Large Filing Separator Sheet

Case Number: 06-1357-EL-BTX

File Date: 10/31/07

Section: 2 of 2

Number of Pages: 134

Description of Document:

Application for certificate

APPENDIX 07-1

WETLAND DELINEATION, STREAM ASSESSMENT, AND THREATENED AND ENDANGERED SPECIES HABITAT SURVEY

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ADDENDUM WETLAND DELINEATION, STREAM ASSESSMENT, AND THREATENED AND ENDANGERED SPECIES HABITAT SURVEY

345 kV ELECTRIC TRANSMISSION LINE FOR THE PROPOSED 1,000 MW GENERATION FACILITY, LETART FALLS, MEIGS COUNTY, OHIO

Prepared for:

AMERICAN MUNICIPAL POWER-OHIO, INC.

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JOB NO: 14946376 SEPTEMBER 2006

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EXECUTIVE SUMMARY

This addendum jurisdictional wetland delineation, stream assessment, and threatened and endangered species survey was conducted along a five-mile long, two hundred foot wide project corridor, and an approximately six-acre proposed switchyard located in Meigs County, Ohio. American Municipal Power-Ohio, Inc. (AMP-Ohio) is proposing construction of a 345 kV electric transmission line from its proposed 1,000-MW pulverized coal fired power plant in the Letart Falls area of Meigs County, Ohio. Delineation and assessment work was conducted in August 2006.

Two wetlands, totaling 1.82 acres, of two different Cowardin wetland types were identified along the corridor, including one palustrine emergent wetland and one palustrine emergent/scrub-shrub/forested wetland. Identified wetlands were evaluated utilizing the Ohio Rapid Assessment Method (ORAM) v5.0 for categorizing wetlands. The ORAM scores for the wetlands indicated the following: one Category 2 palustrine emergent wetland and one Category 2 palustrine wetland with emergent/scrub-shrub/forested components. Both of the wetlands are considered non-isolated and jurisdictional. No Category 3 wetlands were identified during the August field investigation.

Thirty three primary headwater habitat evaluations (HHEI) and one qualitative habitat evaluations (QHEI) were conducted on the streams identified along the project corridor. The survey identified the following HHEI stream classes: 14 Class I streams, 1 Modified Class I streams, 10 Class II streams, and 8 Class III streams. The survey also identified one stream with a QHEI score of 64/100.

The USFWS literature review indicated that the proposed project is located within the range of the federally endangered Indiana bat (*Myotis sodalis*) and three federally endangered species of mussels. These mussel species include the pink mucket pearly mussel (*Lampsilis orbiculata*), the fanshell mussel (*Cyprogenia stegaria*), and the sheepnose mussel (*Plethobasus cyphyus*). No species of concern were identified during the August field investigation. However, potential habitat for the Indiana bat was identified during the field investigation. A mussel survey is being conducted in the Ohio River in the fall of 2006. AMP-Ohio has been coordinating with USFWS about an Indiana bat survey proposed for the spring of 2007.

EXECUTIVE SUMMARY TABLE OF WETLANDS LOCATED IN THE AMP PROPOSED ELECTRIC TRANSMISSION LINE CORRIDOR

Wetland Identifier	Cowardian Wetland Type	Wetland Area (acres)	ORAM Score (Category)	Mapped Soil*	Observed Soil	Photograph Number (Appendix D)	Figure Number	Impacted Acreage
W1	PEM/PSS/PFO	1.81	58.5 (2)	UgE	silty clay	1,2	3A	0
W2	PEM	0.01	54 (2)	UgE	silty clay	3	_3B	0
Total Wetland Acreage**		1.82		<u> </u>	<u>.</u>			

* soil mapped at wetland location

**total is combined acreage of each wetland type: 0.01 (PEM) and 1.81 acres (PEM/PSS/PFO)

EXECUTIVE SUMMARY TABLE OF STREAMS LOCATED IN THE AMP PROPOSED ELECTRIC TRANSMISSION LINE CORRIDOR

Stream I <u>dentif</u> ier	HHEI Score	HHEI Class	Observed Biota	
S1	56	Class II	None	
<u>\$2</u>	19	Class I	None	
\$3	39	Class II	None	
<u>\$4</u>	24	Class I	None	
S5	54	Class II	None	
<u>\$6</u>	37	Class II	None	
S7	19	Class 1	None	
58	27	Class I	None	
<u>\$9</u>	39	Class II	None	
S10	55	Class III*	Southern two-lined salamander larvae	
S11	34	Class II	None	
S12	45	Class III*	Southern two-lined salamander larvae	
<u>S13</u>	26	Class 1	None	
S14	64	Class III*	Southern two-lined salamander adults & larvae	
S15	62	Class III ^{**}	Southern two-lined salamander larvae	
S 16	54	Class III*	Southern two-lined salamander larvae, Green Frog, Crayfish	
S17	18	Class I	None	
S18	41	Class II	None	

S19	82	Class III	Southern and Northern two-lined salamander larvae, Crayfish	
\$20	30	Class II	None	
S21	62	Class III*	Southern two-lined salamander larvae, Green Frog	
\$22	9	Class I	None	
S23	9	Class I	None	
S24	25	Class I	None	
S25	35	Class II	None	
S26	18	Class I	None	
\$27	71	Class III	Southern two-lined salamander larvae, Green Frog	
S28	16	Class I	None	
S29	9	Class I	None	
\$30	9	Class I	None	
\$32	21	Class I	None	
S33	52	Class II	None	
\$34	26	Class I	None	

* Class III category designation was determined by observed biota

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Addendum Wetland Delineation, Stream Assessment, and Threatened and Endangered Species Habitat Survey, Proposed AMP-Ohio 345 kV Electric Transmission Line, Letart Falls, Meigs County, Ohio

1.0 INTRODUCTION

American Municipal Power-Ohio, Inc. (AMP-Ohio) is considering construction of a 345 kV electric transmission line extension from its proposed 1,000-MW pulverized coal fired power plant in the Letart Falls area of Meigs County, Ohio. The proposed project will connect the proposed power plant to the existing Sporn-Muskingum River 345 kV transmission line, located approximately five miles to the north, with a new 345 kV line. A project vicinity map is provided as Figure 1. AMP-Ohio retained URS to conduct wetland delineation, stream assessment, and a threatened and endangered species habitat survey along the proposed transmission line corridor. This field work was conducted between August 1, 2006 and August 24, 2006. Data from this report will be used to support an Application to the Ohio Power Siting Board for a Certificate of Environmental Compatibility and Public Need, address U.S. Army Corps of Engineers (ACOE) 404 permitting, and Ohio Environmental Protection Agency (Ohio EPA) 401 Water Quality Certification permitting.

2.0 METHODS

The project corridor was investigated for the presence of wetlands using the procedures outlined in the 1987 U.S. Army Corps of Engineers (ACOE) Wetlands Delineation Manual (Environmental Laboratory, 1987. URS biologist walked the entire 200-foot wide study corridor of the proposed transmission line. Completed ACOE wetland delineation forms are provided in Appendix A. In addition, URS prepared a functional wetland analysis for each delineated wetland in the corridor using the regionally specific Ohio Rapid Assessment Method (ORAM) version 5.0 (ORAM v5.0 Manual, 2001) qualitative wetland evaluation forms. Completed ORAM forms are provided in Appendix B.

The perennial, intermittent, and ephemeral stream channels within the study corridor were assessed based upon the Ohio EPA's Qualitative Habitat Evaluation Index (QHEI): Rationale, Methods, and Application, 1989 and the Headwater Habitat Evaluation Index

(HHEI) procedure as detailed in *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, version 1, 2001.* The QHEI and HHEI provide methods for assessing streams, in a manner similar to the ORAM forms for wetlands, under the same Section 401 regulatory program. Completed HHEI and QHEI forms are included in Appendix C.

The project corridor was investigated for the presence of threatened and endangered species habitat by qualified URS biologists with appropriate knowledge of habitat requirements for species of concern likely to be found within the project corridor. The survey was conducted primarily for identification of species potentially present within the project corridor listed as special concern by the United States Fish and Wildlife Service (USFWS) and the Ohio Department of Natural Resources (ODNR).

Details of each specific methodology are provided in the preceding wetland delineation, stream assessment, and endangered species habitat survey conducted by URS in March, 2006. The same methods and procedures were used for this work.

3.0 RESULTS

3.1 U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION PROCEDURE

The extent and locations of wetlands in the study area generally correlated with predictions based upon the preliminary soils evaluation, a review of USGS topographic contours for the site vicinity, aerial photography, and the NWI map review. The field wetland delineation, conducted after the preliminary literature review, identified two wetlands within the project corridor.

3.1.1 Preliminary Soils Evaluation

According the *Soil Survey of Meigs County, Ohio*, (Natural Resource Conservation Service, 2000), and the National and Meigs County hydric soils list, no mapped hydric units are within the property boundaries of the project site. Fifteen soils from eight soil series are mapped within the limits of the study area and include Chagrin silt loam (Cg), Cidermill silt loam (CkA, CkB), Conotton gravelly loam (CnC, CnE), Gilpin silt loam (GhC2), Lakin loamy fine sand (LaB, LaC, LaD), Licking silt loam (LkC2), Omulga silt loam (OmB, OmC), Upshur-Gilpin complex (UgC2, UgD, UgE). None of these soils are

listed as hydric on the National, State, or County lists. Details of soil types are discussed as follows:

Chagrin silt loam; frequently flooded (Cg)

Chagrin silt loam is a deep, well-drained, level soil commonly found in flood plains. The soil surface is friable silt loam. The upper section of the subsoil is a mix of friable silt loam and sandy loam; the lower section is friable silt loam and loam. The substratum is deep, friable to very friable, mottled, and consists of fine sand and silt loam. This soil has a high available water capacity, moderate permeability, and is subject to flooding. Chagrin silt loam is well suited for use as pasture.

Cidermill silt loam; 0-2 and 2-6 percent slopes (CkA, CkB)

The Cidermill series consists of very deep, well-drained soils that formed on stream terraces along the Ohio River. The surface layer of Cidermill silt loam is friable silt loam. The upper section of the subsoil is friable to firm silt loam; the lower section is friable to very friable loam and sandy loam. The substratum is loose very gravelly loamy coarse sand and very gravelly sand. Permeability is moderate in the subsoil and rapid in the substratum. Slope ranges from 0 to 6 percent. Cidermill soils are typically used for cultivated crops, pasture, or hay.

Conotton gravelly loam; 6-12 and 18-24 percent slopes (CnC, CnE)

The Conotton series consists of very deep, well-drained soils formed on terraces along the Ohio River. The surface layer of Conotton gravelly loam is friable gravelly loam. The upper section of the subsoil is friable very gravelly loam and very friable very gravelly coarse sandy loam; the lower section is very friable very gravelly loamy coarse sand and friable extremely gravelly loamy coarse sand. The substratum is loose extremely gravelly coarse sand. This soil has a low available water capacity and rapid permeability. Slope ranges from 6 to 24 percent. Conotton gravelly loam is widely used for cultivated crops or pasture.

Gilpin silt loam; 8-15 percent slopes (GhC2)

The Gilpin series consists of moderately deep, well-drained soils formed on strongly sloping to very steep hillsides and narrow ridgetops. The surface layer is friable silt loam. The upper section of the subsoil is friable and firm silt loam; the lower section is firm

channery loam. The substratum is sandstone and the soil has a low available water capacity and moderate permeability. Gilpin silt loam is mostly used for woodland.

Lakin loamy fine sand; 1-6, 6-12, and 12-18 percent slopes (LaB, LaC, LaD)

The Lakin series consists of very deep, excessively drained soils formed in coarse textured eolian or water-laid materials. Lakin soils are located dominantly on the leeward side of major stream valleys. The surface and subsoil layers of these soils have very weak fine granular structures; and are very friable. These soils are excessively drained and the potential for surface runoff is negligible to low. Permeability is rapid. Slope ranges from 1 to 18 percent.

Licking silt loam; 6-12 percent slopes, eroded (LkC2)

The Licking series consists of deep, moderately well drained soils found on terraces prone to erosion. The surface layer of Licking silt loam is friable silt loam. The upper section of the subsoil is mottled, firm silty clay loam; the lower section is mottled, firm silty clay. The substratum of this soil is mottled firm silty clay. This soil has a moderate available water capacity and slow permeability. Slopes range from 6 to 12 percent. Areas of Licking silt loam are commonly used for pasture or hay. This soil is ill suited for most agriculture due to erosion.

Omulga silt loam; 2-6 and 6-12 percent slopes (OmB, OmC)

The Omulga series consists of very deep, moderately well drained soils formed in loess, colluvium, or old alluvium, and in most areas by underlying lacustrine sediments. These soils are on valley fills in abandoned preglacial drainage systems in the Allegheny Plateau. Permeability is moderate above the fragipan and slow in the fragipan. Slopes range from 2 to 12 percent. Soils are friable within the surface layer and have a weak, fine granular structure. The structure of the subsoil layer is weak, fine, subangular, and blocky. These soils are best suited to be used as pasture.

Upshur-Gilpin complex; 8-15 percent slopes, eroded; 15-25 and 25-50 percent slopes (UgC2, UgD, UgE)

The Upshur-Gilpin complex series consists of very deep to moderately deep, well-drained soils formed in residium derived from siltstone, sandstone, and shale. They are typically located on strongly sloping or steep uplands (ridgetops and hillsides). The Upshur soil

portion has a friable, surface layer and moderate-fine, granular structure. The subsoil has moderate-medium subangular blocky structure and is firm. The surface layer of the Gilpin soil portion has a weak-fine granular structure and is friable. The subsoil has weak-fine and medium subangular blocky structure and is friable. Slopes range from 8 to 50 percent.

3.1.2 National Wetland Inventory (NWI) Map Review

NWI wetlands are areas of potential wetland that have been identified from USFWS aerial photograph interpretation which have typically not been confirmed by field investigation. Forested and heavy scrub/shrub wetlands are often not shown on NWI maps as foliage effectively hides the visual signature that indicates the presence of standing water and moist soils from an aerial view. As a result NWI maps may not show all the wetlands found in a particular area nor do they necessarily provide accurate wetland boundaries. NWI maps are useful for providing indications of potential wetland areas, which are often supported by soil mapping and hydrologic predictions, based upon topographical analysis using USGS topographic maps.

According to the National Wetlands Inventory (NWI) map of the New Haven, West Virginia-Ohio quadrangle, six NWI wetlands are located within close proximity of the project transmission line corridor, as shown on Figure 2. Four of these NWI wetlands are identified as Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (PUBHh). One area was designated as Palustrine, Scrub Shrub, Broad Leaved Deciduous, Seasonally Flooded, Partially Drained/Ditched (PSS1Cd), and was designated Palustrine, Emergent, Seasonally Flooded, Partially Drained/Ditched (PEMCd) (U.S. Fish & Wildlife Service).

The following describes the NWI Wetland classification of the NWI wetlands located within the project corridor. The naming system can be found in: *Classification of Wetlands and Deepwater Habitats of the United States*, 1979, by Cowardin, Lewis M. et al.

(P) Palustrine - The Palustrine System includes all non-tidal wetlands dominated by trees, shrubs, emergents, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5%. Wetlands lacking such vegetation are also included if they exhibit all of the following characteristics:

1. Are less than 8 hectares (20 acres);

- 2. Do not have an active wave-formed or bedrock shoreline feature;
- 3. Have at low water a depth less than 2 meters (6.6 feet) in the deepest part of the basin;
- 4. Have salinity, due to ocean-derived salts, of less than 0.5%.

The limitation of a Palustrine System is that they are bounded by upland or by any of the other systems.

Class - Class describes the general appearance of the habitat in terms of either the dominant life form of the vegetation or the physiography and composition of the substrate. Life forms (e.g. trees, shrubs, emergents) are used to define classes because they are easily recognizable, do not change distribution rapidly, and have traditionally been used to classify wetlands.

(UB) Unconsolidated Bottom - Unconsolidated Bottom wetlands include all wetlands and deepwater habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%.

(SS) Scrub Shrub – Scrub Shrub wetlands include areas dominated by woody vegetation less than 6 m (20 ft) tall. The species include tree shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. All water regimes are included except subtidal.

(C) Seasonally Flooded – Surface water is present for extended periods especially early in the growing season, but is absent by the end of the season in most years. When surface water is absent, the water table is often near the land surface.

(H) Permanently Flooded - Permanently Flooded indicates that water covers the land surface throughout the year in all years.

(d) Partly Drained / Ditched – The water level has been artificially lowered, but the area is still classified as a wetland because soil moisture is sufficient to support hydrophytes. Drained areas are no longer considered wetlands if they cannot support hydrophytes.

(h) Diked / Impounded - Diked / Impounded indicates that the wetland was created or modified by a man-made barrier or dam which obstructs the inflow or outflow of water.

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3.1.3 Delineated Wetlands

The field wetland delineation conducted for this project identified two wetlands, totaling 1.82 acres, within the project study area. The location and approximate extents of these wetlands are shown on Figures 3A through 3C. Copies of the ACOE wetland delineation data sheets for these wetlands are provided in Appendix A. Selected color photographs are provided in Appendix D. A comprehensive list of wetland and upland plant species in the vicinity of the study site is shown in Table 2.

By definition, the hydrologic regime of a wetland ranges from irregularly inundated or saturated (5 percent to 12.5 percent of the growing season) to seasonally inundated or saturated (>12.5 percent to 25 percent of the growing season) (Environmental Laboratory, 1987). As quantitative data were not available for any of the delineated wetlands, URS utilized the method described in the *1987 Manual* that consists of a pedestrian site reconnaissance including identifying the vegetation communities, soils identification, a geomorphologic assessment of hydrology, and notation of disturbance. To determine the wetland boundaries, the site vegetation, soils and hydrology were closely examined. Summary information for each delineated wetland is presented below.

Wetland 1: This 1.81-acre palustrine emergent/scrub-shrub/forested (PEM/PSS/PFO) was identified in the southern portion of the study area and is dissected by stream 1 and 2 (Figure 3A). The ORAM score for this wetland was 58.5/100, which is indicative of a Category 2. Despite being of relatively high quality this wetland was not classed as a category 3 because the hydrological regime has been modified and is recovering. The wetland appears to have formerly been a stock pond that was created by a man-made dike at the northern end.

Vegetation in this wetland consisted of the deertongue (*Dichanthelium clandestinum*), jewelweed (*Impatiens capensis*), broadleaf cattail (*Typha* latifolia), narrowleaf cattail (*Typha angustifolia*), common boneset (*Eupatorium perfoliatum*), silver maple (*Acer saccharinum*), Devil's beggartick (*Bidens* frondosa), arrowleaf tearthumb (*Polygonum saggitatum*), sedges (*Carex spp.*), halberd-leaved rosemallow (*Hibiscus leavis*), Pennsylvania smartweed (*Polygonum pensylvanicum*), Eastern sycamore (*Platanus occidentalis*), black willow (*Salix nigra*), Allegheny blackberry (*Rubus alleheniensis*), and soft rush (*Juncus effusus*).

Primary hydrology indicators observed within this wetland were saturation in the upper 12 inches of the soil profile and drainage patterns. A secondary indicator was the positive FAC-neutral test along with oxidized root channels in the upper 12" of the soil profile.

Soils were observed to be a silty clay of 7.5YR 5/2 matrix color with 7.5YR 3/4 matrix color mottles in the A horizon (0-5 inches) and a silty clay of 7.5YR 4/1 matrix color in the B horizon (5-14 inches). Hydric soil indicators for this wetland were reducing conditions and gleyed or low-chroma colors.

Wetland 2: This 0.01-acre palustrine emergent wetland (PEM) was identified near stream 12 (S12) and 13 (S13) in the central portion of the project corridor (Figure 3B). The ORAM score for this wetland was 54/100, which is indicative of a Category 2, or moderate quality wetland.

The vegetation of this wetland consisted of jewelweed (*Impatiens capensis*), Pennsylvania smartweed (*Polygonum pensylvanicum*), deer-tongue grass (*Panicum clandestinum*), poison ivy (*Toxicadendron radicans*), false nettle (*Boehmeria cylidrica*), and yellow nustedge (*Cyperus esculentus*).

Primary hydrology indicators within this wetland were inundation and saturation in the upper 12 inches of the soil. Secondary indicators within the wetland were a positive FAC-neutral test and water stained leaves.

Soils were observed to be a silty clay of 10YR 2/1 matrix color in the A horizon (0-1 inches) and a silty clay of 10YR 4/1 matrix color in the B horizon (1-6 inches). Hydric soil indicators for this wetland were reducing conditions and gleyed or low-chroma colors.

3.1.4 Wetland Habitat Description

Wetland Habitat Descriptions: The wetlands identified within the project corridor are classified as one of the following types (per the classification system developed by Cowardin *et al.*, [1979]):

- Palustrine Emergent (PEM): 1 wetlands, 0.01 acres
- Palustrine Emergent/Scrub-Shrub/Forested (PEM/PSS/PFO): 1 wetland, 1.81 acres

Each identified wetland habitat is discussed below. The wetland habitat description given below identifies the dominant observed species by common name with Region 1 indicator status (Recd, 1988) following in parentheses. The scientific names of these species are given above in Section 3.1.3. Also described is the observed hydrologic regime. Individual wetland and upland test plot data forms given in Appendix A provide the field support for the wetland/upland boundary determinations.

Palustrine Emergent Habitat (PEM): Wetlands identified as palustrine emergent are characterized by grasslike plants, true grasses, rushes and broad-leaved plants (Cowardin *et al.*, 1979). These areas are dominated by persistent herbaceous wetland vegetation such as narrow-leaf cattail (OBL), woolgrass (FACW+), three-way sedge (OBL), reed canarygrass (FACW), soft rush (FACW), purple-leaf willowherb (OBL), seedbox (FACW), ironweed (FAC), swamp dock (OBL), whitegrass (FACW), and yellow nutsedge (FACW). The hydrologic regime of these wetlands ranges from irregularly inundated or saturated (>12.5 percent-12.5 percent of the growing season) (Environmental Laboratory, 1987).

Wetland 2 was classified as PEM. This wetland occurs on soil that meets the hydric soil criterion, while also revealing primary and/or secondary hydrology indicators and a dominance of hydrophytic vegetation.

Palustrine Emergent/Scrub-Shrub/Forested (PEM/PSS/PFO): Wetlands classified as palustrine emergent/scrub-shrub/forested are characterized by grasslike plants, broad-leaved plants, rushes, and woody vegetation and a dominance of woody vegetation 20 feet tall or taller with an understory of young trees or shrubs (Cowardin *et al.*, 1979). These areas are dominated by wetland plants such as: creeping jenny (OBL), green bulrush (OBL), arrowhead tearthumb (OBL), fall panicgrass (OBL), rice cutgrass (OBL), *Carex* species (FAC-OBL), reed canarygrass (FACW+), black willow (FACW+), soft rush (FACW+), green ash (FACW), riverbank grape (FACW), jewelweed (FACW), sensitive fern (FACW), silver maple (FACW), and red maple (FAC). The hydrologic regime of this wetland ranges from irregularly inundated or saturated (>12.5 percent to 25 percent of the growing season) to seasonally inundated or saturated (>12.5 percent to 25 percent of the growing season) (Environmental Laboratory, 1987).

Wetland 1, totaling 1.81 acres, was classified as PEM/PSS/PFO. The location of this wetland is shown in Figure 3A. This wetland occurs on soil that meet the hydric soil criterion, while also revealing primary and/or secondary hydrology indicators and a dominance of hydrophytic vegetation.

3.1.5 U.S. Army Corps of Engineers Section 404 Requirements

Section 404 of the Clean Water Act requires authorization from the Secretary of the Army, acting through the ACOE, for the discharge of dredged or fill material into all waters of the United States. As a consequence of direct connection or adjacency to surface drainageways to the Ohio River, all wetlands delineated at the project site are considered non-isolated, and therefore subject to ACOE jurisdiction as waters of the United States.

3.2 OEPA ORAM V5.0 WETLAND EVALUATION

The ORAM scores for the wetlands identified within the limits of the project corridor ranged from a low of 54/100 (Wetland 2) to a high of 58.5/100 (Wetland 1). These wetlands typically formed along surface drainageways, in areas of surface water retention, at the base of slopes, and adjacent to roadways. Copies of the ORAM scoring sheets for each delineated wetland are provided in Appendix B.

The two category 2 wetlands have a range in size from 0.01 to 1.81 acres. These exhibited moderate to high quality plant communities with few invasives, moderate to good plant community interspersion, low to high intensity anthropogenic impact of surrounding land (i.e. farming, residential use, urban infrastructure, etc.), and recovered and/or no modification to natural hydrology and habitat.

No Category 1 or Category 3 wetlands were identified within the project corridor.

3.3 OEPA QHEI AND HHEI STREAM EVALUATIONS

One qualitative habitat evaluations (QHEI) and thirty three primary headwater habitat evaluations (HHEI) were conducted on the streams identified within the project corridor. The evaluations were conducted at or near the proposed transmission line crossing of each stream. These streams were identified using USGS topographic maps, aerial photography, *The Soil Survey of Meigs County, Ohio*, and field reconnaissance. The

AMP-Ohio 14946376 September 2006 locations of the evaluation areas are shown on Figures 3A through 3C. Copies of the QHEI and HHEI data sheets are provided in Appendix C. Selected color photographs are provided in Appendix D.

QHEI: Based on the QHEI methods, the survey identified one crossing of a warmwater habitat (WWH) stream. It should be noted that ultimately the Ohio EPA decides the aquatic life use designation for particular surface water.

QHEI SUMMARY TABLE

Stream Identifier	QHEI Score	QHEI Habitat Designation
<u>S31</u>	63	WWH

HHEI: The survey identified the following HHEI stream classes: 14 Class I streams, 1 Modified Class I streams, 10 Class II streams, and 8 Class III streams.

Stream Identifier	HHEI Score	HHEI Class	Observed Biota	
<u>S1</u>	56	Class II	None	
<u>\$2</u>	19	Class I	None	
\$3	39	Class II	None	
S4	24	Class 1	None	
S 5	54	Class II	None	
S6	37	Class fI	None	
\$7	- 19	Class I	None	
<u></u>	27	Class I	None	
S9	39	Class II	None	
S10	55	Class III*	Southern two-lined salamander larvae	
S11	34	Class II	None	
S12	45	Class III*	Southern two-lined salamander larvae	
<u>S13</u>	26	Class 1	None	
S14	64	Class III*	Southern two-lined salamander adults & larvae	
S15	62	Class III*	Southern two-lined salamander larvae	
S 16	54	Class III ^a	Southern two-lined salamander larvae, Green Frog, Crayfish	

HHEI SUMMARY TABLE

\$17	18	Class I	None
S18	41	Class II	None
S19	82	Class III	Southern and Northern two-lined salamander larvae, Crayfish
\$20	30	Class II	None
\$21	62	Class III*	Southern two-lined salamander larvae, Green Frog
	9	Class I	None
\$23	9	Class I	None
\$24	25	Class I	None
\$25	35	Class II	None
S26	18	Class I	None
\$27	71	Class III	Southern two-lined salamander larvae, Green Frog
S28	16	Class I	None
S29	9	Class I	None
\$30	9	Class I	None
\$32	21	Class I	None
\$33	52	Class II	None
\$34	26	Class I	None

* Class III category designation was determined by observed biota

Class I Headwater Streams –Fourteen Class I headwater streams were identified during August field investigation with scores ranging from a low of 9 to a high of 27. The substrate composition of these streams is generally limited to sand, silt, clay, leaf pack/woody debris and gravel. The maximum pool depth is less than 10 centimeters and the bank full width generally does not exceed 1.0 meter.

Modified Class I Headwater Streams – One Modified Class I headwater streams were identified during the August field investigation with a score of 26. This stream shows evidence of stream channel modifications including channelization and culverting. This modification results in this stream scoring a Modified Class I designation. Similar to a Class I headwater stream, the substrate of this stream is silt, sand, and leaf pack or woody debris. The maximum depth is less than 5 centimeters with a bank full width not exceeding 1.5 meter.

Class II Headwater Streams – Ten Class II headwater streams were identified during the August field investigation with scores ranging from a low of 30 to a high of 56. The substrate composition of these streams is generally dominated by sand and gravel. Leaf pack, silt, clay, cobble, boulder, and boulder slabs are also noted as less dominant

AMP-Ohio 14946376 September 2006 substrate types in this Class of stream. The maximum pool depth is less than 22.5 centimeters. The bank full width for this group of streams is generally less than 3 meters.

Class III Headwater Streams – Eight Class III headwater streams were evaluated during the August field investigation with scores ranging from a low of 45 to a high of 82. Some of the streams in this category were elevated from Class II due to evidence of aquatic salamander larvae and adults. The main features of these streams that distinguish them from the Class I and II streams include a natural channel (i.e. no indication of stream channel modification), generally high percentages of boulder, boulder slab, cobble, and gravel, maximum pool depths ranging from 5 to approximately 30 centimeters, and a bank full width generally between 1.5 and 3 meters.

3.4 NON-JURISDICTIONAL ROADSIDE DITCHES

Several non-jurisdictional roadside ditches were identified during the field investigation. Although these upland ditches satisfy the three mandatory USACOE requirements to be considered a jurisdictional wetland (i.e. hydric soils, wetland hydrology, and a predominance of hydrophytic vegetation), these areas do not exhibit an ordinary high water mark (i.e. hydrophytic vegetation is generally restricted to the designed configuration of the constructed ditch), a defined bed and bank, or stream flow. In addition, all ditches were constructed through upland and do not connect two "Waters of the U.S." According to the *Soil Survey of Meigs County*, *Ohio*, the mapped soil units for the roadside ditches identified along the project route are generally non-hydric. Periodic and routine maintenance, including mowing, was noted for each of the upland ditches. The field determination regarding the potential regulation of ditches identified along the length of the project route was based upon the U.S. Army Corps of Engineers Standard Operating Procedures and Ohio Department of Transportation's (ODOT) Technical Guidance Document.

3.5 THREATENED AND ENDANGERED SPECIES HABITAT SURVEY

The Ohio Department of Natural Resources – Division of Natural Areas and Preserves (ODNR-DNAP) was contacted regarding the potential for occurrence of rare, threatened, and endangered species within the project study area. URS also performed a literature review of available USFWS resources regarding species of concern in the project vicinity.

In a letter response dated May 10, 2004, the ODNR-DNAP reported 10 records of rare or endangered species within the vicinity of the project study area. These ten species include:

Scientific Name	Common Name	State Status
Cicindela marginipennis	Cobblestone Tiger Beetle	Threatened
Heteranthera reniformis	Mud-plantain	Endangered
Hiodon alosoides	Goldeye	Endangered
Macrhybopsis aestivalis	Speckled Chub	Endangered
Obliquaria reflexa	Threehorn Wartyback	Threatened
Obliquaria reflexa	Threehorn Wartyback	Threatened
Opuntia humifusa	Common Prickly Pear	Potentially Threatened
Percina copelandi	Channel Darter	Threatened
Scaphiopus holbrookii	Eastern Spadefoot Toad	Endangered
Spermacoce glabra	Smooth Buttonweed	Potentially Threatened

The USFWS literature review indicated that the proposed project is located within the range of the federally endangered Indiana bat (*Myotis sodalis*) and three federally endangered species of mussels. These mussel species include the pink mucket pearly mussel (*Lampsilis orbiculata*), the fanshell mussel (*Cyprogenia stegaria*), and the sheepnose mussel (*Plethobasus cyphyus*).

A discussion of each state and federally listed species will be presented in the following sections. A list of animal species identified or likely to occur in the vicinity of the study site is shown in Table 1. A comprehensive list of plant species in the vicinity of the study site is shown in Table 2.

3.5.1 Plants

Three records of plant species of concern were identified within the vicinity of the project study area and include the mud-plantain (*Heteranthera reniformis*), the common prickly pear (*Opuntia humifusa*), and the smooth buttonweed (*Spermacoce glabra*).

Mud-plantain (*Heteranthera reniformis*): This perennial aquatic herb is known to occur submersed or floating in ponds, ditches or rivers, or creeping along muddy river margins. The potential hazard to this species of concern is generally limited to impacts or disturbances to the aquatic habitat. There are no habitat areas along the study corridor that matched the habitat of this species. This plant species of concern was also not identified during the August field investigation.

AMP-Ohio 14946376 September 2006 **Common Prickly Pear** (*Opuntia humifusa*): This hardy cactus with oblong, flattened pads was previously recorded south of the study area, in the vicinity of the Letart Falls cemetery. This species of concern prefers areas of full sun on well- drained soils, such as sandy fields and hillsides. The primary hazard to this species of concern is overgrowth by woody species as a consequence of succession. Since most of the study corridor was covered in mature second growth forest, there were no potential habitats found. This plant species of concern was not identified during the August field investigation.

Smooth Buttonbush (*Spermacoce glabra*): This perennial herb is most commonly found on the muddy shores and low banks of the Ohio River, but is also found in swamps and wet woods. Suitable conditions for the herb did not exist anywhere along the study corridor due to very sandy soils and steep hillsides. This plant was not identified during the August field investigation.

3.5.2 Aquatic species

Habitats for aquatic species of concern including fish, crustaceans, and mussels were not assessed during this survey. ODNR-DNAP reported records of one threatened mussel species and three fish species of concern within the vicinity of the project study area. These species include the Threehorn Wartyback mussel (*Obliquaria reflexa*), the Channel Darter (*Percina copelandi*), the Goldeye (*Hiodon alosoides*), and the Speckled Chub (*Macrhybopsis aestivalis*). In addition, URS also conducted a literature review of available USFWS resources regarding species of concern in the project vicinity. The USFWS identified the study site to be in the historic range of three state and federally endangered species of mussels. These species include the pink mucket pearly mussel (*Lampsilis orbiculata*), the fanshell mussel (*Cyprogenia stegaria*), and the sheepnose mussel (*Plethobasus cyphyus*).

3.5.3 Amphibians

The Eastern Spadefoot Toad (*Scaphiopus holbrooki*), the only toad identified on Ohio's endangered species list, was previously recorded by ODNR to be in the vicinity of the project study area. This amphibian typically occurs in brush-covered, forested, and/or cultivated areas that consist of loose sediments such as gravel, sand, and sandy loam. With the exception of emerging from the soil to eat or possibly reproduce, the Eastern

Spadefoot generally remains burrowed underground. Potential habitat for this species of concern exists on the lower river terraces of the site.

3.5.4 Reptiles

No reptile species of concern were identified in any agency correspondence. No suitable habitat for reptile species of concern was observed within the project study area.

3.5.5 Birds

No bird species of concern were identified in any agency correspondence. No suitable habitat for bird species of concern was observed within the project study area.

3.5.6 Mammals

Indiana bat (*Myotis sodalis*): The Indiana bat is considered to be an endangered species by the federal government and the State of Ohio. This species is a possible inhabitant of Meigs County. The Indiana bat is a migratory species, wintering in a few limestone cave hibernacula principally located in Indiana, Kentucky and Missouri. Summer roosting and foraging areas are typically farther north in the glaciated regions of Indiana, Illinois, and Ohio. Males and gravid females may arrive in northern regions in April and remain until October. The bat typically roosts under the exfoliating (loose) bark of live or dead trees of various rough-barked tree species. The 8- to 10-inch size classes of several species of hickory (*Carya* spp.), oak (*Quercus* spp.), ash (*Fraxinus* spp.), and elm (*Ulmus* spp.) are utilized in live form as roost trees. These tree species and many others may be used when dead, if there are adequately sized patches of loosely adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes; (1) a mixture of favored loose-barked trees with 60 to 80 percent canopy closure and (2) a low density sub-canopy (less than 30 percent between about 6 feet high and the base canopy).

The vegetation along most of the study corridor consists of mature, second growth tree species. This general area contains many oaks (*Quercus* spp.) and elms (*Ulmus* spp.) of an appropriate class size along with exfoliating American sycamore (*Plantanus occidentalis*) and black cherry (*Prunus serotina*) individuals. Additional Indiana bat habitat advantages in this area include snags, numerous tree cavities or hollow portions of tree boles and limbs, a generally open subcanopy, and close proximity to several mapped streams.

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There are several areas along the study corridor not suitable as habitats for Indiana bats due to either no forest cover or a thick subcanopy. These are located between the proposed power plant and the first proposed pole at the southern end of the route, to the west of wetland 1 (W1) and stream 1 (S1), in between streams 4 (S4) and 5 (S5), and also south of stream 15 (S15) for about 1500 feet.

Specific Indiana Bat surveys were not performed during the field reconnaissance, as it was not in the scope of this work.

3.5.7 Insects

Cobblestone Tiger Beetle (*Cicindela marginipennis*): ODNR-DNAP reported previous records of this arthropod within the vicinity of the project study area. This rare beetle is typically restricted to cobblestone islands and deltas in large rivers. Suitable habitat for this species of concern was not observed within the immediate project area. This insect was not identified during the August field investigation.

4.0 SUMMARY

This addendum jurisdictional wetland delineation, stream assessment, and threatened and endangered species survey was conducted along a five-mile long, two hundred foot wide project corridor and an approximately six-acre proposed switchyard area located in Meigs County, Ohio. American Municipal Power-Ohio, Inc. (AMP-Ohio) is proposing construction of a 345 kV electric transmission line extension from its proposed 1,000-MW pulverized coal fired power plant in the Letart Falls area of Meigs County, Ohio. Delineation and assessment work was conducted in August 2006.

Two wetlands, totaling 1.82 acres, of two different Cowardin wetland types were identified within the project study area, including one palustrine emergent wetland and one palustrine emergent/scrub-shrub/forested wetland. Identified wetlands were evaluated utilizing ORAM v5.0 qualitative evaluation method for categorizing wetlands. The ORAM scores for the wetlands indicated that both wetlands were category 2 wetlands, which indicate moderate quality levels. Both of the wetlands are considered non-isolated and jurisdictional.

Thirty three primary headwater habitat evaluations (HHEI) were conducted on the streams identified within the limits of the project corridor. The survey identified the following HHEI stream classes: 14 Class I streams, 1 Modified Class I stream, 10 Class II streams, and 8 Class III streams. The survey also identified one stream with a QHEI score of 64/100.

The ODNR-DOW indicated that the proposed project is located within the range of the federally endangered Indiana bat (*Myotis sodalis*) and three federally endangered species of mussels. These mussel species include the pink mucket pearly mussel (*Lampsilis orbiculata*), the fanshell mussel (*Cyprogenia stegaria*), and the sheepnose mussel (*Plethobasus cyphyus*). No species of concern were identified in the field survey. A mussel survey is being conducted in the Ohio River in the fall of 2006. AMP has been coordinating with USFWS about an Indiana bat survey proposed for the spring of 2007.

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Acronyms

ACOE	U.S. Army Corp of Engineers
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index (for streams)
NWI	National Wetland Inventory
OBL	Obligate
ODNR-DNAP	Ohio Department of Natural Resources - Division of Natural Areas and Preserves
OEPA	Ohio Environmental Protection Agency
ORAM	Ohio Rapid Assessment Method (for wetlands)
OWI	Ohio Wetland Inventory
PEM	Palustrine Emergent Wetland
PEM/PFO	Palustrine Emergent/Forested Wetland
PEM/PSS	Palustrine Emergent/Scrub-Shrub Wetland
PHWH	Primary Headwater Habitat
POW	Palustrine Open Water Wetland
POW/PEM	Palustrine Open Water/Emergent Wetland
QHEI	Qualitative Habitat Evaulation Index (for streams)
UPL	Upland
USFWS	U.S. Fish and Wildlife Service

Glossary

FAC-neutral test - The FAC-neutral test results in a positive secondary indicator of hydrology for a wetland determination when more of the dominant plant species have a wetland indicator category that is wetter than facultative (FAC). The FAC-neutral test considers FAC species (FAC, FAC-, or FAC+) as neutral and does not utilize them. Rather, the abundance of OBL, FACW+, FACW, and FACW- species are weighed against the abundance of UPL, FACU-, FACU, and FACU+ species (OBL + FACW species > FACU + UPL species) to determine whether the vegetation meets the FAC-neutral test.

Mottles - Spots or streaks of contrasting soil colors which indicate the presence of a seasonal water table zone.

Oxidized Rhizospheres (Root Channels) - A zone around a plant root system in hydric soils that shows staining from oxidation ("rust" stains).

Cowardin Wetland Classification System - The Cowardin system is hierarchical and includes several layers of detail for wetland classification including: a subsystem of water flow; classes of substrate types; subclasses of vegetation types and dominant species; as well as flooding regimes and salinity levels for each system. This system is appropriate for an ecologically based understanding of wetland definition.

Palustrine Wetland System – This system includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 %. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2 m at low water; and (4) salinity due to ocean-derived salts less than 0.5 %.

Palustrine Emergent Habitat (PEM) - Wetlands identified as palustrine emergent are characterized by grasslike plants, true grasses, rushes and broad-leaved plants (Cowardin *et al.*, 1979).

Palustrine Emergent/Scrub-Shrub (PEM/PSS) - Wetlands classified as palustrine emergent/scrub-shrub are characterized by grass-like plants, broad-leaved plants, rushes and woody vegetation less than 20 feet high (Cowardin *et al.*, 1979).

Palustrine Emergent/Forested (PEM/PFO) - Wetlands classified as palustrine emergent/forested are characterized by grasslike plants, broad-leaved plants, rushes, and woody vegetation 20 feet tall or taller (Cowardin *et al.*, 1979).

Palustrine Open Water (POW) - Wetlands classified as palustrine open water are shallow, open water plant communities that generally have water depths of less than 6.6 feet (2 meters). Submergent, floating and floating-leaved aquatic vegetation including

Glossary (continued)

pondweeds, water-lilies, water milfoil, coontail, and duckweeds characterize this wetland type.

Palustrine Open Water/Emergent (POW/PEM) - Wetlands identified as palustrine open water/emergent are shallow, mixed emergent/open water plant communities that generally have water depths of less than 6.6 feet (2 meters).

Ohio Rapid Assessment Method (ORAM) – ORAM is a wetland functional assessment that was developed by the Ohio Environmental Protection Agency (OEPA) to determine the ecological "quality" and level of function of a particular wetland in order to meet requirement under Section 401 of the Clean Water Act.

- *Category 1 Wetlands* Category 1 wetlands support minimal wildlife habitat, and minimal hydrological and recreational functions, and as wetlands that do not provide critical habitats for, or contain, threatened or endangered species. In addition, Category 1 wetlands are often hydrologically isolated and have some or all of the following characteristics; low species diversity, no significant habitat or wildlife use, limited potential to achieve wetland functions, and/or a predominance of non-native species. These limited quality wetlands are considered to be a resource that has been severely degraded or has a limited potential for restoration, or to be of low ecological functionality.
- *Category 2 Wetlands* Category 2 wetlands "...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." Category 2 wetlands constitute the broad middle category of "good" quality wetlands, they are equivalent to "warmwater habitat" streams, and can be considered a functioning, diverse, healthy water resource that has ecological integrity and human value. Some Category 2 wetlands are lacking in human disturbance and considered to be naturally of moderate quality; others may have been Category 3 wetlands in the past, but have been disturbed "down to" Category 2 status.
- *Category 3 Wetlands* Category 3 have "...superior habitat, or superior hydrological or recreational functions." They are typified by high levels of diversity, a high proportion of native species, and/or high functional values. Category 3 wetlands include wetlands which contain or provide habitat for threatened or endangered species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide. It is important to stress that a wetland may be a Category 3 wetland because it exhibits one or all of the above characteristics. For example, a forested wetland located in the flood plain of a river may exhibit "superior" hydrologic functions (e.g. flood

Glossary (continued)

retention, nutrient removal), but not contain mature trees or high levels of plant species diversity.

Headwater Habitat Evaluation Index (HHEI) – HHEI is a rapid field assessment method for physical habitat that was developed by the OEPA and can be used to predict the biological potential of primary headwater habitat (PHWH) streams.

- *Class I PHWH Streams* Class I PHWH Streams are those that have "normally dry channels with little or no aquatic life present" (Davic, 2001). These waterways are usually ephemeral, with water present for short periods of time due to infiltration from snowmelts or rainwater runoff.
- *Class II PHWH Streams* Class II PHWH Streams are equivalent to "warm-water habitat" streams. This stream class has a "moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis" (Davic, 2001). These species communities are composed of vertebrates (fish and salamanders) and/or benthic macroinvertebrates that are considered pioneering, headwater temporary, and/or temperature facultative species.
- *Class III PHWH Streams* Class III PHWH Streams usually have perennial water flow with cool-cold water adapted native fauna. The community of Class III PHWH Streams is comprised of vertebrates (either cold water adapted species of headwater fish and or obligate aquatic species of salamanders, with larval stages present), and/or a diverse community of benthic cool water adapted macroinvertebrates present in the stream continuously (on an annual basis).

TABLE 1 ANIMAL SPECIES IDENTIFIED OR LIKELY TO OCCUR IN THE STUDY AREA

Amphibians	Reptiles	Birds	Mammals
American toad	Black rat snake	American crow	Big brown bat
Bullfrog	Broad-headed skink	American kestrel	Coyote
Dusky salamander	Copperhead	American redstart	Deer mouse
Fowler's toad	Eastern box turtle	American robin	Eastern chipmunk
Gray treefrog	Eastern garter snake	American woodcock	Eastern cottontail rabbit
Green frog	Eastern hognose snake	Baltimore oriole	Eastern gray squirrel
Jefferson salamander	Eastern milk snake	Belted kingfisher	Eastern mole
Longtail salamander	Eastern worm snake	Bluc jay	Eastern pipistrel
Marbled salamander	Five-lined skink	Broad-winged hawk	Fox squirrel
Mountain chorus frog	Ground skink	Brown thrasher	Gray fox
Northern leopard frog	Midland painted turtle	Brown-headed cowbird	Hairytail mole
Northern red salamander	Northern black racer	Carolina chickadee	Hoary bat
Northern slimy salamander	Northern brown snake	Carolina wren	House mouse
Northern spring peeper	Northern fence lizard	Common flicker	Least weasel
Northern spring salamander	Northern ring-necked snake	Downy woodpecker	Little brown bat
Pickeral frog	Northern water snake	Eastern bluebird	Long-tailed weasel
Ravine salamander	Rough green snake	Eastern kingbird	Meadow jumping mouse
Redback salamander	Timber rattlesnake	Eastern meadowlark	Meadow vole
Red-spotted newt		European starling	Opossum
Southern tow-lined salamander		Hairy woodpecker	Pine vole
Spotted salamander		House sparrow	Pygmy shrew
Wood frog		Indigo bunting	Raccoon
		Kentucky warbler	Red bat
		Killdeer	Red fox
		Mockingbird	Red squirrel
		Mourning dove	Short-tailed shrew
		Northern cardinal	Silver-haired bat
		Osprey	Southern flying squirrel
		Pileated woodpecker	Striped skunk
		Red-eyed vireo	White-footed mouse
		Red-tailed hawk	White-tailed deer
		Red-winged blackbird	Woodchuck
		Rock dove	
		Ruffed grouse	
		Tufted titmouse	
		Turkey vulture	
		Whip-poor-will	
		White-breasted nuthatch	
		Wild turkey	
		Wood thrush	
		Yellow warbler	
		Yellow-throated vireo	

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TABLE 2

WETLAND VEGETATION AND INDIVIDUAL SPECIES WETLAND DESIGNATION

Scientific Name	Common Name	Wetland Status	Upland	Wetland
Acernegundo	Box elder	FAC+	X	X
Acer rubrum	Red maple	FAC	Х	Х
Acer saccharinum	Silver maple	FACW	х	Х
Achillea millefolium	Yarrow	FACU	х	
Acorus valamus	Calamus	OBL		Х
Agrímonia parviflora	Small-flowered agrimony	FAC	х	Х
Agrostis alba (gigantea)	Redtop	FACW	Х	Х
Ailanthus altissima	Tree of heaven	NI	х	
Alliaria petiolata	Garlie mustard	FACU-	х	
Allium canadense	Wild onion	FACU	х	
Amaranihus retroflexus	Redroot amaranth	FACU	Х	
Ambrosia artemisiifolia	Common ragweed	FACU	Х	
Ambrosia trifida	Giant ragweed	FAC	х	x
Andropogon virginicus	Broomsedge	FACU	x	
Aristida spp.	Wiregrass	NO	х	Х
Artemisia vulgaris	Wormwood	UPL	х	
Asclepias incarnata	Swamp milkweed	OBL		х
Asclepias syriaca	Common milkweed	FACU-	x	
Aster spp.	Heath aster	NI	x	
Bidens frondosa	Devil's beggartick	FACW	x	х
Boehmería cylindrica	False nettle	FACW+	x	Х
Brassica rana	Field mustard	NI	x	
Calamagrostis canadensis	Bluejoint	FACW+	x	х
Carex blanda	Eastern woodland sedge	FAC	x	
Carex camosa	Longhair sedge	FACW		x
Carex frankeli	Frank's sedge	OBL		X
Covex Iurida	Shallow sedge	OBL		x
Carex spp.	Sedges	FAC-OBL		х
Carex stricta	Upright sedge	OBL		х
Carva cordiformis	Bitternut hickory	FACU+	х	
Carva elabra	Pignut hickory	FACU-	x	
Carya ovata	Shaebark hickory	FACU-	х	
Celtis occidentalis	Hackberry	FACU	х	
Centaurea maculosa	Spotled knapweed	NI	х	
Cephalanthus occidentalis	Buttonbush	OBL		x
Cercis canadensis	Redbud	FACU-	x	
Chelone vlabra	White turtlehead	OBL		х
Chenopodium album	Lambsquarter	FACU+	x	
Chrysanthenium leucanthemion	Oxeve daisy	NI	x	
Cichorium intybus	Chicory	NI	x	
Cirsium arvense	Canada thistle	FACU	x	
Cirsium vulgare	Bull thistle	FACU-	x	
Convolvalus senium	Hedge bindweed	FAC	x	х
Cornus stolinifera	Flowering dogwood	NI	x	
Cyperus esculentus	Yellow nutsedge	FACW	x	x
Dacivlis elomerata	Orchardgrass	FACU	x	
Daucus carota	Oueen Anne's lace	NE	x	
Dinsacus sylvestris	Teasel	NI	x	
Elacagnus umbellata	Autumn olive	NI	x	
Eleocharis acicularis	Needle spikerush	OBL		X

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TABLE 2 - CONTINUED

WETLAND VEGETATION AND INDIVIDUAL SPECIES WETLAND DESIGNATION

Scientific Name	Common Name	Wetland Status	Upland	Wetland
Eleocharis obtusa	Blum spikerush	OBL	T	X
Epilobium coloranum	Purple leaf willowherb	OBL		Х
Erigeron annuus	Fleabane	FACU	x	
Eupatorium macidation	Spotted jocpyeweed	FACW	x	х
Eupatorium perfoliatium	Common boneset	FACW+	x	Х
Euratorium purpurcum	Sweetscented joenveweed	FAC	x	X
Eupatorium sessilifolium	Upland boneset	NO	X	
Fagus grandifotra	American beech	FACU	x	
Festuca arandinacea	Tall fescue	FACU	X	
Festuca práleňsis	Meadow ryegrass	FACU	x	
Festuca subverticillata	Nodding fescue	FACU	X	
Fravaria virginiana	Virginia strawberry	FACU	x	
Eraymus pennsylvanica	Green ash	FACW	x	х
Galium anarine	Catchweed bebstraw	FACU	x	
General constances	White avens	FACIE) x	
Gloshama hederacea	Ground ivy	FACT	x	
Chetina wiacanthas	Honeylocust	FAC-	x	
Chesing mat	Saubean	NI	x	
honorion conensis	landward	FACW	x	x
hudene vieta	Black ushuit	FACT	x	л
buyuns nigita han me affasin	Soft meh	RACIP	x x	v
Juncus rym ⁱⁿ	Both mut	EXC EXC	v	^
Juncus unus	Pittan Tush Bioacut acou	FAC-	A .	v
Leersa oryonaes	White are	DDL	v	A V
Letrsta Virginica	Commun daulurard	FACW	А	A V
Lenna mnor	Common ouckweeu	UBL		л
Ligustrum valgare	Marthum and a to	FACU		v
landera penson	Technice	PACW-		~
Larwaenaron hulpifera	Tumptree	FACU		
Lotum multiportan	naman ryegrass	FACU-	Å	
Laluan perenne	rerennial ryegrass	FACU-	A	
Lonicera japonica	Japanese noneysuckie	FAC-	X	
Lonicera spp	Honeysuckle	FAC to FACU	X	
Ludwigia alternifolia	Scedbox	FACW+	X	х
Ludwigia palustris	Marsh seedbox	OBL,		X
Lyximachia mmmularia	Creeping Jenny	OBL		X
Lythrum saiwarta	Purple loosesute	FACW+	X	X
Malva negiecta	Common mallow	NI	X	
Medicago sotivo	Alfalfa	NO	X	
Melilotus officinālis	Yellow sweetclover	FACU	X	
Mentha spivata	Spearmint	FACW+	X	х
Nymphaea ödörata	American white waterfily	OBI.		x
Ocnthera biennis	Common evening primrose	FACU-	X	
Onoclea sensibilis	Sensitive fern	FACW	X	X
Panicum dichotomiflorum	Fall paniegrass	FACW-	X	x
Panicum spp.				
Panicum virgātum	Switchgrass	FAC	X	Х
Parthenocissus guinguefolia	Virginia creeper	FACU	X	
Penthorum sedoides	Ditch stonecrop	OBL		х
Phalaris arundinacea	Reed canary grass	FACW+	_X	X

TABLE 2 - CONTINUED

WETLAND VEGETATION AND INDIVIDUAL SPECIES WETLAND DESIGNATION

Scientific Name	Common Name	Wetland Status	Upland	Wetland
Phieum pratense	Timothy	FACU	X	
Phytolacca americana	Common pokeweed	FACU+	X	
Plantago lanceolata	Common plantain	UPL	x	
Plantago major	Broadleaf plantain	FACU	х	
Platanus occidentalis	Eastern sycamore	FACW-	х	х
Poa pratensis	Kentucky bluegrass	FACU	Х	
Polygonum hydropiperoides	Swamp smartweed	OBL		x
Polygonion pensylvanicum	Pennsylvania smartweed	FACW	x	
Polygonum persicaria	Spotted ladysthumb	FACW	х	x
Polygonum sagittatum	Arrowleaf tearthumb	OBL		х
Populus deltoides	Cottonwood	FAC	Х	х
Potamogeton spp.		OBL		х
Prunus serotina	Black cherry	FACU	x	
Quercus alba	White oak	FACU-	х	
- Ouercus macrocasna	Buroak	FAC-	x	
Quercus nalustris	Pin oak	FACW	x x	x
Quarens ruhea	Northern red oak	FACW-	Y	x
Phue radieaus	Poison Luy	RAC	x	x
Robinia usuedoncacio	Black locust	FACW.	x	x
Rusa carolina	Pasture rose	IIPI	x	~
Rasa multiflora	Multiflora rose	FACU	x	
Ruhue Allanhanianeis	Allegheny blackborry	FACU	x	
Ruoner acetosella	Sheen sorrel	IIPI	x	
Proper princip	Vellow curludock	FACU	v v	
Runner alturifaline	Bitter Dock	FACU	x	л
Calix piara	Block willow	FACU-	Y Y	x
Samhurger conodensie	Elderbarry	FACW-	x x	x X
Science atomicals	Green balmeh	OBI	A	x
Science convinue	Woolgrase	FACWA	x	x i
Solvous validus	Sofician bulmeb	ORI	n	x
Setoria alouna	Boort willot (fortail)	FAC	v	x X
Setaria pun	Fortail	FAC	N N	Ŷ
Scuria spp.	Narrowleaf blue mod arms	FACW	v v	x x
Susying man angasijonan Contax naturdifalia	Roundloof graphring	FACTI-	x x	v v
Salidana altissima	Shorthair galdenrod	EACH	v v	^
Solidaga aguadousin	Conoda coldentod	FACU	x x	
Solidaan wirida	Eanada gordenrou	FACO	v	v
Solidayo nuga Solidayo sun	Goldanrod	FACI	x x	^
Sondago spp.	Johnsonarass	FACU	x x	
Taravaoi officionaria	Common daudalion	RACIL	x	
Tariana i, pyrcona, c	Roison ing	FACO-	v	
Triteling hubsides	Aloika aloves	EACU	v	
Tigouan nyonana Talalian partango	Pad player	FACU-	v	
Typhan practic	Narrow leaf cattoil	OBI	~	x
Types organijona Typeka latifelia	Broad last optical	OBL		x x
rypna ranjoua Hlove vidva	Slioners alm	UDL FAC	v	r v
United dioleo	Stinning pettle	EX.CH	v n	^
Washaseum thanar	Common mullain	NI NI	Ŷ	
Verma an mapus	Common munch Winastam		r v	v
Versonia eigantea	Giant ironweed	FAC	x	x

~._^

TABLE 2 - CONTINUED

WETLAND VEGETATION AND INDIVIDUAL SPECIES WETLAND DESIGNATION

Scientific Name	Common Name	Wetland Status	U <u>plan</u> d	Wetland
Vicía craeva tenuifolia	Cow yetch	NO	<u>x</u>	
Viola papilionacea	Common blue violet	FAC	x	X
Vitix aestivalis	Summer grape	FACU) X	ļ
Vitis riparia	River grape	FACW	x	X
Vius labrusca	Fox grape	FACU	x	
Xanthuun strumarium	Common cocklebur	FAC	x	x
Zea Mays	_ Corn_	NI	<u> </u>	

 Obl = Occurs in wetlands almost always (>99 percent) under favorable conditions

 Facw = Usually occurs in wetlands (67 - 99 percent) but occasionally found in non-wetlands

 Fac = Equally likely to occur in wetlands and non-wetands (34 - 66 percent)

 Facu = Usually occurs in non-wetlands (67 - 99 percent) but occasionally found in wetlands

 Facu = Usually occurs in non-wetlands (67 - 99 percent) but occasionally found in wetlands

 Upl = Occurs in uplands almost always (>99 percent) under favorable conditions

 Via With and the community of the percent in operations

NI = Not indicated the agreement as to designation)

NO = No listings

National Wetlands Inventory, U.S. Fish and Wildlife Service, Biological Report 88(24) Region 1 listings

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JOB NO. 14946376











APPENDIX A

U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION FORMS

Approved by HCNISACE 3/92 £ ۹۷ (هو) Drainege Class: Field Observations Confirm Mapped Type? Yes Concretions High Organic Content in Surface Layer Sandy Soils Urganic Streaking in Sandy Sulfs Urgade on Local Hydric Soils Uist Used on National Hydric Soils Uist United Charlan In Remarks) (Cirde) alt yclay many premit althelat Morite Texnure, Concretions, Abundance/Contrast Structure, etc. Is this Sampling Point Within a Wetland? 7.5 X04 Mottle Colors (Munsell_Moist) 1 (Circle) 2 2 2 Histosel Histosel Suffice Copredon Suffice Coor Suffice Coordinans Reducing Conditions Cleyed or Low-Chrome Colors Matrix Color (Munsell: Moisi) 1078-1/2 1078-1/1 Hydrophylic Vegetation Present? (Yes) Wetland Hydrology Present? (Yes) Hydric Soils Present? (es) WETLAND DETERMINATION Taxonomy (Subgroup): \triangleleft M Hydric Soil Indicators: Protite Description: Depth (Inches) Horizon Horizon Map Unit Name (Series and Phase): Remarks⁻ Remarks⁻ SOILS Community ID: PEM/ASS/J/ PFO Transact ID: VII Component Plot ID: VII S FAC V-FAC-OR 12 Polygonen provenden recent. FAC V attained without hydrology, stream busette FACW+ · Balygonin sagittatum H OBL Wettend hydrobgy Indicators. Primary Indicators. Anundaled Worth Marks Saturated in Upper 12 Inches Saturated in Upper 12 Doth I I Das Secondary Indicators (2 or more required): Codid St Roci Chandel Laves Verstar-Stalhed Laves Local Sto Sturvey Data FACANeural Teal Other (Explain in Remarks) Stratum Indicator 7 Date: 8/1/06 County: 2/1/06 Remarks other planted plantes include american planter plantes ⇒ ~95-100% 키코 State: 19 Level and gas "later 20. 3 Dominant Plant Species DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Weilands Defineation Manual) anative perin, and meant grave 2QQ ર્ ર્સ્ Project/Stle: AMP-ON-January ApplicantOwner: AMP-ON-ON-Investigator: JAV (UES) **** Londry www. H EAC+ 2. Competence copensis H EAC+ 3. Oursens - Hanses - H EACH 3. Oursens - Handler H OBL 5. Hydra - anguetlere N OBL Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). sentatoungufelatum H FACU+ Do Normel Crounstances Exist on the site? Is the site significanity disturbed (Anplical Situation)? Is the area a potential Forbiern Area? (Iff needed, explain on reverse.) FACN Indicator j j િં] ('U) ANOTHIN Stratum Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Actial Photographs Other No Recorded Data Available -Barmer Londres Depth to Free Water in Pit. Dominant Plant Species Depth of Surface Water: Depth to Saturated Soil Field Observations: VEGETATION ΗΥΔΡΟΙΟΟΥ Remarks[.]

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	MINATION Manual) Manual Alanua) Alanua) Alanua) Alanual Mo community ID: PEU Mo community ID: PEU Mo PlottiD: 2 GPS coordinates: GPS coordinates: Alanual Plantspecies & cover Stratum India GPS coordinates: Community ID: PEU Mo PlottiD: 2 GPS coordinates: Community ID: PEU Mo PlottiD: 2 Community ID: 2 Co	DATA FOHMA INTE WETLAND DETERMINATION (1987 COE Welards Delineations Manual) (1987 COE Welards Delineations Manual) (1987 COE Welards Delineations Manual) (1987 COE Welards Delineations Manual) Particle Community D: PEW Material C
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ROUTINE WETLAND DETERMINATION-DATA FORM HYDROLOGY 1987 MANUAL Proje . Alt. Thomas Post RECORDED DATA (Describe in Remarks) PRIMARY Indicators Stream, Lake or Tide Gauge Inundated Applicant/Owner hmp = 0.14Aenal Photographs Saturaled in Upper 12* Investigatoris Repasty -, f. Brewer Car Sis Other Waler Marks Date ______ Community ID ____ FO Dish Lines C Sediment Denosits County Meigs Transect iD . FIELD OBSERVATIONS Oramage Patterns in Welfands Depth of Surface Water _ ______ Plot ID ____ . 00 | State ____ w-- 120 SECONDARY Indicators Condiced Root Channels in UPPER 12 Depth to Saturated Soll ____ (in Do Normal Circumstances existion the site? $h^{(1)}$ Water Stained leaves Welland Hydrology Resent? Local Sel Survey Data is the significantly & recently disturbed?(Atyoical Situation) in yes NО Ves (No) FAC-Neural Test is the area all potential Problem Area? (Explain in final remarks) - ses ND Other (Explain in Remarks) REMARKS VEGETATION Domisant Plant Species Indicator Stratum 1 Licidendron tilpska FAU ------SOILS Lindera benzeis FACU Man Unit Name ____ Drainage Class __ Polystiching scontychildes H-FACU-(Series and Phase) Ross wilt. Stores FACU Taxonomy (Subgroup) - Field Observations Confirm Mapped Type Yes PROFILE DESCRIPTION б Detail Marin Cales Marine Marine Marine Marine Marine Marine Texture Marine Ma _____ -----······ -----Prement of Commont Sueces that are 25 HEDRIC SOLEMAN ANDRS OBL. FACW at LAC overluding FAC-2 □ = ···• □ ;= * - • D M M L Directory Shear of a Service Hunrophylic Venetation Presump Yes Chy Control Stead Application States
 States of the Reput Control States 🖸 Meri Schert D 2000 - 1 - 1 - 1 D Salay grow D D D o we D Agen Werker D Harris and D Di interna el constante el cons PEMADKS WETLAND DETERMINATION Hydrophytic Vegetation Presenct The second s Welland Hydrology Present Hydric Solls Piesent? res REMARKS HYDROLOGY **ROUTINE WETLAND DETERMINATION-DATA FORM** 1987 MANUAL Proje .e. AltTRANS RECORDED DATA (Describe in Remarks) Roste PRIMARY Indicators Stream, Lake or Tide Gauge Doundated Applicant/Owner ____ Amp-QH Aerial Photographs Saturated in Upper 12* investigatoris) _ Reparty _ L. Bremer, Laufer None Available Drift Lines Date _____Community ID ____ PGW Sediment Deposits County Me. 55 Transect ID -FIELD OBSERVATIONS Crainage Patterns in Wellands <u>(in.)</u> Depth of Surface Water:___ OU-State ____ _ Plot ID: _ w_{-} SECONDARY Indicators Depth to Free Water in Pit _te__ (in) Depth to Saturated Sol ____(n) Oxidized Root Channels in UPPER 12* NOT Do Normal Circuinstances exist on the site? YES Water Stained leaves Wetland Hydrology Present? Local Soil Survey Data Is the site significantly & recently disturbed?(Atypical Situation) YES Ø Yes No 🗌 FAC-Neulrai Tesi Is the area a potential Problem Area? (Explain in final remarks) YES $\textcircled{1}{1}$ Other (Explain in Remarks) REMARKS VEGETATION * Pard m Man-mode Dominant Plant Species Stratum Indicator OBL 1 Bidens consola ⊬ SOILS FACW 2 Impations (Aprilia) 4 Map Unit Name _ Drainage Class _ . 6 years smath H _OBC (Series and Phase) opc" leersia oryznicles 4 Taxonomy (Subgroup). _ Field Observations Confirm Mapped Type Yes No PROFILE DESCRIPTION Denth Maine Color Monte Molile Texture (oches) Koncon (Munsel Musi) Mundence/Contrast Concretions, Structure, etc. 06 A 10yR 3/4 spoly mill 10 YR VI 6-12 13 Silty soul Percent of Dominant Species that are 100 % HYDRIC SOIL INDICATORS OBL FACW or FAC texcluding FAC-) 🗖 Reducing Conditione C Bistos d 🗇 Organis Streaking in Sawy Staff B Histic Surpedor Sollidic Surpedor Contraint - Contraint Colors - Disted on Local Hydric Solis List
 Contraint - Disted on Local Hydric Solis List
 Contraint - Disted on Local Hydric Solis List Hydrophylic Vegelation Present? (Yes/ No Dit Peter National Bydet Sols : REMARKS 🔲 Aburt Merstern Reams High Organi, Shiwak (1993) darin, agar e Sans, Sore Hydric Soll Present REMARKS (the second seco WETLAND DETERMINATION Hydrophylic Vegetation Present? Ð ts this sampling-point a Wetland? Wetland Hydrology Present? Hydric Soils Present? h_{0} (*** No 8e5) ----No REMARKS

APPENDIX B

OHIO EPA OHIO RAPID ASSESSMENT METHOD (ORAM) FOR WETLANDS V5.0 FORMS AND GRAPH

200

Ohio Rapid Assessment Method

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| ORA.W. 5 0 Field Form Quantitative Raining       Site:     ///-/       Rater(s):     /////       P     /////       Metric 5. Special Wetlands. | Ben (10)     Od grant fract (10)       Ded grant fract (10)     Ded grant fract (10)       Date Derested weighert (5)     Date Derested weighert (5)       Date Derested weighert (5)     Derested weighert (5)       Reite Plon Sand Phrans (10)     Derest (10)       Reite Plon Sand Phrans (10)     Derested (10)       Reite Plon Sand Phrans (10)     Derest (10)       Reite Derested (10)     Derest (10)       Sand Phrans (10)     Derested (10)       Date track (2)     Derested (2)       Date track (2)     Derested (2) </th <th>Macaneral (a)       Macaneral (b)       Macaneral (b)       Macaneral (b)         Inderstand (b)       (c)       (c)</th> | Macaneral (a)       Macaneral (b)       Macaneral (b)       Macaneral (b)         Inderstand (b)       (c)       (c) |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OPALA - S a Field Form Cumultative Rains<br>Site: // // Date: // // Date: /// Date: /// Date: ///                                              | The second operation of the second                                                                                                                                                                                                                                                                                         | Attended in a mean particular                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

### APPENDIX C

## OHIO EPA HEADWATER HABITAT EVALUATION INDEX (HHEI) AND QUALITY HABITAT EVALUATION (QHEI) STREAM CHANNEL ASSESSMENT FORMS AND GRAPH

4.



1

Site Value Compared to HHEI Score Metrics

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# Site Value Compared to QHEI Score Metrics

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5

Qualitative Habitat Evaluation Index

| ADDITIONAL STREAM INFORMATION (This Information Muss Also be Completed):         ADDITIONAL STREAM INFORMATION (This Information Muss Also be Completed):         CHEID PERFORMATION (This Information Muss Also be Completed):         CHEID PERFORMATION (This Information Muss Also be Completed):         DOWNSTREAM DESIGNATED USE(S)         DOWNATION (This Information Muss Also be Completed):         DOWNSTREAM DESIGNATED USE(S)         DOWNATION (This Information Muss Also be Completed):         DOWNATION (This Also be completed):         DOWNATION (The Also be completed):         DOWNATION (The Also be completed):         DOWNATION (The Also be completed):         Down Also be completed (The Also be completed):         DOWNATION (The Also be completed):         Down Also be completed):         Down Also be completed):         DOWNATION (The Also be completed):         Down Also be completed):      < | miscelLaneOus       miscelLaneOus         Rase Flow Concitions? (Y/N):       Date of last precipitation:       J/A/A/A/A         Photograph Information:       Photograph Information:       Date of last precipitation:         Photograph Information:       Elevated Turbick/T (Y/N):       Date of last precipitation:       J/A         Photograph Information:       Elevated Turbick/T (Y/N):       Date of last precipitation:       J/A         Photograph Information:       Elevated Turbick/T (Y/N):       Cancary (% open):       Z/O 7/Q         Elevated Turbick/T (Y/N):       Cancary (% open):       Z/O 7/Q       Date of the straam (Y/N):       A         Field Measures:       Temp (*C)       Dissolved Oxygen (mg/n)       A       Dissolved Oxygen (mg/n)       Dit not         Field Measures:       Temp (*C)       Dissolved Oxygen (mg/n)       PH (N)       Transistick (unthosicm)       Dissolved Dissolved Oxygen (mg/n)         Field Measures:       Temp (*C)       Dissolved Oxygen (mg/n)       PH (N)       Dissolved Di                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Durnterer. Include appropriate field data streated from the Prinary Hastkater Habilat Assessment Manual<br>Freise of Standards Obsaverer (MN)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | October 24, 2002. Pariejen |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| CHART Frimary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3) : 50<br>HHEI Score (sum of metrics 1, 2, 3) : 50<br>HHEI Score (sum of metrics 1, 2, 3) : 50<br>MORE STREAM CHARNER OF COMMENT<br>FROM OF STREAM CHARNEL ON COMMENT<br>NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Chio's PHWH Streams" for Instructions<br>STREAM CHANNEL OF MONE I ANTURAL CHANNEL OF RECOVERING: UP RECENT OR NOR RECOVERY<br>MODIFICATIONS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.       SUBSTRATE (Estimate percent of overy type of substrate present. Check OWY by performant substrate Apecan sum of boosts A 8. (Mox of 32). Add total number of significant substrate types found substrate types for the contract substrate type for thecont type for thecontract substrate type fo | 40 misers of 13 point     40 misers of 13 point <td< td=""><td>Deteber 24.2003 Rovinor</td></td<> | Deteber 24.2003 Rovinor    |

| <i>\</i> | ' |  |
|----------|---|--|

| ADDITIONAL STREAM INFORMATION [This information from Also be Completed]:<br>QHEI PERFORMEDY - [] Yes Y as OHEI Score (if Yes, Also to completed OHEI Form)<br>DOWNSTREAM DESIGNATED USE(S) [] UNON STREAM DESIGNATED USE(S) [] OHEN COMPLETED USE(S) [] OH |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Deleber 24, 2002 Recover |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| CHEER Primary Headwater Habitat Evaluation Form<br>(1000 HHEI Score (sum of metrics 1, 2, 3) :<br><u>ANNP</u> SITE NUMBER 2 RIVER BASIN<br>HHEI SCORe (sum of metrics 1, 2, 3) :<br><u>ANNP</u> SITE NUMBER 2 RIVER BASIN<br>I CHORTHOF SITE NUMBER 2 RIVER BASIN<br>MOTE: COMPLEAD ACTION<br>NOTE: COMPLEAD ACTION<br>NOTE: COMPLEAD ACTION<br>NOTE: COMPLEAD ACTION<br>SITE AND ACTION<br>SITE AND ACTION<br>SITE AND ACTION<br>SITE AND ACTION<br>MODIFICATIONS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.       3085184.11 (Strikture procents of worky type of statistic homes Check ON, Mag Prodominent statistic scores have a some a | Occurre 24, 2007 Rinnien |

| ADDITIONAL STREAM INFORMATION This Information Must Also be Completed:<br>QHEI PERFORMED? - Twes X No. OHEI Score(If Yes, Attach Completed OHEI Form)<br>COWNSTREAM DESIGNATED USE(S)                                                               | MAPPHICE ATTACH COPIES OF MAPPE, INCLUDING THE ENTINE WATERSHED APEA CLEARLY MARK THE SITE LOCATION<br>USCS QUADRATIDE NAME. NAM. HAVE'N OH NRCS Soil Map Page NRCS Soil Map Stream Order<br>County: <u>MISCELLANEOUS</u><br>MISCELLANEOUS<br>Rese Flow Conditions? (YN); <u>Y</u> Date of lest precipitation. <u>UNE MISMAN</u> Quantity. <u>7</u><br>Prodograph Information.<br>Prodograph Information. <u>Not canopy (% open)</u> ; <u>80.90</u><br>Were samples collected for water Cremitspy (YM); <u>N</u> (Note the sample on or fit and attach results) Late Number.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Field Measures: Temp ("C)Clessored Oxygen (mg/)pH (5, U)Conductivity (unthactom)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Performed? (Y/N): Yes. Record all observations. Youcher collections optimal. NOTE: all voucher samples must be labeled with the site<br>B number. Include appropriate field data streats from the Primary Heedenet Habitat Assessment, Manuel)<br>Fish Observed? (Y/N). A voucher? (Y/N). Sabingarders Observed? (Y/N). A voucher?? (Y/N). Voucher?? (Y/N). Comments Regarding Biology.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):<br>Include important landmarks and other features of interest for pla oveluation and a neurative description of the stream's location<br>$\rho(2) = 3^{-1} \sqrt{2} \int r^{-1} \sqrt{2} r^{-1}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A terrer of the and the and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | To rate to 2000 Revision PHWHF FORM P226-2                           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| Child II. Some Real Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3) : 39<br>Stre MANEL COATE 3 REVER BASIN<br>HOND STREAM REACH (13, 200 UT. LONG. RIVER COPE REVER MILE<br>CATE 0 2020 DL (SCORE DATION COMMENTS) | NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions<br>STREAM CHANNIEL NONE / MATUPAL CHANNEL OF RECOVERED OF RECOVERING. OF RECENTIONS<br>MODIFICATIONS.<br>A SUBSTRATE (Estimate percent of every type of subtrable present. One of one of the one one of the one of the one one of the one of the one of the one of the one one one of the one one of the one of the one of the one one of the one one of the one of the one of the one of the one one of the one of the one one of the one of the one one one of the one one of the one one one of the one one one of the one one one one of the one one one of the one one one one of the one one of the one one of the one one one one one of the one one one one one one of the one one of the one one one one one one one one one on | A - Bit All and Percentages of<br>Total and Percentages of<br>Bat Stab. Builder. Cooke Barrock And<br>Bat Stab. Builder. Cooke Barrock And<br>Bat Stab. Builder. Cooke Barrock And<br>Maximum Pool Depth (Mercaure the maximum pool depth within the 61 meter (200 f) realiation masks.     (B)     A - B       2.     Maximum Pool Depth (Mercaure the maximum pool depth within the 61 meter (200 f) realiation masks.     (B)     A - B       2.     Maximum Pool Depth (Mercaure the maximum pool depth within the 61 meter (200 f) realiation masks.     (B)     (B)       2.     Maximum Pool Depth (Mercaure the maximum pool depth within the 61 meter (200 f) realiation masks.     (B)     (B)       2.     Maximum Pool Depth (Mercaure the maximum pool depth within the 61 meter (200 f) realiation masks.     (B)     (A - B)       2.     Maximum Pool Depth (Mercaure the maximum pool depth within the 61 meter or stom were press).     (C)     (C)     (C)       2.     22.5 ± 30 cm (200 fb)     (C)     (C)     (C)     (C)       2.     10 = 22.5 ± 30 cm (200 fb)     (C)     (C)     (C) | Comments<br>a BANK FULL WDTH (Measured as the average of 34 measurements)<br>a Static full wDTH (Measured as the average of 34 measurements)<br>a Static for the static full wDTH (Measured as the average of 34 measurements)<br>a Static for the static for | This information must also be completed     This information must also be completed       RIPARIAN ZONE AND FLOODPLAN QUALITY     Show The CoopPLAN QUALITY       RIPARIAN WIDTH     ELCOOPPLAN QUALITY       Moderation Floring     Intervention       Moderation Floring     Intervention       Moderation Floring     Intervention       Moderation     Intervention       Moderation     Intervention       Intervention     Intervention | Subsurfaces frow with scatted pools (interstinal) Usy onsmore, no water (LEUNE) were set as a construction of the set of | STREAM GRADIENT ESTIMATE Machinate d'arror la Moderate d'arror la Moderate d'arror la Severe no innon presente de la la Moderate d'arror la Moderate d'arror la Moderate d'arror la Plance de la Severe no innon page - 1 Decembra 24.2002 Review |

| ADDITIONAL STREAM INFORMATICN (This Information Must Also to Completed)<br>OHEL PERFORMED7 - (1) ves [Also OHET Score] [IT Yes, Attach Completed]<br>OWMASTREAM DESIGNATED USE(S)<br>DOWNATIREAM | MISCELLANEOUS Base Flow Conditions? (YiNy).  Date of Last precipitation 1/1/K/N (Jel/N Quantity<br>Proopgraph Information.  Elevated Turb dity? (YiNy).  Canopy (% open)  Elevated Turb dity? (YiNy).  (Note lab sample no or id and attach results) Lab Number.  Field Meseures. Temp (TO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | BIOTIC EVALIATION<br>Performed? (Y.W): Yes, Record all observations. Youcher collections optional. AOTE: all voucher samples must be backo with the site<br>ID number. Include apprinted failed data sheets from the Princery Headwater Hobital Assessment Manual)<br>Fish Observed? (YM), W Voucher? (YM), Salamanders Observed? (YM), W Voucher? (YM), W Voucher? (YM), Commants Regarding Bolosy.                                                                                                                                                                                                                                                                      | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):<br>Include Important landmarts and other features of interest for sile ovaluation and a narrative description of this stream's location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FLOW L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Denov 24 2002 Fivedon                                                                                                            |
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| Chief Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3):<br>The parameter of metrics 1, 2, 3):                                                                        | 1.     SUBSTRATE (Estimate percent of overy type of substrate present. Check ONLY two predominant substrate ITYPE lowes<br>(Mar of 32), Add tetal number of significant substrate present. Check ONLY two predominant substrate of the<br>index substrates (restant)     HHEI       The<br>REDR SUASS (restant)     EPERCENT     The<br>SUBSTRATE (Estimate percent)     EPERCENT       The<br>REDR SUASS (restant)     EPERCENT     The<br>SUBSTRATE (Estimate percent)     EPERCENT       The<br>REDR SUASS (restant)     EPERCENT     The<br>SUBSTRATE (PERCENT)     PRESIDE<br>(Estimate percent)     PRESIDE<br>(Estimate percent)       DDDD REDR FILE (estimation of the percent)     EDD REDR PERCENTOR     PRESIDE<br>(Estimate percent)     PRESIDE<br>(Estimate percent)     PRESIDE<br>(Estimate percent)     POINT       DDD REDR FILE (estimate percent)     Estimate percent)     Estimate percent     POINT     POINT     POINT       DDD REDR FILE (estimate percent)     Estimate percent)     POINT     POINT     POINT     POINT       DDD REDR FILE (estimate percent)     Estimate percent     POINT     POINT     POINT       SAND (c2 funit (p pel)     DOINT     POINT     POINT     POINT       SAND (c2 funit (p pel)     DOINT     POINT     POINT     POINT       SAND (c2 funit (p pel)     DOINT     POINT     POINT     POINT       SAND (c2 funit (p pel)     DOINT     POINT     POINT       SAND (c2 funit | 3.     BANK FULL WIDTH (Massured as the average of 3.4 mesurements)     (Check ONLY one book)     Benfull       3.     BANK FULL WIDTH (Massured as the average of 3.4 mesurements)     (Check ONLY one book)     Benfull       3.     BANK FULL WIDTH (Massured as the average of 3.4 mesurements)     (Check ONLY one book)     Benfull       3.     BANK FULL WIDTH (Massured as the average of 3.4 mesurements)     (Check ONLY one book)     Benfull       3.     Salam - 15 m (P S T - 4 S) [26 pts]     > 1.0 m (S S 7) [5 pts]     Moze30       3.15 m - 3.0 m (P S T - 4 S) [26 pts]     AVERAGE BANKFULL WIDTH (maters)     Salam - 15 m (P S T - 4 S) [26 pts] | RIPARIAN ZONE AND FLOODPLAN GUALITY     AMOTE River Left (2) and Kight (R) as tooking downstream?       RIPARIAN WIDTH     ELCOODPLAN GUALITY       RIPARIAN     ELCONDFILIENCE       Modarato 5 (Dm     Mathematic Forest, Velland of OL       Modarato 5 (Dm     Mathematics Forest, Neurol of OL       Modarato 5 (Dm     Fred       Namow <5m | FLOW REGIME (At Time of Evaluation)     (Check ONLY one body<br>Stream Flowing<br>Consumero flowing<br>Constructs     Day channel, isolated pools, no flow (Intermittent)       Disy channel, isolated pools, no water (External)     Day channel, isolated pools, no flow (Intermittent)       Constructs     Construction       Stream Flowing     Day channel, isolated pools, no flow (Intermittent)       Constructs     Day channel, isolated pools, no flow (Intermittent)       Stream Flowing     Construction       Construct     10       Stream Flowing     20       Mone     15       Construct     15 | STREAM CRADIENT ESTIMATE Divide Dividence Dividence Dividence to Severe Asserte Promana<br>Difet di Andrea<br>PHWK Form Page - 1 |

| ADDITIONAL STREAM INFORMATION (This Information threat Also be Completed)<br>ALEI PERFORMED? - TYOS XNO CHELSCORE<br>DOWNSTREAM DESIGNATED USE(S)<br>DOWN NAME:<br>DOWN NA | MSCELLANEOUS       MSCELLANEOUS         Base Flow Conditions? (Y.N):       Date of tast precipitation. UN M.N.O.M.         Protograph Information.       Elevated Trublicky (MN)         Elevated Trublicky (MN)       Canopy (% opon);         Elevated Trublicky (MN)       Canopy (% opon);         Messames collected for water chantery (MN);       M. Note tab sample ro. or id, and attach results) Lab Numbor.         Field Messures:       Term (TC)       Dissolved Oxymon (mg/l)         Field Messures:       Term (TC)       Dissolved Oxymon (mg/l)         Is the sampling reach representative of the stream (VM)       In Labace explain.       Conductivity (unthostern)         Additional commentationscription of pollution impolds.       In null please explain.       Dissolved Oxymon (mg/l)       In null please explain.         Is the sampling reach representative of the stream (VM)       In null please explain.       Conductivity (unthostern)       In the stream (MN)         Additional commentationscription of pollution impolds.       March       In and please explain.       Conductivity (unthostern)         Field Messer of the stream (VM)       In out please explain.       More Please explain.       Conductivity (unthostern)         Additional comments for explain       In out please explain.       In out please explain.       Visuativity (unthostern)         Additional comments for explain <th>Drawing and narrarity description of STREAM REACH (This must be completed):         Determine and narrarity description of the resurce of historist for sho evaluation and a maratro description of the stream's location         FLOW       Image: Prove the completed):         PLOM       Image: Prove the completed):</th> | Drawing and narrarity description of STREAM REACH (This must be completed):         Determine and narrarity description of the resurce of historist for sho evaluation and a maratro description of the stream's location         FLOW       Image: Prove the completed):         PLOM       Image: Prove the completed):                                                                          |
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| Image: Simple Section Form     Simple Form       Primary Headwater Habitat Evaluation Form     Form       HEI Score (sum of metrics 1, 2, 3) : 54       Metocation       Simple simple simple simple solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | BLIBSTRATE (Extende porcent of every type of substrate spare function and statement Prez boxes     HHE       RULES FARTE (Extende porcent of every type of substrate spare function of sparse has a fight by the production substrate spare function of sparse has a fight by the production of the                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | In the information must also be completed     The information must also be completed       RipARIAN ZONE AND FLOODPLAN OUALITY     CANDIE: Ever Leh (L) and Algar (R) as tooling downstreamth       RipARIAN SONE AND FLOODPLAN OUALITY     CANDIE: Ever Leh (L) and Algar (R) as tooling downstreamth       RipARIAN WOTH     FLOODPLAN OUALITY     CANDIE: Ever Leh (L) and Algar (R) as tooling downstreamth       RipARIAN WOTH     Excoord Park (March Price)     Constrained     Constrained       RipARIAN SONE     In the information France, Should of Constrained     Constrained     Constrained       RipARIAN Condition     Constrained     Constrained     Constrained     Constrained       RipARIAN     Constrained     Constrained     Constrained     C |

| ADDITIONAL STREAM INFORMATION (This Information Munt Also be Completed);         CHEIF PERFORMEDY - [] Ves         CHEIF PERFORMEDY - [] Ves         DOUVINSTREAM DESIGNATED (USE(S)         DOUVINSTREAM DESIGNATED (USE(S) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Occose 24, 1222 Newson    |
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| Chiefer Primary Headwater Habitat Evaluation Form<br>MHEI Score (sum of metrics 1, 2, 3): 37<br>STE NAMELOCYTON<br>STE NAMELOCYTON<br>STE NAMELOCYTON<br>STE NAMELOCYTON<br>STE NAMELOCYTON<br>STE NAMELOCYTON<br>STE NAMELOCYTON<br>STE NAMELOCYTON<br>STE NAMELOCYTON<br>NOTE/Complete All terms On this Form - Refer to "Terl Evaluation Manual for Ohlo's PHYMH Struama" for Instructions<br>NOTE/Complete All terms On this Form - Refer to "Terl Evaluation Manual for Ohlo's PHYMH Struama" for Instructions<br>STREAM CHAINLE.<br>NOTE/Complete All terms On this Form - Refer to "Terl Ecoverated Of RECOVERING. O RECOVER<br>NOTE/Complete All terms On this Form - Refer to "Terl Evaluation Manual for Ohlo's PHYMH Struama" for Instructions<br>STREAM CHAINLE.<br>MODIFICATIONS:                                                                                                                                                                                                                       | 1.       305:101 Telefamilie prevent of every type of administal prevent. Object (04, Vags preciminar substate) YVSE from the every type of administal prevent of every type of administal prevent. Object administal prevent of every type of administal prevent of every type of administal prevent. Object administal prevent of every type of administal prevent. Object administal prevent of every type of administal prevent. Object administance of the object administance object administance of the object administance of the | Datebor 21, 2002 Reventor |

| ADDITIONAL STREAM BIF ORMATION (The Intermetion Mark Allo by Compared);<br>ANE PERSONNEL7 - 1 Yes (No. OHE) Score (if Yes, Attach Compared CHE) Form)<br>DOMNETREAM DESIGNATED USE(S)<br>CVM Name: CVM NAM | MAPPING. ATTACH COPRES OF MAPS, INCLUDING THE ENTIFIE WATERSHED AREA. GLEARLY MARK THE STE LOCATION<br>USOS CLANDANNA NATHE. N. B. V. J. H. M. C. O. H. NRCSS Sol Map Pagas. NRCS Soli Map Stream Other<br>COUNTY. <u>M.B. M. M.</u>                                                                                                                                                                                                                     | Base From Contrainers (1974), A Date of sets precondation. U.I. L.V. V. V. 1. Outany                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Additional comments description of pollution impacts.<br>BUOTIC EVALUATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Performed? (XN): Yet (If Yes, Record at observations, Voucher collections cellicatis). NOTE all vectores samples must be lateled with the site (I) cumber. Include approvate field other sheets from the Frinny Haudware Habbar Associater Hammel). Field Descred? (YN), <u>V</u> submer? (YN), <u>V</u> vectore? (Y | DIVAMING AND MARRATIVE DESCRAFTION OF STREAM REACH (This <u>must</u> be completed):<br>Indude important landmarks and other features of interest for site weekelion and a nametice description of the stream's location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FLOW + BERNEL REWESS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | B B B B B B B B B B B B B B B B B B B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Jure 24, 2002 Roofster<br>Occupe 24, 2002 Roofster                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3) : 19<br>HHEI Score (sum of metrics 1, 2, 3) : 19<br>HMM STERNINGER TO THE RAVER ONSIN AND STERNING AREA (MM) 2-1 M/<br>LENGTH OF STERMINE AND MALE<br>COMMENTS OF SCORE BOT COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | NOTE: dompieta All liams On This Form - Refer to "Field Evaluation Manuel for Ohio's PHWM Streams" for Instructions<br>STREAM CHANNEL. WONE / NATURAL CHANNEL. C. RECOVERED. C. RECOVERING. C. RECENT OR NO RECOVERY<br>MODIFICATIONS:<br>1. SUBSTRATE (Estimate percent of some type of substrate present. Check OM, Y we predominent substrate 7/7E bases. HHEL<br>(Max of 32), Add tabl number of significant substrate present. Check OM, Y we predominent substrate 7/7E bases. HHEL | BLOF SLABS THe hall     BLOF SLABS THe hall     BLOF SLABS THe hall     BLOF SLABS THe hall     Difference       DD10     BOLUDER (2558 mm) [16 pain]     Difference     Difference     Difference     Difference       DD10     BELNOS (2016)     BELNOS (2016)     Difference     Difference     Difference       DD10     BLOF SLABS (10 pain)     Difference     Difference     Difference     Difference       DD10     CORRE (55-36 mm) (12 pain)     Difference     Difference     Difference     Difference       DD10     CORRE (15 pain)     Difference     Difference     Difference     Difference       SLADE (27 mm) (15 pain)     Difference     Difference     Difference     Difference       SLADE (27 mm) (15 pain)     Difference     Difference     Difference     Difference       SLADE (27 mm) (15 pain)     Difference     Difference     Difference     Difference       SLADE (27 mm) (15 pain)     Difference     Difference     Difference     Difference       SLADE (27 mm) (15 pain)     Difference     Difference     Difference     Difference       SLADE (27 mm) (15 pain)     Difference     Difference     Difference     Difference       SLADE (27 mm) (15 pain)     Difference     Difference     Differeeneeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee | <ul> <li>Washimum Pool Doppt (Aleasame free markinum pool depth within the 51 netize (200 Pp of Doppt)</li> <li>Nashimum Pool Doppt (Aleasame free markinum pool depth within the 51 netize (200 Pp of Doppt)</li> <li>a contracting the pail</li> <li>a contracting the pail</li> <li>b contracting the pail</li> <li>c contracting the pail</li> </ul> | A BANK FULL WIDTH (Measured as the arwingte of 3-1 measurements) (Check OMEY one box): Bantkull<br>- 40 meters (2) (20 pts)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | The Information multi also be completed     The Information multi also be completed       RIPARUM ZONE AND FLOODPLUM UNCTY     TAVOTE: Rive Lot (L) and Right (R) are looking downstreaming       RIPARUM ZONE AND FLOODPLUM UNCTY     TAVOTE: Rive Lot (L) and Right (R) are looking downstreaming       RIPARUM VIDITH     FLOODPLUM UNCTY       RIPARUM VIDITH     FLOODPLUM UNCTY <th>COMMENTS CONTRACTS CONTRACTS AND A CONTRACTS A</th> <th>Annosity of the state of th</th> <th>Phillipping and the second second</th> | COMMENTS CONTRACTS CONTRACTS AND A CONTRACTS A | Annosity of the state of th | Phillipping and the second |

| ADDITIONALL STREAM INCOMMENTION (THIS Information thirst Also In Contributed):<br>QNE PERFORMEDY - [] Ve:<br>QNE PERFORMEDY - [] Ve:<br>QNE PERFORMEDY - [] Ve:<br>CONNECTEM DESIGNATED USE(S)<br>CONNECTEM DESIGNATED USE(S) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
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| Primary Headwater Habitat Evaluation Form         Primary Headwater Habitat Evaluation Form         Sife Numerocation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1.       Internet of control proved of output provide a provide a provide of control pr |  |

| ADOFTICAMAL STREEAM DEFCOMANTION (This Information Mass Also be Completed CHELFORT)<br>CHEL PERFORMEDT - [] Yes [] Win CHEL Score [] (If Yes, Anach Completed CHELFORT)<br>DOWNSTREAM DESIGNATED USERS)<br>DOWNSTREAM DESIGNATED USERS (NACE NOT NOT REAM DESIGNATED (NACE NOT REAM DESIGN | Hassell Laveledes       Ease of last precipitation: UNKPLATUM       Quantity       27         Pholograph information:       Pholograph information:       Pholograph information:       Pholograph information:         Pholograph information:       Pholograph information:       Pholograph information:       Pholograph information:         Pholograph information:       Pholograph information:       Pholograph information:       Canopy (% open):       20       20         Elsevelact Truchatory (YNN):       Molochanting (matching (matchi                                                                                                                                   | BIOTIC EVALUATION<br>Performed? (May: 1) (1) Yes, Record all doservetors. Voucher collections opional. NOTE all voucher name he aboled with the step<br>to anneer. Include appropriate their data sheets from its Primary Handwetter Habital Assessment Merual)<br>Fish Observed? (MA) // Voucher? (MA) // Salamanders Observed? (MA) // Voucher? (MA) // Voucher? (MA) //<br>Frags or Tappoles Observed? (MA) // Voucher? (MA) // Aquatic Maccohwritebrakes Observed? (MA) // Voucher? (MA) //<br>Commerch Regarding Biblogy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DEAMING AND NARRATIVE DESCRIPTION OF STREAM REACH (This meet to completed):<br>technic important innimets and other features of interestion state anterative obscription of the trunence location<br>$HOW \qquad How \qquad How How How How How How How How How How$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Primary Headwater Habitat Evaluation Form<br>Primary Headwater Habitat Evaluation Form 34<br>HHEI Score (sum of metrics 1, 2, 3) : 34<br>HHEI Score (sum of metrics 1, 2, 3) : 34<br>HHEI Score (sum of metrics 1, 2, 3) : 34<br>HHEI Score (sum of metrics 1, 2, 3) : 34<br>HHEI Score (sum of metrics 1, 2, 3) : 34<br>Nore value of the source                                                                                      | 1. SUBSTRATE (Extimute present dreary type of substrate present the TYPE boxes A B.<br>(Max of 22, Add tatai number of significant taustrate present drear (B), Final metric acore is sum of boxes A B.<br>(Max of 22, Add tatai number of significant taustrate present)     HHE       1. Substrate AB.     (Max of 22, Add tatai number of significant taustrate present)     EECEN     The AB.       1. Discussion of the significant taustrate present of the of the source A B.     Substrate AB.     Max of 22, Add tatai number of significant taustrate present)       1. Discussion of the source of the significant taustrate present of the source of the source of the source A B.     Substrate Present Prese | 3.     EAMIK FULL MIDTH (Interaction of 24 molecularity)     (Charles ONLY One book)     Bankfull       1     > +40 metric of 150 ptb)     1     > 10 m - 1.5 m (> 3 · 4 · 6 · 7) (15 ptb)       1     > +50 m etric of 150 ptb)     1     > 10 m - 1.5 m (> 3 · 4 · 6 · 7) (15 ptb)       1     > +50 m etric of 150 ptb)     1     > 10 m - 1.5 m (> 3 · 4 · 6 · 7) (15 ptb)       1     > +50 m etric of 150 ptb)     1     1       1     > 10 m - 1.5 m (> 3 · 4 · 6 · 7) (15 ptb)     Molth       1     > 10 m - 1.5 m (> 3 · 4 · 6 · 7) (15 ptb)     Molth       1     > 10 m - 1.5 m (> 3 · 4 · 6 · 7) (15 ptb)     Molth       1     > 10 m - 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 10 m - 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 10 m - 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 10 m - 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 10 m - 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 10 m - 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 1.5 m (> 3 · 7) (15 ptb)     Molth       1     > 1.5 m (> 3 | Riversion ZONE AND FLOOD and State Life Identified must also be completed     This information must also be completed       Riversion ZONE AND FLOOD AND CALLED.     Riversion Stratt N, MODTH       Riversion ZONE AND FLOOD AND CALLED.     Ricolary ALD CALLED.       Riversion ZONE     Riversion ZONE       Riversinder ZONE     Riversion ZONE |

| ADDITIONAL STREAM INFORMATION (The Information Injust Also be Compared);<br>CHE PERFORMED? - Uver 1 No. 0418 Score (11 Ves. Alson Compared Officient)<br>CONSTREAM DESIGNATED USE(S)<br>D.WINH LAINE:<br>D.WINH L | mccruding       mccruding |
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| Primary Headwater Habitat Evaluation Form       Intervention       Intervention         Site NAMER COATION       Intervent Evaluation Form       Intervention         Site NAMER COATION       Intervent Evaluation       Intervention         Site NAMER COATION       Intervent Coate       Intervention         Site NAMER COATION       Intervent Coate       Intervention         Intervention       Intervention       Intervention         Interventions       Intervention       Intervention         Interventions:       Intervention       Intervention                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <ul> <li></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| BNAL STREAM NET CROMATTICAN TTTLE Information Must Abro Do Competed Stant<br>Antil PERFORMEDY - コヤss 秋 No. Chell Score If Yos. Aboch Completed Chell Farm)<br>Antional Antil Compact Stream Distance from Evolution Stream<br>Hanne: Distance from Evolution Stream<br>Hanne: Distance from Evolution Stream<br>Hanne: Distance from Evolution Stream Order<br>Adorbance Nonve. <u>MEN HOM AN DH</u> NRCS Scal Map Prage:NRCS Scil Map Stream Order<br>MAP LA Townshol / CM. <u>HOM AN DH</u> Townshol / CM:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | MISCEL AMECULS<br>MISCEL AMECULS<br>one Conditionary (WIL:<br>and Information:<br>a Turbicity (VM);<br>and Intercention:<br>Dense: Temp (C) Dense (A contr. 2000)<br>a Turbicity (Introduction) (M);<br>Misce contended for water charactery (M);<br>Misce contended for a charactery (M);<br>Misce contended for of her charactery (M);<br>Misce contended for the character | BIOTIC EVALUATION<br>ed? (YVN):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):<br>relide important bodinarios and other features of interest for site extension and a narrelive chercipition of the streem's focation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | BTW-2, BW-3 BW-3 PWA N                                                                                                                                                                                                 |
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| PTIMARY HEADWATER FLADITAT E-VAUATION FORM<br>HHEI Score (sum of metrics 1, 2, 3) : 3<br>SITE BUNGER 3 [ ] RIVER RASIN<br>DEPENDING ON UNT - RIVER RASIN - DRAINAGE AREA (mh) <u>Z [ hh</u> ) ; 2<br>OR - ON - CAMMENTS - COMMENTS - DRAINAGE AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RASIN - COMMENTS - DRAINAGE AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RASIN - COMMENTS - DRAINAGE AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RASIN - COMMENTS - DRAINAGE AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RASIN - RAVER RASIN - RAVER CODE - RAVER MILE - DRAINAGE AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RASIN - RAVER RASIN - RAVER CODE - RAVER MILE - DRAINAGE AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RASIN - RAVER RASIN - RAVER RAVER AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RASIN - RAVER RASIN - RAVER RAVER AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RAVER RASIN - RAVER RASIN - RAVER RAVER AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RAVER RASIN - RAVER RASIN - RAVER RAVER AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RAVER RASIN - RAVER RASIN - RAVER RAVER AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RAVER RASIN - RAVER RASIN - RAVER RAVER AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RAVER RASIN - RAVER RASIN - RAVER RAVER AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RAVER RAVER RASIN - RAVER RAVER RAVER AREA (mh) <u>Z [ hh</u> ) ; 2<br>DEAM - RAVER RAV | Rep Percent of every type of substrate present. Clear ONLY bug predominent substrate types found     HHEI       Rep Percent of every type of substrate present. Clear ONLY bug predominent substrate types found     HHEI       Rem Lear Process     Electronic stan of boxes A.6.       Rem Lear Process     Electronic stan       Rem Lear Process     A.4.8       Rem Lear Process     Rem Lear Process       Rem Lear Process                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Measured as the average of 3-4 severational (Check OMLY one box):     Bentall     Perform       Perform     Nodel     Nodel     Bentall       Perform     Nodel     Nodel     Bentall       Perform     State     State     Bentall       Perform     State     Bentall     State       Perform     State     Bentall     Bentall       Perform     State     Bentall     Bentall       Perform     State     Bentall     Bentall       Perform     State     Bentall     Bentall | RE AND FLOODEPLAIN CHARTING meets of two be completed       NE AND FLOODEPLAIN CHART AND TERM (R) as looking connebrands       IDTH     FLOODE-LAIN CHART AND TERM (R) as looking connebrands       IDTH     FLOODE-LAIN CHART AND TERM (R) as looking connebrands       IDTH     ALL F CARAFT AND TERM (R) as looking connebrands       IDTH     ALL F CARAFT AND TERM (R) as looking connebrands       IDTH     ALL F CARAFT AND AND CHART AND | Vurtueer of bending per 61 in (2001) of chearmed) (Check ONLY one back)<br>(urtueer of bending per 61 in (2001) of chearmed) (Check ONLY one back)<br>1.1.5<br>ESTIMATE<br>ESTIMATE<br>PHYME Form Page - 1<br>Conserve |

| ADDITIONAL STREAM INFORMATION This Information Must Alve by Completed):<br>ADDITIONAL STREAM INFORMATION This Information Must Alve by Completed):<br>COMMENDER INFORMATION OF A Stream Of Standard Cheft Form)<br>DOWNENDER IN DESIGNATED USE(S)<br>DOWN NAME<br>COMMENDER IN THE AND DESIGNATED USE(S)<br>DOWN NAME<br>COMMENDER IN THE AND DESIGNATED USE(S)<br>DOWN NAME<br>COMMENDER IN THE AND DESIGNATED USE(S)<br>DOWN NAME<br>DOWN N | INFOCELLANEOUS         INTECELLANEOUS         Base Flow Conditions? (YM):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):<br>Totodo Important isonanance and oner isonance of interest for site contains and a antactive description of the stream's beation<br>FLOW  FLOW FLOW FLOW FLOW FLOW FLOW FLOW FLOW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| CLANS THE Score (sum of metrics 1, 2, 3):<br>MHEI Score (sum of metrics 1, 2, 3):<br>The NAME OCATION HEADWATER HABILAT EVALUATION FORM<br>The NAME OCATION - STRE MARSH HHEI SCORE (sum of metrics 1, 2, 3):<br>The NAME OCATION - STRE MARSH - MA                                                                                                                                                                                                                                                                                                                            | 1.       SUBSTRATE (Estimate present of every type of relation to present. Clored ONLY two prodominant substrate (over all significant substrate operation of market accore is sum of bases A & B. (Max of 23), Aud that market accore is sum of bases A & B. (Max of 23), Aud that market accore is sum of bases A & B. (Max of 23), Aud that market accore is sum of bases A & B. (Max of 23), Aud that market accore is sum of bases A & B. (Max of 23), Aud that market accore is sum of bases A & B. (Max of 23), Aud that market accore is sum of bases A & B. (Max of 23), Aud that market accore is sum of bases A & B. (Max of 23), Aud that market accore is sum of bases A & B. (Max of 23), Aud that market accore is sum of bases A & B. (Max of 23), Aud that market accore is sum of bases A & B. (Max of 23), Aud that accore the accore accor | The Information must also be completed       The Information must also be completed         Risparkin WIDTH       ELOODELANK OLALITY       AVOTE Rive Let (J) and Right (R) as looking downstream?         Risparkin WIDTH       ELOODELANK OLALITY       AVOTE Rive Let (J) and Right (R) as looking downstream?         Mark Person       Mark Predominant (Per Bank)       I       R         Mark Predominant (Per Bank)       R       R       I       Conservation         Mark Predominant (Per Bank)       R       R       I       Conservation       III (R)         Mark Predominant (Per Bank)       R       R       Mark Predominant (Per Bank)       III (R)       Conservation       III (R)         Mark Predominant (Per Bank)       R       R       Mark Predominant (Per Bank)       III (R)       Conservation       IIII (R)         Mark Predominant (Per Bank)       R       Readeration       Clark (R)       Mark R       Conservation       Conservation         Mark R       Diverse       Diverse       Diverse       Diverse       Diverse       Conservation         Read R       R       Read R       R       R       Conservation       Conservation         R       Read R       R       R       Conservation       Conservation       Conservation |

| ADDITICNAL STREAM INFORMATION (This information Must Also be Completed):<br>CHEIP PERFORMED7 - (17 Yes) (17 Yes) (17 Yes), Arach Completed CHEI Form)<br>DOWNSTREAM (DESIGNATED USE(s) (17 Yes), Arach Completed CHEI Form)<br>MAPPING: ATTACH COPES OF MAPS, INCLUDING THE ENTRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION<br>USCS Cuadrange Names. (NEW, H. ANY, A. | MISCELLANEOUS       Date of last precipitation:       Otianity         Base Flow Conditions? (YNN: V       Date of last precipitation:       Otianity         Photograph Information:       V       Canopy (% open):       Otion         Photograph Information:       Photograph no. or (iL and attach results) Lab Number:       If attach results) Lab Number:         Field Measures:       Temp (*C)       Discolered for write: Attach representation of the stream (YN), M       H not, phase explain:         Is the samping reach representation of pollution impacts:       H not, phase explain:       Conductivity (µmhos/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | BIOTIC EVALUATION<br>Performed/ (YNN): (If Yes, Peocid all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the alto<br>Drumber. Induce appropriate field data sheets from the Primary Headwater Habitat Assessament Manual)<br>Fish Observad? (YNN) // Voucher? (YNN) // VOUCHE? (YNN) // Voucher? ( | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):<br>Include important landmarks and other fastures of interest for site evaluation and a maintable description of the stream's location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Control of the Page - 2<br>Control of the Page - 2                                                                                                                                                                             |
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| Children       Primary Headwater Habitat Evaluation Form         Imary Headwater Habitat Evaluation Form       Imary Headwater Habitat Evaluation Form         Imary Headwater Habitat Evaluation Form       Imary Headwater Habitat Evaluation Form         Imary Headwater Habitat Evaluation Form       Imary Headwater Habitat Evaluation Form         Imary Headwater Habitat Evaluation Form       Imary Headwater Habitat Evaluation         Imary Headwater Habitat Evaluation       Imary Headwater 1, 2, 3):         Imary Headwater Habitat Evaluation       Imary Headwater 1, 2, 3):         Imary Habitat Evaluation       Imary Headwater 1, 2, 3):         Imary Habitat Habitat Habitat Habitat Evaluation       Imary Habitat 1, 10, 10, 10, 10, 10, 10, 10, 10, 10,                                                                                                                                   | 1.       SUBSTRATE (Fatimush precent of every type of substrate present. Check OW, May prodominant substrate TYPE boxes <ul> <li>(Max of 32, Add total number of significant substrate types found (Max of 8). Final metric score is sun of locate A 8.</li> <li>(Max of 32, Add total number of significant substrate types found (Max of 8). Final metric score is sun of locate A 8.</li> <li>(Max of 32, Add total number of significant substrate types found (Max of 8). Final metric score is sun of locate A 8.</li> <li>(Max of 32, Add total number of significant substrate types found (Max of 8). Final metric score is sun of locate A 8.</li> <li>(Metric BUR substrate present (15 find)</li> <li>(Metric Consistific 65.55 mm) (15 find)</li> <li>(Metric Consistific 65.55 mm) (15 find)</li> <li>(Metric Consistific 65.55 mm) (12 find)</li> <li>(Metric Consisti</li></ul> | 4     10     2.22     Interpreted     Notwitter OR MICHE OR MICHE OR MICHE OR MICHER OR MICHING OR MICHER OR MICH                                                     | RIPARIAN ZOKE AND FLOODPLAIN QUALITY       Zinto information must also be completed         RIPARIAN ZOKE AND FLOODPLAIN QUALITY       Zinto Subartity         RIPARIAN ZOKE AND HALING       L R.         Matter Fordermann per Sarth)       L R.         Construction       Timedate Fordermann per Sarth)         Matter Fordermann per Sarth)       L R.         Construction       Timedate Fordermann per Sarth)         None       Construction         Construction       Construction         Construction | COMMENTS<br>SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):<br>None<br>0.5<br>0.5<br>0.5<br>1.5<br>0.5<br>1.5<br>0.5<br>1.5<br>0.5<br>1.5<br>0.5<br>0.5<br>0.5<br>0.5<br>0.5<br>0.5<br>0.5<br>0 |

| ADDITTONAL, STREAM INFORMATION (This Information Must Also to Completed):<br>ADDITTONAL, STREAM INFORMATION (This Information Must Also to Completed):<br>OHEL PERFORMEDP - [] Ves []   | MISCELLAREOUS       MISCELLAREOUS         Base Flow Conditions? (YNN)       Date of last precipation. Un KAADAA       Quantity:         Prelograph Information       Prelograph Information       Campy (% open);       Date of last precipation. Un KAADAA         Prelograph Information       Prelograph Information       Campy (% open);       Date of last precipation. Un KAADAA       Quantity:         Prelograph Information       Elevanet Turbdity? (YN), M. (Note bb sample ro. oi id and taltech results). Lab Munder       Elevanet Turbdity? (YN), M. (Note bb sample ro. oi id and taltech results). Lab Munder         Field Messaures:       Terro (C)       Dissolved Cryper (rpst), M. (Note bb sample ro. oi id and taltech results). Lab Presentation of the stream (YN), Monder (R).         La the sampling reactin representation of the stream (YN), Mole bb sample ro. oi id and taltech results) (minder rol).       Lat research (NN), Monder (R)         Addritorial commentations of the stream (YN), Mole bb sample ro. oi id and taltech results). Lab Autobar       Demoder (R)         Addritorial commentations of the stream (YN), Mole bb sample rol).       Lan canders (R)       Monder (R)         Addritorial commentations of the stream (YN), Mole bb sample rol).       Monder (R)       Monder (R)       Monder (R)         Addritorial commentations of the stream (NN), Moucher (R)       Monder (R)       Monder (R)       Monder (R)       Monder (R)         BEIDIE EVALUATION       Domment inspec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Distanting and and Radia Narga and an analysis de completed:         Instanting and and related and an analysis of the stream's location of the stream's location of the stream's location.         Instanting and and analysis of the stream's location of the stream's location.         Instanting and analysis of the stream's location.         Instanting analysis of the stream's location. |
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| Chieder Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3): UCH<br>In Min Stream Stream (sum of metrics 1, 2, 3): UCH<br>Min Stream Stream (sum of the stan stream) (Chieder Stream) (Stream) (Chieder Stream) (Stream) (Strea | 1.       SUBSTRATE (Extinate percent of overy type of auditatia present. Cneck. ONLY teng predominant substants PYEE konson<br>(Nat. of 22). Add tatal number of significant substant present. Cneck. ONLY teng predominant substants PYEE konson<br>(Nat. of 22). Add tatal number of significant substant present. The substant present of the states ((s. 1). Fill in the state state is the state state is the state state state is the state state state is the state | This information must also be completed         This information must also be completed         Prover ALD FLOODPLINY CANCET First Let (L) and Pign (F) as rooking downstream 2         ANOTE First Let (L) and Pign (F) as rooking downstream 2         A ref Early       A ref a rooking downstream 2       A ref a rooking       A ref a rooking       A ref a rooking       A rookin                                                                                                                     |

| ADDITIONAL STREAM INFORMATION This Information Must Also be Completed:<br>CHELPERFORMED7 - TYOS ALSO CHELSCORD (If Yes. Allach Completed CHELFOTT)<br>DOWNSTREAM DESIGNATED USERS)<br>TOWH Nome:<br>COM Nome:<br>COM Nome:<br>COM Nome:<br>DELIDER FOR EVALUATION COMES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION<br>USES Quadrangle Name:<br>NAPPING: ATTACH COMES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION<br>USES Quadrangle Name:<br>NAPING: ATTACH COMES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION<br>USES QUADRANGION THROW ON AND TOTA<br>COMMY MAPS INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION<br>USES QUADRANGION THROW ON AND TOTA<br>COMMY MAPS INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION<br>USES QUADRANGION THROW ON AND TOTAL ON AND TOTAL AND THE SITE LOCATION<br>USES QUADRANGION THROW ON AND TOTAL AND THROW ON AND THE SITE LOCATION<br>USES QUADRANGION THROW ON AND TOTAL AND THROW ON AND TOTAL AND THROW ON AND TOTAL AND THROW ON AND TOTAL AND THROW ON AND T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MISCELLANEOUS<br>Base Flow Conditions? (****) Date of last precipication. W.N.K.M.C.Y.M. Quantity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | BIOTIC EVAUIATION<br>Performed? (パN): / 「Twes Record at observations. Voucher collections optional: NOTE: at voucher samples must be labeled with the site<br>Defformed? (パN) / 「D number, Include appropriate field date actions from the Primary approarge Handwall All Argent Manual)<br>Fish Observed? (パN) / Voucher (パN) Salamandors Observed? (パN) / Voucher? (NN) / イン・アーナアひ - [172_0_1]<br>Firags of Tadpoles Observed? (パN) / Voucher? (パN) / Voucher? (パN) / Voucher? (パN) /<br>Comments Regarding Biology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ERAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):<br>Include important tandmates and other failures for sale availation and a narrative description of the reveart's location<br>and the tandmates and other failures of history for the tensor's location<br>PLOW J | OLIZE 94, 2008 From     |
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| Chief Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3): <u>[2]</u><br><u>STE NUMER OCATION</u> SITE NUMBER <u>FINER BASIN</u> HHEI SCORE (sum of metrics 1, 2, 3): <u>[2]</u><br><u>STE NUMER OCATION</u> SITE NUMBER <u>FINER BASIN</u> <u>PROFERENCE AREA (mi) <u>2</u> (m) <u>2</u><br/><u>ENGENCE ATTE METRICS <u>FINER BASIN</u> <u>COMMENTS</u><br/><u>DATE 27 (2000) <u>STE NUMBER <u>FINI</u></u> <u>COMMENTS</u><br/><u>DATE 27 (2000) <u>STE NUMER FINI</u> <u>COMMENTS</u><br/><u>DATE 27 (2000) <u>STE 70 (2000) <u>STE 70 (2000)</u> <u>COMMENTS</u><br/><u>DATE 27 (2000) <u>STE 70 (2000)</u> <u>COMMENTS</u><br/><u>DATE 27 (2000) <u>STE 70 (2000)</u> <u>COMMENTS</u><br/><u>DATE 70 (2000) <u>COMENTS</u><br/><u>DATE 70 (2000) <u>COMENTS</u></u><br/><u>DATE 70 (2000) </u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u> | <ol> <li>SUBSTRATE (Estimate percent of every type of substrate present Check OW, Yang perdormant subbrate IVE brows AL 8. HHE! Automate IVE brows Ad Goal number of segurean substrate VEE brows Ad 6. Coal number of segurean substrate present in the same of super strand (wax of a). First molit score is sum of brases Ad 8. HHE! Reith a solution of substrate present in the same of super strand (wax of a). First molit score is sum of brases Ad 8. HHE! Reith a solution of the same field of the same of brases Ad 8. HHE! Reith a solution of the same of super strand (wax of a). First molit score is sum of brases Ad 8. HHE! Reith a solution of the same field of the same field of the solution of the same field of the same field</li></ol> | A 10 WATERS on 168 biol     100 WATER Of HIDESI OLIVINE: 10 biol     514       COMMENTS     MAXIBUL MODEL     514       SAMK FULL WIDTH (Measured as the average of 34 measurements)     (Chack ONE Y cmc box)       SAMK FULL WIDTH (Measured as the average of 34 measurements)     (Chack ONE Y cmc box)       SAMK FULL WIDTH (Measured as the average of 34 measurements)     (Chack ONE Y cmc box)       SAMK FULL WIDTH (Measured as the average of 34 measurements)     (Chack ONE Y cmc box)       SAMK FULL WIDTH (Measured as the average of 34 measurements)     (Chack ONE Y cmc box)       SAMK FULL WIDTH (Measured as the average of 34 measurements)     (Chack ONE Y cmc box)       SAMK FULL WIDTH (Measured as the average of 34 measurements)     (Chack ONE Y cmc box)       SAMK FULL WIDTH (Measured as the average of 34 measurements)     (Chack ONE Y cmc box)       SAMK FULL WIDTH (Measured as the average of 34 measurements)     (Chack ONE Y cmc box)       SAMK FULL WIDTH (Measured as the average of 34 measurements)     (Chack ONE Y cmc box)       SAMK FULL WIDTH (MEASURE BANKFULL WIDTH (MEARURE)     20 | The information must also be completed                                                                                                                                                                                                                                                                | Outcier 24, 2023 Rowson |

| ChisEPA Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3): 54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ADDITTONAL STREAM INFORMATION (This Information Nust Also be Completed).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | | | |
|---|---|---|---|---|
| SITE MARTE COCATION SITE NUMBER S [[] RIVER BASIN BRAINAGE AREA (m <sup>2</sup> ] 2 ] 2<br>PDD C STREAM REACH (n) 2000 LAT LONG MARTENSIN RIVER CODE RAVINAGE AREA (m <sup>2</sup> ] 2 ] 2<br>LENGTH OF STREAM REACH (n) 2000 LAT LONG MARTENSIN RIVER MILE DATE 3 ] 0] & SCORER BASIN NOTE: Complete All Items On This Form - Refer to "Field Evaluation Martual for Chric's PHWH Streams" for Instructions<br>NOTE: Complete All Items On This Form - Refer to "Field Evaluation Martual for Chric's PHWH Streams" for Instructions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CHER PERFORMEDY - Urves () Allon ChEI Score (I'rves, Allauch Completed DHEI Form)<br>DOYINSTREAM DESIGNATED USE(S)<br>() WWH Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| STREAM CHAMISEL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MATPING: AT REP COPES OF MAPS, INCLUDING THE <u>ENTINE</u> WATERSHED AREA CLEARLY MARK THE STE LOCATION<br>USGS Quadranghe Name: <u>UCMJ H2UK6-OH</u> NRCS Sol Kap Pape <sup>-</sup> NRCS Sol Kap Stream Order<br>County: <u>NULL</u> (SS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| SUBSTIATE (Estimate percent of every type of substitute present. Order OWLY bas prodominant substante 7VFE boxes     Make of 32), Additional present of every type of substante present. Order OWLY bas prodominant substante 7VFE boxes     Metric     BLDR SLABS (16, ptd)     D     BLDR SLABS     (16, ptd)     D     BLDR SLABS     (16, ptd)     D     BLDR SLABS     (16, ptd)     D     BLDR SLABS     (16, ptd)     D     D     BLDR SLABS     (16, ptd)     D     D     BLDR SLABS     (16, ptd)     D     BLDR SLABS     (16, ptd)     D     D     BLDR SLABS     (16, ptd)     D     D     D     BLDR SLABS     (16, ptd)     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D     D                     | MISCELLANEOUS<br>Base Flow Condutions? (YAN): Y Date of last proclarition. UNKLIDAYY Ousnity. 7<br>Pholograph Information: Y compy (% open): 570                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Image: Second                              | Werk samplics coffected for water chemistry? (YNU). <u>M</u> (Note lab sample ne. or (d. and stlach results) Lab Number<br>Field Measures: Temp (TC)Drscolved Oxygen (mg/l)pH (S.U.)Conductivity (unthosicm)<br>Is the sampling reach representative of the stream (YNN) <u>f</u> not, please actiain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. Nuskimum Peel Depth (Measure the maximum peel depth within the 61 meter (200 ft) evolucion match at the time of walkelion. Avoid pumpe pools from road adverts or short with 7 for boxt.<br>• walkelion. Avoid pumpe pools from road adverts or short, with the 55 million for post.<br>= 3 statistical page 200 million for a soft (5 million for the ft) (Chack DNLY for boxt.<br>= 2 ± 35 = 300 million for the ft) = 5 5 million for the ft (5 million for the ft) (15 million for the ft) = 2 ± 30 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million for the ft (15 million for the ft) = 10 million fo        | Additional comments/description of pollution impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| COMMENTS<br>3 BANK FULL WIDTH (MONSUREd as the average of 34 measurements) (Check DNLY one body:<br>24 Submens 6 tay [30 pta]<br>25 Submens 7: 27 Submens 1: 25 Subme | BIOTIC EVALUATION<br>Performed? (YN), (I) Yes, Recard all observations. Vouther collections options. NOTE : all voucher samples must to laboled with the site<br>D number. Include sepropriate field data streets from the Primary Headware Habilat Assessment analysis.<br>Fish Observed? (YN), Voucher? (YN), Satamanders Observed? (YN), Voucher? (YN), Voucher? (YN), Voucher? (YN),<br>Frogs or Tacpodets Observed? (YN), Voucher? (YN), Aquaite Marchinees Observed? (YN), Voucher? (YN), Voucher? (YN), Comments Regarding Blotogy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| RPARIAN ZONE AND FLOODPLAIN CHALTY       ANOTE: River Left (L) and Right (R) as looking downstream characteristic and the standard structure in the standard structure in the structure (L) and Right (R) as looking downstream characteristic and structure flow standard structure                                                     | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):<br>Include important landmates and other features of interest for site evoluation and a narrative description of the stream's forchion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 0 Narraw ≤m 01 Residentia; Park, New Field 01 Open Parkure, Raw<br>0 None 010 Fonced Pasture 01 Mining or Construction<br>0.00MMEVTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 19 A WRY L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| ELOW RECIWE (At Time of Evelvation) (Check OrvLY one box)     Stream Flawing     Stream Flawing     Stream Flawing     Constrained above with isolated pools (Interstitia)     Constrained above (Interstitia)     Constrained above (Interstitia)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -100d<br>-100d<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| SINUOSITY (Number of bonds per 61 m (200 m) of cheate ONLY one boxt; 30 News<br>News<br>0.5 0.5 1.15 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Sall And                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| STREAM GRADIENT ESTIMATE<br>C Flat as woor & C Flat to Moderate X Moderate & www.n. U Moderate to Savere (19440000)<br>PHWH Form Page - 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | in the second se |
| Outbrief 1802 Review                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed);         AHEI PERFORMED?       Tyes X No. OHEI Score         OHEI PERFORMED?       Tyes X No. OHEI Score         DownSTREAM DESIGNATED USE(s)       Distance from Evaluated Stream         OWN Name:       Distance from Stream         OWN Name:       Distance from Stream                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION         USSS Guadrangio Name.       UP/DN/LULY/D       NACS Soil Map Page.       NRCS Soil Map Susam Crider         USSS Guadrangio Name.       UP/DN/LULY/D       NAC       NRCS Soil Map Susam Crider         County:       DN JLS       Township / Cly.       NRCS Soil Map Susam Crider         County:       DN JLS       Township / Cly.       NRCS Soil Map Susam Crider         MISCELLANECUS       Township / Cly.       Township / Cly.       Quantity / Cly.         Base Flow Conditions? (Y/N):       Date of last precipitation:       UD RD       Quantity / Cly.         Photograph Internation:       Canopy (% opent:       LD PD       Quantity / Cly.       Conductivity (mmbordin)         Photograph Internation:       Tom ('C')       Date of last specipitation:       LD PD       Conductivity (mmbordin)         Photograph Internation:       Tom ('C')       Date of last results) Linh MinBer       Conductivity (mmbordin)         Photograph Internation:       Tom ('C')       Date of last results) Linh MinBer       Conductivity (mmbordin)         Photograph Internation:       Tom ('C')       Date of last results) Linh MinBer       Conductivity (mmbordin)         Photograph       Tom ('C')       Date of last resemplant (mot plass explain)       Conductivity                                                                                                                                                                                                                                                                                                                                                                                                      | Additional comments/description of polution impacts:<br>BIOTIC EVALUATICN<br>Performed? (YN) Y (I) Y | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):<br>Include Impertant Endmarks and other teatures of intervent for site evaluation and a norrelive description of the stream's location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | BEWER, BEWER, BWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Child Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3) : [18]<br>REMARENCE STEAM REACH (N) STEAM REACH (N) 200 LAT CONCERSION STREAM REACH (N) 200 L | OTE Complete All Items On This Form - Refor to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions       REEME     Misory (Mitting), Ohio Namual for Ohio's PHWH Streams" for Instructions       REEME     Misory (Mitting), Ohio Namual for Ohio's PHWH Streams" for Instructions       SUBSTRATE (Edames percent of every year of antivitation percentants)     Discription (Discription)       SUBSTRATE (Edames percent of every year of antivitation percentants)     Discription (Discription)       SUBSTRATE (Edames percent of every year of antivitation percentants)     Discription (Discription)       SUBSTRATE (Edames percent of every year of antivitation percentants)     Discription (Discription)       SUBSTRATE (Edames percent of every year of antivitation percent of the metric score is a unit of boxes A.8.8.     HHEI       SUBSTRATE (Edames percent of every year of antivitation percent of the metric score is a unit of boxes A.8.8.     HHEI       SUBSTRATE (Edames percent of a score of the instruction of the metric score is a unit of boxes A.8.8.     Mitting and an antivitation of a score of the instruction of a score of the in | Maximum Pool Doph (Literaure the maximum pool dopt) within the 61 mater (200 f) evaluation reach at the time of evaluation. Avoid plunge pools from read calveria or storm water plotes)     Pool Doppt (Avoid Doppt (Literaure the maximum pool dopt)     Pool Doppt (Avoid Doppt (Literaure the maximum pool dopt)     Pool Doppt (Avoid Doppt (                                                 | RP ARANY ZONE AND FLOCOPPLAN QUALITY     dividing down prest also be completed       RIPARANY ZONE AND FLOCOPPLAN QUALITY     dividing down prest also be completed       RIPARANY ZONE AND FLOCOPPLAN QUALITY     dividing down prest also be completed       RIPARANY WIDTH     FLOCOPPLAN QUALITY       RIPARANY WIDTH     FLOCOPPLAN QUALITY       RIPARANY WIDTH     FLOCOPPLAN QUALITY       RIPARANY WIDTH     FLOCOPPLAN QUALITY       RIPARANY     RIPARANY       RIPARANY     RI | The continents     3.0       None     1.0       0.5     1.5       1.5     2.5       1.5     2.5       1.5     2.5       1.5     3.0       1.5     2.5       1.5     3.0       1.5     2.5       1.5     3.0       1.5     2.5       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5     3.0       1.5 |

| ADDITIONAL STREAM MEGRINATION (This Information Must Alrochin Completed):<br>CHEL PERFORMED? - [] Yeo [] Yeo [] No CHELSCORE [] (I Yeo, Attrach Completed CHELForm)<br>CHEL PERFORMED? - [] Yeo [] No CHELSCORE [] (I Yeo, Attrach Completed CHELForm)<br>DOWNETREAM DESIGNATED USE(S)<br>[] WWH Name<br>[] WWH Name<br>[] CWH NAME<br>[] C | MISCELLANEOUS         Base Fraw Conditions? (YM)       Data or last previpitation. [JII.M.D.Y.L.         Prindegraph Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Drawing and AndraTive DESCRIPTION OF STREAM REACH (This must be completed):         Include important landmarks and other features of interest for site contrained description of the stream's location         ELON         ELON         Market and other features of interest for site contrained description of the stream's location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
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| CILOD IL<br>CHORE Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrice 1, 2, 3) : [4]<br>RTUP are winder of a more area (m) / M, P<br>RTUP of Freedwitter (M, Counterins FLONS, 10710 15)<br>ONTE: Complete all thoms on This Form - Rector to "Field Evaluation Manual for Ohios PHWH Streams" for Instructions<br>Streamy CHANNEL WORE AND TO THE CONTENT OF THE CONTENT OF THE MILE<br>NOTE: Complete all thoms on This Form - Rector to "Field Evaluation Manual for Ohios PHWH Streams" for Instructions<br>Streamy CHANNEL WORE AND ADDUCT ON TO PHYTH Streams" for Instructions<br>Streamy CHANNEL WORE AND ADDUCT OF THE CONTENT OF THE CONTE                                                                                                                                                                                                                                                              | 1.       BUBSTRATE (Estimate percent of every type of substrate present Check ONLY have predominant substrate OVER boxes <ul> <li>PERCENT</li> <li></li></ul> | The Information must also be completed<br>REPARTIAN WOTH     The Information must also be completed<br>REPARTIAN WOTH     The Information must also be completed<br>REPARTIAN WOTH     Element of Mont.       REPARTIAN WOTH     REPARTIAN WOTH     Element of Mont.     Allower of Mont.       REPARTIAN WOTH     Repart of Mont.     Allower of Mont.     Allower of Mont.       Repartian Woth     Mont.     Mont.     Allower of Mont.     Allower of Mont.       Repart of Montenas 5:10m     Monteneores, Weiland     Image of Mont.     Corp.     Corp.       Montenas 5:10m     Monteneores, Strub or Old     Image of Mont.     Corp.     Corp.       Montenas 5:10m     Montenas 5:10m     Montenas 5:10m     Image of Construction       Montenas 5:10m     Montenas 5:10m     Montenas 5:10m     Image of Construction       Montenas 5:10m     Montenas 5:10m     Montenas 5:10m     Corp.       Montenas 5:10m     Montenas 5:10m     Montenas 5:10m     Corp.       Montenas 5:10m     Montenas 5:10m     Montenas     Corp.       Montenas 5:10m     Montenas 5:10m     Montenas     Corp.       Montenas 5:10m     Montenas     Montenas     Corp.       Montenas 5:10m     Montenas     Montenas     Corp.       Montenas     Montenas     Montenas     Montenas       Montenas     Montenas |  |

| ADDITIONAL_STREAM INFORMATION (This Information Nuel Also be Completed):<br>QHEI PERFORMED7 - [Yes, X) No. CHEI Scoro(If Yes, Attach Completed CHEI Form)<br>DOWNESTREAM DESIGNATED USE(S)(If Yes, Attach Completed CHEI Form)<br>DOWNESTREAM DESIGNATED USE(S)DIStach Form Evaluated StreamDIStach Form Evaluated StreamDIStach Attach Contest of MAPS, INCLUDING THE ENTINE WATERSHED ATEX, CLEARLY MARK THE STFE LOCATION<br>USISS Considerangle Name:DIV.ADARCES Soil Map Page:NRCS Soil Map Stream Outor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MISCELLANEOUS       Date of tast precipitation: Unit (MOVM)       Quantity.         Photograph Information: Montation: Montation: Unit (MOVM)       Quantity.         Elevated Turbidity (mN): Montation: Genopy (% open): SOID       Elevated Turbidity (mN): Montation: Montation (% open): SOID         Elevated Turbidity (mN): Montation: Montation (% open): Montation (% open): Montation (% open): SOID       PHOLOGONAL (MONE): Montation (% open): SOID         Field Measures: Temp (*C) Dissolved Oxygen (mg/n)       PH (S. U) Conductivity (mhoe/om)         Field Measures: Temp (*C) Dissolved Oxygen (mg/n)       PH (S. U) Conductivity (mhoe/om)         Field Measures: Temp (*C) Dissolved Oxygen (mg/n)       PH (S. U) Conductivity (mhoe/om)         Is the sampling reach representation of the arcoam (Y/N)       # not, pease explain         Additional comments(de scription of pollution impod(s;                                                                                                                                                                                                                                    | Partorniad? (YNV): Y III Yaa, Resord all observations. Voucher colections optimary Hoogeney Haples and the blobed with the site<br>Di number. Include appropriate field data streets from the Primary Hoogeney Haples Assocsprent Manual)<br>Fish Observed? (YNV): Y Voucher? (YNV): Salamandens Observed? (YNV): Y VOUCHE?? (YNV): Y VOUCHE??? (YNV): Y VOUCHE???? (YNV): Y VOUCHE???? (YNV): Y VOUCHE????? (YNV): Y VOUCHE?????? (YNV): Y VOUCHE????????????????????????????????????                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DRAWING AND NARRATIVE DESCRIPTION OF STP-AN REACH (This <u>must</u> be completed):<br>Include important landmets and other features of lineners<br>Include important landmets and other features of lineners<br>BLOW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Brive of a sure |
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| Chiefer Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3): 82<br>HHEI | 1.     SUBSTRATE (Estimate percent of wery type of substrate present. Check OK, Y top, predominant substrate TYPE boxes     HHE       Matz of 32) Add user furthere of significant cuberare types (and thac of 0). Final metic core is ann obcease A.B.     HHE       Prefice     BUD B ALADS (15) (6)     ERCENT       Prefice     BUD B ALADS (15) (6)     ERCENT       Prefice     BUD B ALADS (15) (15)     D       Prefice     ERCENT     D       Prefice     BUD B ALADS (15)     D       Prefice     Prefice     D       Prefice     BUD B ALADS (15)     D       Prefice     Prefice       Prefice     < | COMMENTS         MAXUNUIN POOL DEPTH (centimotaris)         MAXUNUIN POOL DEPTH (centimotaris)         MAX           3.         BAMK FULL WIDTH (Massured as the average of 3-d measurements)         Check ONLY one box);         Bandfull With Massured as the average of 3-d measurements)         Check ONLY one box);         With Massured as the average of 3-d measurements)         With Massured as the average of 3-d measurements)         Check ONLY one box);         With Massured as the average of 3-d measurements)         With Massured as the average of 3-d measured as the average of 3-d measurements)         With Massured as the average of 3-d measurements)         With Massured as the average of 3-d measurements)         With Massured as the average of 3-d measured as the average as the average of 3-d measured as the average as | This information must also be completed       This information must also be completed         RIPARUAN ZONE AND FLOODPLAN QUALITY       XNOTE River Left (L) and Right (F) as tooling downstreems?         RIPARUAN YOTH       ELCOODPLAN QUALITY         RIPARUAN YOTH       ELCOODPLAN QUALITY         RIPARUAN YOTH       ELCOOPLAN QUALITY         RIPARUAN YOTH       L R         RIPARUAN       Random Reacher         RIPARUAN YOTH       L R         RIPARUAN       RANDOM FRANCE         RIPARUAN YOTH       LON         RIPARUAN YOTH       Reaced Floation         REQUIRE RECISIE       Conservation         RECOMENTIAN       Charaction         RECOMMENTS       Charaction         Reconcellow       Check CALY one boot         Reconcellow       Check CALY one boot         Stream Floating       Check CALY one boot         Stream Floating       Check CALY one boot         Stream Floating       Check CALY one boot         Stream Floating <t< td=""><td>SINUOSITY (Number of loar de par 61 m (200 fl) of channel) (Check ONLY one box):<br/>Nene<br/>0.5<br/>5.5<br/>5.6<br/>7.5<br/>7.5<br/>7.5<br/>7.5<br/>7.5<br/>7.5<br/>7.5<br/>7.5</td></t<> | SINUOSITY (Number of loar de par 61 m (200 fl) of channel) (Check ONLY one box):<br>Nene<br>0.5<br>5.5<br>5.6<br>7.5<br>7.5<br>7.5<br>7.5<br>7.5<br>7.5<br>7.5<br>7.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| ADDITIONAL, STREAM INEGRIMATION TITAL Information Allocate alrea for Computed.         CHELE PERCORRED7 - Uves "Yes on CHE Score         CHELE PERCORRED7 - Uves "Yes on CHE Score         DOWNSTREEM DESIGNATED USERS)         DOMNSTREEM DESIGNATED USERS         DOMNSTREEM DESIGNATED USERS         DOMNSTREEM DESIGNATED USERS         DOMNSTREEM DESIGNATED USERS                                                                                                                                                                                         | Find Desired (VIII) Variantine (Chronold (VIII) Variantine |
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| Character Habitat Evaluation Form         HHEI Score (sum of metrics 1, 2, 3):         Terrane Corring       HHEI Score (sum of metrics 1, 2, 3):         Terrane Corring       Interact Corring         Terrane Corring       Interaction Form         Terrane Corring       Interaction Control         Terrane Corring       Interaction Control       Interaction Control         Terrane Corring       Interaction Control       Interaction Control       Interaction Control         Terrane Corring       Interaction Control       Interaction Control       Interaction Control       Interaction Control         Terrane Corring       Interaction Control       Interaction Contro       Interaction Control       Interaction Con | <ul> <li></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| ADDITIONAL STREAM INFORMATION IT his Information Must Also be Completed):<br>QHEI PERFORMED? - [] Yes XI, No. [] UK, Yes, Allach, Completed ChEI Form)<br>DOIVINSTREAM DESIGNATED USE(S)<br>[] UMM Nume:<br>[] CWM CMM CMM CMM CMM CMM CMM CMM CMM CMM | MAPPING: ATTACH COPIES OF MAPS. INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE STRE LOCATION         UISGS CLANDANGIO NAME. AND/ MULULA TH. MICS Soil Mup Page. NRCS Split MD Stream Check         Coundy:       MISCELLANEOUS         MISCELLANEOUS       Township / City.         MISCELLANEOUS       Township / City.         MISCELLANEOUS       Coundy:         MISCELLANEOUS       MISCELLANEOUS         Rase Flew Canditions? (YNN);       Data of fast precipitation [I] (MATAN)         Photograph information:       Corrupt (% open).         Photograph information:       Conductivity (inthosticm)         Photograph information:       Conductivity (inthosticm)         Internet trapresonation of the streem (moti)       Int out, faulue         Additional commentative of the streem (moti)       Int out, faulue         Additional commentative of the streem (moti)       Int out, faulue         Additional commentative of the streem (moti)       Int out, faulue         Additional commentative of the streem (moti)       Int out, faulue <th>Endoarded (r.m.)       Variable (r.m.)       <td< th=""></td<></th> | Endoarded (r.m.)       Variable (r.m.) <td< th=""></td<> |
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| Chiedry Primary Headwater Habitat Evaluation Form<br>Site INMALOGATION SITE NUMBER 5 21 RIVER EASIN OF MEETICS 1, 2, 3) : [4, 2]<br>SITE NUMBER OF MILLEN OF MEETICS 1, 2, 3) : [4, 2]<br>SITE NUMBER OF MILLEN OF MEETICS 1, 2, 3) : [4, 2]<br>DATE TEAT OF STERM REACH (M) 200 UT. LONG. RIVER CODE RIVER WILE<br>DATE TEAT OF STERM REACH (M) 200 UT. COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                      | WOTE: Complete All Itoms On This Form - Refer to "Field Evaluation Manual for Child's PHWH Streams" for instructions Strigt Agint All Mones On This Form - Refer to "Field Evaluation Manual for Child's PHWH Streams" for instructions (MUDIFICATIONS:         Reconciliant All Itoms On This Form - Refer to "Field Evaluation Manual for Child's PHWH Streams" for instructions (MUDIFICATIONS:       Else Streams" for instructions (MUDIFICATIONS:         Reconciliant All Mones On This Form - Refer to "Money Type of substrate present Child On Visio postonenon substrate Present Child On Visio postoneno substrate Present Child On Visio Present Child                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Attendentiation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| ADDITIONAL STREAM INFORMATION INFORMATION CONSTRUCT         ONE PERFORMENT: Divery Diversition Internation Internatio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Interview       Interview       Interview       Interview                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| March       March <th< td=""><td>The information must also be completed       The information must also be completed       REPRENTIVIONE ANOTE: River Left (L) and Right (R) as icoticing dometonantly<br/>REPRENTIVIONITY       REPRENTIVIONITY       Also be value     Core Bank)       Matter forest, Weldmin     Cores and Matter forest, Weldmin       Matter forest, Weldmin     Cores (Matter forest, Matter forest, Weldmin       Matter forest, Weldmin     Cores (Matter forest, Matter forest, Weldmin       Matter forest, Weldmin     Cores (Matter forest, Matter forest, M</td></th<> | The information must also be completed       The information must also be completed       REPRENTIVIONE ANOTE: River Left (L) and Right (R) as icoticing dometonantly<br>REPRENTIVIONITY       REPRENTIVIONITY       Also be value     Core Bank)       Matter forest, Weldmin     Cores and Matter forest, Weldmin       Matter forest, Weldmin     Cores (Matter forest, Matter forest, Weldmin       Matter forest, Weldmin     Cores (Matter forest, Matter forest, Weldmin       Matter forest, Weldmin     Cores (Matter forest, Matter forest, M |

| ADDITIONAL STREAM INFORMATION (This Information Must Also to Completed):<br>CHEL PERFORMEDY - [] Yve [Y No. CHEL Score (If Yez, Altach Completed CHEL Form)<br>DOWNSTREAM DESIGNATED LUSE(S)<br>[] WINH Name: DOWNSTREAM DESIGNATED LUSE(S)<br>[] CWH NAME: THACH COPIES OF NAPE. NOLLUDING THE ENTITE WATERSHED AREA. CLEARLY MARK THE STRE LOCATION<br>LUSCS QUADRADIGIO NAME: NAME THE ZATE AREA CLEARLY MARK THE STRE LOCATION<br>LUSCS QUADRADIGIO NAME: NAME THE ZATE AREA CLEARLY MARK THE STRE LOCATION<br>LUSCS QUADRADIGIO NAME: NAME THE ZATE AREA SINGAM DOWN NAME THE ZATE AREA SINGAM DOWN<br>LUSCS QUADRADIGIO NAME: NAME THE ZATE AREA SINGAM DOWN DOWN DOWN<br>LUSCS QUADRADIGIO NAME: NAME THE ZATE AREA ZATE AREA SINGAM DOWN<br>LUSCS QUADRADIGIO NAME DOWN DOWN DOWN | Course:       MatcleLAMEOUS         MASCELLANEOUS       Mascelland? (MN):         Dase Flow Conditiona? (MN):       Data of last precipitation.         Photograph Information:       Photograph Information.         Photograph Information:       Cannopy (% open):         Base Flow Conditiona? (MN):       Cannopy (% open):         Base Flow Conditiona? (MN):       Cannopy (% open):         Base Flow Conditiona? (MN):       Cannopy (% open):         Base amplites collections for water chemiletry (MN):       Moto the base much active collection.         Base amplites collections of the stream (MN):       M (and struch results). Lab Number:         Field Measures:       Temp (*C)         Disolved Oxygen (mg)):       M (attribute collection)         Additional commentative collections of the stream (MN):       H rou, please applian:         Additional commentative collections option.       M (and strone results). Lab Number:         Additional commentative collections option.       M (and strone results). Lab Number:         Additional commentative active option.       M (and strone results). Lab Number:         Additional commentative active option.       M (and strone results). Lab Number:         Additional commentative active option.       M (and strone results). Lab Number:         Additional commentside carge option.       M (and strone results). Lab Numb | ELOW       ELOW |
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| OriseTA Primary Headwater Habitat Evaluation Form         Intervention         Inte                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1.       SUBSTRATE (Estimute present of every type of substrate present. Cleck OW, Yue predentiant substrate PYPE power A B. March call round runder of significant autocates pors fund (and rounder of significant autocates)       Image: A B A A A D A D A A D A D A D A D A D A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | This Information must also be completed       RIPARIAN ZONE AND FLOCIDE LUNCTONE NUMERY       Leng       RIPARIAN WOTH       RIPARIAN SONE AND FLOCIDE LUNCTONE NUMERY       RIPARIAN WOTH       RIPARIAN                                                                                                                                                                                   |

| ADDITIONAL ETREAM INFORMATION (TN's Information Must, Japo be Completed):<br>OHEL PERFORMEDY - [] Yes [] No. OHEL SCOID [] (11 Yes: Aliach Completed OHEL FORM]<br>DOWNSTREAM DESIGNATED USE (S) [] UNIVE NAME,<br>DOWNSTREAM DESIGNATED USE (S) [] UNIVE NAME,<br>DOWNSTREAM DESIGNATED USE (S) [] [] UNIVE NAME,<br>DOWNSTREAM DESIGNATED USE (S) [] [] [] [] [] [] [] [] [] [] [] [] []                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Masc FLANEdOS       Base Flow Conditions? (TN).       Date of tast precipitation. UNENDVIA       Quantity.         Prinosograph Information.       Prinosograph Information.       Prinosograph Information.       Prinosograph Information.         Prinosograph Information.       Prinosograph Information.       Prinosograph Information.       Prinosograph Information.         Prinosograph Information.       Prinosograph Information.       Prinosograph Information.       Prinosograph Information.         Elevatord Turblety, Prino.       Campy fis open;       UPL       Prinosograph Information.       Prinosograph Information.         Keed Measures.       Temp (PC)       Dissoved Canyor (PM).       (And Althounder) (PM).       Quantity (Introduction)         Field Measures.       Temp (PC)       Dissoved Canyor (PM).       In not please explorin.       Conductivity (Introduction)         Additional commented/dissorption of pollution impacted:       In not please explorin.       Conductivity (Introduction)       Distortion (PM).         BioTic Evaluation       Distortion       In not please explorin.       Conductivity (Introduction)       Distortion         BioTic Evaluation       Distortion       In not please explorin.       Conductivity (Introduction)       Distortion         BioTic Evaluation       Distortion       Trivity       In not blease explorin.       Distortin not the stortion                                                                                                                                                                                                                                                                                                                                                            | Examine and an interaction of stream REACH (This must be completed):         Inclusion interaction and an interaction and a numble description of the streams to extend of the stream of the str |
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| Chiefer Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3):<br>The MARE COMING SITE NUMBER S AFF RURE BASIN<br>HHEI Score (sum of the street HHEI Score (sum of metrics 1, 2, 3):<br>ATT STREAM REACH OF SITE NUMBER S AFF A THE SCORE AND A STREAM STRE | 1.       SUBSTRATE (Faituredo percent of every type of substrate present. Crock OLL Y beg predominant substrate Present.       MHEI         Read       Han of 32, Add total number of significant substrate present. Crock OLL Y beg predominant substrate present is sum of borses A.B.       MHEI         Read       POLIDERT (PERIMIC For of significant substrate present. Crock OLL Y beg predominant substrate presest is sum of borses A.B.       MHEI         POLIDERT (PERIMIC For of significant substrate present.       POLIDERT (PERIMIC For of significant substrate presest is sum of borses A.B.       MHEI         POLIDERT (PERIMIC For of significant substrate presest is sum of borses A.B.       POLIDERT (PERIMIC For of significant substrate presest is sum of borses A.B.       MHEI         POLIDERT (PERIMIC For of significant substrate presest is sum of borses A.B.       POLIDERT (PERIMIC For of significant substrate presest is sum of borsest A.B.       POLIDERT (PERIMIC For of significant substrate presest is sum of borsest A.B.         POLIDERT (PERIMIC FOR POLIDERT (PERIMIC FOR POLIDERT SIGNIFICATI (PERIMIC FOR POLIDERT SIGNIFIC | The analysis       The analysis       The analysis       The analysis       The analysis         The presentation must recompleted       The analysis       The analysis       The analysis       The analysis         The presentation must recent when the presentation must be completed       The presentation must be and the analysis       The presentation must be analysis       The presentation must be analysis       The presentation must be analysis         The presentation       The presentation must be analysis         The presentation       The presentation must be analysis         The presentation       The presentation       The presentation must be analysis         The presentation       The presentation       The presentation must be analysis         The presentation       The presentation       The presentation       The presentation must be analysis       The presentation must be analysis       The presentation must be analysis         The pr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):<br>OHEI PERFORMED? • [] Yes X No. OHEI Score (If Yes, Altach Completed): | DownsTREAM DESIGNATED USE(S) Distance from Evaluated Stream Distance from Distance from Evaluated Stream Distance from Evaluated Stream Distance from D | MAPPING: ATTACH COPES OF LAPS, INCLUDING THE <u>EXTIRE</u> WATENSHED AFEA. CLEARLY MARK THE SPELGOCATION<br>USGS Quadrangia Name. <u>JUAN HOUPAN OFF</u> NRCS Sou Map Page. NRCS Sou Map Streem Order<br>Courty. <u>N.O. (C.S.</u> Township/CAY | MISCELLANEOUS<br>Base Flow Conditions? (YNI): Date of tast precipitation. UNK N. D. W. C. Oushilly. 7<br>Photograph Information. V Canopy (% open). 59.0<br>Elevated Turbidity? (YNI): V Canopy (% open). 59.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Were samples collected for water chemetry? (YM): <u>1 V</u> (Noto lab sample no. or lä, and alloch results) Lab Number.<br>Field Measures: Temp (*C) Dissolved Oxygen (mgit) pH (SU) Canduclishity (unthosicna) ls the sampling reach representative of the stream (YN) <u>H</u> not, please explicit. | Addilional comments/description of pollution impacks.<br>BIOTIC EVALUATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Perfamed? (YN): Y (I Yes. Recod all observations. Voucher colactions splitual. NOTE: all voucher amplies must be takeled with the site<br>In number. Include appropriate field data sheets from the Primary Meanwalt Assessment Manual)<br>Field Desaved? (YN). <u>N</u> voucher? (YN). Salanaardees Observed? (YN). <u>N</u> voucher? (YN). <u>N</u> voucher? (YN).<br>Frags or Tadpades Observed? (YN). <u>Voucher? (YN).</u> Pauate Macacinvetichate Observed? (YN). <u>N</u> voucher? (YN).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):<br>Include important landmarks and other features of inderest for alle ovaluation and a narrative description of the atteam's location<br>module important landmarks and other features of inderest for alle ovaluation and a narrative description of the atteam's location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PLOW L                                                                                                                                                                                                                                                                                                                                                     | Contract and The 21.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| Chief Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3) : 35                                                       | TIMP SITE NUMBER 5 do RIVER BASIN DRAINAGE AREA (m <sup>2</sup> ) 2 1711 C<br>LENGTH OF STREAM REACH (n) 200 LAT. LONG. RIVER CODE RIVER MILE<br>DATE 2 24401 SCORER BTM COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ио с. соприе си пела от пак топи - топи от тека ставалати напав на опо з стати атеала. За пакачала и пакачала<br>в теки аполит. Деболе (мапесание). Оперобека Пакеовска пакачана на опо з по за стати атеала. На пакачала с<br>модитеация:      | 1.     SUBSTRATE (Failmarks percent of every type of substrate present. Cash, ONLY Into, precomment substrate present.     HHEI       1     Respect of substrate present. Cash, ONLY Into, precomment substrate present. Cash, ONLY Into, precomment substrate present. Cash, ONLY Into, precomment substrate present.     PHEI       1     Respect of the present substrate present. Cash, Vertice present. Substrate present. To District present. To District present. Substrate present. To District present. Substrate present. To District present | ロ 図 新設的 それ mine 各部 3000 10 本市中の比較 paint 1000 100 100 100 100 100 100 100 100 1                                                                                                                                                                                                                         | 2. Maximum Pool begin Menazara mazarama noo depha within the 67 mear Caro 77 ensuation reach at the time of Pool Depth<br>evelopiation. Word plungs pools from road currents or storm water pipers) (Chack ONLY one box):<br>2 SS Grammars Tab peol<br>2 SS G | 3. BANKFULL WIDTH (Massured as the orearge of 3-4 measurements) (Check ONLY one box): Benkfull Benkfull (Massured as the orearge of 3-4 measurements) (Check ONLY one box): With With Statement as minimum as the construction of a statement as minimum as minimum as the construction of a statement as t | RIPARIAN ZONE AND FLOODPLAIN OUGLITY     2NOTE: River Left (L) and Right (R) as hoking downstream?:       RIPARIAN ZONE AND FLOODPLAIN OUGLITY     2NOTE: River Left (L) and Right (R) as hoking downstream?:       RIPARIAN ZONE AND FLOODPLAIN OUGLITY     2NOTE: River Left (L) and Right (R) as hoking downstream?:       RIPARIAN CONFLAIN OUGLITY     2NOTE: River Left (L) and Right (R) as hoking downstream?:       RIPARIAN CONFLAIN OUGLITY     2NOTE: River Left (L) and Right (R) as hoking downstream?:       RIPARIAN CONFLAIN OUGLITY     2NOTE: River Left (L) and Right (R) as hoking downstream?:       RIPARIAN CONFLAIN OUGLITY     2NOTE: River Left (L) and Right (R) as hoking downstream?:       RIPARIAN CONFLAIN OUGLITY     2NOTE: River Left (L) and Right (R) as hoking downstream?:       RIPARIAN CONFLAINCE     2NOTE: River Left (L) and Right (R) as hoking downstream?:       RIPARIAN     2NOTE: River Flat       RIPARIAN     2NOTE: River Flat | FLOW REGIME (AT Time of Evaluation)     (Check OKLY one bod)       Bream Flowing     Bream Flowing       Bream Flowing     Bream Flowing       COMMENTS     Ablast Channel, isotated pools, no flow (Internitient)       COMMENTS     COMMENTS       SNUDSTY (Number of bench pool     (Deck ONLY one bod)       None     Dot channel, no water (Ephaneea) | Clip Cise     Clip |

| ODDITIONAL_STREAM INFORMATION ITHIS INformation Muscrickle bin Completed II         OHELPERFORMEDT - [] Yes, X[No. OHEL Score ]         OHELPERFORMEDT - [] Yes, X[No. OHEL Score ]         OWNARMATION ITHIS INformation Muscrickle bin Completed II         OWNARMATION ITHIS INformation Muscrickle bin Completed II         OWNARMATION ITHIS INformation Muscrickle bin Completed II         OWNARMATION ITHIS INFORMATION ITHIS INFORMATION IN THE AND A COMPLETED INFORMATION IN THE ADDITION IN THE ADDITIO                                                                                                                                                                                                                                                                                                                                                                   | mstatuted       Total parcinition         mstatuted       Total parcontenenconterecorrely of total parcontenencontenencont | CCIONS 21, 2007 Karvian |
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| Charles Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of motrics 1, 2, 3): 18<br>Internation | 1.       SUBSTRATE (Test in the process of a work by ore of instant to present Circle 1 (Mr V Mgs procedurent statistion PVF) were a more than the present (should statistic 1 (Mr Mgs procedurent statistion PVF) were a more than the present of instant statistic 1 (Mr Mgs procedurent statistic 1 (Mr Mgs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Caldow 24, 3002 Review  |

| ADDITIONAL STREAM INFORMATION (This Information Musi Algo be Completed):<br>ONE PERFORMEDT • [] Veg X(No OHEI Score) [] (I' Ves. Attach Completed ChEI Form)<br>DOWNN Name.<br>[] OWNN NAME.<br>[] | MISCELLATECIS<br>Base Flew Conditions? (YNN) Date of tast procipitation. JPT KM DVVN Quantity.<br>Photograph Information.<br>Elevated Turbidity? (YNN). Cancay (% spen). <u>OPC</u><br>Elevated Turbidity? (YNN). <u>Cancay (% spen). OPC</u><br>Were samples collected for volter chemistry? (YNN); <u>N</u> (Note tab sample no. or id, and attach results) Lab Number.<br>Field Measures: Temp (*C) Dissolved Cryger (mg/n) PM (& U.) <u>Conductivity (printractern)</u><br>is the sampling reach representative of the stream (YNN) H not, phease explain:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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(YNV):<br>10 numer: Include appropriate field data sheets from the Primary Freedaare Haddaare Processon (NNA)<br>Field Observed? (YNV):<br>Frogs or Tacpoles Observed? (YNN):<br>Commants Rogserding Blobgay:<br>Commants Rogserding Blobgay: | Rewind AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):         Relation inportant informative and other relate of incorection and a marrative description of the incorection of the in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| CLUDO II PICATES 207+309<br>Crieder Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3): 2<br>HHEI Score (sum of metrics 1, 2, 3): 2<br>HIEI Score (sum of me                                                                                                     | 1.       SUBSTEATE (Festimate proceed of overy type of substrate present. Check ONLY has preforment substrate TYPE boxes<br>(Alax of 32, Add lotar number of significant expanse types (Land (Max of 9, Final metric score is sum of boxes A 8.)       HHE         Procession (Constraint)       Built (Constraint)       Procession (Constraint)       Procession (Constraint)         References       Built (Constraint)       Procession (Constraint)       Procession (Constraint)       Procession (Constraint)         References       Built (Constraint)       Procession (Constraint)       Procession (Constraint)       Procession (Constraint)         Built (Constraint)       Procession (Constraint)       Procession (Constraint)       Procession (Constraint)       Procession (Constraint)         Built (Constraint)       Procession (Constraint)         Built (Constraint)       Procession (Constraint) <td< th=""><th>3.0 Goldmeners (24 may provide a standard of the standard of the</th><th>This information mugi disc be completed<br/>Ripartum ZONE AND FLOCOPE rule uset (L) and Right (R) as looking downstreamth<br/>Ripartum ZONE AND FLOCOPE rule autourty<br/>Ripartum Process (L) and Right (R) as looking downstreamth<br/>Ween short<br/>Ween short<br/>Notes short<br/>No</th></td<> | 3.0 Goldmeners (24 may provide a standard of the                                                                                 | This information mugi disc be completed<br>Ripartum ZONE AND FLOCOPE rule uset (L) and Right (R) as looking downstreamth<br>Ripartum ZONE AND FLOCOPE rule autourty<br>Ripartum Process (L) and Right (R) as looking downstreamth<br>Ween short<br>Ween short<br>Notes short<br>No |

| DOMNGTREAM INFORMATION. The Information Meet King the Computents:         DEPENDING RELAW INFORMATION. The Information Meet King the Computency of the Attant Constructed Oriel From:         DOWNSTREAM DESIGNATED USE(S)         DOWNSTREA         | Connectors Reporting Europy.<br>IRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):<br>there important landrades and other fractions of the stream's location<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW<br>FLOW |
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| MANUAL       MANUAL         MANUAL       Primary Headwater Habitat Evaluation Form         Manual Control       MHEI Score (aum of metrics 1, 2, 3):         Manual Control       MILEI Score (aum of metrics 1, 2, 3):         Manual Control       MILEI Score (aum of metrics 1, 2, 3):         Manual Control       MILEI Score (aum of metrics 1, 2, 3):         Manual Control       MILEI Score (aum of metrics 1, 2, 3):         Manual Controls       MILEI Score (aum of metrics 1, 2, 3):         Manual Controls       MILEI Score (aum of metrics 1, 2, 3):         Manual Controls       Mile Scoren DEDN         Manual Controls       Mile Scoren DEDN         Manual Controls       Mile Scoren DEDN         Manual Controls       Mile Scoren Action         Manual Controls       Mile Scoren Action       Mile Scoren Action         Manual Controls       Mile Scoren Action       Mile Scoren Action         Manual Controls       Mile Scoren Actin       Mile | Constants       AntiFord Eduction function f                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):<br>OHE: PERFORMED? - [] Yes (M. N. OHE! Score | Owners Increase Lesions Included Stream     Distance from Evaluated Stream       CWH Name:     Distance from Evaluated Stream       CWH Name:     Distance from Evaluated Stream       CWH Name:     Distance from Evaluated Stream       DEVM Name:     Distance from Evaluated Stream       Distance from Evaluated Stream     Distance from Evaluated Stream       USGS Quadrange Name:     Distance from Evaluated Stream       USGS Quadrange Name:     NUL       County:     NUL       County:     NUL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MISCELLANEOUS<br>Base Flow Concitions? (Yik): A Data of fact precipitation: UNKNDYW Quantity. ?<br>Photograph Information: A Data of fact precipitation: UNKNDYW Quantity. ?<br>Photograph Information: A Data of fact precipitation: UNKNDYW Quantity. ?<br>Photograph Information: A Data of fact precipitation: UNKNDYW Quantity. ?<br>Example: Tamp (7C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Additional comments(description of pollution impacts:<br>BIOTIC EVALUATION<br>Fatormed? (YNN) Y (1'Yes. Record all observations. Voucher collocitions optional. NOTE: all voucher sompee must be backed with the site<br>Fatormed? (YNN) (1'Yes. Record all observations. Voucher collocitions optional. NOTE: all voucher sompee must be backed with the site<br>Fatormed? (YNN) (1'Yes. Record all observations. Voucher collocitions optional. NOTE: all voucher sompee must be backed with the site<br>Fatormed? (YNN) (1'Yes. Record all observations. Voucher collocitions optional. NOTE: all voucher sompee must be backed<br>Fatormeds fatores Observed? (YNN) (1'Yes. Voucher? (YNN) (1'Yes. August Reparts Observed? (YNN) (1'Yes. Reparts (1'NN) (1'Yes. Reparts (1'Yes. Reparts (1'NN) (1'Yes. Reparts (1'NN) (1'Yes. Reparts (1'NN) (1'Yes. Reparts (1'Yes. Reparts (1'Yes. Reparts (1'NN) (1'Yes. Reparts (1'Yes. Rep | DRAVING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):         Include Important landmarks and other fearur         Action and a narrative description of the stream's location         FLOW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Decision A 2020 Review                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| ChiefPA Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3) : 7                           | TYP STREAM REACH (M) STER NUMBER 5 34 RIVER BASIN DRAINAGE AREA (m <sup>21</sup> ) 2 M) A LENGTH OF STREAM REACH (M) 200 M LENGTH OF STREAM REA | 1     SUBSTIRATE (Estimate percent of every type of substrate present. Check ONL Yang pedominant substrate TYPE boxes     HHEI       Nare of 32). Add trail number of significant substrate types (sum of boxes A & S.     HHEI       Nare of 32). Add trail number of significant substrate types (sum of boxes A & S.     HHEI       Nare of 32). Add trail number of significant substrate types (sum of boxes A & S.     HHEI       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       Description     ERCENT     The sum of boxes A & S.       ERCENT     < | 2.     Maximum Pool Dopti, (Measure the maximum pool depth within the 6f meter (200 th evaluation reach at the time of with a solution. Another (and proge pools from road curverts or storm using pool     Pool Depth       2.     Stanting matching pools from road curverts or storm using pool     Stanting to mild pool     Pool Depth       3.     Stanting matching pools from road curverts or storm using pool     Stanting to mild pool     Stanting to mild pool       3.     2.5.5.5.5.5.5.01(24 pool     Max = 30     No.WWTER OR Molist containing to pool       3.     2.5.5.5.5.5.5.5.5.1(24 pool     Molist containing to pool     Stanting pool       3.     2.5.5.5.5.5.5.5.1(24 pool     Molist containing to pool     Max = 30       3.     2.5.5.5.5.5.5.5.5.5.5.5.5.1(24 pool     Molist containing to pool     Max = 30       3.     3.0.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | This Information must also be completed     This Information must also be completed       REVARIANT ZONE AND FLOCODE UNITY     2 NOTE: River Left (L) and Right (R) as locking downstream?       REVEALING     E.COOREANI SULUTY       Also also static s | Image: Site Nuclear of bends per 61 m (200 (t)) of channel) (Check (O/LY one box);     3.0       Image: Site Nuclear of bends per 61 m (200 (t)) of channel) (Check (O/LY one box);     3.0       Image: Site Nuclear of bends per 61 m (200 (t)) of channel) (Check (O/LY one box);     3.0       Image: Site Nuclear of bends per 61 m (200 (t)) of channel) (Check (O/LY one box);     3.0       Image: Site Nuclear of bends per 61 m (200 (t)) of channel) (Check (O/LY one box);     3.0       Image: Site Nuclear of the si |

| ADDITIONAL STREAM INCORMATION ITTHE Information Kurl Aleo be Complemed:<br>QHEL PERFORMEDT - [] Yes, Yunch Complemed The Evaluated Stream<br>DOWNISTREAM DESIGNATED USE(S)<br>[] WWH Name<br>[] WWH | MISCELLANEOUS<br>Bare Flow Conditions? (YV3) Date of last pracipitation (()///) ()///                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Additional commaniz/decaription of pollution inrpacts:<br>BIOTIC EVALILATION<br>Performed? (YN); Y (Yes, Record all observations. Voucher collectione optional. NOTE: all vouchor sumples must be tabled with the silo<br>Di nurrider. Instructe appropriate field cabe sheets from the Financy Houdenice (Habitat Assessment Manual)<br>Fish Observed? (YN), V voucher? (YN) Saturnanders Observed? (YN) V Voucher? (YN), Voucher? (YN), Comments Regarding Biology.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | BrawiNG AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):<br>Include important innomates and other features of interest for site evaluation and a narradice description of the stream's location<br>FLOW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Deter St, 202 Realter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| Criefly Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of motrices 1, 2, 3) :<br>The stream of the stre                                                                                                                                                                                                                                                                                                    | 1.     SUBSTRATE (Estimate percent of every type of austrate present. Check ONLY two predominant substrate ITYPE boxes<br>(taxe of 22), Add total number of applicant substrate present. Check ONLY two predominant substrate ITYPE boxes<br>(taxe of 22), Add total number of applicant substrate present. Check ONLY two predominant substrate ITYPE boxes<br>(taxe of 22), Add total number of applicant substrate Itype Poster<br>(taxe of 23), Add total number of applicant substrate Itype Poster<br>(taxe of the Itype Poster)<br>(taxe of the Itype Poster)<br>(tax | 2. Maximum Focal Orght (Massum Armaniusum pool depth within the 61 mater (200 W encludies) received and makers and a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive Area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submotive area (200 W encludies) received and the funde of a submoti | This information must also be completed         REPARAM XONE AND FLOODPLAN QUALITY         REPARAM VOTH         Rest         Rest | Situctority fourther of bands per 61 m (200 th) of channels)     Chreck ONLY care box):     3.0       Non     1.0     1.0     2.0       STREAM GRADIENT ESTIMATE     1.5     2.5     3.0       STREAM GRADIENT ESTIMATE     1.6     2.5     3.0       STREAM GRADIENT ESTIMATE     1.6     2.5     3.0       Stream (Stradient ESTIMATE     1.6     2.5     3.0       Stream (Stradient ESTIMATE     1.6     3.5     3.0       Stream (Stradient)     1.6     1.6     3.0       Occore 3, 200 Reactes     0.6     1.6     1.6 |

Is Dry Channel Mostly Natural? instructions for scoring the alternate cover metric: Each cover type should receive a score instructions for scoring the alternate cover metric: Each cover type present in very small of between 0 and 5, Where: 0 - Cover type absent, 1 - Cover type present in moderate: amounts, but not of mights quality or in amail amounts. Examples of highest quality, 1- Cover type amounts, but not of highest quality or in amail amounts. Examples of highest quality, 1- Cover type of highest quality in moderate or greater amounts. Examples of highest quality, 1- Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large bourders in deep or last water, large diameter logs that are stable, well developed very large bounders in deep or last water, large diameter logs that are stable, well developed very large bounders in deep or last water, large diameter logs that are stable, well developed very large bounders in deep or last water, large diameter logs that are bable, well developed very large bounders in deep or last water, large diameter logs that are bable, well developed very large bounders in deep or last water, large diameter logs that are bable, well developed very large bounders in deep or last water, or deep, well-defined, introduced proved very large bounders in deep or last water, or deep, well-defined, introduced very large bounders in deep or last water, or deep, well-defined, introduced very large bounders in deep very or large to a stable, well developed very large bounders in deep or last water, or deep, well-defined, introduced very large bounders in the large very large very large bounders in deep or last water or large very very large bounders in the large very very large bounders very large bounders very large Residence Water Close Downstream? ЩП fmesiledu talet wosileam? How Far: 協口 , skied on) leterated for poly of the spice . moore no bornubi (2011) Suspremented bent-own martin + mariles いわモニ1000 JOT ZMJO , ८ =1-17 U=NUS ex, RON • 2 ° 0 000° ° ູ່ດື 3 Ŷ 000 K K 60 5 Ψ ₩ 800 00 p'a o o Lovindu 5 Mg 19:1 000 , bt  $\geq$ WOH Stream Drawing: Gradient: Gradient: □ - Moderate, □ -Hig MO7 - 2 CSO2 Suburban Inspects Suburban Remotes (Suburban Suburban Su oiteriteA PolleA (01-f) avitasjou pritsA (01-1) hopfa Average Stream Messurements: Maximum Av Benkluli Bankluli Mex Floodprons Enterch Depth Wildlin Depth Ratio Depth Area Wildin Ratio Miquy Metede 15 8 8 teri7 8289 priiqms© Alpha Sources of Major Suspected Sources of North Carl It Abs/ Angle Source Angle Source Angle Angle Construction Constru Canopy -% Oper Water Clarity: Water Stage: :eougisiQ (JESE)  $\chi$ (M(Y) meets and to evilation equations of the Stream (M(Y)  $\chi$ If Not, Explain: 4. REPARTAN ZONE AND BANK EFICSFORGACK ONE bax sertemik or chold 2 and AVERAGE per bank) P. RIVER PBgn Londing Downstream M BLEAD DE ALLIN 2016 JUL BANK EFICSFORGACK ONE bax sertemik or chold 2 and AVERAGE per bank) P. RIVER PBGN Londing Downstream M BLEAD DE ALLIN 2016 JUL BANK EFICSFORGACK ONE bax sertemik or chold 2 and AVERAGE per bank) P. RIVER PBGN RUPE R. RIVE EBGNK) T. R. RPE Bank) T. R. RPE BANK BANK) T. R. RPE BANK) T. R. RPE BANK) T. R. RPE B Raffielden Max 10 Max 10 Substrate 06/24/01 Channel Kax 20 Max 20 [] ¶ ¶ MAN SOLUTION Current AddX 12 ŝ ALEXANCE OLALITY CREATONE OF A WERKEL CALONE TO SEL HEAVY [2] CALONE MODERATE [1] CALONERATE [1] DI CHARTE [1] AMOUNT. Chock ONLY ONE OF AMOUNT. Chock ONLY ONE OF CHOCK 2 and AVERAGE D - EXTRUSIVE - 555 (11) D - NEARLY ASEDUT - 55(11) M ALE RIFFLE RUN EMERDEDNESS Boulder: (2) TO NONE (2) arge Gravel) (1) TJ LOW (1) arge Mana) (0) TJ LOW (1) arge Marte (1) TJ LONE (1) (1) NO RIFLE (Metrice) DAY ON UNDER TABLICATIONS OTHER TABLICAT T. HIGH [3] D. SUNGGING D. I. NWOUND. D. HIGH [3] D. SUNGGING D. I. SUNG M. MODERATE [3] D. SANGPY RENOWL D. I. ENER D. LOW [1] D. SENGARG D. SANK SHUEINS D. ONE SIDE CHANNEL MODIFICATIONS Score: CURRENT VELOCITY \_ POOLS & RIFFLESS ] CONSELL 1 That Apply] - STORE 1 THAT APPLY IN THAT APPLY INTTAT APPLY IN THAT APPLY INTTAT APPLY INTTAT APPLY INTTAT APPLY IN %GLIDE: 0 QHEI 
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 <td Evaluation Index Field Sheet Didate there are a service instruction of the se RIFFLE/RUN SUBSTRATE D-STARLE (a.g., Cobice, Boulder) (2) D-MCD, STARLE (a.g., Large Gravel) [1] D-UNSTARLE (Fine Gravel, Same) [0] One PER Category OR check 2 and AVERAGE C DXBOWS, BACKWATERS (1) LAQUATIC MACROPHYTES (1) LOGS OR WOODY DEBRIS (1) CHECK ONE OR CHECK 2 AND AVERAGE C FAST[1] C - MODERATE [1] C - SLOW [1] 0.00015(1) () GRADIENT (frim): JU/ 3.4 Mj DRAINAGE AREA (sq.mi.) : SU H MORPHOLOGY Charact 1 or 2 by NEWASE Charact 1 or 2 by NEWASE Charact 1 or 2 by NEWASE Character 1 or 2 by NEWASE Character 2 by NEWASE Control One PER Cales Quantification D- RECORDED (4) D- RECORDED (4) D- RECORDED (5) D- RECORD OR NO RECOVERY (1) HTM P ()/\_-D POOLS 70 cm [2] RODTWADS [1] BOULDERS [1] Qualitative Habitat HMN <u>KLIN DEPTH</u> D - MAX + 50 [2] D - MAX < 50[1] SUPPOLICALIDE AND RIFFLERUN QUALITY MAX. DEPTH (CHECK 1 ON (1)) Intustitual RPHOLOGY: (Check OF DEVELORIENT D- EXCELLENT (T) D- FAUR (J) D- FAUR (J) D- FAUR (J) D- POOR (Y) D- POOR (Y) DIEL PARKALING OF LINE Code: 100 Locat s DRUGHTON MATERS (1) DREPUTAGING VEGETATION (1) SHALLOWS (IN SLOW WATER) [7] RODTMATS (1) COMMENTS: L ROOTMATS (1) COMMENTS 3] CHANNEL MORPHOLOGY: ( UNDERCUT BANKS [1] SMILOSITY D- HIGH [4] D- NOVE [1] D- NOVE [1] EPA 4520 COMMENTS:

| ADDITIONAL STREAM INFORMATION (This Information Muschico to Completed):<br>QHEI PERFORMED • C] Vec (C) No. CHEI Scare (II Ves Allich Constinued CHEI Form)<br>DOWNSTREAM DESIGNATED GEE(S)<br>DOWNSTREAM DESIGNATED FOR THE FOR | MISCELLANEGUS         Base Fina Condition: 1 (mit)       Oato of last brospitation. JJJK, FJDAM       Quantity.         Photograph Internation:       Photograph Internation:       Photograph Internation:         Photograph Internation:       Elevaced Turbeily (mit)       Cancey (% open):       JDQ         Elevaced Turbeily (mit)       Elevaced Turbeily (mit)       Cancey (% open):       JDQ         Elevaced Turbeily (mit)       Elevaced Turbeily (mit)       Elevaced Turbeily (mit)         Field Messures       Tomp (C)       Ulscored Orgen (mg/n)       PH (S. U.)       Conductivity (urrhoolern)         Field Messures       Tomp (C)       Ulscore explain       PH (S. U.)       Conductivity (urrhoolern)         Additional connective effort impacts.       Photoe endolation impacts.       Photoe formative field that cheest ion the formary Hoodmater thabits. Assessment Marna)         Elevalued (MM)       Voucher? (MM)       Voucher? (MM)       Voucher? (MM)         Elevalued Blobgy.       Connects Regeneting Blobgy.       Voucher? (MM)       Voucher? (MN)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | BRAWING AND NARATIVE DESCRIPTION OF STREAM REACH (This must be completed):         Include memory and a memory and a memory data stream and a memory data stream a testor.         Include memory and a memory data stream and a memory data stream a memory data stre |
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| Chiefe Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3): A HHEI Score (sum of metrics 1, 2, 3): A HHEI Score (sum of metrics 1, 2, 3): A HHEI Score (sum of metrics 1, 2, 3): A HHEI Score (sum of metrics 1, 2, 3): A HHEI Score (sum of metrics 1, 2, 3): A HHEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (sum of metrics 1, 2, 3, 3): A HIEI Score (su                                                                                       | 1.     SUBSTRATE (Estimane percent of every type of substrate present. Orect: Out. Yime, precommanic additionance of applicant substrate bytes of substrate present. Orect: Out. Yime, precommanic additionance of applicant substrate bytes of a point in the score of a unit of both in th | The Information Inter also be completed       REARMAN ELCOOPENING FLOODER NOT The Information Inter also be completed       REARMA ZONE AND FLOODER NOTHING     The Information Inter also be completed       REARMA MUTH     I. R. Mosch Padominal part (all ML)       Wiles Float     I. R. Mosch Padominal part (all ML)       Wiles Float     I. R. Mosch Padominal part (all ML)       Miles Float     I. R. Mosch Padominal part (all ML)       Mosch also for Matter Forst, Shrub or Old     III Conservation       Mosch also for Matter Forst, Nucle Forst, Raw Forst, Shrub or Old       Matter Constraint     Part Reader Forst, Nucle                                                                                                                                                                                                                             |

| ADDITTOMAL STREAM INFORMATION (This Information Must. Also to Completed): | QHEI PERFORMEDY - D'Yes D No. CHEI Score S (If Yes. Attach Completed ChEI Form)<br>DOWNSTREAM DESIGNATED USE(S)<br>Defance from Evoluated Stream<br>C CMH Name<br>Defance from Evoluated Stream                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | USGS Quadrange Name:                                                                                                                                                                                                          | County:     Iconstruct City       MISCELLANEOUS     Iconstruct City       Base Flow Conditions? (YiM):     Date of last precipitation.       Pholograph Intermation:     C.A.2.2.2.2.1.2.1.1.2       Pholograph Intermation:     C.A.2.2.2.2.1.2.1.1.2       Pholograph Intermation:     C.A.2.2.2.2.2.1.2.1.2       Pholograph Intermation:     C.A.2.2.2.2.2.2.1.2.1.2       Pholograph Intermation:     C.A.2.2.2.2.2.1.2.1.2       Elevated Tutidaty? (YiM):     M. Canopy (% open):       Pholograph Intermation:     C.A.2.2.2.2.2.2.1.2       Elevated Tutidaty? (YiM):     M. (Note to be sample no or id and attach recults) Lab Number.       Field Maastures:     Tamp (*C)       Discribed Oxygen (mg/f)     Ph (3.U.)       Is the sampling reach representative of the stream (YiM).     If not, please coolesin: | Additional comment/description of pollution impacts.<br><u>BIOTIC EVALUATION</u><br>Partemed7 (Y1N) <u>V</u> (if Yes, Record an observations Voucher contections optional, INOTE, air coucher tramptes must be lapelled with the effe<br>Field Observed7 (Y1N) <u>V</u> (if Yes, Record an observations Voucher field data treets from the Armany Hestevalet Habilat Assessment Manual)<br>Field Observed7 (Y1N) <u>Voucher</u> ? (Y1N) <u>Salamanders Observed7 (YNM)</u> Voucher? (YNM) <u>Voucher</u> ? (YNM) <u>Comments Regarding Biology</u> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>muss</u> be completed):<br>Include important landmarks and other feetures of interest for site evaluation and a narrative description of the stream's location<br>of the stream's location of the stre | and the second for th |
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| Chave II<br>Chave II                                                      | THEI SCOPE (SUM OF AND OTAL OLAR OTAL AND OF MELLSCOPE (SUM OF MERICS 1, 2, 3) : LON I THEI SCOPE (SUM OF MERICS 1, 2, 3) : LON I THE SCOPE OF AND OF | NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions<br>STREAM CHANNEL ENCORE/INATURAL CHANNEL ERECOVERED ERECOVERING ERECENT OR NO RECOVERY<br>MODIFICATIONS: | 1. SUBSTRATE (Estimate percent of every type of subserve porcent (Ceck, Crik, Ying, perdominan substrate TYPE beaves<br>(Max of 32). Add traininghoot of symptone porcent boards of symptone porcent automatic accert is sum of boards A B.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2.       Maximum Pool Oppth (Measure tro maximum pool dippth within the Bit meter (200 fty evaluation reach at the time of evaluation reach at the time of evaluation reach at the time of evaluation reach blogs)       Pool Dippth         3.       Maximum Pool Oppth (Measure tro maximum pool dippth within the Bit meter (200 fty evaluation)       Pool Dippth         9.       Sometimeters (20 peal)       5 cm - 10 cm (15 pis)       5 cm - 10 cm (15 pis)         9.       9.00 cm/mtter (20 peal)       6 cm (15 pis)       5 cm - 10 cm (15 pis)         9.       9.00 - 22.5 cm (26 pia)       0.00 whiter (06 m(05) CHANNEL (10 fte))       2 cm (25 pia)         0.       2.5.5 cm (26 pia)       0.00 whiter (06 m(05) CHANNEL (10 fte))       2 cm (15 pia)         0.       2.5.5 cm (26 pia)       0.00 whiter (06 m(05) CHANNEL (10 fte))       2 cm (25 pia)         0.       2.5.5 cm (26 pia)       0.00 whiter (06 m(05) CHANNEL (10 fte))       2 cm (15 pia)         0.       2.5.5 cm (26 pia)       0.00 whiter (06 m(05) CHANNEL (10 fte))       2 cm (15 pia)         0.       2.5.5 cm (26 pia)       0.00 whiter (10 m(05) CHANNEL (10 fte))       2 cm (15 pia)         0.       2.5.5 cm (26 pia)       0.00 whiter (10 m(05) CHANNEL (10 fte))       2 cm (15 pia)         0.       2.5.5 cm (26 pia)       0.00 whiter (10 m(05) CHANNEL (10 fte))       2 cm (15 pia)         1.       4.00 m (10 m(1 | RIP ARLAN ZONE AND FLOCOPLAN CIULTY       ::h10mmiles false bit completed         RIP ARLAN ZONE AND FLOCOPLAN CIULATY       ::h10mmiles         Image of the Barnin       ::L200004LITY         Image of the Barnin       :L200004LITY         Image of the Barnin       :C200004LITY         Image of the Barnin       :C20004LITY         Image of the Barnin       :C200404LITY         Im                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SiNUOSITY (Number of bends, per 61 m (200 ft) of channel)     Choice ONLY one box):     3.0       None     None     3.0       0.5     1.5     2.5       0.5     1.5     3.5       0.5     1.5     3.5       0.5     1.5     3.5       0.5     1.5     3.5       0.5     1.5     3.5       0.5     1.5     3.5       0.5     3.5     3.5       0.5     3.5     3.5       0.5     3.5     3.5       0.6     1.5     3.5       0.7     3.5     3.5       0.6     1.5     3.5       0.7     3.5     3.5       0.6     1.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5       0.7     3.5     3.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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| ADDITIONAL STREAM INFORMATION (This Information Must Also to Completed)<br>ADDITIONAL STREAM INFORMATION (This Information Must Also to Completed)<br>ADDITIONAL STREAM INFORMEDY - (Tyres, Jako Anel Scare                                              | County       InscellanEOUS         InscellanEOUS       InscellanEOUS         Base Four Conditions' (YN)       Date of last presentation         Propagaph information       Device and and the stream of the st | FLOW FLOW OF STREAM REACH (This <u>must</u> be completed):<br>Include Important transforments, and other frankments of incorest for the evaluation and a marrature electrophilon of the stream is location<br>FLOW FLOW OF AND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| CONSTITUENT Primary Headwater Habitat Evaluation Form<br>MAEL Score (sum of metrics 1, 2, 3): 26<br>MAEL CONTRACTION APP COND THAN AND THE SCORE (sum of metrics 1, 2, 3): 26<br>MAEL CONTRACTION APP CONDUCT OF AND ADD ADD ADD ADD ADD ADD ADD ADD ADD | 1.     SUBSTRATE (Estimate precent of wory type of substrate present. Check OK, Ymg predommart substrate pyree for a significant substrate present. Check OK, Ymg predommart substrate pyree for a significant substrate pyre for a substrate pyre for a significant substrate pyre parameter significant substrate pyre parameter significant substrate pyre parameter significant substrate pyre parameter pyre parameter substrate press.     HHEI Pyre pyre for a significant substrate pyre pyre pyre pyre parameter pyre parameter pyre parameter pyre parameter pyre parameter pyre parameter pyre pyre pyre pyre pyre pyre pyre py                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Repertury ZONE AND FLOODDUR THE Information mure also be completed     Representation flood and the information mure also be completed       Representation     Representation     Representation       Representor     Representation     Representation |

| ADORTIONAL STREAMINFORMATION (This Information Must Also be Completed):<br>OPER PERFORMED? 7 (4) 24-61 Secto                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | MISCELLANEOUS<br>Base Flow Concluors (YN), Y Date drive prespiration <u>(0 - 4 - 5 -</u> 0; anily <u>13</u> '<br>Procograph instamation<br>Elevated Turbody 7 YN), Date driver prespiration <u>0 - 4 - 5 -</u> 0; anilog <u>13</u> '<br>Elevated Turbody 7 YN), <u>11 Norte prespiration</u><br>Elevated Turbody 7 YN), <u>11 Norte prespiration</u><br>Free disessures Terres (1 - 0 second Oxyer langh, <u>10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 </u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | BIOTIC EVALUATION<br>Performed? (YM) (7 Yes. Record all observations. Vouceri colections pollonal. NOTE, all vowcher semples must be litered with the site<br>D Annual include appropriate field and shreed efficience pollonal. NOTE, all vowcher semples must be litered with the site<br>(D Annual include appropriate field and shreed efficience pollonal. NOTE, all vowcher semples must be litered with the site<br>Field Observed? (YM)                                                                                                                                                                                                                                                                                                                                                                             | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):<br>Include important prodinses and shor tostures of interest for site ovaluation and a narrative description of the stream's location<br>of a stream and and a stream and a stream and a narrative description of the stream's location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | TU I YO<br>DAVIE A 200 Anoton<br>Cooker 24 200 Anoton                                                                                                               |
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| Crister Redwater Habitat Evaluation Form<br>HHEI Score (sum of metros 1, 2, 3) :<br>In the form the form of the form | 1. SUBSTRATE (Estimate percent of every type of substrate present. Check Oiky Hag predommans: substrate FYZE boxes<br>(Aa. d. 32) Add solin hamber of significant sector loss of hal memo sore is similar FYZE boxes<br>(Aa. d. 32) Add solin hamber of significant sector is similar tyzE boxes<br>(Aa. d. 32) Add solin hamber of significant sector is similar tyzE boxes<br>(Aa. d. 32) Add solin hamber of significant sector is similar tyzE boxes<br>acceleration is and the priority of the DEFINIUS (Bars)<br>(AT 13) Costelerate (Bars)<br>(AT 13) Costelerate (Bars)<br>(AT 13) Costeleration (Bars)<br>(AA 14) (AA 14) (AA 14) (AA 14) (AA 14)<br>(AA 14) (AA 14 | 3     EANK FULL WITH (Measured as the average of 3-4 measurements)     Chock ONLY on boxy;     Bankfull       3     EANK FULL WITH (Measured as the average of 3-4 measurements)     (Chock ONLY on boxy;     Bankfull       3     A 0 measured as the average of 3-4 measurements)     (Chock ONLY on boxy;     Bankfull       1     3 - 4 0 measured as the average of 3-4 measurements)     (Chock ONLY on boxy;     Bankfull       1     3 - 4 0 measured as the average of 3-4 measurements)     (Chock ONLY on boxy;     Bankfull       1     3 - 0 m - 15 m - 25 m;     0     3 - 0 m;     1 - 0 m;       2     3 - 0 m - 15 m;     0     1 - 0 m;     7 - 1 0 m;     7 - 0 measurements)       1     5 - 0 m - 4 0 m;     0     - 1 0 m;     7 - 0 m;     7 - 0 measurements)     Mean       1     5 - 0 m - 4 0 m; | RIP ARIAN ZONE AND FLOCOPLAIN       This information must also be completed         RIP ARIAN ZONE AND FLOCOPLAIN       XNOTE River Left (L) and Right (R) as looking downstreamy.         RIP ARIAN ZONE AND FLOCOPLAIN       XNOTE River Left (L) and Right (R) as looking downstreamy.         RIP ARIAN ZONE AND FLOCOPLAIN OLUCITY       XNOTE River Left (L) and Right (R) as looking downstreamy.         RIP River and XNOTH       L R       (Wast Procommant per Bank)         RIP River and XNOTH       L R       (Wast Procommant per Bank)         RIP ARIAN ZONE AND       L R       (Wast Procommant per Bank)         RIP River and XNOTH       L R       (Wast Procommant per Bank)         RIP River and XNOTH       L R       (Wast Procommant per Bank)         RIP River and XNOTH       L R       (Wast Procommant per Bank)         RIP River and Market and XNOTH       L R       (Mast Procommant Per Bank)         RIP RIVE RIVER (R) River and C)       L R       Cross on construction         RIP RIVER RIVE RIVER RIVER (R) RIVER ROW (R) | COMMENTS<br>SINUOSITY INJURIER of territs per 61 m (200 ft) of channeli (Check CMLY one box):<br>0.1 None 0.15 1.5 0.25 2.6 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 |

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| Convervis<br>NINUOSITY (Number of tends per 61, m (200 ft) of channel) (Check ONLY one bay):<br>1 0 20 30<br>STREAM GRADIENT ESTIMATE<br>1 10 2.5<br>STREAM GRADIENT ESTIMATE<br>Creave 24 2020 Acrees<br>PHWH Form Page - 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | [] Barri Rarrie Plant Jone 2<br>Door 21 200 Revoor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Y TEGAUNAL<br>From Reteriors in Relation in | aluation Form alluation Form accentence and increased and one completed accentence in a complete | Miscal Number Number For Start     Miscal Number For Start     Miscal Number For Start       Miscal Number Number Start     Percent     Miscal Number Start       Miscal Number Number Start     Percent     Miscal Number Start       Miscal Number Start     Miscal Number Start     Miscal Number Start       Miscal Number Start     Miscal Number Start     Miscal Number Start       Miscal Number Start     Miscal Number Start     Miscal Number Start       Miscal Number Start     Miscal Number Start     Miscal Number Start       Miscal Number Start     Miscal Number Start     Miscal Number Start       Miscal Number Start     Miscal Number Start     Miscal Number Start       Miscal Number Start     Miscal Number Start     Miscal Number Start       Miscal Number Start Number Start     Miscal Number Start     Miscal Number Start       Miscal Number Start Number Start Number Start     Miscal Number Start Number Start     Miscal Number Start       Miscal Number Start Start     Miscal Number Start Number Start     Miscal Number Start Number Start       Miscal Number Start Start     Miscal Number Start     Miscal Number Start       Miscal Number Start     Miscal Number Start     Miscal Number Start       Miscal Number Start     Miscal Number Start     Miscal Number Start       Miscal Number Start     Miscal Number Start     Miscal Number Start | No write OR MOUSI CHAMMEL   0 pcl<br>MAXIMUM POOL DEPTH (centimetes)     BIOIC EXALUATION       MAXIMUM POOL DEPTH (centimetes)     Reviewners)       I a meximum pool DEPTH (centimetes)     Number (reviewners)       I a meximum pool Reviewners)     Number (reviewners)       I a meximu pool Reviewners)     < | Ormation guids also be completed         7       XMODE River Left (1) and Reput (P: not overgiable completed)         Ann Out-Strate Bank)       R         Ann Out-Strate Bank)       R         Annotation for existentiant per Bank)       R         Conservation       Include important landmarks and other features of innexes for vice existentiant of the stream's location         Cencer Pasture       Include important landmarks and other features of innexes for vice existentiant of the stream's location         Cencer Pasture       Include important landmarks and other features of innexes for vice existentiant of the stream's location         Cencer Pasture       Include important landmarks and other features of innexes for vice existentiant of the stream's location         Cencer Pasture       Include important landmarks and other features of innexes for vice existentiant of the stream's location         Cencer Pasture       Include important landmarks and other features of innever for vice exis | 1) Boy channel incluence goods in of how information in the maternal in the second of the formation in the second of the second |
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| Chieffy Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3): 35 S<br>A MALLETAIN FILE TON COTA HEI Score (sum of metrics 1, 2, 3): 35 S<br>A MALLETAIN FILE TON COMPLETE COMPLETE<br>SITI AUGUES STREAM FILE TONE FOR HEIR<br>A MALLETAIN COMPLETE TONE FOR HEIR<br>SITI AUGUES STREAM COMPLETE TO FIELE EVALUATION OF INCOMPLETE TONE<br>NOTE: COMPLETE TONE AND UNLINE TONE FORM AND ALLAND AND STREAM CONTRACT AND ALLAND AND ALLAND AND STREAM CONTRACT AND ALLAND AND STREAM CONTRACT AND ALLAND AND AND ALLAND AND ALL | 1       SUBSTRATE [Estimute precent of every type of substrate precent Thick, TXV / Nog predominant substrate (YV) becas       HHEI         The substrate of substrate precent of every type of substrate o                                                                            | > 30 Commenters (20 pts)       > 5 cm · 30 cm (15 pts)       > 5 cm · 30 cm (15 pts)         > 10. + 10. + 25 cm [20 pts]       > 5 cm · 30 cm (15 pts)       > 5 cm · 30 cm (15 pts)         > 10. + 10. + 25 cm [20 pts]       > 5 cm · 30 cm (15 pts)       > 7 cm · 30 cm (15 pts)         0       > 10. + 25 cm [20 pts]       > 0 cm · 310 cm (15 pts)       > 7 cm · 30 cm (15 pts)         0       > 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10. + 10                                                                                                                                               | This information must also be completed     This information must also be completed       RIPARIAN ZONE AND FLOODPLINT     NINDT     Even Left (1) and Right (1) as keeling downstream (1)       RIPARIAN WORTH     L     R (CONSUMING)     L       RIPARIAN SOVE AND FLOODPLINT     NAME     Report Report (1) and Ripar (1) |

| ADDITIONAL STREAM INFORMATION TITIS Information Munit Also the Completed:<br>QLEI PERFORMEON - Their Revis Contraction Munit Also the Completed:<br>DOI: NOT STREAM DE STREAM TO THE INFORMEON - Their Stream Completed:<br>DOI: NOT STREAM DE STREAM DE Stream - Not Stream - | MISCELLANEOUS         Base Flow Candinary (YiN)       Date of last acceptation       0-1-01       0.2.1         Phologyash Internation       Y/K       Date of last acceptation       0-1-01       0.2.1         Phologyash Internation       Y/K       Date of last acceptation       0-1-01       0.2.1         Phologyash Internation       Y/K       Date of last acceptation       0-1-01       0.2.1         Phologyash Internation       Y/K       Acards Y (XN)       Y/K       0-1-01       0.2.1         Peeld Mossures       Temp (C)       Datebrace Urgen urgs)       Datebrace Urgen urgs)       Phile       0-1-01       0.2.1       0-1-01         Field Mossures       Temp (C)       Datebrace Urgen urgs)       Phile       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01       0-1-01 <td< th=""><th>FLOW</th></td<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | FLOW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| Primary Headwater Habitat Evaluation Form<br>HHEI Score Isum of metrics 1, 2, 3) :<br>HHEI Score Isum of Metrics 1, 2, 3, 3, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | If Act formunes percent of every type of unbarrate present. Creec Gir Y top perdomant upstrate TYPE bores     IHHEI       If Act formune: of spintonsi upstrate present. Creec Gir Y top predomant upstrate TYPE bores     IHHEI       DER 1256 min) [16 prs]     Tim Let Prese body voltable for the present of the number of spintonsi upstrate to the percent of the number of spintonsi upstrate to the percent of the number of spintonsi upstrate to the percent of the number of spintonsi upstrate to the percent of the number of spintonsi upstrate to the percent of the number o | This information must late be completed     This information must late be completed       PARIAN ZONE AND FLOODPLAIN QUALITY     ::NOTE River Left(L) and Right (R) as loaking downstream:)       Reasenting     Exponenting     Exponenting       Reasenting     Exponenting     Exponenting       Mature Forest, Welland     Imagine Farest, Struds or Oid     Image       Norew <5m     Rescential, Park, New Field     Image       Norew     Image     Image     Image       Nores     Image     Image     Image       Number of Sensition     Image     Image     Image       Image     Image |

| addictored       addictored         addictored       a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MISCELLAREOUS       MISCELLAREOUS         Base Law Contrues (1701)       Carrier Law Contrues (1701)         Prevenance       Feature Translation         Prevenance       Prevenance Prevenance Prevenance Prevenance Prevenance         Prevenance       Prevenance Prevenance Prevenance Prevenance         Prevenance       Prevenance         Prevenance       Prevenance         Prevenance       Prevenance         Prevenance       Prevenance         Prevenance       Prevenance         Prevenance       Prevenance         Prevenance       Prevenance         Prevenance       Prevenance         Prevenance       Prevenace         Prevenee                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Drawing and nargarity Escentification of the stream react. (This muggiple completed):         Trutted inportant lummaries and other teatures of interest for stee evolution and a number discription of the stream's testimation:         PLOM       PLOM         PLOM       PLOM         PLOM       PLOM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Criterio Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3); (2)<br>Criterio Converting 12, 2, 2); (2)<br>Criterio Criterio 2, 2, 2); (2)<br>Criterio Criterio 2, 2, 2); (2)<br>Criterio 2, 2) | 1     SUBSTATE (E-dimate percent of every type of substate percent (Ne) while results in the intervent of every type of substate percent (Ne) while results in the intervent of every type of substate percent (Ne) while results intervent of every type of substate percent (Ne) while results intervent of every type of substate percent (Ne) while results intervent of every substate percent (Ne) while results intervent of every type of substate percent (Ne) while results intervent of every substate percent (Ne) while results intervent (Ne) while results interveent (Ne) while results intervent (NE) | RIPARAN ZONE AND FLOODELAND FLOODELAND FLOODELAND FLOODELAND FLOODELAND FLOODELAND THAI BIO MANUTCH     The information must also be completed       RIPARAN ZONE AND FLOODELAND FLOODELAND     NOTE Row Lett   J. Jan Raphill     NOTE Row Lett   J. Jan Raphill       RIPARAN ZONE AND FLOODELAND     NOTE Row Lett   J. Jan Raphill     Impact Row Lett   J. Jan Raphill       RIPARAN ZONE AND FLOODELAND     NOTE Row Lett   J. Jan Raphill     Impact Row Lett   J. Jan Raphill       RIPARAN ZONE AND FLOODELAND     Rives Floor     Impact Row Lett   J. Jan Raphill       RIPARAN ZONE AND FLOODELAND     Rives Floor     Impact Row Lett   J. Jan Raphill       RIPARAN ZONE AND FLOODELAND     Rives Floor     Impact Row Row Row       RIPARAN SONE AND FLOODELAND     Rives Floor     Impact Row Row Row       Rives Row Row Row Row Row     Recent Row Row     Recent Row Row Row Row       Rives Row |

| ADDITIONAL STREAM INFORMATION [This Information Must Also be Complemed]<br>ADDITIONAL STREAM INFORMATION [THIS INFORMATION [THIS INFORMATION [THIS IN | mis CELLANEOUS       Milementon         Base Flow Conducers' (YM)       Date of last precopilation         Preregaraph lillermanon       Elevated Turbahy? (YM)         Filler samples collected for water chemistry? (YM)       Under by april previous         Field reasoures       Termo (C)         Descended for water chemistry? (YM)       Pril previous         Field reasoures       Termo (C)         Descended for water chemistry? (YM)       Pril previous         Field reasoures       Termo (C)         Descended for water chemistry? (YM)       Pril previous         Field reasoures       Termo (C)       Descended Creption         Additional commentistrate of the stream (YM)       If this phases orphon         Additional commentistrate creption of pollution impolds:       If not phases orphon         Biolice_EVALIATION       Restormed Privacy treated all observators volume collocities observed? (YM)         Biolice_EVALIATION       Restormed for data strees from the field accommend fold and the stree         Biolice_EVALIATION       Restormed for data strees from the mark treated of the stree marker phase orphon         Field med? (YM)       Noucher? (YM)       Voucher? (YM)         Field med?       Noucher? (YM)       Voucher? (YM)         Field med?       Noucher? (YM)       Voucher? (YM) <td< th=""><th>DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH [This <u>must</u> be completed):<br/>Include important landmarks and and and the stream's factorian<br/>ELOW L<br/>ELOW L<br/>PLOW L<br/>P</th></td<> | DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH [This <u>must</u> be completed):<br>Include important landmarks and and and the stream's factorian<br>ELOW L<br>ELOW L<br>PLOW L<br>P |
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| Chiefer Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum of metrics 1, 2, 3): 1 (0)<br>HHEI Score (sum of metrics 1, 2, 3): 1 (0)<br>BIT AL A HOLOW SIENTER ALT ALARS ALT AT ALARSE AREA MIL<br>BIT A HOLOW SIENTER ALT ALARSE ALT AREA ALT AT ANDREAD ALA HOLOW SIENTER ALA HOLOW SIE                                              | 1. 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P.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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| Chied The Primary Headwater Habitat Evaluation Form<br>HHEI Score (sum stimutures 1, 2, 3): 3()<br>HHEI Score (sum stimutures 1, 2, 3): 3()<br>Muz. 2() of (billowin super 5, 12) and (billo      | Substract Formare precent of owy type of substrate precent Unice CW is bein produced in the contract of the first present                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Naumum Pool Depth (Passure fre maximum pool drym within the 6f moter (200 ff vy wulding way, hill the project     Pool Depth (Passure fre maximum pool drym) within the 6f moter (200 ff vy wulding way, hill the project       volument of word pump pools van road drym within the 6f moter (200 ff vy wulding way)     > 20 south of the project       > 20 south of will be project     > 20 south of the project       > 20 south of project     > 30 south of the project       > 20 south of project     > 30 south of the project       > 10 south of project     > 30 south of the project       > 10 south of the project     > 30 south of the project       > 10 south of the project     > 30 south of the project       > 10 south of the project     > 30 south of the project       > 10 south of the project     > 30 south of the project       > 10 south of the project     > 30 south of the project       > 10 south of the project     > 30 south of the project       > 30 south of the project     > 30 south of the project       > 30 south of the project     > 30 south of the project       > 30 south of the project     > 30 south of the project       > 30 south of the project     > 30 south of the project       > 30 south of the project     > 30 south of the project       > 30 south of the project     > 30 south of the project       > 30 south of the project     > 30 south of the project       > 30 south of the project     > 30 sout                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Internation Busic Job to completed     This information Busic Job to completed       REARIAN ZONE AND FLOODPLAN OUALITY     AND/E Pare Loff(1) and Right Plate Internation Busic       REPEARIAN WITH     LOODPLAN OUALITY       R. 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APPENDIX D

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SELECTED PHOTOGRAPHS
















APPENDIX E

### AGENCY CORRESPONDENCE

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# Ohio Department of Natural Resources

BOB TAFT, GOVERNOR

SAMUEL W. SPECK, DIRECTOR Division of Natural Areas & Preserves Nancy Strayer, Acting Chief 1889 Fountain Square, Bldg. F-1 Columbus, OH 43224-1388 Phone: (614) 265-6453 Fax: (614) 267-3096

May 10, 2004

Rebecca Wilson GT Environmental, Inc. 635 Park Meadow Rd., Suite 112 Westerville, OH 43081

Dear Ms. Wilson:

After reviewing our Natural Heritage maps and files, I find the Division of Natural Areas and Preserves has records of rare or endangered species within 5 miles of the GT Environmental, Inc. Ohio 2 project. The site is in Sutton, Lebanon, and Letart Twps., Meigs Co., New Haven and Ravenswood Quadrangles. The maps I have included with this letter display the locations of these records and correspond with the attached list.

There are no existing or proposed state nature preserves at the project site. We are also unaware of any unique ecological sites, geologic features, breeding or non-breeding animal concentrations, champion trees, state parks, state forests, or scenic rivers within the project area. However the search includes the Racine, Old Town Creek, and Lock and Dam 23 Wildlife Areas. Jim Marshall of the Division of Wildlife should be consulted regarding possible impacts to these areas. He can be reached at (614) 594-2211.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. 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 we inventory all types of plant communities, we only maintain records on the highest quality areas. Also we do not have data for all Ohio wetlands. The Division of Wildlife has a statewide wetland inventory that can give you additional data. Their phone number is (614) 265-6300. For National wetlands Inventory maps, please contact Madge Fitak in the Division of Geological Survey at (614) 265-6576. Aerial photos may be obtained from ODOT at (614) 275-1369. USGS maps can be requested directly from the U.S. Geological Survey at 1-888-275-8747.

Please contact me at (614) 265-6409 if I can be of further assistance.

Sincerely,

Butch Grieszmer, Data Specialist Resource Services Group

## GT Environmental, Inc. Ohio 2 Project

|    | Scientific Name         | Common Name              | State Status | Federal Status |
|----|-------------------------|--------------------------|--------------|----------------|
|    | Cicindela marginipennis | Cobblestone Tiger Beetle | Т            |                |
| 2  | Heteranthera reniformis | Mud-plantain             | E            |                |
| 3  | Hiodon alosoides        | Goldeye                  | E            |                |
| 4  | Macrhybopsis aestivalis | Speckled Chub            | E            |                |
| 5  | Obliquaria reflexa      | Threehorn Wartyback      | Т            |                |
| 6  | Obliquaria reflexa      | Threehorn Wartyback      | T            |                |
| 7  | Opuntia humifusa        | Common Prickly Pear      | Р            |                |
| 8  | Percina copelandì       | Channel Darter           | т            |                |
| 9  | Scaphiopus holbrookii   | Eastern Spadefoot        | E            |                |
| 10 | Spermacoce glabra       | Smooth Buttonweed        | Р            |                |

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APPENDIX 07-2

STREAM CROSSING BMPs

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#### BEST MANAGEMENT PRACTICES FOR STREAM CROSSINGS

#### AMERICAN MUNICIPAL POWER GENERATING STATION AND TRANSMISSION PROJECT, MEIGS COUNTY, OH

#### **1.0 INTRODUCTION**

American Municipal Power- Ohio ("AMP-Ohio") is proposing to construct a 345 kV electric transmission line from its proposed American Municipal Power Generating Station ("AMPGS") in southeastern Meigs County, Ohio, to connect to the existing Muskingum-Sporn 345 kV transmission line. URS conducted a wetland delineation, stream assessment, and threatened and endangered species survey along the Preferred Route's transmission line corridor. No rare or endangered plants were identified during this survey. Wetland descriptions and stream classifications can be found in the <u>Wetland Delineation</u>, Stream Assessment, and Threatened and Endangered Species Habitat Report created for this project.

No wetlands will be impacted either by the transmission line or by access to pole locations. Construction of the transmission line and future right of way (ROW) maintenance have the potential to temporarily impact the streams located within the project vicinity. Temporary impacts will be a result of access roads, pole construction, and transmission line stringing. Additionally, canopy and tall understory trees along streambanks will be hand-cut as needed within the transmission line ROW and along access roads.

The purpose of this document is to demonstrate AMP-Ohio's intention to: a) avoid stream disturbance to the extent possible, b) minimize stream impacts and disturbances through best management practices, c) stabilize streambanks and restore vegetation, and d) mitigate permanent impacts. All methods proposed in this document are conditional, and will be assessed on a case-by-case basis as directed by the Ohio Power Siting Board (OPSB).

#### 2.0 AVOIDANCE

A route selection study was conducted by Sargent & Lundy to identify and evaluate potential routes for the project. Additionally, URS conducted a wetland delineation, stream assessment, and threatened and endangered species survey along the Preferred and Alternate Route transmission line corridor. The objective of these studies was to avoid

AMPGS

to the extent possible and minimize the overall impacts to ecological and land use features, while taking into consideration engineering and construction constraints.

### 3.0 BEST MANAGEMENT PRACTICES

Streams and headwaters will be crossed by pole location access routes (for construction of the poles), which may or may not be along the right of way, and by right of way clearing, line stringing and line maintenance crews. These BMPs describe the general practices to be used when crossing streams in the following cases:

- 1. For temporary access roads to pole locations for the purposes of construction
- 2. During access to the ROW for clearing and stringing of conductors and shield wires
- 3. During periodic maintenance of the ROW

The precise method used at each stream crossing will be assessed on a case by case basis, but in general the method will depend on the stream class, quality, valley and bank steepness, and depth, width, and flow rate of the stream. Some of these parameters were evaluated during the wetland delineation and stream assessment conducted as part of the project.

A stream crossing provides construction traffic temporary access across a stream while reducing the amount of disturbance and sediment pollution. It is a temporary practice which includes restoring the crossing area after construction. The following recommended stream crossing methods were developed with reference to the Rainwater and Land Development manual prepared by Dan Mecklenburg of the Ohio Department of Natural Resources Division of Soil and Water Conservation (1996). Diagrams included in the descriptions below are from the manual.

### **Global Measures**

Each stream and its riparian corridor will be left undisturbed to the extent practical. Structures used in a stream channel will be limited to those that do not cause back ups or washouts during high flow. They will be planned to be in service for the shortest duration practical and will be removed as soon as their function is complete. Safety is of paramount importance for the stream crossings. AMP-Ohio will use methods that do not risk the safety of the construction crews.

#### 3.1 Streams Crossed for Construction Vehicle Access

Temporary access roads will be used for pole construction and transmission line installation. This access will, in some cases, require vehicles to cross headwater channels. The crossing method will be assessed on a case-by-case basis depending on the conditions, terrain, and assessed quality of the streams. Best management practices (BMP's) will be used adjacent to each crossing location. These specifications are designed so that there will be no elimination or substantial impairment of existing instream water uses as a part of this project.

The following methods are proposed:

- Temporary Stream Ford
- Culvert Stream Crossings
- Temporary Access Bridge

#### **TEMPORARY FORDS**

Temporary stream fords are proposed for crossing Class I and modified Class I streams. This will involve minimum clearing necessary to gain access to the stream and for passage of construction vehicles. Stone, rock or aggregate of ODOT No.1 as a minimum size will be placed in the channel to provide a solid base for vehicle passage. Work will be conducted during low flow conditions.





- Disturbance of the stream will be kept to a minimum, streambank vegetation will be preserved to the maximum extent practical and the stream crossing width will be kept as narrow as possible. Clearing will be done by cutting rather than grubbing.
- Sediment laden runoff will be prevented from flowing from the access road directly into the stream. Diversions and swales will be used to direct runoff to stormwater management locations. Silt fence and straw bails will be used as needed according to site-specific topographic conditions.
- Aggregate stone and rock used for this type of stream crossing will not be removed. It will be formed such that it does not create an impoundment, impede fish passage or cause erosion of the stream banks.
- Following completion of the work the areas cleared for the temporary access crossing will be stabilized through planting where appropriate. Areas of exposed soil will be stabilized in accordance with the SWP3 plan for the project.
- Fords will not be used where the stream banks are more then 4 feet high.
- Fords will be placed at straight sections of the channel to avoid pools and cut banks where bank instability is likely to be greatest.
- Fords will be made perpendicular to the channel to minimize the length of channel disturbed (manual considers up to 30 degree deviation acceptable).

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### CULVERT STREAM CROSSINGS

*Culvert stream crossings* are proposed for crossing Class II and modified Class II streams.



• Disturbance of the stream will be kept to a minimum, streambank vegetation will be preserved to the maximum extent practical and the stream crossing width will be kept as narrow as possible. Clearing will be done by cutting rather than grubbing.

Roots and stumps will be left in place to aid stabilization and to accelerate revegetation.

- Sediment laden runoff will be prevented from flowing from the access road directly into the stream. Diversions and swales will be used to direct runoff to stormwater management locations. Silt fence and straw bails will be used as needed according to site-specific topographic conditions.
- Culvert pipe will be placed on the existing streambed to avoid a drop or waterfall at the downstream end of the pipe, which would be a barrier to fish migration. Crossings will be placed in shallow areas (riffles) rather then pools.
- Culvert will be sized to be at least three times the depth of the normal stream flow at the crossing location. The minimum diameter culvert that will be used in 18 inches.
- There will be a sufficient number of culvert pipes to completely cross the stream with no more than a 12-inch space between each one.
- Stone, rock or aggregate of ODOT No.1 as a minimum size will be placed in the channel, and between culverts. To prevent washouts larger stone may be used with gabion mattresses. No soil will be placed in the stream channel.
- After completion of construction, aggregate used for the crossing will be left in place. Care will be taken so that aggregate does not create an impoundment or impede fish passage. Structures such as culvert pipe, and gabion mattresses will be removed.
- Stream banks will be stabilized and woody species planted as appropriate.

### TEMPORARY ACCESS BRIDGES



Temporary Access Bridges will be used for Class III stream crossings.

- Disturbance of the stream will be kept to a minimum, streambank vegetation will be preserved to the maximum extent practical and the stream crossing width will be kept as narrow as possible. Clearing will be done by cutting rather than grubbing. Roots and stumps will be left in place to aid stabilization and to accelerate revegetation.
- Sediment laden runoff will be prevented from flowing from the access road directly into the stream. Diversions and swales will be used to direct runoff to stormwater management locations. Silt fence and straw bails will be used as needed according to site-specific topographic conditions.
- Bridges will be constructed to span the entire channel. If the channel width exceeds 8 feet then a floating pier or bridge support may be placed in the channel. No more than one pier, footing or support will be allowed for every 8 feet of span width. No footings, piers or supports will be allowed for spans of less than 8 feet.
- No fill other than clean stone free from soil will be placed within the stream channel.

AMP-Ohio will supplement these methods with protocols discussed with OEPA, Corps and OPSB on a case-by-case basis as specific stream conditions dictate. In addition these crossings will be addressed in the stormwater pollution prevention plan (SWP3) for the project. Some of the access routes will be left in place for maintenance activity. Fences and gates will be kept in sufficient state of repair to confine livestock satisfactorily and gates will be kept closed when not in immediate us. All fences cut or damaged will be restored to a condition as good as, or better than, the condition as found. Where frequent access is required, gates will be installed at no cost to the property owner.

#### 3.2 Streams Crossed for Transmission Line Stringing

The ROW for the electric transmission line has to be clear of vegetation that might interfere with the safe and reliable operation of the line. This is typically the tall growing specimens that have the potential to interfere with the operation of the line. Ideally, if a transmission pole is tall enough and a stream valley is deep enough, trees can be preserved at the bottom of the valley, adjacent to the stream. However, based on the pole design and topographic relief, none of the valleys crossed appear sufficiently deep enough to allow the free growth of potentially dangerous trees. Therefore AMP-Ohio's clearing and maintenance policy requires that trees that have the potential to interfere with the operation of the transmission line be removed.

Canopy and tall understory trees in the riparian buffer along streambanks will be handcut as needed during transmission line stringing. The width of the riparian buffer is dependent on stream type, as shown in Table 1 below. No vehicles or equipment will be permitted in streams except where designated as access routes. Line stringing will be completed by hand at these locations. Within the transmission line ROW trees will be cut to a level to allow for maximum sag of the line. Understory trees and shrubs in the riparian buffer along class II and III streams, which do not pose an immediate threat to the wire/pole, will be left in place to provide continuous ground cover and shading of the The saplings, shrubs, and herbaceous vegetation that are left will ensure stream. streambank stabilization and erosion control. The removal of the canopy will allow for enhanced shrub growth and herbaceous ground cover. Trees stumps will be left in place for all stream classes. The saplings and shrubs left at the time of construction will be hand-cut as needed during future ROW maintenance. AMP's general clearing plan specifies that a vegetation screen will be left near roads where reasonable and practicable and that these screens along roads will be inventoried. The root mass of all plants will be

preserved. Selective clearing techniques will be employed wherever possible to preserve low-growing compatible plant species. All compatible plant species will be saved whenever possible. More extensive cutting will be used on areas where there is little or no existing compatible vegetation, on haul roads and in pole construction areas. Trees will be felled in a manner to minimize damage to crops, fences and other facilities.

Stream Width of **Understory Trees and Shrubs Left in Tree Stumps** Class Riparian Place for Future ROW Maintenance Removed Buffer Class 1 10 feet No No Class II 15 feet Yes No Class III 50 feet Yes No

TABLE 1: Riparian Buffer of Streams Crossed for Transmission Line Stringing

### 3.3 Vegetation Disposal

Disposal of vegetation will be consistent with landowner's preferences, wildlife values and particular site conditions. Debris will be kept out of streams, ponds and other surface waters. Felled trees may be moved to the edge of the ROW and left in place depending on the preferences of the land owner. Branches and debris may be chipped and spread through the ROW for erosion control.

### 3.4 Erosion Control

AMP-Ohio will obtain a construction stormwater NPDES permit from the Ohio EPA. Temporary and permanent erosion and sediment controls at the perimeter of all disturbed sites will include one or more of the measures specified in the associated erosion and sediment control plan. Topsoil at pole excavations will be stockpiled and protected from erosion. Topsoil will be redistributed over disturbed areas to insure permanent revegetation following construction. The sapling, shrub, and herbaceous vegetation layers will be left to the extent possible to minimize erosion along streambanks.

### 3.5 Restoration and Enhancement of Vegetation

Restoration, including temporary and permanent seeding will be coordinated with construction to maximize re-vegetation and soil stabilization. Following construction, all

pole sites, material storage sites and temporary access roads will be seeded with a suitable grass seed mixture as specified in the erosion and sediment control plan. Revegetation techniques will enhance the ROW for appropriate wildlife food and habitat. Permanent vegetative cover will be established on denuded areas not otherwise permanently stabilized in accordance with the following provisions. Native, indigenous, or other appropriate plant materials will be selected on the basis of site-specific climatic conditions, soil characteristics, the soil moisture regime, and topography. The seedbed will be modified to provide an optimum environment for seed germination, seedling growth and survival, as specified in the erosion and sediment control plan. The intent of this provision is to ensure the establishment and continued growth of plant material to prevent erosion and sedimentation and to provide wildlife habitat. After restoration is complete, AMP-Ohio will periodically inspect the ROW for areas of erosion, sedimentation and inadequate re-vegetation conditions. Prompt efforts will be made to correct these areas as soon as they are identified.

#### 3.6 Right-of-Way Maintenance Plans

The ROW for the electric transmission line has to be clear of vegetation that might interfere with the safe and reliable operation of the line. Within the ROW, trees will be cut to a level to allow for maximum sag of the line. The saplings and shrubs that were left at the time of construction and transmission line stringing will be hand-cut as needed during ROW maintenance. No vehicles will be permitted in streams except where designated as access routes. Understory trees and shrubs that do not pose an immediate threat to the wire/pole will be left in place to provide continuous ground cover and shading of the stream. Lower stature shrubs and low-growing plant species (grasses and herbaceous plants) will be left to grow in the ROW. Any herbicides used will be applied in accordance with applicable state and federal laws and regulations, and will be registered with the appropriate state and federal agencies. Only water compatible herbicides will be used within 200 feet of wetlands, streams, and bodies of water. These herbicides will be used in accordance with the manufacturer's label directions and recommendations and will be applied under the direct supervision of certified applicators. Minimum ground spray distance will be adhered to as specified by the herbicide manufacturer.

October, 2007 Stream BMP's AMP-Ohio will make every effort to conduct clearing during the time period of September 15 through April 1. An Indiana bat survey is scheduled prior to clearing work.

### 3.7 Communication and Compliance of Best Management Practices

In order to keep in compliance with the best management practices proposed in this document, construction supervisors involved in this project will attend the preconstruction meeting. This meeting will provide detailed information on the procedures proposed in this document and outline the importance of their implementation. Additionally, attendees will be given a chance to comment on these procedures and give additional recommendations. Contractors and laborers will be under the general direction of construction supervisors that attend the meeting.

AMP-Ohio will staff the project with an environmental inspector to assist project contractors in accommodation of the various environmental constraints and commitments. However contractors will be responsible for understanding the various conditions imposed by the respective governmental agencies and the implications of how these conditions may affect their ability to complete their respective elements of the project.

### 4.0 MITIGATION

No permanent impacts to streams or bodies of water are expected, therefore no specific mitigation procedures are proposed. Restoration measures are described in the discussion of stream crossings above. If any impacts occur, they will be assessed on a case-by-case basis. AMP-Ohio will provide detailed mitigation plans to the OPSB Staff, Corps and OEPA if inadvertent adverse impacts occur.