 100 *                                                      |

|                                                                                                                                                                   | DNAL STREAM INFORMATION (This Information Must Also be Completed)                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| QHEI PERFORMED?                                                                                                                                                   | ? □Yesy⊠No QHEI Score (If Yes, Attach Completed QHEI form)                                                                                                                                                                                                                                                                                       |
| DOWNSTREAM DES                                                                                                                                                    | SIGNATED USE(S)                                                                                                                                                                                                                                                                                                                                  |
| AWWH Name: DYU                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                  |
| ] CWH Name:]<br>] EWH Name:                                                                                                                                       | Distance fromEvaluated Stream Distance fromEvaluated Stream                                                                                                                                                                                                                                                                                      |
| 1.5                                                                                                                                                               | COPIES OF MAPS, INCLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION                                                                                                                                                                                                                                                             |
|                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                  |
| Pent                                                                                                                                                              | NRCS Soil Map Page:NRCS Soil Map Stream Order:<br>Township/City:                                                                                                                                                                                                                                                                                 |
| MISCELLANEOUS                                                                                                                                                     | Township out                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                   | Date of last precipitation: 5/21/20 Quantity: 50"                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                  |
| Photo-documentation Notes                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                   | Canopy (% open): 301.                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                   | ater chemistry? (Y/N): Lab Sample <b>#</b> or ID (attach results);                                                                                                                                                                                                                                                                               |
| Field Measures:Temp (°C) 🚞                                                                                                                                        | Dissolved Oxygen (mg/l)     pH (S U.)     Conductivity (umhos/cm)                                                                                                                                                                                                                                                                                |
| is the sampling reach represer                                                                                                                                    | ntative of the stream (Y/N) If not, explain                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                   | BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                                                                                                                                                                                                                                       |
| Sinh Obnersed (SZRIS 151                                                                                                                                          | Species observed (if known)                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                  |
| Frogs or Tadpoles Observed?                                                                                                                                       | (Y/N) Species observed (If known);                                                                                                                                                                                                                                                                                                               |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)                                                                                                        | (Y/N) N Species observed (If known);                                                                                                                                                                                                                                                                                                             |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)                                                                                                        | (Y/N) Species observed (If known);                                                                                                                                                                                                                                                                                                               |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot                                                                       | (Y/N)         Species observed (if known);                                                                                                                                                                                                                                                                                                       |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot                                                                       | (Y/N)         Species observed (if known);                                                                                                                                                                                                                                                                                                       |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments: Regarding Biology;                                       | (Y/N)         Species observed (if known);                                                                                                                                                                                                                                                                                                       |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING AN                          | (Y/N) Species observed (if known):<br>) M Species observed (if known):<br>bserved? (Y/N) Species observed (if known):                                                                                                                                                                                                                            |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING AN                          | (Y/N) Species observed (if known):         ) M Species observed (if known):         bserved? (Y/N) Species observed (if known):                                                                                                                                                                                                                  |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING AN                          | (Y/N) Species observed (if known):         ) M Species observed (if known):         bserved? (Y/N) Species observed (if known):                                                                                                                                                                                                                  |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING AN                          | (Y/N) Species observed (if known):         ) M Species observed (if known):         bserved? (Y/N) Species observed (if known):                                                                                                                                                                                                                  |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING ANI<br>Include important la | (Y/N) Species observed (if known):         ) M Species observed (if known):         bserved? (Y/N) Species observed (if known):                                                                                                                                                                                                                  |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING AN                          | (Y/N) Species observed (if known):         ) M Species observed (if known):         bserved? (Y/N) Species observed (if known):                                                                                                                                                                                                                  |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING ANI<br>Include important la | (Y/N) Species observed (if known):         ) M Species observed (if known):         bserved? (Y/N) Species observed (if known):                                                                                                                                                                                                                  |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING ANI<br>Include important la | (Y/N)       Species observed (if known):         )       Species observed (if known):         bserved? (Y/N)       Species observed (if known):         D NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         indmarks and other features of interest for site evaluation and a narrative description of the tream's location |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING ANI<br>Include important la | (Y/N) Species observed (if known):         ) M Species observed (if known):         bserved? (Y/N) Species observed (if known):                                                                                                                                                                                                                  |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING ANI<br>Include important la | (Y/N)       Species observed (if known):         )       Species observed (if known):         bserved? (Y/N)       Species observed (if known):         D NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         indmarks and other features of interest for site evaluation and a narrative description of the tream's location |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING ANI<br>Include important la | (Y/N)       Species observed (if known):         )       Species observed (if known):         bserved? (Y/N)       Species observed (if known):         D NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         indmarks and other features of interest for site evaluation and a narrative description of the tream's location |
| Frogs or Tadpoles Observed?<br>Salamanders Observed? (Y/N)<br>Aquatic Macroinvertebrates Ot<br>Comments Regarding Biology:<br>DRAWING ANI<br>Include important la | (Y/N)       Species observed (if known):         )       Species observed (if known):         bserved? (Y/N)       Species observed (if known):         D NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)         indmarks and other features of interest for site evaluation and a narrative description of the tream's location |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| SITE NAME/LOCATION CYCOLS UII (0 Philo<br>SITE NUMBER RIVER BASIN 050 4000 4050 RIVER CODE DRAINAGE AREA (mif)<br>LENGTH OF STREAM REACH (1) 113 LAT 29:759 115 LONG 82.082558 RIVER MILE<br>DATE 5240 SCORER KUV COMMENTS S046                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                            |
| NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst<br>STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                            |
| 1.       SUBSTRATE (Estimate percent of every type present), Check ONLY two predominant substrate TYPE boxes (Max of 32). Additotal number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B         TYPE       PERCENT       TYPE         BLDR SLABS [16 pts]       PERCENT       TYPE         BOULDER (>256 mm) [16 pts]       LEAF PACKWOODY DEBRIS [3 pts]       PERCENT         BEDROCK [16 pts]       CLAY or HARDPAN [0 pt]       PERCENT         COBBLE (65-256 mm) [12 pts]       MUCK [0 pts]       PERCENT         SAND (<2 mm) [6 pts]       MUCK [0 pts]       PERCENT         Total of Percentages of       State types for the betrate types [0 pts]       PERCENT         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPEs:       [A)       [B)       [B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>A + B |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pool Depth<br>Max = 30                                     |
| 3.       BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box);         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]         > 3.0 m - 4.0 m (> 9' 7* - 13') [25 pts]       > 1.0 m (≤ 3' 3') [5 pts]         > 1.5 m - 3.0 m (> 4' 8' - 9' 7*) [20 pts]       > 1.0 m (≤ 3' 3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Bankfull<br>Width<br>Max=30                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                            |
| This information <u>must</u> also be completed<br>RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                            |
| RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank)<br>L.R. (Per Bank) L.R. L.R.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                            |
| Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | p                                                          |
| Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                            |
| Immature Forest, Shrub or Old Field       Urban or Industrial         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                            |
| Image: Second | t)                                                         |

|                                       | ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):                                                                                                                                 |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| QHEI                                  | PERFORMED? YeszelNo QHEI Score (If Yes, Attach Completed QHEI form)                                                                                                                                      |
| DOW                                   | NSTREAM, DESIGNATED USE(S)                                                                                                                                                                               |
|                                       | NSTREAM DESIGNATED USE(S)         Stack For K         Distance from Evaluated Stream         Distance from Evaluated Stream                                                                              |
| EWH Name:                             |                                                                                                                                                                                                          |
| MAP                                   | PING: ATTACH. COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                                       |
| USGS Quadrar                          | igle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                                                                                                               |
| County: 1                             | Township/City:                                                                                                                                                                                           |
|                                       |                                                                                                                                                                                                          |
|                                       | attions? (Y/N): Date of last precipitation: SZ1ZO Quantity: SO'                                                                                                                                          |
|                                       |                                                                                                                                                                                                          |
|                                       | tation Notes                                                                                                                                                                                             |
|                                       |                                                                                                                                                                                                          |
|                                       | collected for water chemistry? (Y/N): Lab Sample # or ID (attach results):                                                                                                                               |
|                                       | :Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                                                     |
| is the sampling                       | reach representative of the stream (Y/N)                                                                                                                                                                 |
|                                       |                                                                                                                                                                                                          |
|                                       | BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                                                                                               |
|                                       | (Y/N) N Species observed (if known)                                                                                                                                                                      |
|                                       | les Observed? (Y/N) N Species observed (If known);                                                                                                                                                       |
|                                       | bserved? (Y/N) N Species observed (if known);                                                                                                                                                            |
|                                       |                                                                                                                                                                                                          |
|                                       | nvertebrates Observed? (Y/N) N Species observed (if known):                                                                                                                                              |
| Aquatic Macroii                       |                                                                                                                                                                                                          |
| Aquatic Macroii                       |                                                                                                                                                                                                          |
| Aquatic Macroir<br>Comments Reg       |                                                                                                                                                                                                          |
| Aquatic Macroir<br>Comments Reg       | arding Biology:                                                                                                                                                                                          |
| Aquatic Macroir<br>Comments Reg       | AWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) ude important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
| Aquatic Macroin<br>Comments Reg<br>DR | AWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)                                                                                                                                 |
| Aquatic Macroir<br>Comments Reg       | AWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) ude important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
| Aquatic Macroin<br>Comments Reg<br>DR | AWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) ude important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
| Aquatic Macroir<br>Comments Reg       | AWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) ude important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
| Aquatic Macroin<br>Comments Reg<br>DR | AWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) ude important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
| Aquatic Macroin<br>Comments Reg<br>DR | AWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) ude important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
| Aquatic Macroin<br>Comments Reg<br>DR | AWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) ude important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |

| hio<br>Prosterio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ACH (11) 991 LAT 39. 759426 LONG 32. 355182 RIVER MILE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| (Max of 32). Add<br>TYPE<br>BLDR SLABS<br>BOULDER ()<br>BEDROCK [4<br>COBBLE (65<br>COBBLE | 256 mm) [16 pts]       Image: Clay or HARDPAN [0 pt]       Subs         3 pts]       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt]         1 (6 pts]       Image: Of       Image: Of         1 (A)       Image: Of       (A)                                                                                                                                                                                                                                                                                                                                                                                  |
| 2. Maximum Pool                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the Avoid plunge pools from road culverts or storm water pipes)     Check ONLY one box):     Max:       20 pts]     5 cm - 10 cm [15 pts]       pts]     < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                   |
| → 4.0 meters (> 13<br>→ 3.0 m - 4.0 m (><br>→ 1.5 m - 3.0 m (>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 9'7*-13')[25 pts] □ ≤1.0 m (≤3'3')[5 pts] □ 4'8'-9'7')[20 pts] □ 2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ZONE AND FLOODPLAIN QUALITY          • NOTE: River Left (L) and Right (R) as looking downstream*          N. WIDTH (and kight)          • NOTE: River Left (L) and Right (R) as looking downstream*          N. WIDTH (and kight)          • NOTE: River Left (L) and Right (R) as looking downstream*          Nom          • FLOODPLAIN QUALITY (Most Predominant per Bank)          Iom          • Mature Forest, Wetland          Iom          • Mature Forest, Wetland          Iom          • Mature Forest, Shrub or Old Field          Iom          • Residential, Park, New Field          Iom          • Fenced Pasture |
| FLOW RE<br>Stream Flo<br>Subsurfac<br>COMMEN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SIME (At Time of Evaluation) (Check ONLY one box):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| □ None<br>□ 0.5<br>STREAM GRAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10     20     30       15     25     30       INT ESTIMATE       Flat to Moderate     Moderate 2 100 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|                                                                           | core (If Yes, Attach Completed QHEI form)                                            |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE(S)                                              | Distance from Evaluated Stream                                                       |
|                                                                           | Distance from Evaluated Stream                                                       |
| ] EWH Name:                                                               | Distance from Evaluated Stream                                                       |
| MAPPING: ATTACH COPIES OF MAPS, INCLUD                                    | ING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION                        |
|                                                                           | NRCS Soil Map Page: NRCS Soil Map Stream Order:                                      |
| county: Perry Co.                                                         | Township/City:                                                                       |
| MISCELLANEOUS                                                             |                                                                                      |
| Base Flow Conditions? (Y/N): M. Date of last pred                         | cipitation: 5/21/20 Quantity: 50"                                                    |
| hoto-documentation Notes                                                  |                                                                                      |
| levated Turbidity?(Y/N): Canopy (% oper                                   | 151                                                                                  |
|                                                                           |                                                                                      |
|                                                                           | Lab Sample # or ID (attach results):                                                 |
|                                                                           | (mg/l) pH (S U ) Conductivity (umhos/cm)                                             |
| , the sampling reach representative of the stream $(\Upsilon \partial I)$ | if not, explain                                                                      |
|                                                                           |                                                                                      |
| Recor                                                                     | ICAL OBSERVATIONS<br>rd all observations below)                                      |
| ish Observed? (Y/N) Species observed (if kno                              | own)                                                                                 |
|                                                                           | served (If known);                                                                   |
|                                                                           | ed (if known);                                                                       |
| quatic Macroinvertebrates Observed? (Y/N) N_ Sp                           | ecies observed (if known):                                                           |
| omments Regarding Biology:                                                |                                                                                      |
|                                                                           |                                                                                      |
| DRAWING AND NARRATIVE DESC                                                | CRIPTION 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 |
|                                                                           |                                                                                      |
| A (Transmiss                                                              | sion line Rdu -> /                                                                   |
|                                                                           |                                                                                      |
| w                                                                         |                                                                                      |
|                                                                           |                                                                                      |
|                                                                           |                                                                                      |
|                                                                           |                                                                                      |

| Phio Pr                                                                                                                                                                                                                              | imary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LENGTH OF STREAM REACH<br>DATE 911721 SCORE<br>NOTE: Complete All Items C                                                                                                                                                            | IVER BASIN RIVER CODE DRAINAGE AREA (mF) <u>Sq. M</u> 1<br>(ff) <u>434</u> LAT <u>39,80158</u> LONG <u>82,000113</u> RIVER MILE<br>R <u>KLV</u> COMMENTS <u>SOH-KLV-0041048</u><br>IN This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions                                                                                                                                            |
| 1. SUBSTRATE (Estima<br>(Max of 32). Add total m<br>TYPE<br>BLDR SLABS [16 p<br>BOULDER (>256 m<br>BEDROCK [16 pts]<br>COBBLE (65-256 m<br>GRAVEL (2-64 mm)<br>SAND (<2 mm) [6 p<br>Total of Percentage<br>Bldr Slabs, Boulder, Cobl | m) [16 pts]                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                      | < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                                                            |
| 3. BANK FULL WIDTH (1                                                                                                                                                                                                                | 13') [25 pts] ≤1.0 m (≤ 3' 3") [5 pts] Max=30                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                      | This information <u>must</u> also be completed                                                                                                                                                                                                                                                                                                                                                                           |
| RIPARIAN ZON<br>L R (Per Bank)<br>Wide >10m<br>Moderate 5-*<br>Narrow <5m<br>None<br>COMMENTS                                                                                                                                        | E AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream+<br><u>DTH</u> <u>FLOODPLAIN QUALITY</u> (Most Predominant per Bank)<br>L R L R<br>Mature Forest, Wetland Conservation Tillage                                                                                                                                                                                                         |
| FLOW REGIME<br>Stream Flowing<br>Subsurface flow<br>COMMENTS<br>SINUOSITY (No<br>None<br>0.5<br>STREAM GRADIENT                                                                                                                      | (At Time of Evaluation)       (Check ONLY one box):         Moist Channel, isolated pools, no flow (intermittent)         with isolated pools (interstitial)       Dry channel, no water (ephemeral)         umber of bends per 61 m (200 ft) of channel)       (Check ONLY one box):         1.0       2.0       3.0         1.5       2.5       >3         ESTIMATE       Moderate (2 thou t)       Moderate to Severe |

| ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):                                                   |               |
|----------------------------------------------------------------------------------------------------------------------------|---------------|
| QHEI PERFORMED? [Yes] Xo QHEI Score (If Yes, Attach Completed QHEI form)                                                   |               |
| DOWNSTREAM DESIGNATED USE(S)                                                                                               |               |
| WWH Name: MUSKINgum River Distance from Evaluated Stream                                                                   |               |
| CWH Name: Distance from Evaluated Stream                                                                                   |               |
| EWH Name: Distance from Evaluated Stream                                                                                   |               |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION                        |               |
| USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Ord                                                         |               |
| County: MUSHINgUM (G Township/City:                                                                                        |               |
| MISCELLANEOUS                                                                                                              |               |
| Base Flow Conditions? (Y/N): Date of last precipitation: Quantity:                                                         |               |
| Photo-documentation Notes:                                                                                                 |               |
| Elevated Turbidity?(Y/N): N Canopy (% open): 301                                                                           |               |
| Were samples collected for waterchemistry? (Y/N): Lab Sample # or ID (attach results):                                     | Sector Sector |
| Field Measures:Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                         |               |
| Is the sampling reach representative of the stream (Y/N) If not, explain:                                                  |               |
| Additional comments/description of pollution impacts:                                                                      |               |
| BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                 |               |
| Fish Observed? (Y/N) M Species abserved (if known):                                                                        |               |
| Frags or Tadpoles Observed? (Y/N) M Species observed (if known):                                                           |               |
| Salamanders Observed? (Y/N) Species observed (if known):                                                                   |               |
| Aquatic Macroinvertebrates Observed? (Y/N) // Species observed (if known):                                                 |               |
|                                                                                                                            |               |
| Comments Regarding Biology:                                                                                                |               |
|                                                                                                                            |               |
| DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be comp                                                       | pleted)       |
| Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's | location      |
|                                                                                                                            |               |
| tovestion                                                                                                                  |               |
| 7 PEM Market                                                                                                               |               |
| werten                                                                                                                     | culurt        |
| WO                                                                                                                         | IDIT          |
|                                                                                                                            | 111           |
| F 1                                                                                                                        | paired        |
| Foundard C 2 C 2/2                                                                                                         | Read          |
|                                                                                                                            |               |
|                                                                                                                            |               |

| Phio<br>Phio<br>Prostanteral<br>Prostanteral                                                                                     | Primary Headwater H                                                                                       | abitat Field Evaluatio<br>HHEl Score (sum of n              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DATE 9/17/21 S                                                                                                                   | EACH (ft) 301 LAT 39.785                                                                                  | 22 REVER CODE DRA<br>12 LONG -82,02263<br>SOH-KW-005 049    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                                  |                                                                                                           | N .                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| (Max of 32). Add<br>TYPE<br>BLDR SLABS<br>BOULDER (><br>BEDROCK [1<br>COBBLE (65-<br>GRAVEL (2-6<br>SAND (<2mm<br>Total of Perce | 256 mm) [16 pts]                                                                                          | found (Max of 8). Final metric score is                     | sum of boxes A & B     Metric       PERCENT     Metric       points     Substrate       Max = 40     B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| SCORE OF TWO MOST F                                                                                                              | pts]                                                                                                      |                                                             | Image: Second state of the se |
| 3. BANK FULL WIE<br>> 4.0 meters (> 13<br>> 3.0 m - 4.0 m (>                                                                     | )TH (Measuredas the average of 3 - 4 m<br>)] [30 pts]<br>9' 7"- 13') [25 pts]<br>4' 8" - 9' 7") [20 pts]  |                                                             | box):<br>15 pts]<br>Bankfull<br>Width<br>Max=30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                                  | This informat                                                                                             | ion mustalso be completed                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| LR (Per<br>Wide >                                                                                                                | Bank)         L R           10m         Immature F           ate 5-10m         Immature F           v <5m | LAIN QUALITY (Most Predominant pe<br>L R<br>Forest, Wetland | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| FLOW RE<br>Stream Flo<br>Subsurfac<br>COMMENT<br>SINUO SIT<br>None<br>0.5                                                        | GIME (At Time of Evaluation) (Check O<br>wing<br>e flow with isolated pools (interstitial)<br>TS          | Moist Channel, isolated p<br>Dry channel, no water (e       | pools, no flow (intermittent)<br>ephemeral)<br>3.0<br>3.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| STREAM GRADI                                                                                                                     |                                                                                                           | οο τ Moderate to Severe                                     | _                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Page 1

| QHEI PERFORMED?                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DOWNSTREAM DESIGNATED USE(S)                                                                                                                                                                                                                                                                                                                                                                                                               |
| CWH Name: Distance from Evaluated Stream                                                                                                                                                                                                                                                                                                                                                                                                   |
| Distance from Evaluated Stream                                                                                                                                                                                                                                                                                                                                                                                                             |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                                                                                                                                                                                                                                                                                                                       |
| USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                                                                                                                                                                                                                                                                                                                                      |
| county:                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MISCELLANEOUS                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Base Flow Conditions? (Y/N): Date of last precipitation: Quantity:                                                                                                                                                                                                                                                                                                                                                                         |
| Photo-documentation Notes:                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Elevated Turbidity?(Y/N): N Canopy (% open): 751                                                                                                                                                                                                                                                                                                                                                                                           |
| Were samples collected for water chemistry? (Y/N): Lab Sample # or ID (attach results):                                                                                                                                                                                                                                                                                                                                                    |
| Field Measures:Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (umhos/cm)                                                                                                                                                                                                                                                                                                                                       |
| Is the sampling reach representative of the stream (Y/N) If not, explain:                                                                                                                                                                                                                                                                                                                                                                  |
| Additional comments/description of pollution impacts:                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| BIOLOGICAL OBSERVATIONS<br>(Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                 |
| (Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| (Record all observations below) Fish Observed? (Y/N) M Species observed (if known):                                                                                                                                                                                                                                                                                                                                                        |
| (Record all observations below)         Fish Observed? (Y/N)         Species observed (if known):         Frogs or Tadpoles Observed? (Y/N)         Species observed (if known):                                                                                                                                                                                                                                                           |
| (Record all observations below)         Fish Observed? (Y/N) Species observed (if known):         Frogs or Tadpoles Observed? (Y/N) Species observed (if known):         Salamanders Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                          |
| (Record all observations below)         Fish Observed? (Y/N) Species observed (if known):         Frogs or Tadpoles Observed? (Y/N) Species observed (if known):         Salamanders Observed? (Y/N) Species observed (if known):         Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known):                                                                                                                          |
| (Record all observations below)         Fish Observed? (Y/N) Species observed (if known):         Frogs or Tadpoles Observed? (Y/N) Species observed (if known):         Salamanders Observed? (Y/N) Species observed (if known):         Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known):                                                                                                                          |
| (Record all observations below)         Fish Observed? (Y/N) Species observed (if known):         Frogs or Tadpoles Observed? (Y/N) Species observed (if known):         Salamanders Observed? (Y/N) Species observed (if known):         Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known):         Comments Regarding Biology:                                                                                      |
| (Record all observations below)         Fish Observed? (Y/N)       Species observed (if known):         Frogs or Tadpoles Observed? (Y/N)       M         Species observed (if known):       Species observed (if known):         Salamanders Observed? (Y/N)       M       Species observed (if known):         Aquatic Macroinvertebrates Observed? (Y/N)       M       Species observed (if known):         Comments Regarding Biology: |
| (Record all observations below)         Fish Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                  |
| (Record all observations below)         Fish Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                  |

| Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                             |
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| SITE NAME/LOCATION CALIFICATION CONDICISION CONDICATION CONDICISION CONDICISICO CONDICISION CONDICISICO CONDICISION CONDICISIC | ons                         |
| STREAM CHANNEL MODIFICATIONS:       NONE / NATURAL CHANNEL RECOVERED       RECOVERING       RECOVERING       RECENT OR NO RECO         1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes.<br>(Max of 32) Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A & B       HHI         1.       SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes.<br>(Max of 32) Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A & B       HHI         1.       BLOR SLABS [16 pts]       PERCENT       TYPE         1.       BOULDER (>256 mm) [16 pts]       PERCENT       TYPE         1.       BEDROCK [16 pts]       ELAF PACKWOODOY DEBRIS [3 pts]       Subs         1.       COBBLE (65-256 mm) [12 pts]       ELAF PACKWOODY DEBRIS [3 pts]       Subs         1.       GRAVEL (2-64 mm) [9 pts]       MUCK [9 pts]       MUCK [9 pts]       Subs         1.       MUCK [9 pts]       ARTIFICIAL [3 pts]       Artificial [3 pts]       Artificial [3 pts]         2.       Total of Percentages of<br>Bidtr Slabs, Boulder, Cobble, Bedrock       Artificial [3 pts]       Artificial [3 pts]       Artificial [3 pts]         2.       Cotal NUMBER OF SUBSTRATE TYPES:       MICK       MICK [9 pts]       Artificial [3 pts]       Artificial [3 pts]    <                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | El<br>tric<br>trate<br>= 40 |
| 2.       Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):       Pool D         > 30 centimeters [20 pts]       5 cm - 10 cm [15 pts]       Max:         > 22.5 - 30 cm [39 pts]       < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                             |
| 3.BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):Bank $> 4.0 meters (> 13') [30 pts]$ $> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]$ Wid $> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]$ $> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [29 pts]$ $> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [29 pts]$ $> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [29 pts]$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ith                         |
| COMMENTS AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | _                           |
| This information mustalso be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*         RIPARIAN WIDTH       FLOODPLAIN QUALITY       (Most Predominant per Bank)         L R       (Per Bank)       L R       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industriai         Narrow <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                             |
| 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)       Moist Channel, no water (ephemeral)         COMMENTS       SiNUO SITY (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 05 \$100 ft   Flat to Moderate Moderate 2 \$100 ft   Moderate to Severe   Severe 10 \$100 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |

| QHEI PERFORMED? TYEN No QHEI Score (If Yes,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Attach Completed QHEI form)                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESIGNATED USE(S)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                           |
| WWH Name: DUNCUN RUN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Distance from Evaluated Stream                                                                            |
| 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: NRCS Soil Map Page                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                           |
| county: MUSKINGUM CO. Township/City:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                           |
| MISCELLANEOUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                           |
| Base Flow Conditions? (Y/N): Date of last precipitation:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Quantity:                                                                                                 |
| Photo-documentation Notes:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                           |
| Elevated Turbidity?(Y/N): N Canopy (% open): 301.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ~                                                                                                         |
| Were samples collected for water chemistry?(Y/N): Lab Sample # or I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                           |
| Field Measures:Temp (°C) Dissolved Oxygen (mg/l) pH (S.U                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ) Conductivity (umhos/cm)                                                                                 |
| Is the sampling reach representative of the stream (Y/N) $\Delta$ [f not, explain]                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |
| Additional comments/description of pollution impacts:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                           |
| BIOLOGICAL OBSERVATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                           |
| (Record all observations below)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                           |
| (Record all observations below) Fish Observed? (Y/N) M Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                           |
| (Record all observations below) Fish Observed? (Y/N) Species observed (if known): Frogs or Tadpoles Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                           |
| (Record all observations below) Fish Observed? (Y/N) M Species observed (if known): Frogs or Tadpoles Observed? (Y/N) M Species observed (if known): Salamanders Observed? (Y/N) M Species observed (if known):                                                                                                                                                                                                                                                                                                                                           |                                                                                                           |
| (Record all observations below) Fish Observed? (Y/N) M Species observed (if known): Frogs or Tadpoles Observed? (Y/N) M Species observed (if known): Salamanders Observed? (Y/N) M Species observed (if known):                                                                                                                                                                                                                                                                                                                                           |                                                                                                           |
| (Record all observations below) Fish Observed? (Y/N) Species observed (if known): Frogs or Tadpoles Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                         |                                                                                                           |
| (Record all observations below) Fish Observed? (Y/N) M Species observed (if known): Frogs or Tadpoles Observed? (Y/N) M Species observed (if known): Salamanders Observed? (Y/N) M Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) M Species observed (if known):                                                                                                                                                                                                                                                                 |                                                                                                           |
| (Record all observations below) Fish Observed? (Y/N) Species observed (if known): Frogs or Tadpoles Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known): Comments Regarding Biology:                                                                                                                                                                                                                                             |                                                                                                           |
| (Record all observations below) Fish Observed? (Y/N) M Species observed (if known): Frogs or Tadpoles Observed? (Y/N) M Species observed (if known): Salamanders Observed? (Y/N) M Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) M Species observed (if known):                                                                                                                                                                                                                                                                 | M REACH (This <u>must</u> be completed)                                                                   |
| (Record all observations below) Fish Observed? (Y/N) Species observed (if known): Frogs or Tadpoles Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known): Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREA                                                                                                                                                        | M REACH (This <u>must</u> be completed)                                                                   |
| (Record all observations below) Fish Observed? (Y/N) Species observed (if known): Frogs or Tadpoles Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known): Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREA                                                                                                                                                        | M REACH (This <u>must</u> be completed)                                                                   |
| (Record all observations below) Fish Observed? (Y/N) Species observed (if known): Frogs or Tadpoles Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known); Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known); Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREA                                                                                                                                                                                                  | M REACH (This <u>must</u> be completed)                                                                   |
| (Record all observations below) Fish Observed? (Y/N) Species observed (if known): Frogs or Tadpoles Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known); Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known); Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREA                                                                                                                                                                                                  | M REACH (This <u>must</u> be completed)                                                                   |
| (Record all observations below)         Fish Observed? (Y/N)       Species observed (if known):         Frogs or Tadpoles Observed? (Y/N)       Species observed (if known):         Salamanders Observed? (Y/N)       Species observed (if known):         Aquatic Macroinvertebrates Observed? (Y/N)       Species observed (if known):         Comments Regarding Biology:       Species observed (if known)         DRAWING AND NARRATIVE DESCRIPTION OF STREA         Include important landmarks and other features of interest for site evaluation | M REACH (This <u>must</u> be completed)                                                                   |
| (Record all observations below) Fish Observed? (Y/N) Species observed (if known): Frogs or Tadpoles Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known); Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known); Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREA                                                                                                                                                                                                  | M REACH (This <u>must</u> be completed)                                                                   |
| (Record all observations below)         Fish Observed? (Y/N)       Species observed (if known):         Frogs or Tadpoles Observed? (Y/N)       Species observed (if known):         Salamanders Observed? (Y/N)       Species observed (if known):         Aquatic Macroinvertebrates Observed? (Y/N)       Species observed (if known):         Comments Regarding Biology:       Species observed (if known)         DRAWING AND NARRATIVE DESCRIPTION OF STREA         Include important landmarks and other features of interest for site evaluation | M REACH (This <u>must</u> be completed)                                                                   |
| (Record all observations below)         Fish Observed? (Y/N)       Species observed (if known):         Frogs or Tadpoles Observed? (Y/N)       Species observed (if known):         Salamanders Observed? (Y/N)       Species observed (if known):         Aquatic Macroinvertebrates Observed? (Y/N)       Species observed (if known):         Comments Regarding Biology:                                                                                                                                                                             | M REACH (This must be completed)<br>and a narrative-description of the stream's location<br>Power<br>Roac |
| (Record all observations below) Fish Observed? (Y/N)Species observed (if known): Frogs or Tadpoles Observed? (Y/N)Species observed (if known): Salamanders Observed? (Y/N)Species observed (if known):Aquatic Macroinvertebrates Observed? (Y/N)Species observed (if known): Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREA Include important landmarks and other features of interest for site evaluation                                                                                                                        | M REACH (This must be completed)<br>and a narrative-description of the stream's location<br>Power<br>Roac |

| STE NAMELOCATION       CUMMER       RVER BASN CODE       DPARAGE AREA (mP)       GM         STE NUMBER       RVER BASN CODE       DDARAGE AREA (mP)       GM         STE NUMBER       RVER BASN CODE       DDARAGE AREA (mP)       GM         LENGTH OF STREAM REACH (m)       COMMENTS       DM       RECOVERING       RECENT OF Not REAL         NOTE:       COMMENTS       COMMENTS       DM       RECENT OF NO RECOVERING       RECENT OF NO RECOVERING         SUBSTRATE (Estimate percent of every type present). Check O/M.Y type present)       RECENT OF NO RECOVERING       RECENT OF NO RECOVERING       RECENT OF NO RECOVERING         1       SUBSTRATE (Estimate percent of every type present). Check O/M.Y type present). Check D/M.Y type present type present). Check D/M.Y type present). Check D/M.Y type present). Check D/M.Y type present type present). Check D/M.Y type present type present. Check D/M.Y type present type pr                                                                                                                                                                                                                     | China Environmental<br>Morearcon Agency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Primary Headwater Habitat Field Evaluation<br>HHEI Score (sum of m                                                                                                                                                                                                                                                                                                                                                       |                                                                                | ]                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------|
| (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B       Herri         Image: Substrate types found (Max of 8). Final metric score is sum of boxes A & B       Metri         Image: Substrate types found (Max of 8). Final metric score is sum of boxes A & B       Metri         Image: Substrate types found (Max of 8). Final metric score is sum of boxes A & B       Metri         Image: Substrate types found (Max of 8). Final metric score is sum of boxes A & B       Metri         Image: Substrate types found (Max of 8). Final metric score is sum of boxes A & B       Metri         Image: Substrate types found (Max of 8). Final metric score is sum of boxes A & B       Metri         Image: Substrate types found (Max of 8). Final metric score is sum of boxes A & B       Metri         Image: Substrate types found (Max of 8). Final metric score is sum of boxes A & B       Metri         Image: Substrate types found (Max of 8). Final metric score is sum of boxes (Mex of 8). Final metric score is sum of boxes (Mex of 8). Final metric score is sum of boxes (Mex of 8). Final metric score is sum of boxes (Mex of 8). Final metric score substrate types (Mex of 8)                                                                                                                                                                     | SITE NUMBER<br>LENGTH OF STREAM<br>DATE 91721                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | RIVER BASIN 050400040000 RIVER CODE         DRAIN           REACH (R) 82         LAT 39.783165         LONG 82.03210           SCORER         LONG 82.03210           SCORER         LONG 82.03210           COMMENTS 50H-KUV-007/051           tems On This Form - Refer to "Field Evaluation Manual for Ohio's PHV                                                                                                     | L RIVER MILE                                                                   | uons                              |
| time of 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]       5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [25 pts]       NO WATER OR MOIST CHANNEL [0pts]       5         COMMENTS       MAXIMUM POOL DEPTH (centimeters):       Image: Science of Science | (Max of 32) Ad<br>TYPE<br>BLDR SLA<br>BOULDER<br>BEDROCK<br>COBBLE ((<br>COBBLE ((<br>COBBLE ()<br>COBBLE ()<br>COBBL | d total number of significant substrate types found (Max of 8). Final metric score is s  PERCENT  SIS [16 pts] (>256 mm) [16 pts] (>256 mm) [12 pts] -64 mm) [9 pts] mm] [6 pts]  centages of er, Cobble, Bedrock  (A)                                                                                                                                                                                                   | (B)                                        | etric<br>ints<br>strate<br>c = 40 |
| >4.0 meters (> f3') [30 pts]       > 1.0 m -1.5 m (> 3'3' - 4'8') [15 pts]         >3.0 m -4.0 m (> 9'7' - 13') [25 pts]       > 1.0 m (< 3'3') [5 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | time of evaluat<br>> 30 centimeter<br>> 22.5 - 30 cm<br>> 10 - 22.5 cm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | on. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY o<br>[20 pts] 5 cm - 10 cm [15 pts]<br>30 pts] - S cm [5pts]<br>25 pts] NO WATER OR MOIST CHANNE                                                                                                                                                                                                                                             | L [Opts]                                                                       | •                                 |
| 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 (Most Predominant per Bank)         L R       L R         Wide >10m       Mature Forest, Wetland         Moderate 5-10m       Immature Forest, Shrub or Old Field         Moderate 5-10m       Immature Forest, Shrub or Old Field         Narrow <sm< td="">       Residential, Park, New Field         None       Fenced Pasture         COMMENTS       Moist Channel, isolated pools, no flow (intermittent)         Subsurface flow with isolated pools (interstitial)       Dry channel, no water (ephemeral)         COMMENTS       SINUO SITY (Number of bends per 61 m (200 ft) of channel), (Check ONLY one box);</sm<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | > 4.0 meters (><br>> 3.0 m - 4.0 m<br>> 1.5 m - 3.0 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | [37] [39 pts]<br>[> 9' 7"-13') [25 pts]<br>[> 4' 8" - 9' 7") [29 pts]<br>[> 4' 8" - 9' 7") [29 pts]                                                                                                                                                                                                                                                                                                                      | ipts] With Max                                                                 | dth                               |
| RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*         RIPARIAN WIDTH       FLOODPLAIN QUALITY (Most Predominant per Bank)         L R       (Per Bank)       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industriai         Narrow <sm< td="">       Residential, Park, New Field       Open Pasture, Row Crop         None       Fenced Pasture       Mining or Construction         COMMENTS       Moist Channel, isolated pools, no flow (intermittent)         Subsurface flow with isolated pools (interstitial)       Dry channel, no water (ephemeral)         COMMENTS       SINUO SITY (Number of bends per 61 m (200 ft) of channel), (Check ONLY one box);</sm<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                          | TH (meters)                                                                    |                                   |
| Stream Flowing Moist Channel, isolated pools, no flow (intermittent) Subsurface flow with isolated pools (interstitial) COMMENTS SINUO SITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box);                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | L R (P4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | AN ZONE AND FLOODPLAIN QUALITY       NOTE: River Left (L) and Right (R) as         IAN WIDTH       FLOODPLAIN QUALITY (Most Predominant per r Bank)         L R       L R         >10m       Mature Forest, Wetland         Immature Forest, Shrub or Old Field       Immature Forest, Shrub or Old Field         Immature Forest Per Predominant per rest, Shrub or Old Field       Immature Forest, Shrub or Old Field | Bank)<br>Conservation Tillage<br>Urban or Industriai<br>Open Pasture, Row Crop |                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | FLOW<br>Stream (<br>Subsurf<br>COMME<br>SINUO<br>None<br>0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | tEGIME (At Time of Evaluation)       (Check ONLY one box):         lowing       Moist Channel, isolated poist (interstitial)         Dry channel, no water (epartment)         NTS         ITY (Number of bends per 61 m (200 ft) of channel), (Check ONLY one box):         1.0         1.5                                                                                                                             | 3.0                                                                            |                                   |
| STREAM GRADIENT ESTIMATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                          | Severe 10 \$100 \$                                                             | _                                 |

| ADDITIONAL STREAM INFORMATION                                | (This Information Must Also be Completed):                                     |
|--------------------------------------------------------------|--------------------------------------------------------------------------------|
| QHEI PERFORMED? Ves No QHEI Score_                           | (If Yes, Attach Completed QHEI form)                                           |
| DOWNSTREAM DESIGNATED USE(S)                                 |                                                                                |
| CWH Name:                                                    | Distance from Evaluated Stream<br>Distance from Evaluated Stream               |
| EWH Name:                                                    |                                                                                |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDING TH                 | REENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                       |
| SGS Quadrangle Name:                                         | NRCS Soil Map Page:NRCS Soil Map Stream Order:                                 |
| ounty: Mushingum(1).                                         | ownship/City:                                                                  |
| MISCELLANEOUS                                                |                                                                                |
| ase Flow Conditions? (Y/N).                                  | on: Quantity:                                                                  |
| oto-documentation Notes:                                     |                                                                                |
| evated Turbidity?(Y/N) Canopy (% open):                      | <u>501</u>                                                                     |
| ere samples collected for water chemistry?(Y/N): <u>N</u>    | Lab Sample # or ID (attach results):                                           |
| ald Measures:Temp (°C) Dissolved Oxygen (mg/l)               | pH (S.U.) Conductivity (umhos/cm)                                              |
| the sampling reach representative of the stream (Y/N) $\sum$ | _ If not, explain:                                                             |
| ditional comments/description of pollution impacts           |                                                                                |
|                                                              |                                                                                |
|                                                              | OBSERVATIONS<br>eservations below)                                             |
|                                                              |                                                                                |
| ogs or Tadpoles Observed? (Y/N) <u>N</u> Species observed    | d (if known)                                                                   |
|                                                              | 10WN):                                                                         |
|                                                              | observed (if known):                                                           |
| mments Regarding Biology:                                    |                                                                                |
|                                                              |                                                                                |
| DRAWING AND NARRATIVE DESCRIP                                | TION OF STREAM REACH (This must be completed)                                  |
|                                                              | erest for site evaluation and a narrative description of the stream's location |
| $\cap \mathcal{A}$                                           | N J                                                                            |
| ( - mind )                                                   |                                                                                |
| Forester                                                     | ~ Y 5                                                                          |
| (A = (A))                                                    | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~                                        |
|                                                              | 1 Town                                                                         |
| · Art                                                        |                                                                                |
| - min                                                        | 7 (100                                                                         |
|                                                              | $) ( \epsilon_{\alpha}) )$                                                     |
| 4                                                            | y toristical                                                                   |
|                                                              | TUT                                                                            |
|                                                              |                                                                                |

| Protection Agency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+3)                                                                                                                                                                                                              | 55                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | RIVER BASIN 0504000-1080 BIVER CODE DRAINAGE AREA (miP)                                                                                                                                                                                                                                           | tructions                                                        |
| (Max of 32) Ad<br>TYPE<br>BLOR SLA<br>BOULDER<br>BEDROCK<br>COBBLE (6<br>COBBLE (6<br>COBBL | (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts]                                                                                                                                                                                                                                                 | HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>20<br>A + B |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | tion. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):<br>rs [20 pts] 5 cm - 10 cm [15 pts]<br>[30 pts] < 5 cm [5pts]                                                                                                                                            | Pool Depth<br>Max = 30                                           |
| > 4.0 meters (><br>> 3.0 m - 4.0 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | WIDTH (Measuredas the average of 3 - 4 measurements)       (Check ONLY one box):         13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         (> 9' 7" - 13') [25 pts]       ≤ 1.0 m (≤ 3' 3") [5 pts]         (> 4' 8" - 9' 7") [20 pts]       AVERAGE BANKFULL WIDTH (meters) | Bankfull<br>Width<br>Max=30                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | This information must also be completed                                                                                                                                                                                                                                                           |                                                                  |
| L R (Pe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                   | p                                                                |
| FLOW I<br>Stream F<br>Subsurf<br>COMME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | REGIME (At Time of Evaluation) (Check ONLY one box):                                                                                                                                                                                                                                              | t)                                                               |
| STREAM GRA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ADIENT ESTIMATE                                                                                                                                                                                                                                                                                   | 0 17)                                                            |

| ADDITIONAL STR                          |                                  |                             |                                  |            |
|-----------------------------------------|----------------------------------|-----------------------------|----------------------------------|------------|
| QHEI PERFORMED? Yes                     | No QHEI Score                    | (If Yes, Attach C           | ompleted QHEI form)              |            |
| DOWNSTREAM DESIGNATED                   | USE(S)                           | <b>B</b> : 1                |                                  |            |
| CIA/H Nome:                             |                                  | Dista                       | ce from Evaluated Stream         |            |
| ET LAL AN                               |                                  |                             | ice from Evaluated Stream        |            |
| -                                       |                                  |                             | LEARLY MARK THE SITE LOCAT       |            |
| GS Quadrangle Name:                     | NRCS                             | S Soil Map Page:            | NRCS Soil Map Stream Or          | der:       |
| unty Mushingum                          |                                  |                             |                                  |            |
| MISCELLANEOUS                           |                                  |                             |                                  |            |
| se Flow Conditions? (Y/N):              | Date of last precipitation:      |                             | Quantity:                        |            |
| oto-documentation Notes:                |                                  |                             |                                  |            |
| vated Turbidity?(Y/N): N                | Canopy (% open): 30 [            | <u>.</u>                    |                                  |            |
| resamples collected forwaterchemi       |                                  |                             | h results):                      | -          |
| ld Measures:Temp (°C) Dis               | solved Oxygen (mg/l)             | pH (S.U.)                   | Conductivity (umhos/cm)          |            |
| he sampling reach representative of t   | the stream (Y/N) 🕌 If no         | ot, explain:                |                                  | _          |
| ditional comments/description of pollu  | tion impacts:                    |                             |                                  |            |
|                                         |                                  |                             |                                  |            |
|                                         | BIOLOGICAL OBSE                  |                             |                                  |            |
|                                         | (Record all observation          | ,                           |                                  |            |
| h Observed? (Y/N) N Species             | observed (if known):             |                             |                                  |            |
| gs or Tadpoles Observed? (Y/N) <u>N</u> |                                  |                             |                                  |            |
| amanders Observed? (Y/N) <u>N</u> s     | • 1                              |                             |                                  |            |
| uatic Macroinvertebrates Observed?      | (Y/N) A Species observ           | ved (if known):             |                                  |            |
| nments Regarding Biology:               |                                  |                             |                                  |            |
|                                         |                                  |                             |                                  |            |
| DRAWING AND NARF                        | ATIVE DESCRIPTION                | OF STREAM REA               | CH (This <u>must</u> be com      | pleted)    |
| Include important landmarks a           | nd other features of interest fo | or site evaluation and a na | rative description of the stream | s location |
| $\frown$                                | , G                              | 34                          | Forestel                         |            |
| 14T                                     |                                  | $\leq$                      | 2/                               |            |
| W V                                     | 1                                | 5-                          | -5/1                             | -          |
| Sp                                      | 1                                | 100                         | V/L.                             | ~          |
|                                         | Th                               |                             | -//                              | )          |
|                                         | Foresteel                        | 1                           | L +                              | /          |
|                                         | H. Duri                          |                             |                                  |            |
|                                         | AT                               |                             | 7 )                              |            |

| Pho Environment<br>Anoracitan Agency                                                                                             | Primary Headwater Habitat Field Evaluation Form<br>HHEI Score (sum of metrics 1+2+                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3) 52                                                         |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| SITE NAME/LOCATION<br>SITE NUMBER<br>LENGTH OF STREAM<br>DATE 91721                                                              | RIVER BASIN 05040004080 RIVER CODE DRAINAGE AREA (m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | r) <u>(Isq.mi</u> .<br>r                                      |
| NOTE: Complete All<br>STREAM CHANNEL                                                                                             | Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" MODIFICATIONS: NONE/ NATURAL CHANNEL RECOVERED RECOVERING RECOVERING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                               |
| (Max of 32). A<br>TYPE<br>BLDR SLA<br>BOULDER<br>BEDROCK<br>COBBLE (<br>GRAVEL (<br>SAND (<2)<br>Total of Pe<br>Bkdr Slabs. Boul | (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes.         Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8         ABS [16 pts]       PERCENT       TYPE         ABS [16 pts]       SiLT [3 pt]       PERCENT         (>256 mm) [16 pts]       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt]         (65-256 mm) [12 pts]       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt]         (2-64 mm) [9 pts]       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt]         ercentages of kder. Cobble, Bedrock       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt]         ercentages of kder. Cobble, Bedrock       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt]         ercentages of kder. Cobble, Bedrock       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt]         ercentages of kder. Cobble, Bedrock       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt]         ercentages of kder. Cobble, Bedrock       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt]         ercentages of kder. Cobble, Bedrock       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt]         ercentages of kder. Cobble, Bedrock       Image: Clay or HARDPAN [0 pt]       Image: Clay or HARDPAN [0 pt] | AB HHEI<br>Metric<br>Points<br>Substrate<br>Max = 40<br>A + B |
| 2. Maximum Portime of evalua<br>> 30 centimete<br>> 22.5 - 30 cm<br>> 10 - 22.5 cm<br>COMMENTS                                   | [39 pts] < 5 cm [5pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | e Pool Depth<br>Max = 30                                      |
| > 4.0 meters (> 3.0 m - 4.0 m                                                                                                    | n (> 9 <sup>°</sup> 7 <sup>7</sup> -13 <sup>°</sup> )[25 pts] ≤1.0 m (≤ 3 <sup>°</sup> 3 <sup>°</sup> )[5 pts]<br>n (> 4 <sup>°</sup> 8 <sup>°</sup> - 9 <sup>°</sup> 7 <sup>°</sup> )[20 pts]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Bankfull<br>Width<br>Max=30                                   |
| COMMENTS                                                                                                                         | AVERAGE BANKFULL WIDTH (meters)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                               |
| RIPAR                                                                                                                            | This information <u>must</u> also be completed<br>IAN ZONE AND FLOODPLAIN QUALITY + NOTE: River Left (L) and Right (R) as looking downst                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ream*                                                         |
| LR (F                                                                                                                            | RELAN WIDTH       FLOODPLAIN QUALITY       (Most Predominant per Bank)         L R       L R         Be >10 m       Immature Forest, Wetland       Conservation Till         Iderate 5-10 m       Immature Forest, Shrub or Old Field       Urban or Industr         row <5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | lage<br>rial<br>Row Crop                                      |
| FLOW<br>Stream<br>Subsur<br>COMM                                                                                                 | REGIME (At Time of Evaluation)       (Check ONLY one box):         Flowing       Moist Channel, isolated pools, no flow (interstitial)         face flow with isolated pools (interstitial)       Dry channel, no water (ephemeral)         ENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | termittent)                                                   |
| None<br>0 5<br>STREAM GR                                                                                                         | SITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):         1.0       2.0       3.0         1.5       2.5       >3         ADIENT ESTIMATE         Fiat to Moderate       Moderate (2 \$100 \$;)       Moderate to Severe       Sever                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 78 :10 ቴ/100 <b>ኛ</b> ን                                       |
| United and a second                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                               |

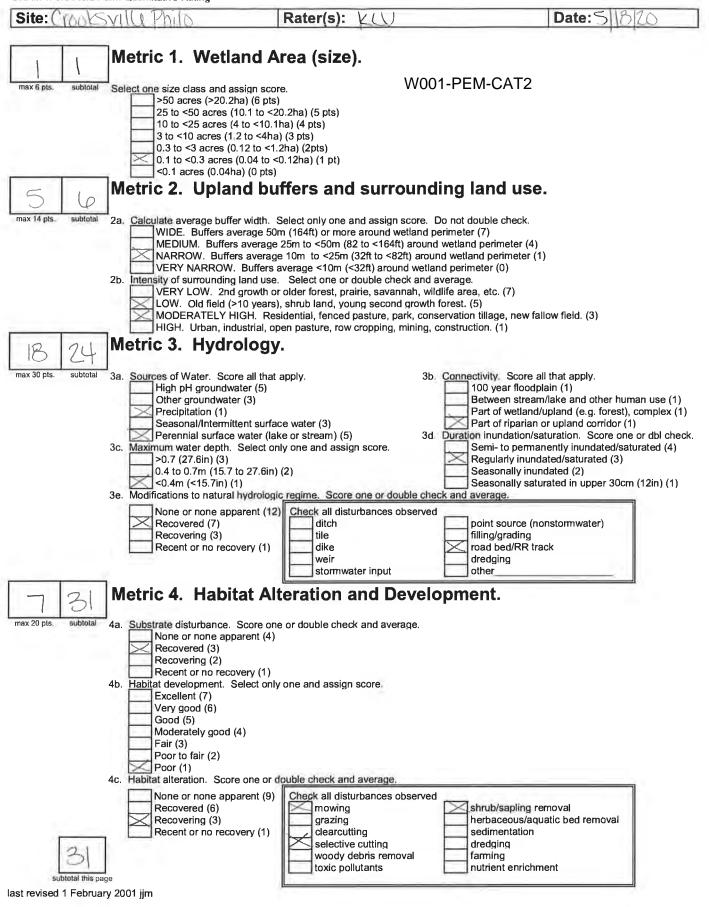
October 2018 Revision

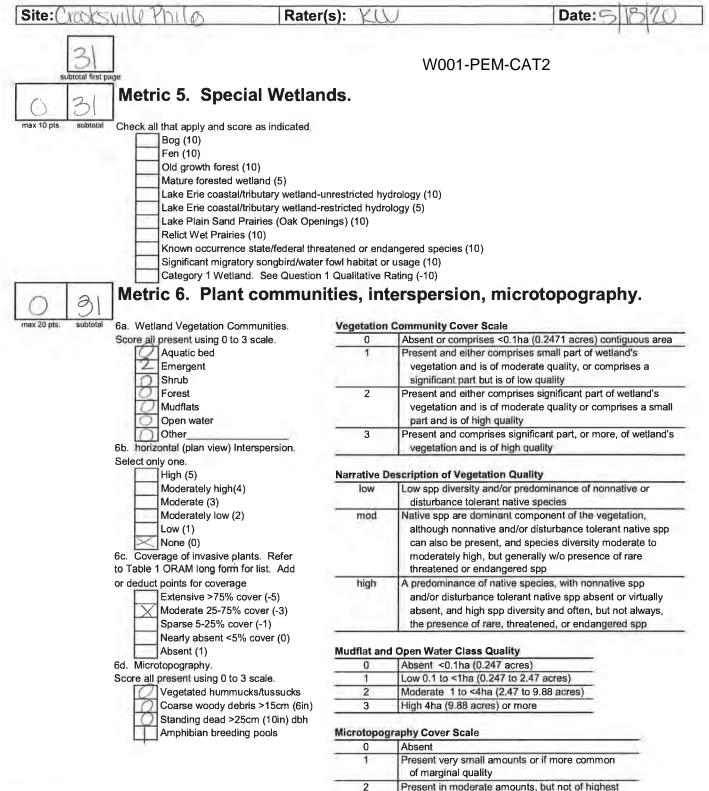
Page 1

| MAPPING: ATTACH_COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.         ISGS Quadrangle Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| DOWNSTREAM DESCRATED USE(5)       Distance from Evaluated Stream         EVMH Name       MRCP Sol Map Page         INSCELLANEOUS       NRCS Sol Map Page         Base Flow Conditions? (VN)       Date of last precipitation:         County       MISCELLANEOUS         Base Flow Conditions? (VN)       Date of last precipitation:         County       Canopy (% open)         Were samples colected for waterchemistry?(VN):       Lab Sample # or D (attach results):         Levaled Turbidby?(VN)       Distance trone waterchemistry?(VN):         Were samples colected for waterchemistry?(VN):       Lab Sample # or D (attach results):         Levaled Turbidby?(VN)       Distance trone waterchemistry?(VN):         Resource Tomp (*C)       Distance trone         Biblional comments/description of pollution impacts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | QHEI PERFORMED? Yes No QHEI Score (If Yes. Attach Completed QHEI form)                                                              |
| ZWWH Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                     |
| CMM Name       Detance from Evaluated Stream         EWH Name       Detance from Evaluated Stream         DEVH Name       Detance from Evaluated Stream         MAPPING: ATTACH COPIES OF MAP3, INCLUDING THE ENTINE WATERSHED AREA. CLEARLY WARK THE SITE LOCATION.         SGS Ouddrange Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                     |
| EWH Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                     |
| SQS Quadrangle Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | EWH Name: Distance from Evaluated Stream                                                                                            |
| Soundy:       MUSKIngum (O)         Inscellaneous         asse Flow Conditions? (Y/N)       Date of last precipitation:       Quantity:         holo-documentation Notes:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.                                |
| MISCELLANEOUS         asse Flow Conditions? (Y/N)       Date of last precipitation:       Quantity:         hold-documentation Notes:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order:                                                               |
| lase Flow Conditions? (Y/N) Date of last precipitation: Quantity:   hoto-documentation Notes:   levated Turbidity?(Y/N): Canopy (% open): U/D.   Were samples collected for waterchemistry?(Y/N):   led Measures:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | County: Muskingum CO. Township/City:                                                                                                |
| hoto-documentation Notes:<br>levated Turbidty?(Y/N): Canopy (% open): Hot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | MISCELLANEOUS                                                                                                                       |
| levated Turbidity?(Y/N):       Canopy (% open);       Yol                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Base Flow Conditions? (Y/N): N Date of last precipitation: Quantity:                                                                |
| Were samples collected for water chemistry?(Y/N)       Lab Sample # or D (attach results):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Photo-documentation Notes:                                                                                                          |
| ield Measures:Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Elevated Turbidity?(Y/N): Canopy (% open):                                                                                          |
| the sampling reach representative of the stream (Y/N)  If not, explain: dditional comments/description of pollution impacts BIOLOGKCAL OBSERVATIONS (Record all observations below) sh Observed? (Y/N)  Species observed (if known): rogs or Tadpoles Observed? (Y/N)  Species observed (if known): guatic Macroinvertebrates Observed? (Y/N)  Species observed (if known): memory Species observed (if known): 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Were samples collected for waterchemistry?(Y/N): M Lab Sample # or ID (attach results):                                             |
| ddtional comments/description of pollution impacts:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Field Measures:Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)                                                  |
| Biological OBSERVATIONS         (Record all observations below)         ish Observed? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | is the sampling reach representative of the stream (Y/N) If not, explain:                                                           |
| Biological OBSERVATIONS         (Record all observations below)         ish Observed? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Additional comments/description of pollution impacts:                                                                               |
| Record all observations below;         ish Observed? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                     |
| ish Observed? (Y/N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | BIOLOGICAL OBSERVATIONS                                                                                                             |
| rogs or Tadpoles Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                     |
| alamanders Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Fish Observed? (Y/N) <u>//</u> Species observed (if known):                                                                         |
| alamanders Observed? (Y/N) Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Frogs or Tadpoles Observed? (Y/N) N_ Species observed (if known):                                                                   |
| Aquatic Macroinvertebrates Observed? (Y/N)       Species observed (if known):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                     |
| DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)<br>Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>The line<br>The line |                                                                                                                                     |
| DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed)<br>Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location<br>Pavech<br>Road<br>Culvert<br>Week<br>Road<br>Culvert                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                     |
| The line of the stream's location and a narrative description of the stream's location<br>Pavec A<br>Road<br>Culurit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Comments Regarding Biology:                                                                                                         |
| The line of the stream's location and a narrative description of the stream's location<br>Pavec A<br>Road<br>Culurit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                     |
| The line of the stream's location and a narrative description of the stream's location<br>Pavec A<br>Road<br>Culurit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                     |
| Tree line 2 2 Pavec A Prouch culurit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                     |
| Treeline culvert                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location |
| Treeline culvert                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | mued                                                                                                                                |
| Treeline culvert                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Paver                                                                                                                               |
| X DILLO X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                     |
| X DILLO X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Typeline                                                                                                                            |
| The second stands                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | A Ditte                                                                                                                             |
| Trechine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ow                                                                                                                                  |
| (Trechine)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                     |
| Trachine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Trachine                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 7 9 9                                                                                                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                     |

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







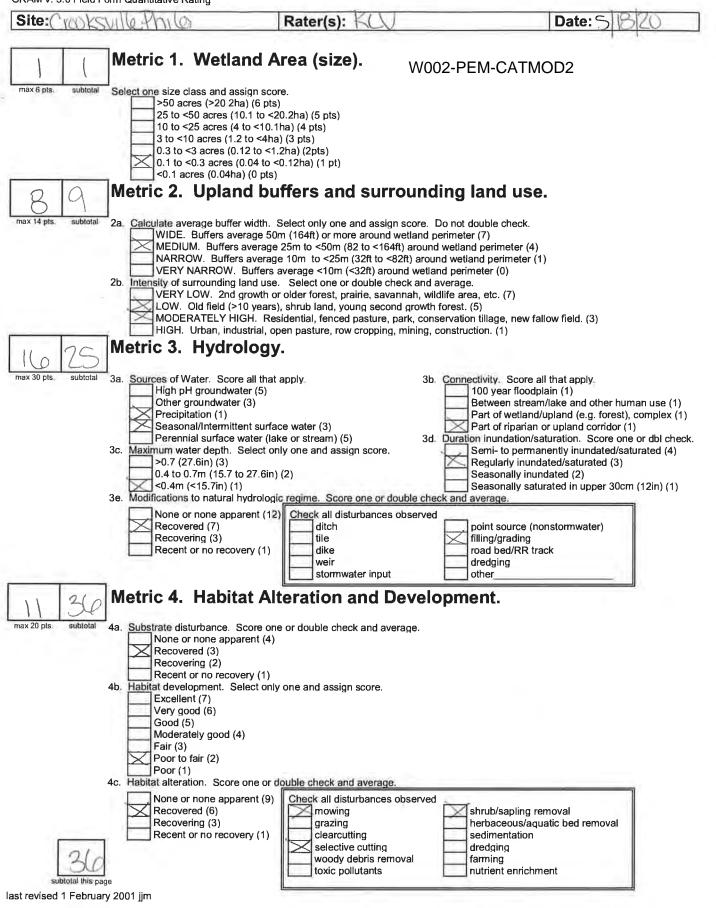
31

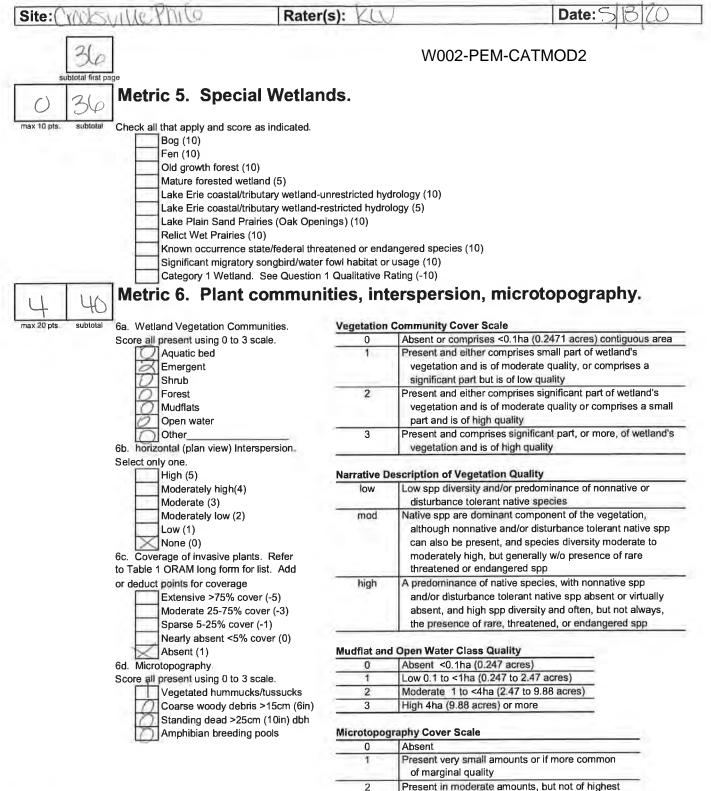
End of Quantitative Rating. Complete Categorization Worksheets.

З

quality or in small amounts of highest quality

Present in moderate or greater amounts





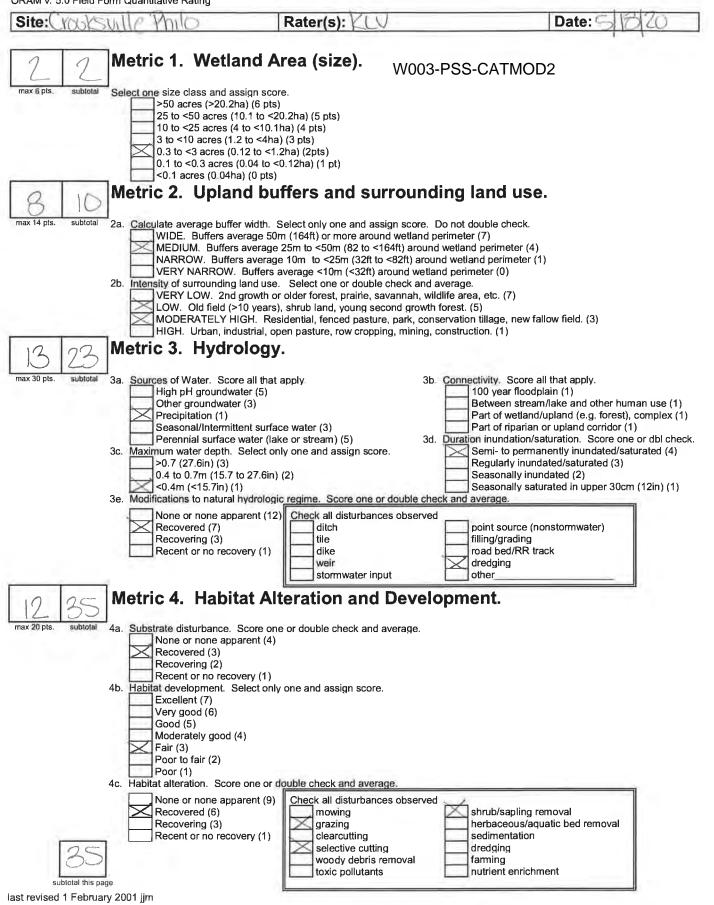
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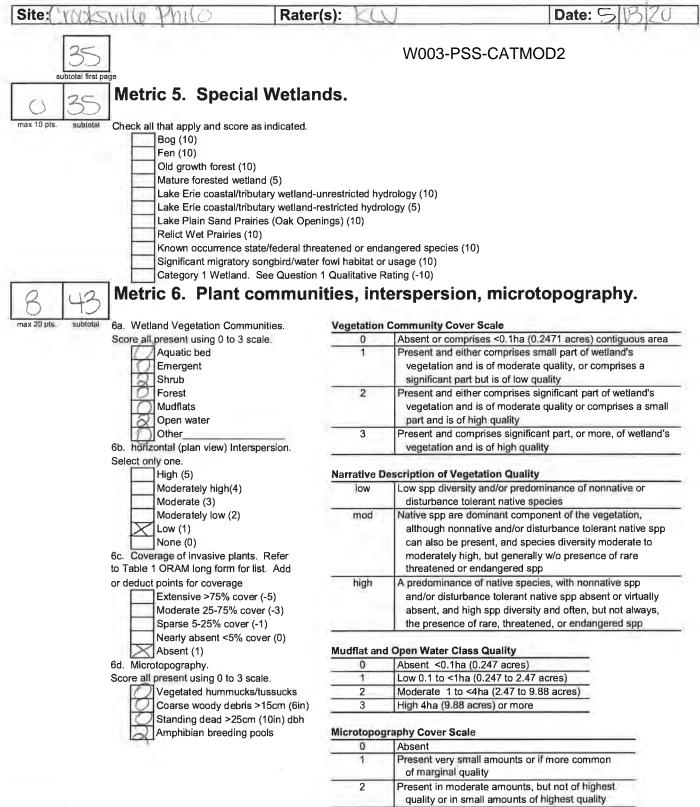
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3

quality or in small amounts of highest quality

Present in moderate or greater amounts

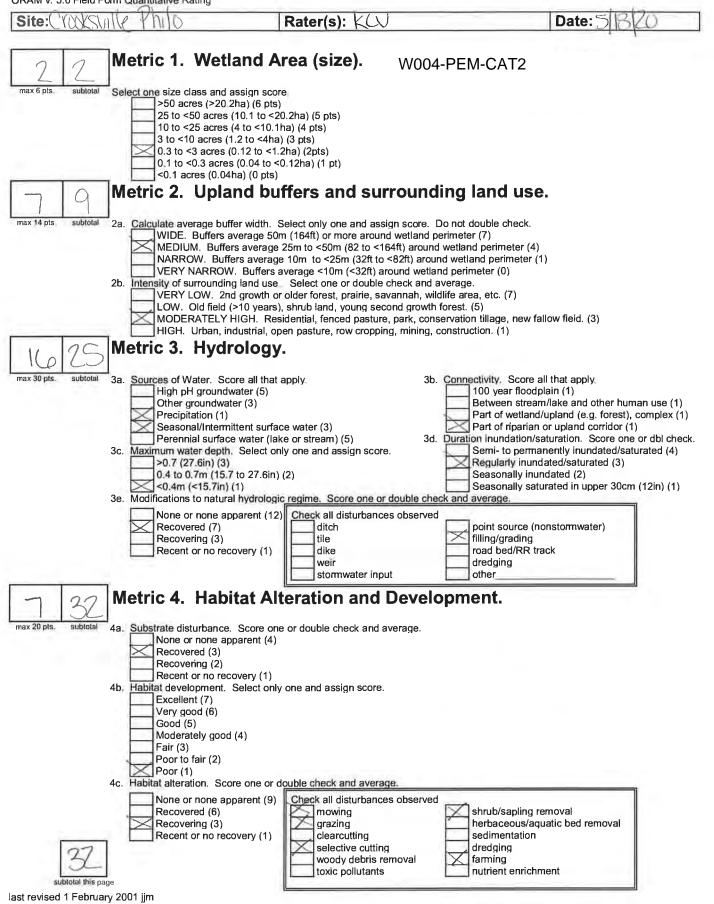


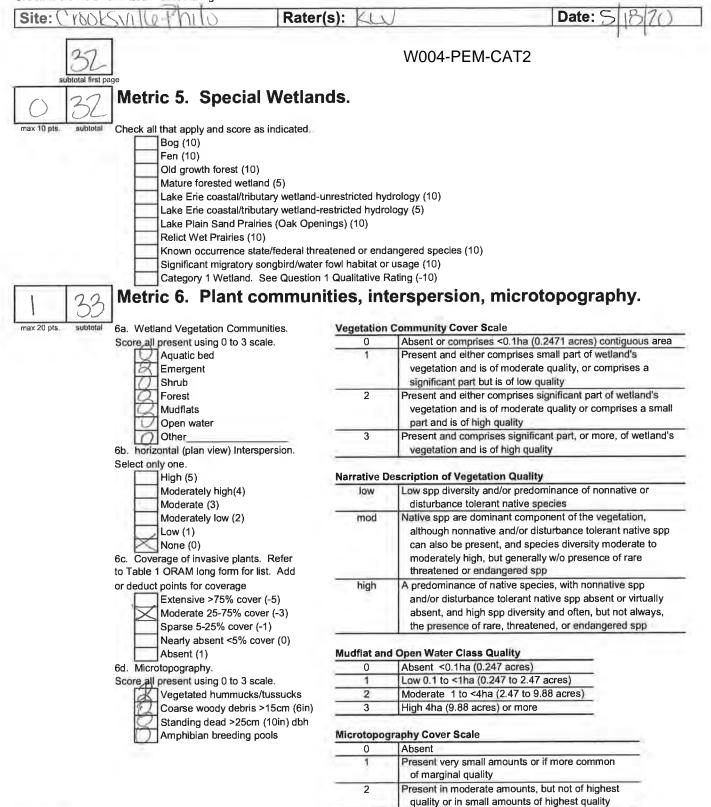




3

Present in moderate or greater amounts



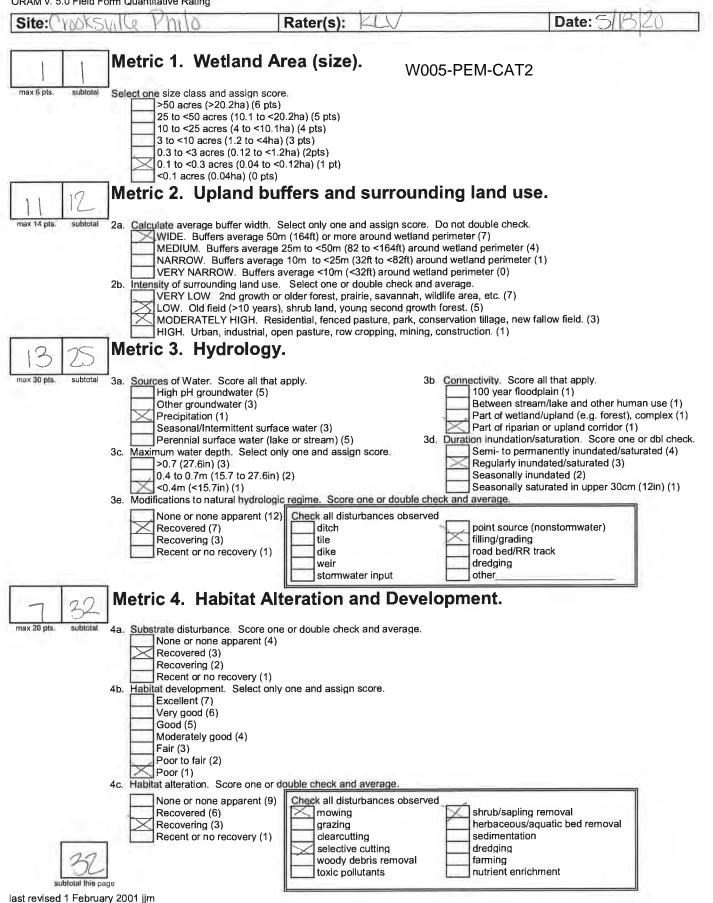


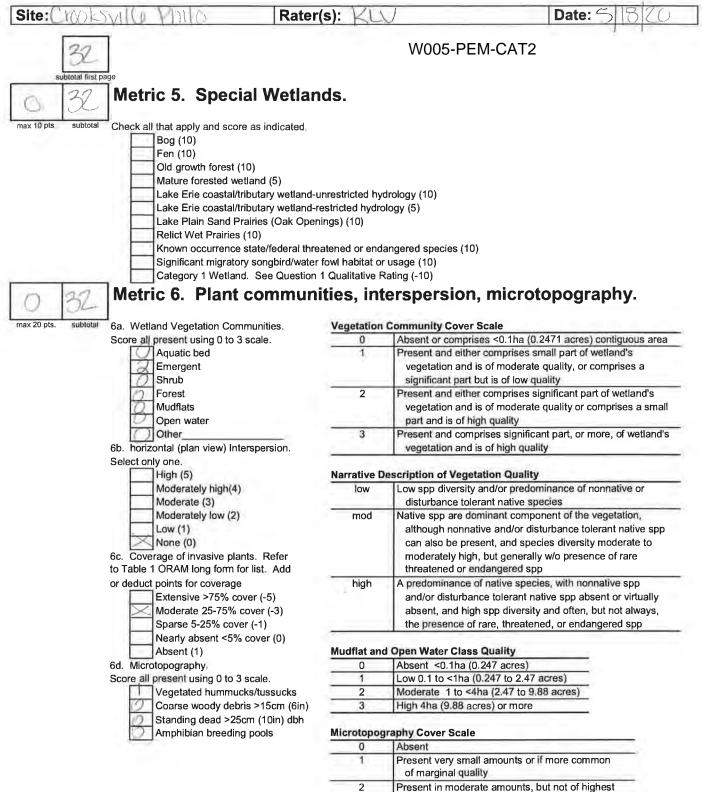


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3

Present in moderate or greater amounts



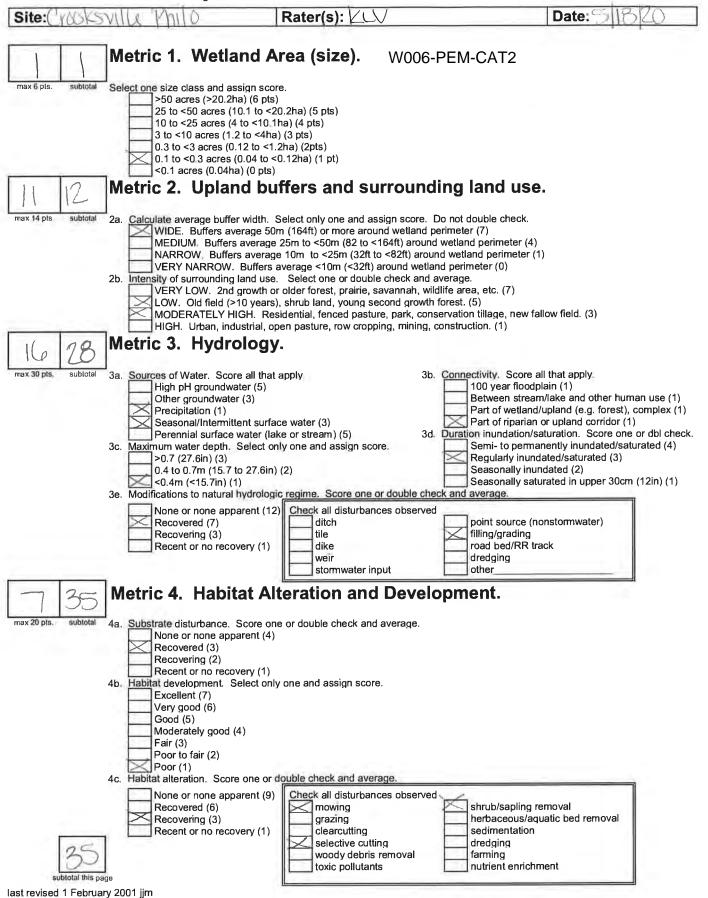


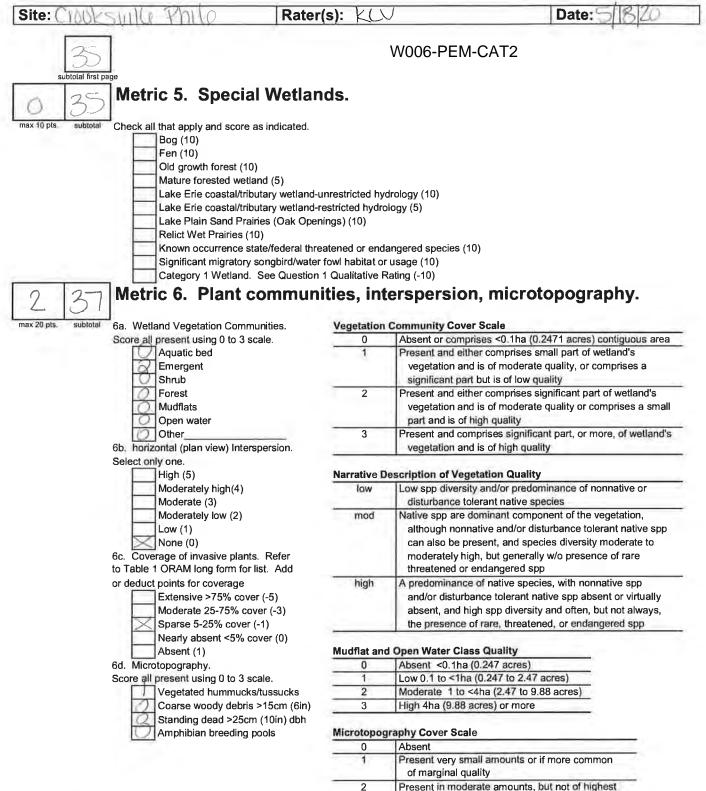


3

quality or in small amounts of highest quality

Present in moderate or greater amounts







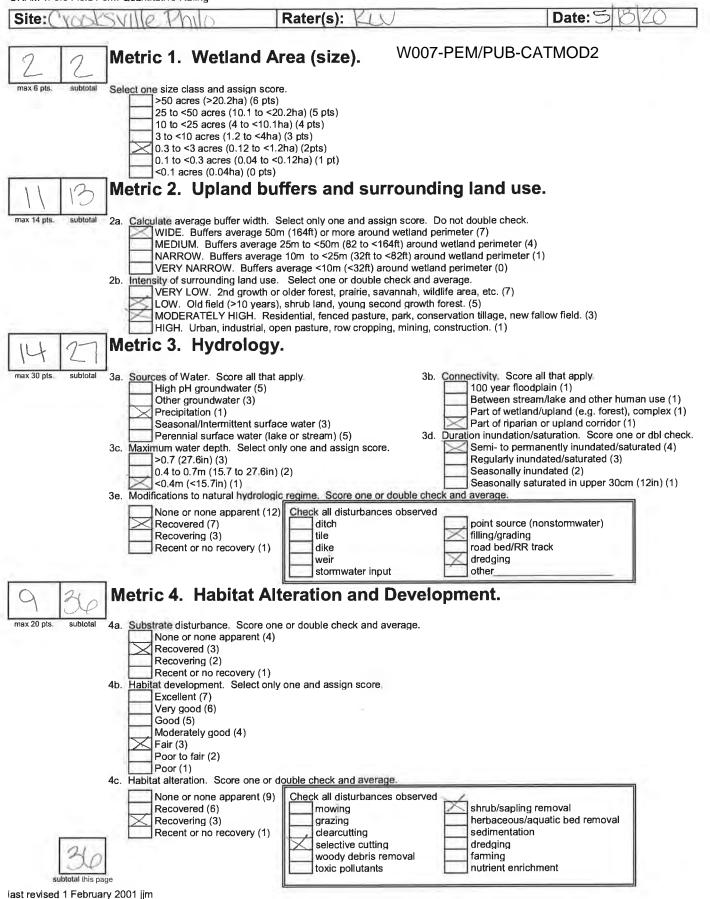
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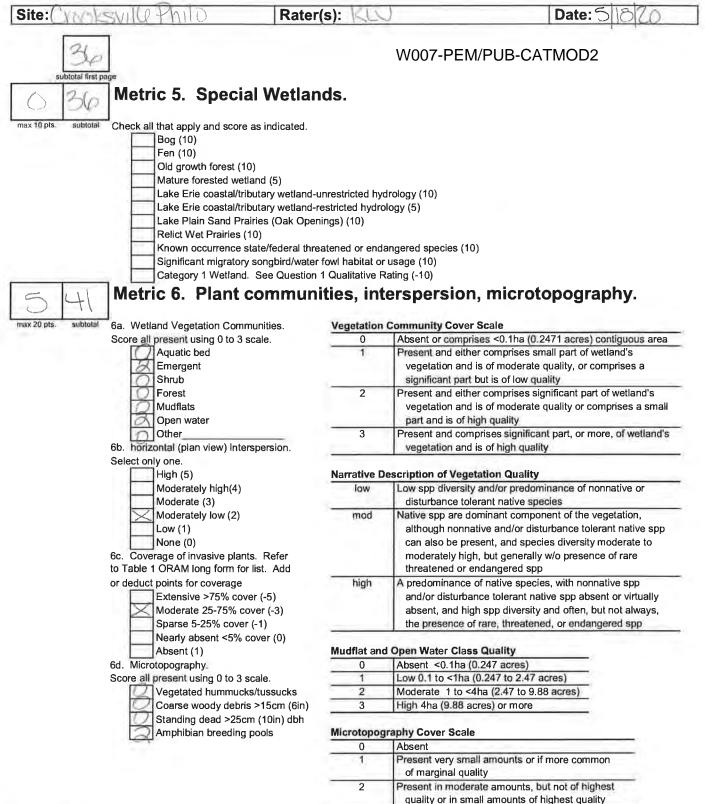
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3

quality or in small amounts of highest quality

Present in moderate or greater amounts

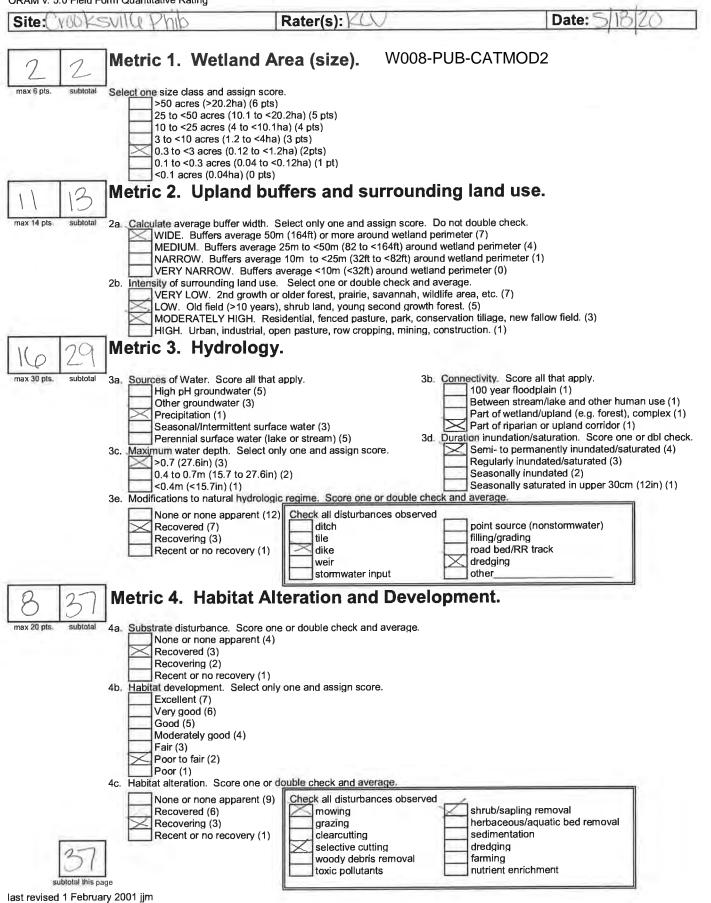


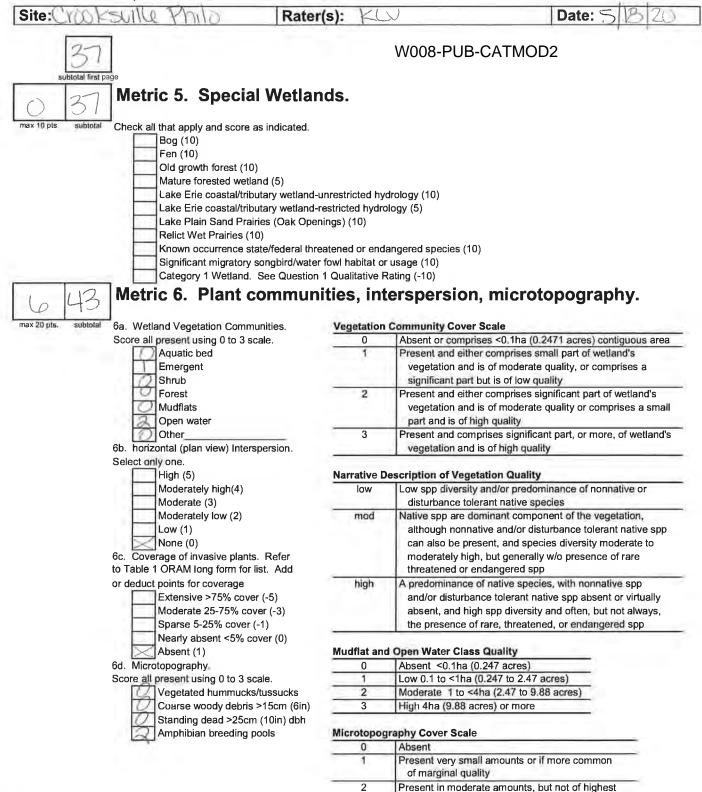




3

Present in moderate or greater amounts



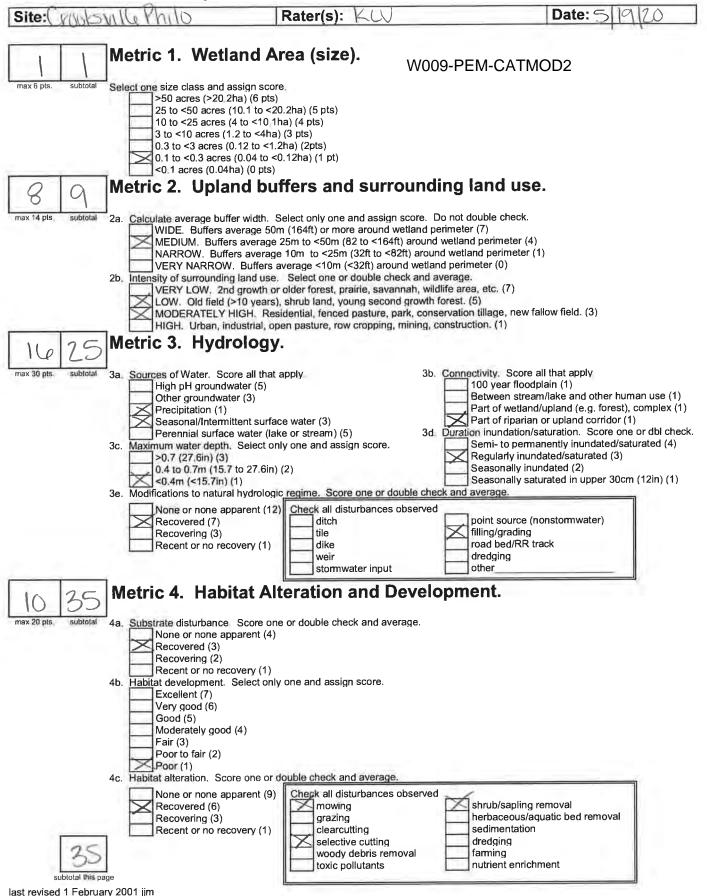


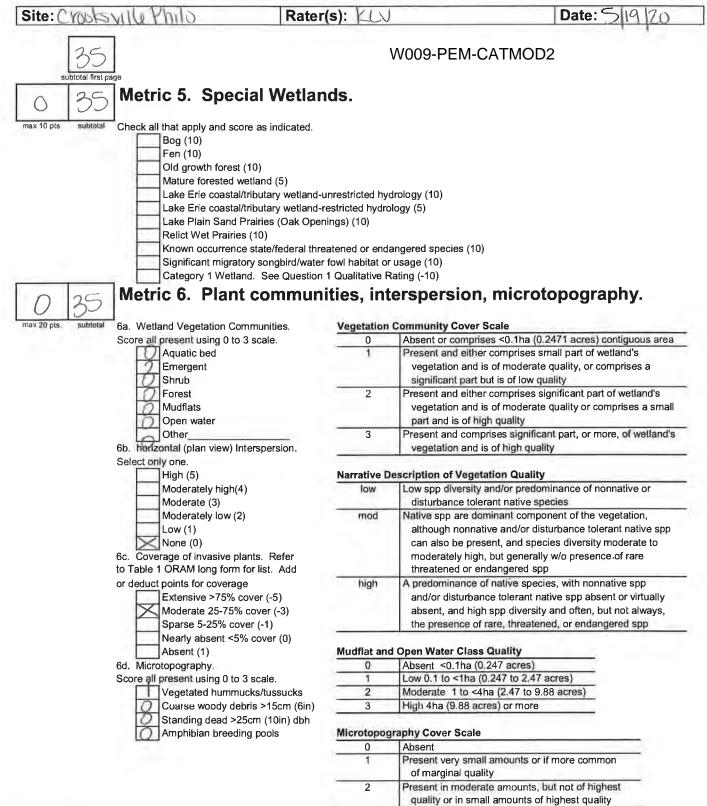


3

quality or in small amounts of highest quality

Present in moderate or greater amounts



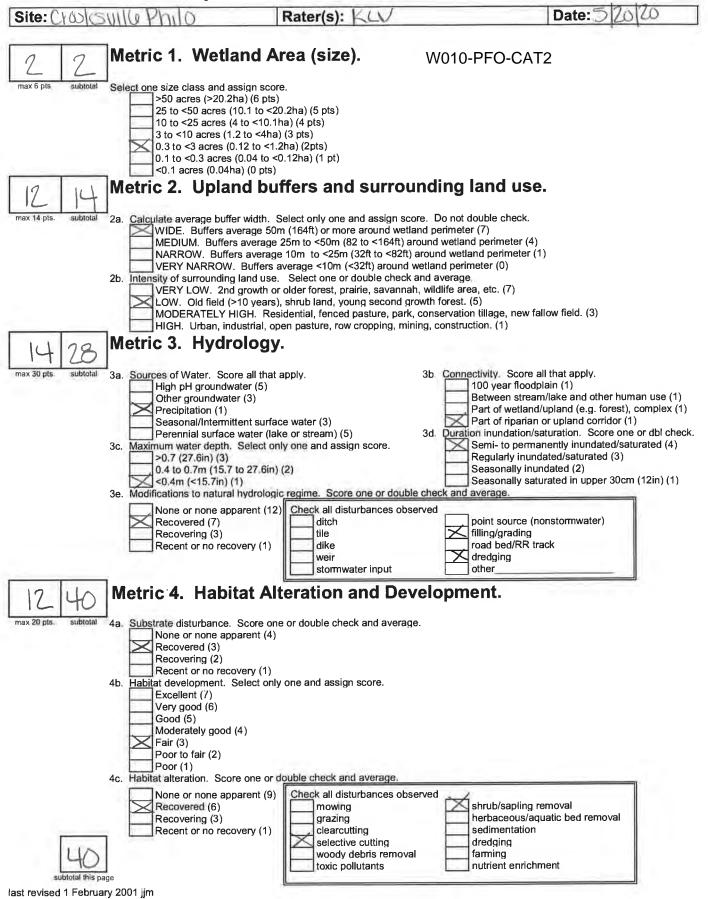


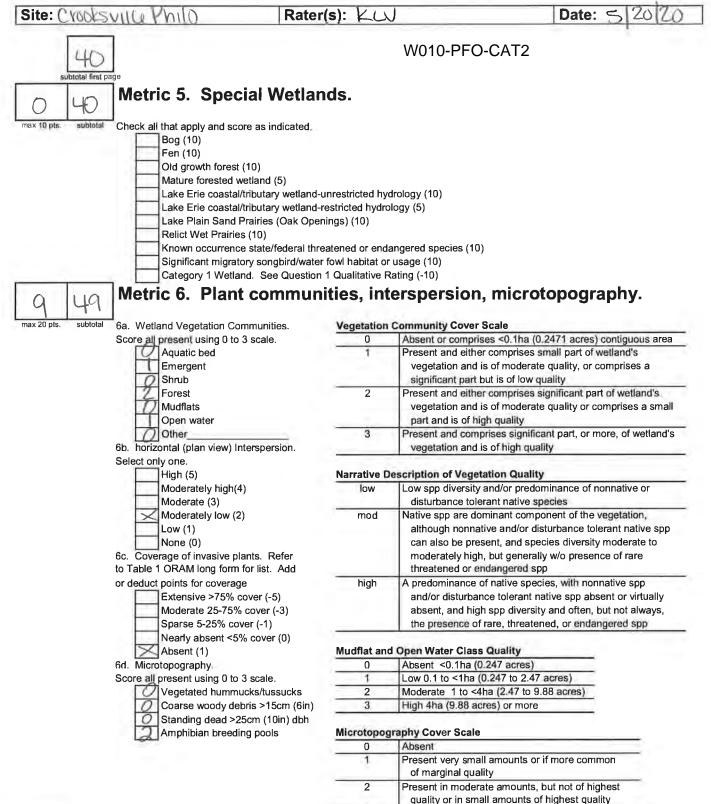


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3

Present in moderate or greater amounts



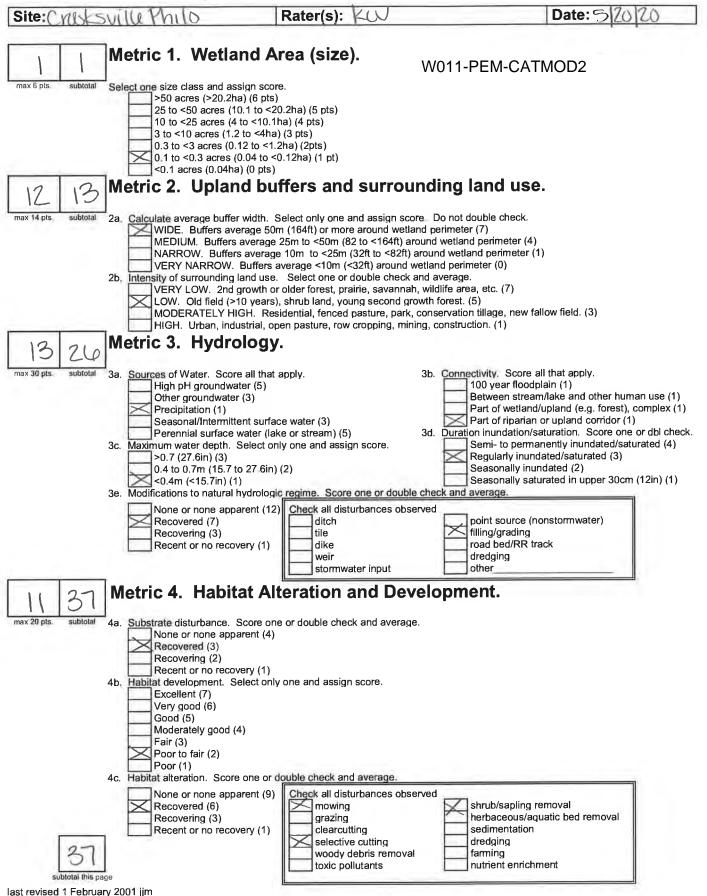


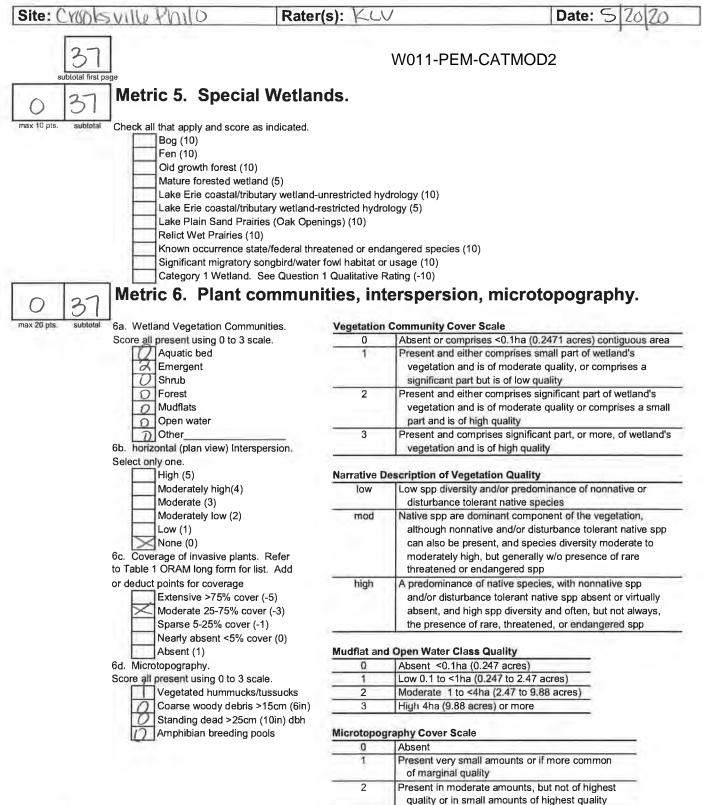
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3

Present in moderate or greater amounts



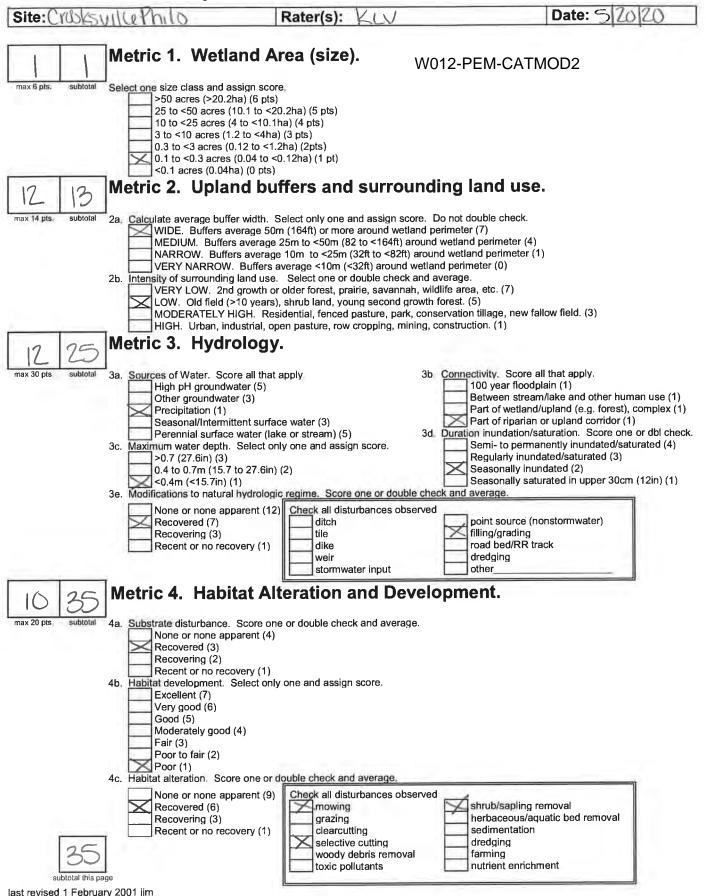


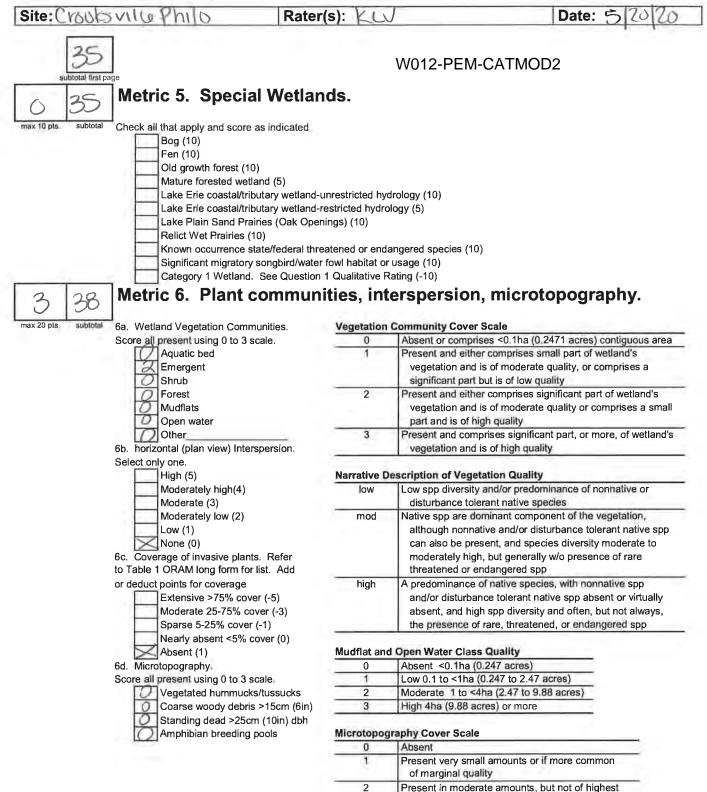
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3

Present in moderate or greater amounts





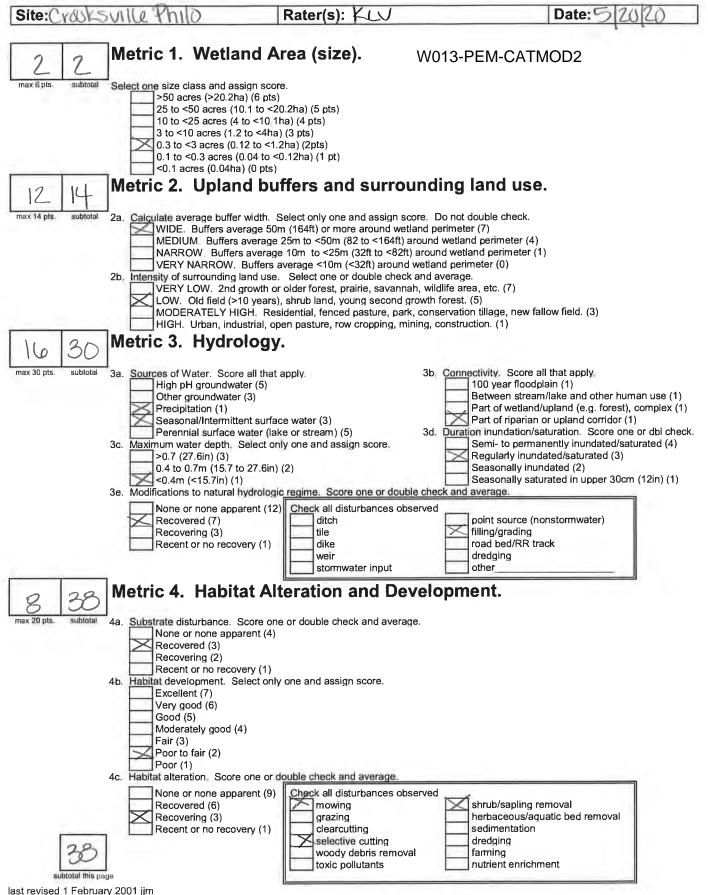


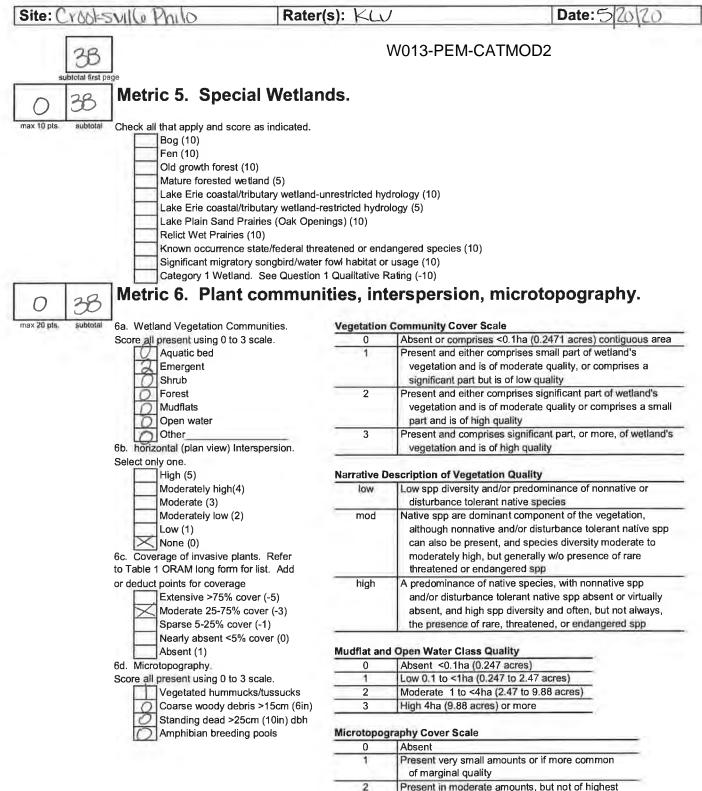
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3

quality or in small amounts of highest quality

Present in moderate or greater amounts





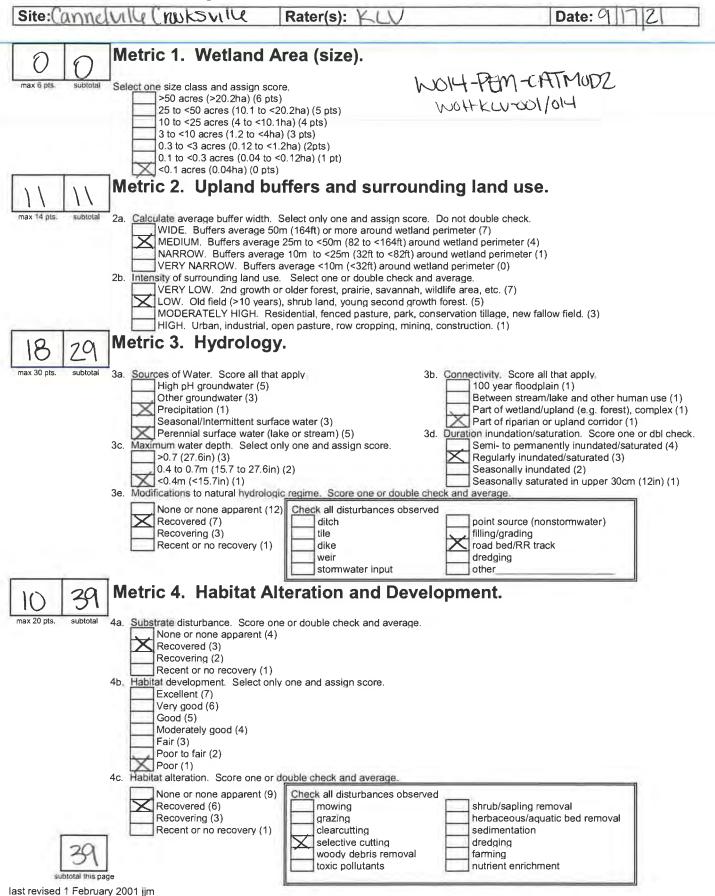
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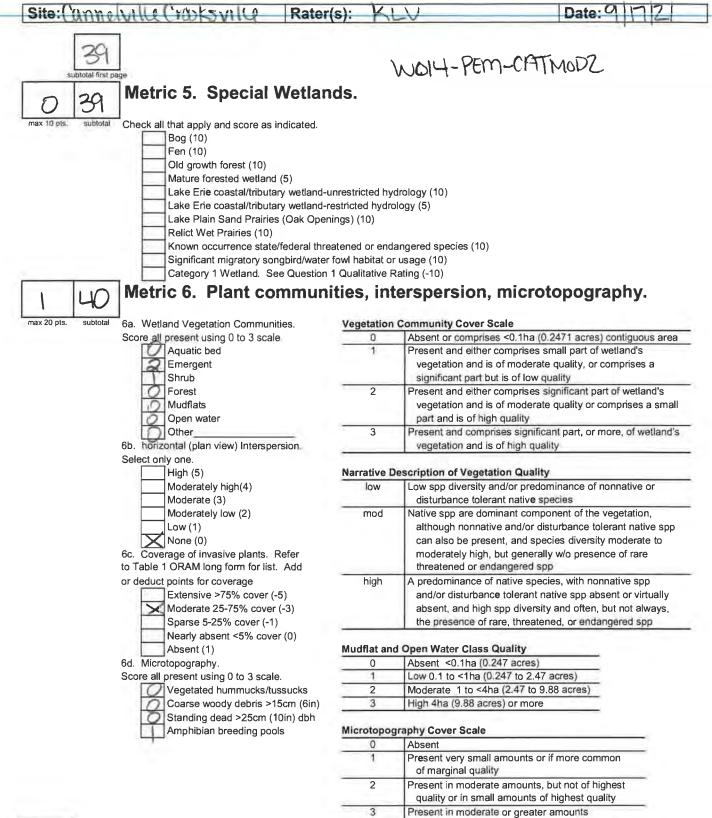
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3

quality or in small amounts of highest quality

Present in moderate or greater amounts



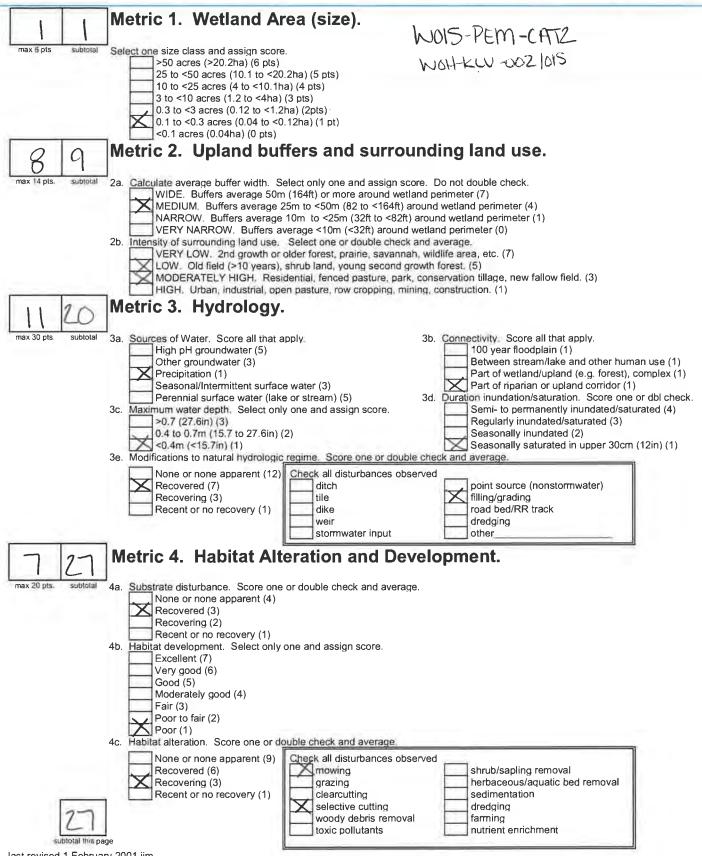


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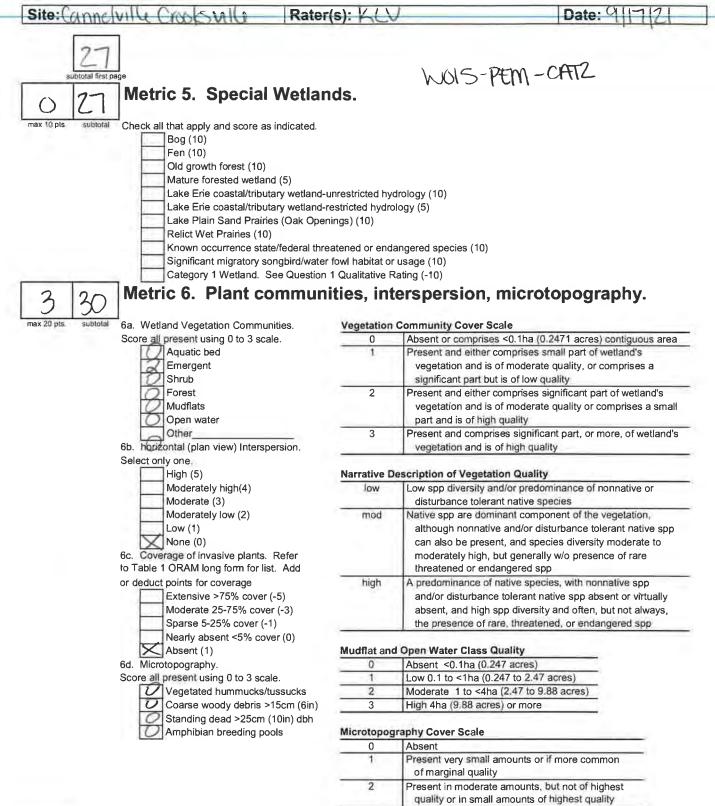
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Site: AEP - Cannelville - CrooksvilleRater(s): KLV

Date: 9 1712



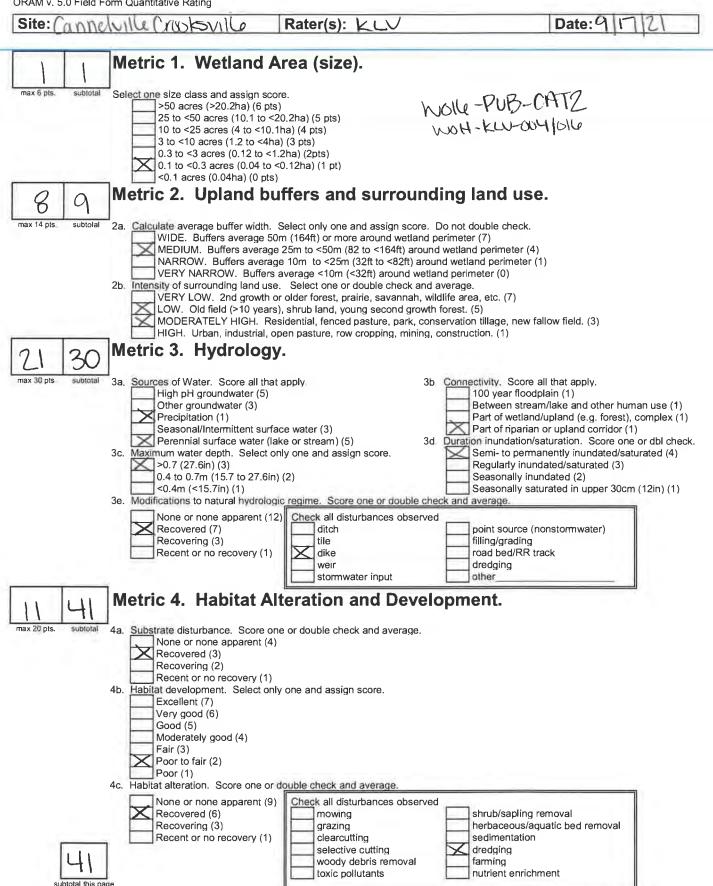
last revised 1 February 2001 jjm

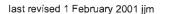


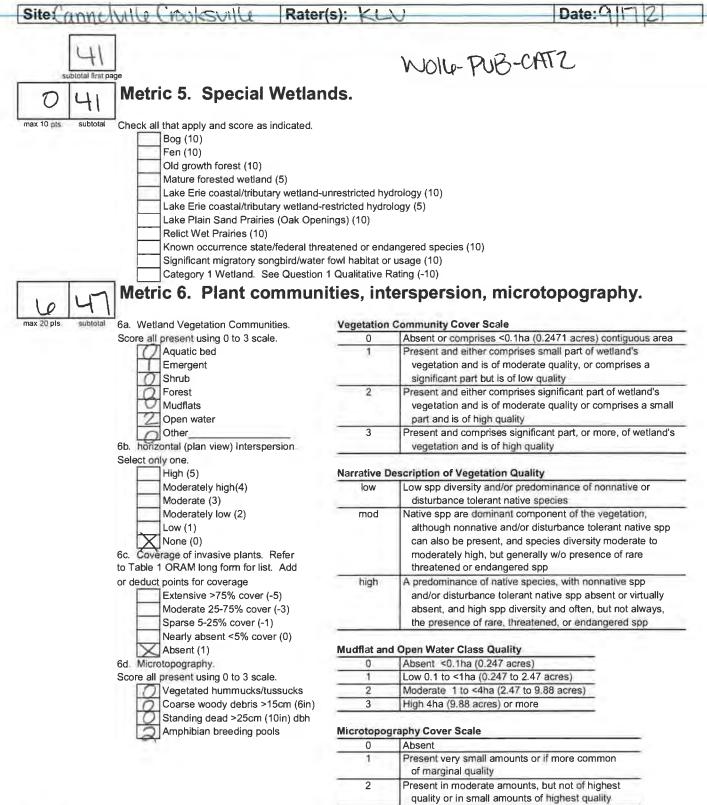


3

Present in moderate or greater amounts





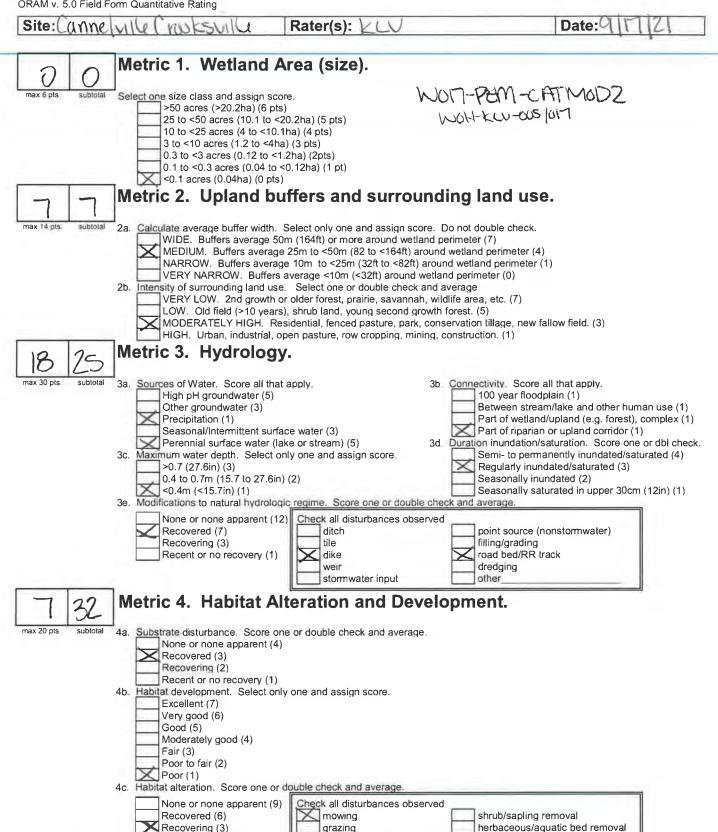


# 47

End of Quantitative Rating. Complete Categorization Worksheets.

3

Present in moderate or greater amounts



grazing

clearcutting selective cutting

toxic pollutants

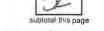
woody debris removal

sedimentation

nutrient enrichment

dredging

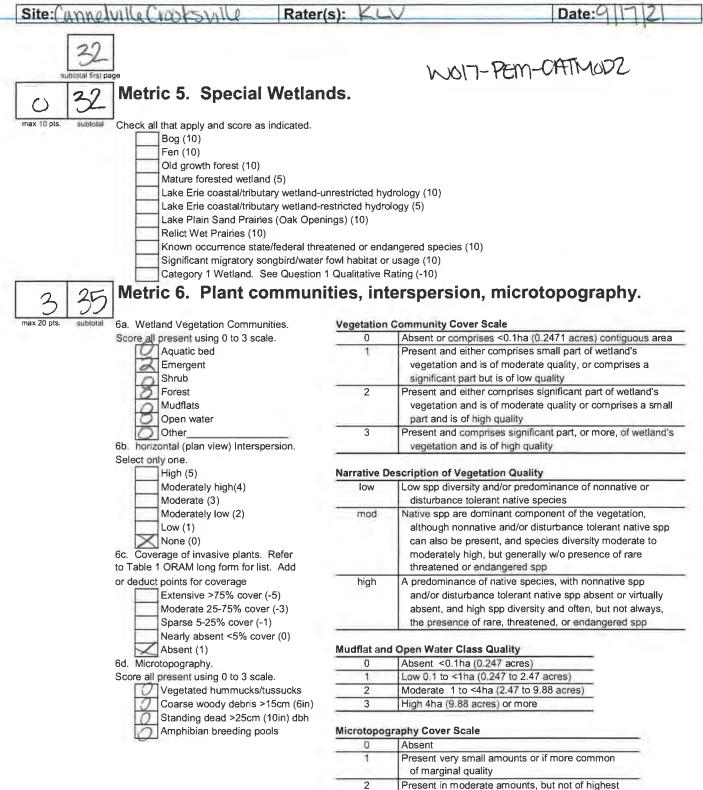
farming





Recovering (3)

Recent or no recovery (1)





3

quality or in small amounts of highest quality

Present in moderate or greater amounts

# APPENDIX E ODNR and USFWS Correspondence



| From:    | Ohio, FW3 <ohio@fws.gov></ohio@fws.gov>                         |  |
|----------|-----------------------------------------------------------------|--|
| Sent:    | Wednesday, July 15, 2020 8:31 AM                                |  |
| То:      | Kristen Vonderwish; Joshua Noble                                |  |
| Cc:      | nathan.reardon@dnr.state.oh.us; Parsons, Kate                   |  |
| Subject: | AEP Crooksvills - Philo 138 kV Line Rebuild, Perry, Morgan, and |  |
|          | Muskingum Co                                                    |  |

## **EXTERNAL E-MAIL MESSAGE**



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# 03E15000-2020-TA-1809

Dear Ms. Vonderwish,

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

Federally Threatened and Endangered Species: The endangered Indiana bat (Myotis sodalis) and threatened northern long-eared bat (Myotis septentrionalis) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees  $\geq 3$  inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: Should the proposed project site contain trees  $\geq 3$  inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are

present and trees  $\geq$ 3 inches dbh cannot be avoided, we recommend removal of any trees  $\geq$ 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see <u>http://www.fws.gov/midwest/endangered/mammals/nleb/index.html</u>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats. If Indiana bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

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

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

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

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew,

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

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

Sincerely,

Patrice M. Ashfield Field Office Supervisor

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

## 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

September 17, 2020

Kristen Vonderwish GAI Consultants 6000 Town Center Blvd., Suite 300 Canonsburg, PA 15317

Re: 20-707; Crooksville - Philo 138 kV Line Rebuild Project

**Project:** The proposed Project involves rebuilding approximately 6.7 miles of the existing Crooksville – Philo 138 kV transmission line and the installation of a new switch at the Cannelville station.

Location: The proposed project is located in Perry, Morgan, and Muskingum 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 no records at or within a onemile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

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 entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (Myotis septentrionalis), a state endangered and federally threatened species, the little brown bat (Myotis lucifugus), a state endangered species, and the tricolored bat (Perimyotis subflavus), a state endangered species. During the spring and summer (April 1 through September 30), these species of bats predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. If trees are present within the project area, and trees must be cut, the DOW recommends cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with  $DBH \ge 20$  if possible. If trees are present within the project area, and trees must be cut during the summer months, the DOW recommends a mist net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting. Mist net and acoustic surveys should be conducted in accordance with the most recent version of the "OHIO DIVISION OF WILDLIFE GUIDANCE FOR BAT SURVEYS AND TREE CLEARING". If state listed bats are documented, DOW recommends cutting only occur from October 1 through March 31, however, limited summer tree cutting may be acceptable after consultation with DOW (contact Sarah Stankavich, sarah.stankavich@dnr.state.oh.us).

The DOW also recommends that a desktop or field-based habitat assessment is conducted to determine if there are potential hibernaculum(a) present within the project area. Habitat assessments should be conducted in accordance with the current USFWS "*Range-wide Indiana Bat Survey Guidelines*" and submitted to Sarah Stankavich, <u>sarah.stankavich@dnr.state.oh.us</u> if potential hibernacula are present within .25 miles of the project area. If a potential hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species:

<u>Federally Endangered</u> fanshell (*Cyprogenia stegaria*) sheepnose (*Plethobasus cyphyus*) snuffbox (*Epioblasma triquetra*)

<u>Federally Threatened</u> rabbitsfoot (*Quadrula cylindrica cylindrica*)

<u>State Endangered</u> long-solid (*Fusconaia maculata maculata*) Ohio pigtoe (*Pleurobema cordatum*) sharp-ridged pocketbook (*Lampsilis ovata*) wartyback (*Quadrula nodulata*),

<u>State Threatened</u> black sandshell (*Ligumia recta*)

#### fawnsfoot (*Truncilla donaciformis*) threehorn wartyback (*Obliquaria reflexa*)

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2020), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2020) can be found at: http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Su rvey%20Protocol.pdf

The project is within the range of the following listed fish species:

<u>State Endangered</u> northern madtom (*Noturus stigmosus*)

<u>State Threatened</u> American eel (*Anguilla rostrata*) blue sucker (*Cycleptus elongatus*) channel darter (*Percina copelandi*) mountain madtom (*Noturus eleutherus*) paddlefish (*Polyodon spathula*)

The DOW recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, 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 also within the range of the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species. This species is found in areas of sandy soils that are associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the black tern (*Chlidonias niger*), a state endangered bird. The black tern prefers large, undisturbed inland marshes with fairly dense vegetation and pockets of open water. They nest in various kinds of marsh vegetation but cattail marshes are generally favored. Nests are built on top of muskrat houses or on top of floating vegetation. If this type of

habitat will be impacted, construction should be avoided in this habitat from April 1 to June 30 to reduce impacts to this species. 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 hudsonis*), 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 sandhill crane (*Grus canadensis*), a state threatened species. Sandhill cranes are primarily a wetland-dependent species. On their wintering grounds, they will utilize agricultural fields; however, they roost in shallow, standing water or moist bottomlands. On breeding grounds they require a rather large tract of wet meadow, shallow marsh, or bog for nesting. If grassland, prairie, or wetland habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 to September 1. If this habitat will not be impacted, this project is not likely to have an impact on this species.

The project is within the range of the trumpeter swan (*Cygnus buccinator*), a state threatened bird. Trumpeter swans prefer large marshes and lakes ranging in size from 40 to 150 acres. They like shallow wetlands one to three feet deep with a diverse mix of plenty of emergent and submergent 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 April 15 to June 15. If this habitat will not be impacted, this project is not likely to have an impact on 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)

### This foregoing document was electronically filed with the Public Utilities

### Commission of Ohio Docketing Information System on

11/22/2021 4:02:41 PM

in

### Case No(s). 21-1112-EL-BLN

Summary: Notice Letter of Notification electronically filed by Hector Garcia-Santana on behalf of AEP Ohio Transmission Company, Inc.