Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Х	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Х	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		Х
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		Х

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		· ·
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

1					
max 6 pts. Select one size class and assign score. Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1 ha) (4 pts) 3 to <10 acres (1.2 to <4 ha) (3 pts) 0.3 to < 3 acres (012 to <1.2ha) (2 pts) 1					
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10 to <25 acres (4 to <10.1 ha) (4 pts) 3 to <10 acres (1.2 to <4 ha) (3 pts) 0.3 to < 3 acres (012 to <1.2ha) (2 pts) 1 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)					
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1 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)					
1011 00100 (010 110) (0 010)					
5 6 Metric 2. Upland buffers and surrounding land use. 2a. Calculate average buffer width. Select only one and assign score. Do not double check.					
WIDE. Buffers average 50m (164 ft) or more around wetland perimeter (7)					
MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)					
VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)					
2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)					
5 LOW. Old field (>10 years), shrubland, young second growth forest. (5)					
3 MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)					
HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)					
12 18 Metric 3. Hydrology.					
max 30 pts. subtotal 3a. Sources of Water. Score all that apply. 3b. Connectivity. Score all that apply. High pH groundwater (5) 100 year floodplain (1)					
Other groundwater (3) Between stream/lake and other human use (1)					
1 Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1)					
Perennial surface water (lake or stream (5) on/saturation. Score one or dbl check.					
3c. Maximum water depth. Select only one and assign score. Semi- to permanently inundated/saturated (4) >0.7 (27.6in) (3) 3 Regularly inundated/saturated (3)					
>0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) 3 Regularly inundated/saturated (3) 2 Seasonally inundated (2)					
1 <0.4m (<15.7in) (1) Seasonally saturated in upper 30cm (12in) (1)					
3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed					
7 Recovered (7) ditch point source (nonstormwater)					
3 Recovering (3) tile X filling/grading Recent or no recovery (1) dike X road bed/RR track					
weir dredging					
stormwater input Other:					
9 27 Metric 4. Habitat Alteration and Development. max 20 pts. subtotal 4a. Substrate disturbance. Score one or double check and average.					
None or none apparent (4)					
Recovered (3)					
2 Recovering (2) Recent or no recovery (1)					
4b. Habitat development. Select only one and assign score.					
Excellent (7) Very good (6)					
Good (5)					
4 Moderately good (4) Fair (3)					
Poor to fair (2)					
Poor (1) 4c. Habitat alteration. Score one or double check and average.					
None or none apparent (9) Check all disturbances observed					
Recovered (6) X mowing shrub/sapling removal 3 Recovering (3) X grazing herbaceous/aquatic bed removal					
3 Recovering (3) X grazing herbaceous/aquatic bed removal Recent or no recovery (1) X clearcutting sedimentation					
X selective cutting dredging woody debris removal X farming					
subtotal this page toxic pollutants X nutrient enrichment					

Site:				Rater(s): L.Sayre		Date: 4/30/2015	
	27 btotal first page	e 1					
0	27	Metric	5. Special Wetla	nds.			
max 10 pts.	subtotal	Check all th	nat apply and score as indicated	I .			
			Bog (10)				
			Fen (10)				
			Old growth forest (10)				
			Mature forested wetland (5)				
			Lake Erie coastal/tributary wetl	and -unrestricted hydrology (10)			
			Lake Erie coastal/tributary wetl	and-restricted hydrology (5)			
			Lake Plain Sand Prairies (Oak	Openings) (10)			
			Relict Wet Prairies (10)				
			Known occurrence state/federa	al threatened or endangered spec	ies (10)		
			Significant migratory songbird/	water fowl habitat or usage (10)			
			Category 1 Wetland. See Que	stion 1 Qualitative Rating (-10)			
-4	23	Metric	: 6. Plant commur	nities, interspersio	n. microto	nography.	
max 20 pts.	subtotal		nd Vegetation Communities.	Vegatation Commu		p-9p	
		Score all pr	resent using 0 to 3 scale.	0		or comprises <0.1ha (0.2471 acres) contiguous area	
			Aquatic bed	1		t and either comprises small part of wetland's vegetation are erate quality, or comprises a significant part but is of low of	
		2	Emergent				
		0	Shrub	2		t and either comprises significant part of wetland's vegeta of moderate quality, or comprises a small part and is of hi	
			Forest		quality.	, , , , , , , , , , , , , , , , , , ,	3 ··
			Mudflats	3		t and comprises significant part, or more, of wetland's ion and is of high quality.	
			Open Water		rogotat	on and to or mg., quanty.	
			Other				
		6b. Horizon Score only	ntal (plan view) Interspersion.	Narrative Descripti		<u> </u>	
		Score only	High (5)	low		p diversity and/or predominance of nonnative or disturbar native species	nce
			Moderately high (4)	mod	Native s	spp are dominant component of the vegetation, although	1
			Moderate (3)			ve and/or disturbance tolerant native spp can also be pre ecies diversity moderate to moderately high, but generally	
			Moderately low (2)			ce of rare, threatened, or endangered spp	/ W/O
		1	Low (1)	high	A predo	ominance of native species, with nonnative spp and/or	
		<u> </u>	None (0)			ance tolerant native spp absent or virtually absent, and highersity and often, but not always, the presence of rare,	gh
		6c. Covera	ige of invasive plants. Refer to			ned, or endangered spp	
			AM long form for list. Add or	Mudflat and Open			
		deduct poin	nts for coverage.	0		<0.1ha (0.247 acres)	
			Extensive >75% cover (-5)	2		to <1ha (0.247 to 2.47 acres)	
			Moderate 25-75% cover (-3)			te 1 to <4ha (2.47 to 9.88 acres)	
			Sparse 5-25% cover (-1)	3		a (9.88 acres) or more	
		0	Nearly absent <5% cover (0)	Microtopography C			
		6d. Microto	Absent (1)	0	Absent		
			resent using 0 to 3 scale.	1	Present	t in very small amounts or if more common of marginal qu	uality
		1	Vegetated hummucks/tussucks	2	Present	t in moderate amounts, but not of highest quality or in sm	nall
		1	Coarse woody debris >15cm (6			s of highest quality	
		0	Standing dead >25cm (10in) dl	oh 3			_
		0	Amphibian breeding pools		Present	t in moderate or greater amounts and of highest quality	_
23	GRANI	TOTA	L (max 100 pts)				

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
J	Metric 2. Buffers and surrounding land use	5	
	Metric 3. Hydrology	12	
	Metric 4. Habitat	9	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	-4	
	TOTAL SCORE	23	Category based on score breakpoints Category 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b,	YES Wetland should be evaluated for	NO	categorized by the ORAM Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3
9b, 9e, 11 Did you answer "Yes" to	possible Category 3 status YES	NO	wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category. Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes,
Narrative Rating No. 5	Wetland is categorized as a Category 1 wetland		reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category					
Choose one	Category 1	Category 2	Category 3		

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	Brian	Slabv

Date: 04/29/2015

Affiliation:

EnviroScience Inc.

Address:

5070 Stow Road, Stow, Ohio 44224

Phone Number:

330-688-0111

e-mail address:

BSlaby@EnviroScienceInc.com

Name of Wetland: W-16, W-17

Vegetation Communit(ies): PEM

HGM Class(es):

Depression

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40.640622, -80.7093; 40.640604,	-80.70874
USGS Quad Name		West Point
County		Columbiana
Township		Yellow Creek
Section and Subsection		
Hydrologic Unit Code		#05030101
Site Visit		04/29/2015
National Wetland Inventory Map		Х
Ohio Wetland Inventory Map		
Soil Survey		Х
Delineation report/map		Х

Name of Wetland: W-16, W-17		
Wetland Size (acres, hectares): Total 0.844 acres onsite		
Sketch: Include north arrow, relationship with other surface waters, vegetation zone	es, etc.	
Please refer to site wetlands and water resources map.		
W-16: 0.139 acres onsite W-17: 0.706 acres onsite		
Comments, Narrative Discussion, Justification of Category Changes:		
Final score: 43	Category:	Modified 2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Х	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	х	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Х	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		Х

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		· ·
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site:	South Field	Energy Interconnection Facilities	Rater(s): B. Slaby		4/30/2015
		1			
3	3	Metric 1. Wetland Area	•		
max 6 pts.	subtotal	Select one size class and assign sco >50 acres (>20.2ha) (6 pts)	ne.		
		25 to <50 acres (10.1 to <20.2			
		10 to <25 acres (4 to <10.1 ha			
		0.3 to < 3 acres (012 to <1.2ha			
		0.1 to <0.3 acres (0.04 to <0.1 <0.1 acres (0.04ha) (0 pts)	2ha) (1 pt)		
	Ι				
8	11	•	rs and surrounding land		
max 14 pts.	subtotal		t only one and assign score. Do not double of 164 ft) or more around wetland perimeter (7)		
		X MEDIUM. Buffers average 25	m to <50m (82 to <164ft) around wetland per	rimeter (4)	
			Om to <25m (32ft to <82ft) around wetland per erage <10m (<32ft) around wetland perimeter		
		2b. Intensity of surrounding land use. Sele		. (0)	
			der forest, prairie, savannah, wildlife area, et	tc. (7)	
			hrubland, young second growth forest. (5) ential, fenced pasture, park, conservation tilla	age, new fallow fie	eld. (3)
		HIGH. Urban, industrial, open	pasture, row cropping, mining, construction.	. (1)	
18.5	29.5	Metric 3. Hydrology.			
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply	<i>i</i> .	3b. Connectivity	y. Score all that apply.
		High pH groundwater (5) X Other groundwater (3)		X	100 year floodplain (1) Between stream/lake and other human use (1)
		X Other groundwater (3) X Precipitation (1)			Part of wetland/upland (e.g. forest), complex (1)
		X Seasonal/Intermittent surface	• •	X	Part of riparian or upland corridor (1)
3c. Maxim	um water der	Perennial surface water (lake oth. Select only one and assign score.	or stream (5)	X	core one or dbl check. Semi- to permanently inundated/saturated (4)
		>0.7 (27.6in) (3)			Regularly inundated/saturated (3)
		0.4 to 0.7m (15.7 to 27.6in) (2) <0.4m (<15.7in) (1)		X	Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1)
		3e. Modifications to natural hydrologic reg	ime. Score one or double check and averag		, , , , , , , , , , , , , , , , ,
		None or none apparent (12) X Recovered (7)	Check all disturbances observed ditch		point source (nonstormwater)
		Recovering (3)	tile		filling/grading
		X Recent or no recovery (1)	dike weir	X	road bed/RR track
			stormwater input	Х	dredging Other: grazing
	1	1			•
8.5	38	Metric 4. Habitat Altera	ation and Development.		
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or o	• • • • • • • • • • • • • • • • • • •		
		None or none apparent (4) X Recovered (3)			
		Recovering (2)			
		X Recent or no recovery (1) 4b. Habitat development. Select only one	and assign score		
		Excellent (7)	and assign score.		
		Very good (6)			
		Good (5) Moderately good (4)			
		X Fair (3)			
		Poor to fair (2) Poor (1)			
		4c. Habitat alteration. Score one or doubl			
		None or none apparent (9) X Recovered (6)	Check all disturbances observed mowing		shrub/sapling removal
		X Recovered (6) Recovering (3)	X grazing		herbaceous/aquatic bed removal
ı		χ Recent or no recovery (1)	X clearcutting	Х	sedimentation
	38		x selective cutting woody debris removal	-	dredging farming
SI	ubtotal this page	₫ 9	toxic pollutants	Х	nutrient enrichment

Site:	South Field	Energy Inte	rconnection Facilities	Rater(s): B. Slaby	4/30/2015
	38]			
0	subtotal first pag	1	5. Special Wetla	nds.	
max 10 pts.	subtotal		nat apply and score as indicate		
			Bog (10)		
			Fen (10)		
			Old growth forest (10)		
			Mature forested wetland (5)		
			Lake Erie coastal/tributary wet	land -unrestricted hydrology (10)	
			Lake Erie coastal/tributary wet		
			Lake Plain Sand Prairies (Oak	Copenings) (10)	
			Relict Wet Prairies (10)	, , ,	
			1	al threatened or endangered species (10)	
			1	/water fowl habitat or usage (10)	
			Category 1 Wetland. See Que	estion 1 Qualitative Rating (-10)	
	40	Motric	, ,	nities, interspersion, mic	rotonography
5 max 20 pts.	43 subtotal		d Vegetation Communities.	Vegatation Community Cover	
ax 20 pto.	Cabiciai		esent using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
			Aquatic bed	1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
		2	Emergent	ı	of moderate quality, or comprises a significant part but is of low quality
		1	Shrub		Present and either comprises significant part of wetland's vegetation
			Forest	2	and is of moderate quality, or comprises a small part and is of high quality.
			Mudflats		Present and comprises significant part, or more, of wetland's
			Open Water	3	vegetation and is of high quality.
			Other		
			ntal (plan view) Interspersion.	Narrative Description of Vege	etation Quality
		Score only	1	low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
			High (5)	mod	Native species Native spp are dominant component of the vegetation, although
			Moderately high (4)	mou	nonnative and/or disturbance tolerant native spp can also be present,
			Moderate (3)		and species diversity moderate to moderately high, but generally w/o presence of rare, threatened, or endangered spp
		X	Moderately low (2)	high	A predominance of native species, with nonnative spp and/or
			Low (1)	high	disturbance tolerant native species, with normative spp and/or
		6c Covera	None (0) ge of invasive plants. Refer to		spp diversity and often, but not always, the presence of rare, threatened, or endangered spp
			AM long form for list. Add or	Mudflat and Open Water Clas	
			its for coverage.	0	Absent <0.1ha (0.247 acres)
			Extensive >75% cover (-5)	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
		Х	Moderate 25-75% cover (-3)	2	Moderate 1 to <4ha (2.47 to 9.88 acres)
			Sparse 5-25% cover (-1)	3	High 4ha (9.88 acres) or more
			Nearly absent <5% cover (0)	Microtopography Cover Scale	•
			Absent (1)	0	Absent
		6d. Microto		1	Present in very small amounts or if more common of marginal quality
		2	esent using 0 to 3 scale.		1 1000 K in very small amounts of it more common of marginal quality
			Vegetated hummucks/tussuck Coarse woody debris >15cm (2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
			Standing dead >25cm (10in) d	lbh	
	7	1	Amphibian breeding pools	3	Present in moderate or greater amounts and of highest quality
43	GRANI	D TOTA	AL (max 100 pts)		

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	3	
J	Metric 2. Buffers and surrounding land use	8	
	Metric 3. Hydrology	18.5	
	Metric 4. Habitat	8.5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	5	
	TOTAL SCORE	43	Category based on score breakpoints Modified 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b,	YES Wetland should be evaluated for	NO	categorized by the ORAM Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3
9b, 9e, 11 Did you answer "Yes" to Narrative Rating No. 5	possible Category 3 status YES Wetland is	NO	wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category. Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative
Does the quantitative score fall within the scoring range	categorized as a Category 1 wetland	NO	criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM If the score of the wetland is located within the scoring range for a particular category, the wetland should be
of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range		assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category						
Choose one	Category 1		Category 2	Category 3		

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	Brian	Slabv

Date: 04/29/2015

Affiliation:

EnviroScience Inc.

Address:

5070 Stow Road, Stow, Ohio 44224

Phone Number:

330-688-0111

e-mail address:

BSlaby@EnviroScienceInc.com

Name of Wetland: W-18

Vegetation Communit(ies): PEM

HGM Class(es):

Depression

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate 40.640406,	-80.702925
USGS Quad Name	West Point
County	Columbiana
Township	Yellow Creek
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/29/2015
National Wetland Inventory Map	Х
Ohio Wetland Inventory Map	
Soil Survey	Х
Delineation report/map	Х

Name of Wetland: W-18		
Wetland Size (acres, hectares): 0.031 acres onsite		
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, e	etc.	
Please refer to site wetlands and water resources map.		
Comments, Narrative Discussion, Justification of Category Changes:		
Final coore : 20	otogor:	4
Final score: 29	ategory:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Х	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Х	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		Х
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		Х

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		· ·
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site:	South Field	Energy Interconnection Facilities	Rater(s): B. Slaby		4/30/2015
			<u> </u>		
0	0	Metric 1. Wetland Area	a (size).		
max 6 pts.	subtotal	Select one size class and assign sc	• •		
		>50 acres (>20.2ha) (6 pts)	01 \ (5 -4-)		
		25 to <50 acres (10.1 to <20.2 10 to <25 acres (4 to <10.1 ha			
		3 to <10 acres (1.2 to <4 ha)			
		0.3 to < 3 acres (012 to <1.2h			
		0.1 to <0.3 acres (0.04 to <0.7 X <0.1 acres (0.04ha) (0 pts)	12ha) (1 pt)		
	Т	χ <υ.1 αυτές (υ.υπια) (υ μισ)			
7	7		ers and surrounding land		
max 14 pts.	subtotal		ct only one and assign score. Do not double		
			(164 ft) or more around wetland perimeter (7) to <50m (82 to <164ft) around wetland perimeter (7)	·	
			10m to <25m (32ft to <82ft) around wetland		
			verage <10m (<32ft) around wetland perimeter	er (0)	
		2b. Intensity of surrounding land use. Sel	lect one or double check and average. older forest, prairie, savannah, wildlife area, ε	etc (7)	
			shrubland, young second growth forest. (5)	610. (1)	
			dential, fenced pasture, park, conservation til	-	eld. (3)
r	т—	χ HIGH. Urban, industrial, oper	n pasture, row cropping, mining, construction	n. (1)	
10.5	17.5	Metric 3. Hydrology.			
max 30 pts.	subtotal	3a. Sources of Water. Score all that appl	ly.	3b. Connectivit	y. Score all that apply.
		High pH groundwater (5)			100 year floodplain (1)
		Other groundwater (3) X Precipitation (1)			Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1)
		Seasonal/Intermittent surface	water (3)		Part of riparian or upland corridor (1)
		Perennial surface water (lake	or stream (5)	on/saturation. S	core one or dbl check.
3c. Maxim	num water dep	pth. Select only one and assign score. >0.7 (27.6in) (3)			Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3)
		0.4 to 0.7m (15.7 to 27.6in) (2	2)	X	Seasonally inundated (2)
		X <0.4m (<15.7in) (1)		Х	Seasonally saturated in upper 30cm (12in) (1)
		3e. Modifications to natural hydrologic reg None or none apparent (12)	gime. Score one or double check and avera Check all disturbances observed	ige.	
		X Recovered (7)	ditch		point source (nonstormwater)
		Recovering (3)	tile		filling/grading
		Recent or no recovery (1)	dike		road bed/RR track
			weir stormwater input	×	dredging Other: past grazing/farming
		_	grommator input		outon past graining
10.5	28	Motrio 4 Hobitot Altor	otion and Davidonment		
10.5 max 20 pts.	subtotal	JIVIETFIC 4. HADITAT AITER 4a. Substrate disturbance. Score one or	ation and Development.	1	
man 20 pto.	Judicia.	None or none apparent (4)	double check and average.		
		X Recovered (3)			
		Recovering (2) Recent or no recovery (1)			
		4b. Habitat development. Select only one	e and assign score.		
		Excellent (7)	3		
		Very good (6)			
		Good (5) Moderately good (4)			
		X Fair (3)			
		Poor to fair (2)			
		Poor (1) 4c. Habitat alteration. Score one or doub	ale check and average		
		None or none apparent (9)	Check all disturbances observed		
		X Recovered (6)	mowing		shrub/sapling removal
		X Recovering (3) Recent or no recovery (1)	X grazing X clearcutting		herbaceous/aquatic bed removal sedimentation
	20	Tracelle of the fectivery (1)	selective cutting		dredging
	28		X woody debris removal	X	farming
s	subtotal this page	ie	toxic pollutants	Х	nutrient enrichment

Site:	South Field	d Energy Interconnection Facilities	Rater(s): B. Slaby	4/30/2015
	20	7		
	28 subtotal first page	ge		
0	28	Metric 5. Special Wetl	ands.	
max 10 pts.		Check all that apply and score as indicate	red.	
		Bog (10)		
		Fen (10)		
		Old growth forest (10)		
		Mature forested wetland (5)		
		Lake Erie coastal/tributary w	etland -unrestricted hydrology (10)	
		Lake Erie coastal/tributary w	etland-restricted hydrology (5)	
		Lake Plain Sand Prairies (Oa	ak Openings) (10)	
		Relict Wet Prairies (10)		
		Known occurrence state/fede	eral threatened or endangered species (10)	
		Significant migratory songbir	rd/water fowl habitat or usage (10)	
		Category 1 Wetland. See Q	uestion 1 Qualitative Rating (-10)	
1	20	Metric 6 Plant commu	unities, interspersion, m	icrotonography
max 20 pts.	29 subtotal	6a. Wetland Vegetation Communities.	Vegatation Community Co	
max 20 pto.	dibiolai	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
		Aquatic bed	1	Present and either comprises small part of wetland's vegetation and is
		0 Emergent	1	of moderate quality, or comprises a significant part but is of low quality
		Shrub		Present and either comprises significant part of wetland's vegetation
		Forest	2	and is of moderate quality, or comprises a small part and is of high quality.
		Mudflats		Present and comprises significant part, or more, of wetland's
		Open Water	3	vegetation and is of high quality.
		Other		
		6b. Horizontal (plan view) Interspersion.	Narrative Description of Ve	egetation Quality
		Score only one.	low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
		High (5)	mod	
		Moderately high (4)	mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present,
		Moderate (3)		and species diversity moderate to moderately high, but generally w/o presence of rare, threatened, or endangered spp
		Moderately low (2)	hi ah	
		Low (1)	high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high
		X None (0) 6c. Coverage of invasive plants. Refer t		spp diversity and often, but not always, the presence of rare,
		Table 1 ORAM long form for list. Add or	Mudflat and Open Water C	threatened, or endangered spp
		deduct points for coverage.	0	Absent <0.1ha (0.247 acres)
		Extensive >75% cover (-5)	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
		Moderate 25-75% cover (-3)	2	Moderate 1 to <4ha (2.47 to 9.88 acres)
		Sparse 5-25% cover (-1)	3	High 4ha (9.88 acres) or more
		X Nearly absent <5% cover (0)	Microtopography Cover Sc	ale
		Absent (1)	0	Absent
		6d. Microtopography.	1	Propert in year amall amounts or if more common of marginal quality.
		Score all present using 0 to 3 scale.	- Inches	Present in very small amounts or if more common of marginal quality
		Vegetated hummucks/tussuc	2	Present in moderate amounts, but not of highest quality or in small
		1 Coarse woody debris >15cm		amounts of highest quality
		Standing dead >25cm (10in)	dbh 3	
	7	Amphibian breeding pools		Present in moderate or greater amounts and of highest quality
29	GRAN	D TOTAL (max 100 pts)		

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
-	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	10.5	
	Metric 4. Habitat	10.5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	29	Category based on score breakpoints Category 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one	_	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO)	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category					
Choose one	Category 1	Category 2	Category 3		

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	Brian	Slaby
	Dilaii	Siaby

Date: 04/29/2015

Affiliation:

EnviroScience Inc.

Address:

5070 Stow Road, Stow, Ohio 44224

Phone Number:

330-688-0111

e-mail address:

BSlaby@EnviroScienceInc.com

Name of Wetland: W-19

Vegetation Communit(ies): PEM

HGM Class(es): Depression

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate 40.640	422, -80.698331
USGS Quad Name	West Point
County	Columbiana
Township	Yellow Creek
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/29/2015
National Wetland Inventory Map	Х
Ohio Wetland Inventory Map	
Soil Survey	Х
Delineation report/map	X

Name of Wetland: W-19		
Wetland Size (acres, hectares): 0.173 acres onsite		
Sketch: Include north arrow, relationship with other surface waters, vegetation zon	es, etc.	
Please refer to site wetlands and water resources map.		
Comments, Narrative Discussion, Justification of Category Changes:		
ooming, manager, on the second of the second		
Final score: 40	Category:	Modified 2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Х	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Х	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		Х
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		Х

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO Co to Overtion 40
9b	elevation, or along a tributary to Lake Erie that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Go to Question 9b YES Wetland should be evaluated for possible Category 3 status Go to Question 10	Go to Question 10 NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		· ·
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site:	South Field	Energy Interconnection Facilities	Rater(s): B. Slaby		4/30/2015
	ı	1	•		
2	2	Metric 1. Wetland Area	•		
max 6 pts.	subtotal	Select one size class and assign sc >50 acres (>20.2ha) (6 pts)	ore.		
		25 to <50 acres (10.1 to <20.2	2ha) (5 pts)		
		10 to <25 acres (4 to <10.1 ha			
		3 to <10 acres (1.2 to <4 ha) X 0.3 to < 3 acres (012 to <1.2h			
		0.1 to <0.3 acres (0.04 to <0.			
	1	<0.1 acres (0.04ha) (0 pts)			
13	15	Metric 2. Upland buffe	ers and surrounding land	d use.	
max 14 pts.	subtotal		ct only one and assign score. Do not double (164 ft) or more around wetland perimeter (7)		
			5m to <50m (82 to <164ft) around wetland perimeter (7)	•	
			10m to <25m (32ft to <82ft) around wetland p		
		2b. Intensity of surrounding land use. Se	erage <10m (<32ft) around wetland perimete lect one or double check and average.	ır (0)	
			older forest, prairie, savannah, wildlife area, et	tc. (7)	
			shrubland, young second growth forest. (5) lential, fenced pasture, park, conservation tilla	age new fallow fie	ald (3)
			n pasture, row cropping, mining, construction.	=	(o)
15.5	30.5	Metric 3. Hydrology.			
max 30 pts.	subtotal	3a. Sources of Water. Score all that app	ly.	3b. Connectivity	y. Score all that apply.
		High pH groundwater (5)		Χ	100 year floodplain (1)
		Other groundwater (3) X Precipitation (1)			Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1)
		X Seasonal/Intermittent surface	water (3)	Х	Part of riparian or upland corridor (1)
20 Movim	num watar dar	Perennial surface water (lake oth. Select only one and assign score.	or stream (5)	on/saturation. S	core one or dbl check. Semi- to permanently inundated/saturated (4)
SC. Maxili	ium water dep	>0.7 (27.6in) (3)			Regularly inundated/saturated (3)
		0.4 to 0.7m (15.7 to 27.6in) (2	2)	X	Seasonally inundated (2)
		X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic reg	gime. Score one or double check and averag	Je.	Seasonally saturated in upper 30cm (12in) (1)
		None or none apparent (12)	Check all disturbances observed		1
		X Recovered (7) Recovering (3)	ditch		point source (nonstormwater) filling/grading
		Recent or no recovery (1)	dike		road bed/RR track
			weir stormwater input	X	dredging Other: former strip mine
		_	Stofffwater input		Outer. Torrier strip milite
10.5	41	 Metric 4 Habitat Δlter	ation and Development.		
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or	• • • • • • • • • • • • • • • • • • •		
		None or none apparent (4) X Recovered (3)			
		χ Recovered (3) Recovering (2)			
		Recent or no recovery (1)			
		4b. Habitat development. Select only one Excellent (7)	e and assign score.		
		Very good (6)			
		Good (5)			
		Moderately good (4) X Fair (3)			
		Poor to fair (2)			
		Poor (1) 4c. Habitat alteration. Score one or doub	le check and average.		
		None or none apparent (9)	Check all disturbances observed		-
		X Recovered (6) X Recovering (3)	mowing grazing		shrub/sapling removal herbaceous/aquatic bed removal
		Recent or no recovery (1)	X clearcutting		sedimentation
	41	<u> </u>	selective cutting X woody debris removal	Х	dredging (strip mine)
s	ubtotal this page	e	X woody debris removal X toxic pollutants		farming nutrient enrichment

Site:	South Field	Energy Inte	rconnection Facilities	Rater(s): B. Slaby	4/30/2015	
	41	1				
5	subtotal first pag	je				
0	41	Metric	5. Special Wetla	nds.		
max 10 pts.	subtotal	Check all that apply and score as indicated.				
			Bog (10)			
			Fen (10)			
			Old growth forest (10)			
			Mature forested wetland (5)			
			Lake Erie coastal/tributary wet	land -unrestricted hydrology (10)		
			Lake Erie coastal/tributary wet	land-restricted hydrology (5)		
			Lake Plain Sand Prairies (Oak	Openings) (10)		
			Relict Wet Prairies (10)			
			Known occurrence state/federa	al threatened or endangered species (10)		
			Significant migratory songbird/	/water fowl habitat or usage (10)		
	1		Category 1 Wetland. See Que	estion 1 Qualitative Rating (-10)		
-1	40	Metric	6. Plant commu	nities, interspersion, mic	rotopography.	
max 20 pts.	subtotal		d Vegetation Communities.	Vegatation Community Cover		
		Score all pr	resent using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area Present and either comprises small part of wetland's vegetation and is	
			Aquatic bed	1	of moderate quality, or comprises a significant part but is of low quality	
		2	Emergent		Present and either comprises significant part of wetland's vegetation	
		0	Shrub	2	and is of moderate quality, or comprises a small part and is of high	
			Forest		quality. Present and comprises significant part, or more, of wetland's	
			Mudflats	3	vegetation and is of high quality.	
			Open Water			
		6b Horizon	Other ntal (plan view) Interspersion.	Narrative Description of Vege	etation Quality	
		Score only		<u>.</u>	Low spp diversity and/or predominance of nonnative or disturbance	
			High (5)	low	tolerant native species	
			Moderately high (4)	mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present,	
			Moderate (3)		and species diversity moderate to moderately high, but generally w/o	
			Moderately low (2)		presence of rare, threatened, or endangered spp	
		Х	Low (1)	high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high	
			None (0)		spp diversity and often, but not always, the presence of rare,	
			ge of invasive plants. Refer to AM long form for list. Add or	Mudflat and Open Water Clas	threatened, or endangered spp	
			ats for coverage.	0	Absent <0.1ha (0.247 acres)	
		Х	Extensive >75% cover (-5)	1	Low 0.1 to <1ha (0.247 to 2.47 acres)	
			Moderate 25-75% cover (-3)	2	Moderate 1 to <4ha (2.47 to 9.88 acres)	
			Sparse 5-25% cover (-1)	3	High 4ha (9.88 acres) or more	
			Nearly absent <5% cover (0)	Microtopography Cover Scale	•	
			Absent (1)	0	Absent	
		6d. Microto	ppography. esent using 0 to 3 scale.	1	Present in very small amounts or if more common of marginal quality	
		Joons all pr	Vegetated hummucks/tussuck			
		1	Coarse woody debris >15cm (2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality	
			Standing dead >25cm (10in) d	· · · · · · · · · · · · · · · · · · ·		
	7		Amphibian breeding pools	3	Present in moderate or greater amounts and of highest quality	
40	GRANI	D TOTA	AL (max 100 pts)			

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
ū	Metric 2. Buffers and surrounding land use	13	
	Metric 3. Hydrology	15.5	
	Metric 4. Habitat	10.5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	-1	
	TOTAL SCORE	40	Category based on score breakpoints Modified 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the coring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category					
Choose one	Category 1		Category 2	Category 3	
		-			

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name: Emma Kennedy

Date: 04/29/2015

Affiliation:

EnviroScience Inc.

Address:

5070 Stow Road, Stow, Ohio 44224

Phone Number:

330-688-0111

e-mail address:

Ekennedy@EnviroScienceInc.com

Name of Wetland: W-20

Vegetation Communit(ies): PEM

HGM Class(es):

Depression

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40.640258,	-80.69111
USGS Quad Name		West Point
County		Columbiana
Township		Yellow Creek
Section and Subsection		
Hydrologic Unit Code		#05030101
Site Visit		04/29/2015
National Wetland Inventory Map		Х
Ohio Wetland Inventory Map		
Soil Survey		Х
Delineation report/map		Х

Name of Wetland: W-20		
Wetland Size (acres, hectares): 0.008 acres onsite		
Sketch: Include north arrow, relationship with other surface waters, vegetation zones	s, etc.	
Please refer to site wetlands and water resources map.		
Comments, Narrative Discussion, Justification of Category Changes:		
Final score: 14	Category:	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Х	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Х	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		Х
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		Х

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		· ·
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site:	South Field	Energy Interconnection Facilities	E. Kenne	dy		4/30/2015		
		1						
0	0	Metric 1. Wetland Area	` '					
max 6 pts.	subtotal	Select one size class and assign sco >50 acres (>20.2ha) (6 pts)	ore.					
		25 to <50 acres (10.1 to <20.2	2ha) (5 pts)					
		10 to <25 acres (4 to <10.1 ha						
		3 to <10 acres (1.2 to <4 ha) (0.3 to < 3 acres (012 to <1.2h						
		0.1 to <0.3 acres (0.04 to <0.1						
	1	<0.1 acres (0.04ha) (0 pts)						
3	3	Metric 2. Upland buffe	rs and s	urrounding land	use.			
max 14 pts.	subtotal	2a. Calculate average buffer width. Select	•	•	heck.			
	WIDE. Buffers average 50m (164 ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)							
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)							
	 X VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. 							
	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)							
		LOW. Old field (>10 years), s	-	g second growth forest. (5) pasture, park, conservation tillage	no now fallow fic	uld (3)		
				cropping, mining, construction. (•	iid. (<i>0</i>)		
5	8	Motrio 2 Hydrology						
max 30 pts.	subtotal	Metric 3. Hydrology. 3a. Sources of Water. Score all that appl	v.		3b. Connectivity	y. Score all that apply.		
		High pH groundwater (5)	,			100 year floodplain (1)		
		Other groundwater (3) X Precipitation (1)				Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1)		
		χ Precipitation (1) Seasonal/Intermittent surface	water (3)			Part of riparian or upland corridor (1)		
		Perennial surface water (lake	or stream (5)		on/saturation. S	core one or dbl check.		
3c. Maxim	num water der	oth. Select only one and assign score. >0.7 (27.6in) (3)				Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3)		
		0.4 to 0.7m (15.7 to 27.6in) (2)			Seasonally inundated (2)		
		χ <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic reg	ime. Score on	e or double check and average	. X	Seasonally saturated in upper 30cm (12in) (1)		
		None or none apparent (12)		turbances observed				
		Recovered (7) X Recovering (3)		litch ile		point source (nonstormwater) filling/grading		
		X Recent or no recovery (1)		like		road bed/RR track		
				veir		dredging		
			s s	tormwater input		Other:		
1	10		-4!	d Davidanmant				
4 max 20 pts.	12 subtotal	Metric 4. Habitat Altera 4a. Substrate disturbance. Score one or or						
max 20 pts.	Subtotal	None or none apparent (4)	adable criccit a	na average.				
		Recovered (3) Recovering (2)						
		X Recent or no recovery (1)						
		4b. Habitat development. Select only one	and assign so	ore.				
		Excellent (7) Very good (6)						
		Good (5)						
		Moderately good (4) Fair (3)						
	Poor to fair (2)							
	X Poor (1) 4c. Habitat alteration. Score one or double check and average.							
		None or none apparent (9)		sturbances observed				
		Recovered (6)		nowing		shrub/sapling removal		
		χ Recovering (3) χ Recent or no recovery (1)		razing learcutting		herbaceous/aquatic bed removal sedimentation		
	12			elective cutting		dredging (strip mine)		
s	ubtotal this page	e e		voody debris removal oxic pollutants		farming nutrient enrichment		
ŭ			II I I	·				

Site:	South Field	Energy Inte	rconnection Facilities	E. Kennedy	4/30/2015
	40	1			
;	12 subtotal first pag	e			
0	12	1	5. Special Wetla	nds.	
max 10 pts.	subtotal		at apply and score as indicated		
			Bog (10)		
			Fen (10)		
			Old growth forest (10)		
			Mature forested wetland (5)		
			Lake Erie coastal/tributary wet	land -unrestricted hydrology (10)	
			Lake Erie coastal/tributary wet	land-restricted hydrology (5)	
			Lake Plain Sand Prairies (Oak	Openings) (10)	
			Relict Wet Prairies (10)		
			Known occurrence state/federa	al threatened or endangered species (10)	
			Significant migratory songbird/	water fowl habitat or usage (10)	
	•		Category 1 Wetland. See Que	estion 1 Qualitative Rating (-10)	
2	14	Metric	6. Plant commu	nities, interspersion, mic	rotopography.
max 20 pts.	subtotal	6a. Wetlan	d Vegetation Communities.	Vegatation Community Cover	Scale
		Score all pro	esent using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area Present and either comprises small part of wetland's vegetation and is
		_	Aquatic bed	1	of moderate quality, or comprises a significant part but is of low quality
		0	Emergent	-	Present and either comprises significant part of wetland's vegetation
			Shrub	2	and is of moderate quality, or comprises a small part and is of high
			Forest		quality. Present and comprises significant part, or more, of wetland's
			Mudflats	3	vegetation and is of high quality.
			Open Water		
		6h Horizon	Other tal (plan view) Interspersion.	Narrative Description of Vege	station Quality
		Score only		Namative Description of Vege	Low spp diversity and/or predominance of nonnative or disturbance
			High (5)	low	tolerant native species
			Moderately high (4)	mod	Native spp are dominant component of the vegetation, although
			Moderate (3)		nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o
			Moderately low (2)		presence of rare, threatened, or endangered spp
			Low (1)	high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high
		Х	None (0)		spp diversity and often, but not always, the presence of rare,
			ge of invasive plants. Refer to AM long form for list. Add or	Mudflat and Open Water Clas	threatened, or endangered spp
			ts for coverage.	0	Absent <0.1ha (0.247 acres)
			Extensive >75% cover (-5)	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
			Moderate 25-75% cover (-3)	2	Moderate 1 to <4ha (2.47 to 9.88 acres)
			Sparse 5-25% cover (-1)	3	High 4ha (9.88 acres) or more
			Nearly absent <5% cover (0)	Microtopography Cover Scale	;
		Х	Absent (1)	0	Absent
		6d. Microto		1	Present in very small amounts or if more common of marginal quality
		1	esent using 0 to 3 scale.		Present in very small amounts or if more common of marginal quality
		0	Vegetated hummucks/tussuck	2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
		0	Coarse woody debris >15cm (· ·	amounts or migriest quality
		0	Standing dead >25cm (10in) d Amphibian breeding pools	3	Present in moderate or greater amounts and of highest quality
	7				Present in moderate or greater amounts and of highest quality
14	GRANI		L (max 100 pts)		

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
· ·	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	5	
	Metric 4. Habitat	4	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	14	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM			
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM			
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.			
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM			
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.			
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).			
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.			

Final Category						
Choose one	Category 1	Category 2	Category 3			

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name: Emma Kennedy

Date: 04/29/2015

Affiliation:

EnviroScience Inc.

Address:

5070 Stow Road, Stow, Ohio 44224

Phone Number:

330-688-0111

e-mail address:

EKennedy@EnviroScienceInc.com

Name of Wetland: W-21, W-22, W-23

Vegetation Communit(ies): PEM

HGM Class(es):

Depression

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate 40.639962, -80.681505; 40.639706, -80.681877; 40.639	42, -80.681585
USGS Quad Name	West Point
County	Columbiana
Township	Yellow Creek
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/29/2015
National Wetland Inventory Map	Х
Ohio Wetland Inventory Map	
Soil Survey	Х
Delineation report/map	Х

Name of Wetland: W-21, W-22, W-23
Wetland Size (acres, hectares): Total 0.170 acres onsite
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.
Please refer to site wetlands and water resources map.
W-21: 0.019 acres onsite W-22: 0.138 acres onsite W-23: 0.013 acres onsite
Comments, Narrative Discussion, Justification of Category Changes:
Comments, Narrative Discussion, Justinication of Category Changes.
Final score: 32 Category: 1 or 2 gray zor

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Х	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and humaninduced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Х	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Х	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		Х

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Турпа angustijotia Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		· ·
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO	If yes, Category 1.
	Question 6. Bogs	YES NO	If yes, Category 3.
	Question 7. Fens	YES NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
_	Metric 2. Buffers and surrounding land use	9	
	Metric 3. Hydrology	11	
	Metric 4. Habitat	11	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	32	Category based on score breakpoints 1 or 2 gray zone

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM			
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-			
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b,	YES Wetland should be evaluated for	NO	categorized by the ORAM Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3			
9b, 9e, 11 Did you answer "Yes" to Narrative Rating No. 5	possible Category 3 status YES Wetland is	NO	wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category. Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative			
Does the quantitative score fall within the scoring range	categorized as a Category 1 wetland	NO	criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM If the score of the wetland is located within the scoring range for a particular category, the wetland should be			
of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range		assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.			
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).			
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.			

Final Category						
Choose one	Category 1		Category 2	Category 3		
		-				

End of Ohio Rapid Assessment Method for Wetlands.

Appendix E:
Stream Habitat Forms



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 195

Stream & Location:	Alder	lick	Run -	SFE	Intruci	nnech	n PM.	Dod	0.4120	145
					Full Name	e & Affiliatio	n: Laur	a Sayry.	e: 4130 Divira	Scien.
River Code:		STOR			Lat./ Lor	19:40.65	106/8	0.70927	Office	verified location
BEST TYPES BLDR /SLABS [10] BOULDER [9] COBBLE [8] GRAVEL [7] SAND [6] BEDROCK [5]	POOL RIFF	e every type	e present HER TYF HARDPAN DETRITUS MUCK [2] SILT-[2] ARTIFICIA (Score natu. [2] sludge	PES POOI	es; ignore		SILT	2 & average) QUA X HEAVY □ MODEI □ NORM	LITY [-2] RATE [-1] AL [0] 1] SIVE [-2] RATE [-1]	Substra Maximui 20
2] INSTREAM COVE quality; 3-Highest quality is diameter log that is stableUNDERCUT BANK: 1 OVERHANGING VESHALLOWS (IN SLROOTMATS [1] Comments	quality; 2- in moderate o , well develo S [1] EGETATION	Moderate a or greater a ped rootwa [1]	amounts, bi imounts (e. d in deep /	ut not of hig g., very lan fast water, > 70cm [2] ADS [1]	thest quality oge boulders in or deep, well- OXBC	r in small amoui	nts of highes iter, large nal pools. TERS [1]	Check ONE (EXTENSIVE MODERATE SPARSE 5	E >75% [11 E 25-75% [<25% [3]	7]
☐ HIGH [4] ☐ E ☐ MODERATE [3] ☐ G ☐ LOW [2] ☐ F.	IOLOGY OF THE PROPERTY OF T	NT (7] □ N □ R	CHANNE ONE [6] ECOVERE ECOVERII	LIZATIO	N D	STABILITY HIGH [3] MODERATE [LOW [1]	2]		Channel Maximum 20	
4] BANK EROSION A River right looking downstrea EROSION NONE / LITTLE [3] MODERATE [2] HEAVY / SEVERE [1] Comments		'ARIAN \ E > 50m [4 ERATE 10 ROW 5-10 Y NARRO\	WIDTH] -50m [3] m [2]	FO SH	FLOOD (REST, SWAM RUB OR OLD SIDENTIAL, P NCED PASTU	PLAIN QUAI P [3] FIELD [2] ARK, NEW FIEL	LITY R	CONSERVATION URBAN OR IN MINING / CON: te predominant is 00m riparian.	DUSTRIAL STRUCTION	[0] N(0] 4.5
□ 0.7-<1m [4]	CH	ANNEL ONE (Or 2 ONE (Or 2 OTH > RIFF OTH = RIFF	WIDTH & average LE WIDTH	[2]	Check A DRRENTIAL [- ERY FAST [1] AST [1] ODERATE [1]	IT VELOCIT LL that apply 1] SLOW [1] DINTERST INTERMI EDDIES ach - pools and i] TTIAL (-1] TTENT [-2]	Secondar (circle one and co	Contact y Contact y Contact Pool / Current Maximum	rt l
Indicate for functi of riffle-obligate s RIFFLE DEPTH ☐ BEST AREAS > 10cm [2] ☐ BEST AREAS 5-10cm [1] ☐ BEST AREAS < 5cm [metric=0] Comments	pecies; RUN .□MAXIM	DEPTH UM > 50cm	Ched RI [2] □ ST [1] [1] MC	ck ONE (<i>OF</i> FFLE / R ABLE (e.g. DD. STABL	rge enougi 2 & average) RUN SUBST ., Cobble, Bot E (e.g., Large a.g., Fine Grav	FRATE RIF	FLE / RU	tion NEMBEDDE ONE [2] OW [1] ODERATE [0] KTENSIVE [-1]	Riffle / Run Maximum	atric=0]
DRAINAGE AREA		ERY LOW IODERATE	[6-10]	•	%PC		%GLIDE	:5	8 Gradient Maximum	8

				NT
ess directions, etc.	FJ MEASUREMENTS X width X depth max. depth X bankfull width bankfull x depth W/D ratio bankfull max. depth floodprone x² width entrench. ratio Legacy Tree:		Flow S.2) WPEM S.2)	
Comment RE: Reach consistency/ Is reach typical of steam?, Recreation/Observed - Inferred, Other/Sampling observations, Concerns, Access directions, etc.	EJ ISSUES WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPS-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H20 / TILE / H20 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	→	Ive shock Ive shock dishurbal	nce ~>
n/Observed - Inferred, Other	Circle some & COMMENT	Step hillside	W-TV ALLER Q	
s reach typical of steam?, Recreatio	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED	ウナイ	dishubed scrub/shrub	WIT
Comment RE: Reach consistency/	BJAESTHETICS □ NUISANCE ALGAE □ INVASIVE MACROPHYTES □ EXCESS TURBIDITY □ DISCOLORATION □ FOAM / SCUM □ OIL SHEEN □ OIL SHEEN □ OIL SHEEN □ SLUDGE DEPOSITS □ CSOs/SSOs/OUTFALLS ATION AREA DEPTH POOL: □>1000ft² □>3ft			
AJ SAMPLED REACH Check ALL that apoly	METHOD STAGE □ WADE □ HIGH □ □ □ L'LINE □ UP □ □ □ OTHER □ LONRWAL □ □ 0.15 Km □ CLARITY □ 0.12 Km □ 0.14 Km □ 0.14 Km □ 0.14 Km □ 0.15 Km □ 0.15 Km □ 0.14 Km □ 0.15 Km □ 0.14 Km □ 0.1	Stream Drawing:		S=Run = Run = Debvis

ChiEFA

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

		601	od
QHEI S	core:	5	7

Stream & Location: Bailey Run - SFE Interconnection RM: Date: 4/30/15
Scorers Full Name & Affiliation: Laura Sayre, Enviro Science
River Code: - STORET #: Lat./Long.: 110 10 11 15 19 0 1009 2 Office verified
1] SUBSTRATE Check ONLYTwo substrate TYPE BOXES; estimate % or note every type present BEST TYPES POOL RIFFLE OTHER TYPES POOL RIFFLE ORIGIN ORIGIN OUALITY BLDR /SLABS [10] HARDPAN [4] LIMESTONE [1] HEAVY [-2] BOULDER [9] DETRITUS [3] TILLS [1] MODERATE [-1] Substrate GRAVED [7] 30 SILT [2] MARTIFICIAL [0] SANDSTONE [0] FREE [1] SAND [6] 40 ARTIFICIAL [0] SANDSTONE [0] SANDSTONE [0] MODERATE [-1] BEDROCK [5] 5 (Score natural substrates; ignore RIP/RAP [0] MODERATE [-1] MAXIMUM NUMBER OF BEST TYPES: 4 or more [2] sludge from point-sources) LACUSTURINE [0] NORMAL [0] MAXIMUM Comments 3 or less [0] COAL FINES [-2]
2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools. UNDERCUT BANKS [1] POOLS > 70cm [2] OXBOWS, BACKWATERS [1] MODERATE 25-75% [7] OVERHANGING VEGETATION [1] ROOTWADS [1] OAQUATIC MACROPHYTES [1] SPARSE 5-<25% [3] ROOTMATS [1] COMMENT SPARSE [1] NEARLY ABSENT <5% [1] COMMENT SPARSE [1] COVER MAXIMUM 20 COVER MAXIMU
3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average) SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY HIGH [4] EXCELLENT [7] NONE [6] HIGH [3] MODERATE [3] GOOD [5] RECOVERED [4] MODERATE [2] LOW [2] FAIR [3] RECOVERING [3] LOW [1] NONE [1] POOR [1] RECENT OR NO RECOVERY [1] Comments Channel Maximum 20
4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average) River right looking downstream RIPARIAN WIDTH EROSION WIDE > 50m [4] FOREST, SWAMP [3] SHRUB OR OLD FIELD [2] SHRUB OR OLD FIELD [2] SHRUB OR OLD FIELD [2] RESIDENTIAL, PARK, NEW FIELD [1] RESIDENTIAL, PARK, NEW FIELD [1] RIPARIAN WIDTH FLOOD PLAIN QUALITY CONSERVATION TILLAGE [1] RIPARIAN OR INDUSTRIAL [0] RIPARIAN WIDTH FLOOD PLAIN QUALITY FOREST, SWAMP [3] RIPARIAN WIDTH FLOOD PLAIN QUALITY RIPARIA
POOL / GLIDE AND RIFFLE / RUN QUALITY
Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). RIFFLE DEPTH RUN DEPTH RIFFLE / RUN SUBSTRATE BEST AREAS > 10cm [2] MAXIMUM > 50cm [2] STABLE (e.g., Cobble, Boulder) [2] MAXIMUM < 50cm [1] MOD. STABLE (e.g., Large Gravel) [1] BEST AREAS < 5cm [metric=0] Comments
6] GRADIENT (3 5 ft/mi)

cess directions, etc.	FJ MEASUREMENTS X width X depth X bankfull width Dankfull X depth W/D ratio Dankfull max, depth floodprone x² width entrench. ratio			N
Comment RE: Reach consistency/ Is reach typical of steam?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.	EJ ISSUES WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H ₂ 0 / TILE / H ₂ 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME	→ \	DEW.	
in/ Observed - Inferred, Other	Circle some & COMMENT	Steep		Skep
s reach typical of steam?, Recreatio	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED	huuside 1 1	PEM PEM	W. Colonia
omment RE: Reach consistency/	BJAESTHETICS I NUISANCE ALGAE I INVASIVE MACROPHYTES I EXCESS TURBIDITY I DISCOLORATION I OOL SHEEN OIL SHEEN I TRASH / LITTER I TRASH / LITTER I SLUGGE DEPOSITS I CSOS/SSOS/OUTFALLS POOL: []>100ft2 []>3ft			
4 3E sess-2nd		Stream Drawing:	Wg PEM	≈= RIFFLE J= RUN 描= Debys

Primary Headwater Habitat Evaluation Form

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

modi	FEPassI
2, 3) :	24

SITE NUMBER S-1 RIVER BASIN OHID DRAINAGE AREA (mi²) < 0.1 LENGTH OF STREAM REACH (ft) 100' LAT. 40. 153546 LONG. 80.727476 RIVER CODE 0503010 RIVER MILE. DATE 8 18 15 SCORER A. GILMOYC COMMENTS I'W/IN PRICE AVEC. NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	
STREAM CHANNEL INONE / NATURAL CHANNEL IRECOVERED A RECEIVED TO RECEIVE OR NO RECO	VERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE BLDR SLABS [16 pts] BOULDER 0256 mm) [16 pts] BEDROCK [16 pt] COBBLE (85-256 mm) [12 pts] GRAVED (2-84 mm) [9 pts] SAND 2 mm (6 pts) Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock 30 (A) (B)	HHEI Metric Points Substrate Max = 40
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 motor (200 5) and within the 61 motor (200	A+B
> 30 centimeters [20 pts]	Pool Depth Max = 30
COMMENTS OW MAXIMUM POOL DEPTH (centimeters): 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Double II
2.0. m = 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Bankfull Width Max=30
COMMENTSAVERAGE BANKFULL WIDTH (meters)	5
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS COMMENTS Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)	

QHEI PERFORMED? - Yes No QHEI Score(If	
DOWNSTREAM DESIGNATED USE(S)	100, Austri Completed Quel Porm)
WWH Name: Ytllow Creek	Distance from Evaluated Stream
CVVI IVANIA.	Distance from Evaluated Stream
LYTT Name.	Distance from Evaluated Stream
USGS Quadrangle Name: West Point NRCs s	•
A	oil Map Page: NRCS Soil Map Stream Order
County: Columbiana Township / City:	Madisan Thip
MISCELLANEOUS	
Photograph information: Ste Upstream from center of reach	Quantity: 0.62
Elevated Turbidity? (Y/N): N Canopy (% open): 35 ⁰ 0	
Were samples collected for water chemistry? (Y/N): (Note lab sample no.	or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH ((S.U.) Conductivity (umbos/om)
Is the sampling reach representative of the stream (Y/N) / If not, please exp	lain:
THOU PREASE BY	NSH1
nord law of C	to December 1
Additional comments/description of pollution impacts: Poud woff	possual contaminants
from upstream agriculture.	
BIOTIC EVALUATION	
Performed 2 (VAI)	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections op ID number. Include appropriate field data sheets from	ptional. NOTE: all voucher samples must be labeled with the site in the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N)	
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinv	ertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	voucier ((//N)
N	
DRAWING AND NARRATIVE DESCRIPTION OF STRE	EAM REACH (This must be completed):
Include important landmarks and other features of interest for site evalua	ition and a narrative description of the stream's location
depression,	5 G FOREST
	Political
A P //:// //	
Flow - Age of Ag	
FLOW - field A A	7
Sehnly (G)	Forat
See	
Time 1 9	logs
5 5	

Modified Cl Primary Headwater Habitat Evaluation Form	ass
HHEI Score (sum of metrics 1, 2, 3):	
SITE NAMELOCATION South Field Energy Interconnection Facilities MUC OS 03010 SITE NUMBER S-2 RIVER BASIN OHIO DRAINAGE AREA (mi²) 0.076	_
MODIFICATIONS:	A 5.00
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40) Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COSBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [8 pts] ARTIFICIAL [3 pts] HHI Metr Percent Percent Percent Poin Substrate types found (Max of 8). Final metric score is sum of boxes A & B HHI Metr Poin Substrate TYPE D SILT (3 pt) Substrate TYPE D CLAY or HARDPAN [0 pt] Muck [0 pts] ARTIFICIAL [3 pts]	ric Its rate
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock O (B) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: A + B	,
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box). > 30 centimeters [20 pts]	30
COMMENTSMAXIMUM POOL DEPTH (centimeters): 7.5	i
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 melers (> 13') [30 pts]	h
COMMENTS AVERAGE BANKFULL WIDTH (meters)	┙┃
This Information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	
COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box). Stream Flowing	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None	
STREAM GRADIENT ESTIMATE Flat (0.5 1/2 1 0.1 1) Flat to Moderate (2.6 1/2) a) Moderate (2.6 1/2) a) Moderate to Severe (1.0 1/2) b) (6.1	۷٩

ADDITIONAL STREAM INFORMATION (This Information Must Also be C	Completed):
QHEI PERFORMED? - TYES No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
SGS Quadrangle Name: WEST POINT NR	CS Soil Map Page: NRCS Soil Map Stream Order
ounty: COLUMBIANA Township /	city. MANISO J
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
otograph Information:	
evated Turbidity? (Y/N): \(\sigma\) Canopy (% open): \(\sigma\) \(\fo\)	
ere samples collected for water chemistry? (Y/N): N (Note lab sam	
eld Measures: Temp (°C) Dissolved Oxygen (mg/l)	•
the sampling reach representative of the stream (Y/N) / If not, plear	
	ections optional. NOTE: all voucher samples must be labeled with the sitels from the Primary Headwater Habital Assessment Manual)
ish Observed? (Y/N) Voucher? (Y/N) Salamenders Obser rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Mi comments Regarding Biology	acroinvertebrates Observed? (Y/N) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site	e evaluation and a narrative description of the stream's location
→ 3>	>
3	7 7
	~ / C
LOW	
d'a	6
9	3
7533	
7, 30	

modified I

Primary Headwater Habitat Evaluation Form

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

SITE NAMELOCATION South Field Energy Interconnection Facilities HU(OSCIBIO) SITE NUMBER S-3 RIVER BASIN OHIO DRAINAGE AREA (mir)	tructions
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add lotal number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE BLOR SLABS (16 pts) BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	HHEI Metric Points Substrate Max = 40
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): 30 centimeters [20 pts]	Pool Depth Max = 30 15 Bankfull Width Max=30
This Information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Mature Forest, Shrub or Old Immature Forest, Shrub or Old Wide >10m Residential, Park, New Field Open Pasture, Row Crop None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3	_
STREAM GRADIENT ESTIMATE Flat (0 5 #0 100 ft)	umai 6.89

ADMITIONAL OTOGRAM INCOMESTION (This information thee) from he Commissable	
ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	och Consider d ONE Corres
QHEI PERFORMED? - Tyes X No QHEI Score (If Yes, Att	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: YE I DW CLERK	Distance from Evaluated Stream 1. 25 m;
OWH Name;	Distance from Evaluated Stream
EWH Name:	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	
	Page: NRCS Soil Map Stream Order
County:COUMBIANA Township / City.	MADISON)
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open): 10 /o	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)pH (SU.)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
is the sampling reach representative of the stream (Y/N) IT not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
	al. NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate field data sheets from the P	
Fish Observed? (Y/N) Voucher? (Y/N) Salamenders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinverte brown.	Voucher? (Y/N)Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND MARRATIVE DESCRIPTION OF STREAM	DEACH (This wort to completed):
DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation:	
6 6 6	
FLOW	
19 3 W 6 6	7
1 Trans	
3	
3	
3)

PHWH Form Page - 2

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

South Field Energy Interconnection Facilities HU (DS 03010 SITE NUMBER S - DY RIVER BASIN DHIO DRAINAGE AREA (mi²) < O. LENGTH OF STREAM REACH (fi) SI LAT. 40.648863 LONG: -80.727050 RIVER CODE RIVER MILE DATE 4/29/15 SCORER KENNEDY COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction of the contraction of	ctions
STREAM CHANNEL ONNE / NATURAL CHANNEL OR RECOVERED RECOVERING OR RECENT OR NO RECOVER MODIFICATIONS:	ERY
	HHEI Metric Points Substrate Max = 40
	Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts]	Bankfull Width Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	
STREAM GRADIENT ESTIMATE Flat to 5 M 199 th	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Tyes No QHEI Score (If Yes, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S) WWH Name:	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOC USGS Quadrangle Name: West Point NRCs Soil Map Page: NRCs Soil Map Stream of County: Columbiand Township/City: Madison	
MISCELLANEOUS Base Flow Conditions? (Y/N): Date of last precipitation: Quantity:	
Elevated Turbidity? (Y/N): Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts: large pile of discarded tire	· (
Performed? (Y/N):	nual)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed include important landmarks and other features of interest for site evaluation and a narrative description of the stream of	_

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

SITE NAME/LOCATION South Field Energy Interconnection Facilities HUC 0503010 ISITE NUMBER S-5 RIVER BASIN OHD DRAINAGE AREA (mi²) 0.0406 LENGTH OF STREAM REACH (ft) 310 LAT. 40.648617 DNG80.727007 (IVER CODE RIVER MILE DATE 4124) 15 SCORER E. KENNED COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	,
STREAM CHANNEL O NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS:	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate 7YPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8 B. TYPE BLDR SLABS [16 pts] BEDROCK [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [16 pts] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of BIdr Slabs, Boulder, Cobble, Bedrock IO SUBSTRATE (Present. Check ONLY two predominant substrate 7YPE boxes HHEI Metric Points Substrate Nax = 40 A + B SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	C S
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box): > 30 centimeters [20 pts]	10 11
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream in the process of t	
STREAM GRADIENT ESTIMATE	8.3

	- -
	QHEI PERFORMED? - TYes X No QHEI Score(If Yes, Attach Completed QHEI Form)
	DOWNSTREAM DESIGNATED USE(S) WWH Name: Cllow Greek Distance from Evaluated Stream 1.25 m
	EWH Name: Distance from Evaluated Stream
	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS QUBdrangle Name: WEST POINT NRCS Soil Map Page: NRCS Soil Map Stream Order
	County: Count BIANA Township/City: MADISAN
	MISCELLANEOUS
	Base Flow Conditions? (Y/N): Date of (ast precipitation: Quantity:
	Photograph Information:
	Elevated Turbidity? (Y/N):
	Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:
	Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
	Is the sampling reach representative of the stream (Y/N) If not, please explain:
	· · · · · · · · · · · · · · · · · · ·
	Additional comments/description of pollution impacts:
	Additional comments/description of pollution impacts:
	BIOTIC_EVALUATION
	Performed? (Y/N): N (If Yes, Record all observations, Voucher collections optional, NOTE; all voucher samples must be labeled with the 1D number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
	Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE; all voucher samples must be labeled with the 1D number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
7.5	BIOTIC_EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
イドリ	BIOTIC_EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
ントイン	BIOTIC_EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the 1D number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology.
ナイドレ	BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the 1D number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology. DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
ナスイン	BIOTIC_EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the 1D number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology.
ナスケン	BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the 1D number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology. DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
ナイイン	BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the 1D number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology. DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
ナスケン	BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology. DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location.
ナイイン	BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the 1D number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology. DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
ナスケン	BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology. DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location.
ナスケン	Performed? (Y/N):
サイト しょうしょう	Performed? (Y/N):
tosa tiken	Performed? (Y/N):
Trash Track	Performed? (Y/N):

Primary Headwater Habitat Evaluation Form

ClassI

HUC 05030101 SITE NUMBER S LENGTH OF STREAM REACH (ft) 103 DATE 11/24/2015 SCORER M.G. Im	TYPY INTERCONNECTION FACILITY / Madison Twp / Columbiana Co. - LO RIVER BASIN OHTO DRAINAGE AREA (mi²) = LAT. 40.646782 LONG80.726626 RIVER CODE RIVER MILE OY & COMMENTS - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions				
STREAM CHANNEL NONE / NATI	URAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY				
(Max of 32). Add total number of significa TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts]					
2. Maximum Pool Depth (Measure the maxevaluation. Avoid plunge pools from road > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS	Pool Depth Max = 30 Check ONLY one box):				
COMMENTS MAXIMUM POOL DEPTH (centimeters):					
	This information must also be completed AIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆				
RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None	FLOODPLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction				
FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools COMMENTS	Moist Channel, isolated pools, no flow (Intermittent)				
SINUOSITY (Number of bends per None 0.5 STREAM GRADIENT ESTIMATE Flat to Moderate	61 m (200 ft) of channel) (Check ONLY one box): 1.0				

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Little Yellow Cyeek Distance from Evaluated Stream ~O.5mi CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: West Point NRCs Soil Map Page: NRCs Soil Map Stream Order
county: Columbiana Township/City: Madison Twp
MISCELLANEOUS
Base Flow Conditions? (Y/N): Date of last precipitation: 11/23/2017 Quantity: O. 01
Photograph Information:
Elevated Turbidity? (Y/N): N Canopy (% open): 5-10
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
BIOTIC EVALUATION
Performed? (Y/N): Note: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
rrogs or Ladpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
10/63/-
FLOW -
FLOW 4
1 5
71
Forested
Forevtal
PHWH Form Page - 2

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

SITE NAMELOCATION SOUTH FIELD ENGRY INTERCONNECTION FACILITY MODISON TWP. COLVEN HUC 0503010 SITE NUMBER 5-7 RIVER BASIN ON 0 DRAINAGE AREA (mi²) 41 LENGTH OF STREAM REACH (fi) 313 LAT. 40. UHGOS LONG: 80.726267 RIVER CODE RIVER MILE DATE 1/24/20 SCORER M. (31 MOVE COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions
STREAM CHANNEL NONE/NATURAL CHANNEL DECOVERED DECOVERING DECENT OR NO RECOVE MODIFICATIONS: (atv trail crosses top of channel, recovered)	ERY
Type	HHEI Metric Points Substrate dax = 40
	pol Depth lax = 30
>4.0 m eters (> 13) [39 pts] >1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] >3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Sankfull Width lax=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate	

ADDITIONAL STREAM INFORMATION (This Information Must Als	o de Completed):
QHEI PERFORMED? - DYes No QHEI Score	(If Yes, Attach Completed QHEI Form)
J CWH Name;	Distance from Evaluated StreamDistance from Evaluated Stream
	Distance from Evaluated Stream
	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
ISGS Quadrangle Name: VVEST POINT	NRCS Soil Map Page: NRCS Soil Map Stream Order
county: COLUM BLANG Town	ship / City:
MISCELLANEOUS	11-01-1-
ase Flow Conditions? (Y/N): Date of last precipitation:	·
hotograph Information: Value	
ere samples collected for water chemistry? (Y/N): (Note lat	b sample no. or id. and attach results) Lab Number:
eld Measures: Temp (°C) Dissolved Oxygen (mg/l)	
the sampling reach representative of the stream (Y/N) If not,	please explain:
ID number. Include appropriate field date	er collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION enformed? (Y/N): N (If Yes, Record all observations, Vouche	er collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION If Yes, Record all observations. Voucher ID number. Include appropriate field dates of the Company of the C	er collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION arformed? (Y/N):	er collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) I OF STREAM REACH (This must be completed): If site evaluation and a narrative description of the stream's location OVER TEXT STREAM.
BIOTIC EVALUATION If Yes, Record all observations. Voucher ID number. Include appropriate field date of the Observed? (Y/N) N	er collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) Voucher? (
BIOTIC EVALUATION If Yes, Record all observations. Voucher ID number. Include appropriate field date of the Observed? (Y/N) Noucher? (Y/N) N	ar collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) I OF STREAM REACH (This must be completed): In site evaluation and a narrative description of the stream's location Over the Stream stream's location
BIOTIC EVALUATION Informed? (Y/N):	er collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) I OF STREAM REACH (This must be completed): The site evaluation and a narrative description of the stream's location Over the stream's location

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

SITE NAME/LOCATION SOUTH FIELD Energy Interconnection Facility / Madison Tup / Columbia HUC 050301 (V SITE NUMBER S 8 RIVER BASIN 0 10 DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (ft) 42 LAT 40.445201 LONG-80.72678 RIVER CODE RIVER MILE DATE 11642015 SCORER M. GIMO VC COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERED RECOVE	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLÉ (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	HHEI Metric Points Substrate Max = 40 A+B
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] COMMENTS MOIST CHANNEL [0 pts]	Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m -1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m -4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (≤ 3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS AVERAGE BANKFULL WIDTH (meters)	Bankfull Width Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH RIPARIAN WIDTH CPER Bank) Wide > 10m Moderate 5-10m Residential, Park, New Field Narrow < 5m None COMMENTS This information must also be completed NOTE: River Left (L) and Right (R) as looking downstream River Left (L) and River Left (L) and River Left	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS COMME	
None	0 ft)

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

HUC 06030101 SITE NUMBER 5-9 LENGTH OF STREAM REACH (#) 273 LAT.4 DATE 11/24/2015 SCORER M. GI IM OF C	RIVER BASIN Ohio DRAINAGE AREA (mi²) </th
A STATE OF THE PARTY OF THE PAR	fer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
1. SUBSTRATE (Estimate percent of every type (Max of 32). Add total number of significant sub TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE	SILT [3 pt] 30 40 LEAF PACKWOODY DEBRIS [3 pts] 40 FINE DETRITUS [3 pts] 40 CLAY or HARDPAN [0 pt] 40 MUCK [0 pts] 41 ARTIFICIAL [3 pts] 41 A+B
2. Maximum Pool Depth (Measure the maximum evaluation. Avoid plunge pools from road culver > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS	Pool depth within the 61 meter (200 ft) evaluation reach at the time of this or storm water pipes) (Check ONLY one box): S cm - 10 cm [15 pts]
3. BANK FULL WIDTH (Measured as the averag > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	e of 3-4 measurements) (Check <i>ONL</i> Y one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Solution Sol
RIPARIAN ZONE AND FLOODPLAIN G RIPARIAN WIDTH L/R/ (Per Bank) Wide >10m Moderate 5-10m	ODPLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Open Pasture, Row Crop
	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) (200 ft) of channel) (Check ONLY one box):
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate	2.0 3.0 >3 2.5 Severe (10 tv100 ft)

	ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
	QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attach Completed QHEI Form)
	DOWNSTREAM DESIGNATED USE(S) WWH Name: Little Yell OW CYCCK Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream
	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
	USGS Quadrangle Name: West Point NRCS Soil Map Page: NRCS Soil Map Stream Order
	county: <u>Columbiana</u> Township/City: <u>Madison Township</u>
	MISCELLANEOUS
	Base Flow Conditions? (Y/N): Y Date of last precipitation: 11/23/2015 Quantity: 0.01"
1	Photograph Information: PB 240030+35 50b - / 30 1, 33 V, 310 V, 28 1
	Elevated Turbidity? (Y/N): N Canopy (% open): 5
1	Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
1	Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
1	s the sampling reach representative of the stream (Y/N) If not, please explain:
,	Additional comments/description of pollution impacts:
F	Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
.)0 10	DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Alfalfa field	Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location Forestal Slope
	<i>Y</i>
(hill top)	FLOW > A A A A A A A A A A
	Forested Stope >

Class II

Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): SITE NAME LOCATION SOUTH FIELD ENERGY INTERCONNECTION PACILITY, MADISON TWO ICOLUMNIANA CO. HUC 05030101 SITE NUMBER 5-10 RIVER BASIN ONIO DRAINAGE AREA (mi²) <! LENGTH OF STREAM REACH (#) 410 LAT.40.641749 LONG. 20-722124 RIVER CODE _____ RIVER MILE ____ DATE 11/24/2015 SCORER M. GILMOVE COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions MONE/NATURAL CHANNEL TRECOVERED RECOVERING RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI TYPE PERCENT Metric PERCENT BLDR SLABS [16 pts] **Points** ÕŌ BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] BEDROCK [16 pt] Substrate FINE DETRITUS [3 pts] Max = 40COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] GRAVEL (2-64 mm) [9 pts] Z o MUCK [0 pts] SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) A+B Bldr Slabs, Boulder, Cobble, Bedrock 6 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm (30 pts) < 5 cm [5 pts] 15 > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 1.6 pools, are deptn=3" COMMENTS __ MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (≤ 3' 3") [5 pts] Max=30 > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] 1.08 = ave COMMENTS **AVERAGE BANKFULL WIDTH (meters)** This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream & RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) (Most Predominant per Bank) Wide >10m Mature Forest, Wetland ŌÖ Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m OO Urban or industrial Open Pasture, Row Narrow <5m 00 Residential, Park, New Field 00 Сгор 00 None 00 Fenced Pasture 00 Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS

2.0

Moderate to Severe

3.0

Severe (10 ft/100 ft)

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

☐ Moderate (2 t/100 t)

1.0

1.5

Flat (0.5 ft/100 ft)

None

STREAM GRADIENT ESTIMATE

☐ Flat to Moderate

0.5

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed	
QHEI PERFORMED? - Yes No QHEI Score(If Yes,	Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Little Yellaw Creek	Distance from Evaluated Stream 0.51 mi
CWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSH USGS Quadrangle Name: West Point NRCs Soil Ma	HED AREA. CLEARLY MARK THE SITE LOCATION
County: Columbiana Township/City: M	adison TWP
MISCELLANEOUS ,	
Base Flow Conditions? (Y/N) : Date of last precipitation: $11/23/14$	5_ Quantity: 0.01 ¹¹
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open): 15-25	
Nere samples collected for water chemistry? (Y/N): (Note lab sample no. or id	d. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	
s the sampling reach representative of the stream (Y/N) if not, please explain:_	
Additional comments/description of pollution Impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections option	onal. NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate field data sheets from the	Primary Headwater Habitat Assessment Manual)
ish Observed? (Y/N)_\(\mathbb{\D}\) Voucher? (Y/N)_\(\mathbb{\D}\) Salamanders Observed? (Y/N)_\(\mathbb{\D}\) rogs or Tadpoles Observed? (Y/N)_\(\mathbb{\D}\) Voucher? (Y/N)_\(\mathbb{\D}\) Aquatic Macroinverteb	Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
omments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM	VI REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation	and a narrative description of the stream's location
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erosian	
The state of the s	11
LOW	West of the second
3/1/- //	WATTA C
FORESTED	
PHWH Form Page - 2	
ne 20, 2008 Revision	

OhioEPA

Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3): SITE NAME LOCATION SOUTH TIELD ENERGY INTERCONNECTION FACILITY/MOSITION TWO /COlumbiana HUC 05030161 SITE NUMBER 5-11 _ RIVER BASIN_ ONIO DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (#) 66 LAT. 40.642092 LONG. -80.772254 RIVER CODE _____ RIVER MILE_ DATE 11/24/2015 SCORER M. GILMOVE COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions MONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI PERCENT TYPE PERCENT Metric BLDR SLABS [16 pts] **Points** ŌŌ BOULDER (>256 mm) [16 pts] 00 LEAF PACKWOODY DEBRIS [3 pts] BEDROCK [16 pt] Substrate FINE DETRITUS [3 pts] Max = 40COBBLE (65-256 mm) [12 pts] 00 CLAY or HARDPAN [0 pt] 20 GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 10 风口 SAND (<2 mm) [6 pts] 00 ARTIFICIAL [3 pts] Total of Percentages of (B) Bldr Slabs, Boulder, Cobble, Bedrock A+B SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] COMMENTS MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (≤ 3' 3") [5 pts] Max=30 > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS **AVERAGE BANKFULL WIDTH (meters)** This Information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY 쇼NOTE: River Left (L) and Right (R) as looking downstream와 RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) (Most Predominant per Bank) Wide >10m OO Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Open Pasture, Row Narrow <5m 00 Residential, Park, New Field Crop None Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box); Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SNUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.0 3.0 0.5 1.5 2.5 STREAM GRADIENT ESTIMATE Flat to Moderate Flat (0.5 ft/100 ft) ☐ Moderate (2 t/100 ft) Moderate to Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	5-11
QHEI PERFORMED? - Yes No QHEI Score(If Yes, Attac	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
D CWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	
USGS Quadrangle Name: West Point NRCS Soil Map Pa	
county: Columbiana Township/City. Mad	ison Two
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation: 11/23/2015	Quantity: 0.01
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. ar	
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	
is the sampling reach representative of the stream (Y/N) 1 If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional, ID number. Include appropriate field data sheets from the Prim	rary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Naquatic Macroinvertebrate	Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R Include important landmarks and other features of interest for site evaluation and	EACH (This must be completed):
stored important transmitted and other relationes of finerest for Site evaluation and	r a narrative description of the stream's location
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Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3): SITE NAME LOCATION SOUTH FIELD INTERCONNECTION FACILITY MAGISTON TWO COLUMNS AND CO TUC 05030101 SITE NUMBER S-12 RIVER BASIN OHO _____ DRAINAGE AREA (mi²) </ LATHO. H1313 LONG-80.72/103 RIVER CODE RIVER MILE LENGTH OF STREAM REACH (ft) 25 DATE 11/24/2015 SCORER M. GILMOVE COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL *** NONE / NATURAL CHANNEL | RECOVERED | RECOVERING | RECENT OR NO RECOVERY **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI PERCENT Metric PERCENT BLDR SLABS [16 pts] SILT [3 pt] **Points** ŌŌ BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 30 00 BEDROCK [16 pt] FINE DETRITUS [3 pts] 30 Substrate Max = 40COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] GRAVEL (2-64 mm) [9 pts] \square MUCK [0 pts] 40 0 SAND (<2 mm) [6 pts] ĎΠ ARTIFICIAL [3 pts] Total of Percentages of (B) A+B Bldr Slabs, Boulder, Cobble, Bedrock 3 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] Ø NO WATER OR MOIST CHANNEL [0 pts] COMMENTS MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfuli > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (≤ 3' 3") [5 pts] Max=30 > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS **AVERAGE BANKFULL WIDTH (meters)** This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream & RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m 00 00 Urban or Industrial Open Pasture, Row Narrow <5m 00 Residential, Park, New Field Сгор None Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 1.5 2.5 STREAM GRADIENT ESTIMATE

☐ Moderate to Severe

Severe (10 ft/100 ft)

☐ Moderate (2 t/100 ft)

Flat (0.5 #/100 #1

☐ Flat to Moderate

BIOTIC EVALUATION Performed? (Y/N):	ADDITIONAL STREAM IN	NFORMATION (This information	Must Also be Completed):		5-12
OWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION WAS Quantify. Distance from Evaluated Stream Order County: Distance from Evaluated Stream NRCS Soil Map Page: NRCS Soil Map Stream Order County: Distance from Evaluated Stream Order NRSCELLANEOUS Base Flow Conditions? (YAN) Date of last precipitation: 11/23/2015 Quantity. Quantity	QHEI PERFORI	MED? - O Yes No QHEIS	core (if Yes, Atta	ch Completed QHEI Form)	
USGS Quadrangle Name: West Point NRCs Soil Map Page: NRCs Soil Map Stream Order County: County: Waddisch Twy Miscellaneous Base Flow Conditions? (Y/N): Date of last precipitation: 11/23/20.15 Quantity: Q. Q. 11" Photograph Information: Elevated Turbidity? (Y/N): Name Canopy (% open): 10 Nors samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: 11-14-14-14-14-14-14-14-14-14-14-14-14-1	WWH Name:	the Yellow CV		Distance from Evaluated Stream	
Base Flow Conditions? (Y/N). Date of last precipitation: 11 23 20 15 Quantity: Q. 01" Photograph Information: Elevated Turbidity? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Elevated Turbidity? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Elevated Turbidity? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Elevated Turbidity? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Elevated Turbidity? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Elevated Temperature of the stream (Y/N). If not, please explain: BIOTIC EVALUATION Performed? (Y/N): Note in the sample note of poliution impacts: BIOTIC EVALUATION Performed? (Y/N): Note in the sample note of poliution impacts: BIOTIC EVALUATION Performed? (Y/N): Note in the sample note of poliution impacts: BIOTIC EVALUATION Performed? (Y/N): Note in the sample note of poliution impacts: BIOTIC EVALUATION Performed? (Y/N): Note in the sample note of poliution impacts: BIOTIC EVALUATION Performed? (Y/N): Note in the sample note of poliution impacts: BIOTIC EVALUATION Performed? (Y/N): Note in the sample note of poliution impacts: BIOTIC EVALUATION (If Yes, Record all observations, Voucher codections optional. NOTE: all voucher samples must be tabeled with the sample note in the sample note of poliution impacts: BIOTIC EVALUATION Performed? (Y/N): Note in the sample note of poliution impacts: BIOTIC EVALUATION (If Yes, Record all observations, Voucher codections optional. NOTE: all voucher samples must be tabeled with the sample note of poliution impacts: BIOTIC EVALUATION (If Yes, Record all observations, Voucher codections optional. NOTE: all voucher samples must be tabeled with the sample note of poliution impacts: BIOTIC EVALUATION (If Yes, Record all observations, Voucher codections optional. NOTE: all voucher samples must be tabeled with the sample note of poliution impacts: BIOTIC EVALUATION (If Yes, Record all observations, Voucher codections opt	USGS Quadrangle Name:	West-Point	NRCS Soil Map P	Page: NRCS Soil Map Stream	Order
Base Flow Conditions? (Y/N): Date of last precipitation:	County: (D V)	mbana	Township / City:	Madison Twp	
Elevated Turbidity? (Y/N): N Canopy (% open): D Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (*C) Dissolved Oxygen (mg/l) PH (S.U.) Conductivity (µmhos/cm) I find, please explain: BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the size ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) ISIS Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Comments Regarding Biology. DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location Tove Standard Programment Repart of the stream's location			ution: 11/23/2015	Quantity: O. O!	
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) PH (S.U.) Conductivity (µmhos/cm) st he sampling reach representative of the stream (Y/N) If not, please explain: BIOTIC EVALUATION Performed? (Y/N): Mark (If Yes, Record all observations, Voucher collections optional, NOTE: all voucher samples must be labeled with the site ID number, include appropriate field data sheets from the Printary Headwater Habitat Assessment Manual) Ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)					· · · · · · · · · · · · · · · · · · ·
Dissolved Oxygen (mg/l)					
Since Evaluation Seriormed? (Y/N):	Were samples collected for	water chemistry? (Y/N): N	(Note lab sample no. or id. a	nd attach results) Lab Number:	
BIOTIC EVALUATION Performed? (Y/N):		_			
BIOTIC EVALUATION Performed? (Y/N):	Is the sampling reach repre	esentative of the stream (Y/N) 🗡	If not, please explain:		
BIOTIC EVALUATION Performed? (Y/N):					
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location For establishment A stream of the stream's location of the st	Performed? (Y/N):	(If Yes, Record all observations ID number. Include appropriate Voucher? (Y/N) N Salamd? (Y/N) N Voucher? (Y/N)	e field data sheets from the Pring anders Observed? (Y/N). L Aquatic Macroinvertebrate	mary Headwater Habitat Assessment Ma Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)	nual)
LOW NO.	DRAWING A	AND NARRATIVE DESCR	IPTION OF STREAM R	REACH (This <u>must</u> be comple d a narrative description of the stream	
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BLIAN FAIR CO. A.			PHWH Form Page - 2	-	
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Primary Headwater Habitat Evaluation Form

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

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SITE NAME/LOCATION SEE INTERCONNECTION SITE NUMBER S-13 RIVER BASIN Dhio DRAINAGE AREA (mi²) 2/	
LENGTH OF STREAM REACH (ft) 200 LAT. 40.6487 LONG. 80.719 RIVER CODE RIVER MILE	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ns
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	Y
TYPE	HEI etric ints strate c = 40 D
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts]	Depth c = 30
> 4.0 meters (> 13') [30 pts]	kfull dth
COMMENTSAVERAGE BANKFULL WIDTH (meters)	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) Under > 10m Mature Forest, Wetland Moderate 5-10m Immature Forest, Shrub or Old Field Output This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY L R Mature Forest, Wetland Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box): None	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate	

ADDITIONAL STREAM INFORMATION (This	Information Must Also be Con	npleted):	
QHEI PERFORMED? - Yes	No QHEI Score(If Yes, Attach Completed QHEI F	orm)
DOWNSTREAM DESIGNATED US	E(S)		
WWH Name:		Distance from Eval	uated Stream
CWH Name:		Distance from Evalu	ated Stream
EWH Name:			· · · · · · · · · · · · · · · · · · ·
MAPPING: ATTACH COPIES OF MA	PS, INCLUDING THE <u>ENTIRE</u> WA	TERSHED AREA. CLEARLY MAI	RK THE SITE LOCATION
USGS Quadrangle Name: West P	bint NRCS	Soil Map Page: NRCS	Soil Map Stream Order
County: <u>Columbiana</u>	Township / City	madison Tu	שנו
MISCELLANEOUS			
Base Flow Conditions? (Y/N): Date of	last precipitation:	Quantity:	
Photograph Information: <u>att.</u> Upstream from			
Elevated Turbidity? (Y/N):			
Were samples collected for water chemistry? (\	Y/N): (Note lab sample n	o. or id. and attach results) Lab N	lumber:
ield Measures: Temp (°C) Dissolv	/ed Oxygen (mg/l) pl	H (S.U.) Conductivity (umhos/cm)
s the sampling reach representative of the stre	am (Y/N) if not, please e	xplain:	
Performed? (Y/N): (If Yes, Record all o	observations. Voucher collections	optional. NOTE; all voucher samp	les must be labeled with the site
ish Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher?	Salamanders Observed?	rom the Primary Headwater Habitat	
comments Regarding Biology:			Voucher? (Y/N)
onmone regarding biology.			
DRAWING AND NARRATIN	/E DESCRIPTION OF ST	REAM REACH (This mus	t he completed).
Include important landmarks and other			
		5/1/	on of the stream \$ tocation
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Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3): SITE NAME LOCATION JULY HELD Energy INTERCONNECTION SITE NUMBER 5-14 RIVER BASIN ONLO LAT. 40.648 LONG. 80.7/8 RIVER CODE_ DATE 4/30/15 SCORER L. Sayre COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions ANONE YNATURAL CHANNEL TRECOVERED TRECOVERY MODIFICATIONS: -SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI PERCENT Metric PERCENT BLDR SLABS [16 pts] SILT 13 DI **Points** BOULDER (>256 mm) [18 pts] LEAF PACKWOODY DEBRIS [3 pts] BEDROCK [16 pt] FINE DETRITUS [3 pts] Substrate 00 COBBLE (65-256 mm) [12 pts] Max = 40CLAY or HARDPAN 10 pt 00 GRAVEL (2-64 mm) [8 pts] MUCK [0 pts] (SAND (2:mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) [Bidr Stabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of 2 Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 年7月日 (2017年) MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13") [30 pts] Bankfull > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width > 3.0 m - 4.0 m (> 9' 7" - 13") [25 pts] ≤ 1.0 m (≤ 3' 3") [5 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] <u> Max=30</u> COMMENTS AVERAGE BANKFULL WIDTH (meters) This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial 00 Narrow <5m Open Pasture, Row Residential, Park, New Field Crop None Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box) Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 2.5 STREAM GRADIENT ESTIMATE

Moderate to Severe

Severe (10 ft/100 ft)

Moderate (2 t/100 ft)

Flat (0.5 ft/100 ft)

☐ Flat to Moderate

ADDITIONAL STREAM INFORMATION	(This Information Must Also	be Completed):		
QHEI PERFORMED? - Yes	No QHEI Score	(If Yes, Attach Compl	leted QHEI Form)	
DOWNSTREAM DESIGNATED	USE(S)			
☐ WWH Name:		Distan	ce from Evaluated Stream	
		Distanc	te from Evaluated Otsassa	-
EWH Name:		Distance	e from Evaluated Stream	
MAPPING: ATTACH COPIES OF	F MAPS, INCLUDING THE EN	TIRE WATERSHED AREA	FADI V MADY THE SITE I DO INC.	
USGS Quadrangle Name: WeST	BIFUI	NRCS Soil Map Page:	NRCS Soil Map Stream Order	
County: Columbiana	Towns	hip/city: Madiso	n Twp.	-
MISCELLANEOUS				_
Base Flow Conditions? (Y/N):	ate of last precipitation:	Quar	ntify:	
Photograph Information: <u>AHTACV</u>	ud		-	
Elevated Turbidity? (Y/N):	Canopy (% open):			
Vere samples collected for water chemistr	4. 2	sample no. or ld. and attach	results) Lab Number:	
ield Measures: Temp (°C)Di	ssolved Oxygen (mali)	nH(\$11)	conductivity (µmhos/cm)	•
the country was	\ /	рп (э.о.)С	onductivity (µmhos/cm)	-
s the sampling reach representative of the	stream (Y/N) Y If not, p	lease explain:		
sh Observed? (Y/N) Voucher? (rogs or Tadpoles Observed? (Y/N) vounnents Regarding Biology:	Y/N)Salamanders Ob voucher? (Y/N) Aquatic	served? (Y/N) Vouch Macroinvertebrates Observ	ed? (Y/N) Voucher? (Y/N)	_
DRAWING AND NARRA Include Important landmarks and of	TIVE DESCRIPTION (OF STREAM REACH	This must be completed): lve description of the stream's location	
ow > (pfo)	>111111 cho	nnel covered,	W-II S	
			1	1/
	young	Povest		1/

CI	ass 1
):	17

Severe (10 tt/100 ft)

HHEI Score (sum of metrics 1, 2, 3):	7
SITE NAMELOCATION SOUTH BALL BY TRY INTURBULE TO DRAINAGE AREA (m²) CILENGTH OF STREAM REACH (ft) 31 LAT. 40.648 LONG. 80.719 RIVER CODE RIVER MILE DATE 430 IS SCORER L. Sayre COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	
STREAM CHANNEL ZNONETNATURAL CHANNEL DRECOVERED DRECOVERING DRECENT OR NO RECOVE MODIFICATIONS:	ERŸ
BLDR SLABS [16 pts] BUDR SLABS [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] COBBLE (65-256 mm) [12 pts] COBBLE (65-256 mm) [12 pts] CANDER (2-64 mm) [9 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TYPE SILT [3 pt] GEAF PACKAMOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY OF HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] TOTAL NUMBER OF SUBSTRATE TYPES:	HHEI Metric Points Substrate Max = 40
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	oof Depth Max = 30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts]	Bankfull Width Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream Anote: River Left (L) and River Left (- Page
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Woist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)	

ADDITIONAL STREAM INFORMATION (Th		
	No QHE Score(If Ye	s, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED U	SE(S)	
OWH Name:		Distance from Evaluated Stream
		Distance from Evaluated Stream
		Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF M USGS Quadrengle Name: WEST /	APS, INCLUDING THE ENTIRE WATER OINT	ASHED AREA. CLEARLY WARK THE SITE LOCATION Map Page: NRCS Soil Map Stream Order
county: <u>Columbiana</u>	Township / City: /	Madison Twp,
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Date	of last precipitation:	Quantity:
Photograph Information: attach	10	
	opy (% open):	
Vere samples collected for water chemistry?	Y/N): (Note lab sample no. c	or id. and attach results) Lab Number:
field Measures: Temp (°C) Disso	ved Oxygen (mg/l)pH (S,	U.) Conductivity (timbos/cm)
s the sampling reach representative of the	earn (All)	in:
the sampling result of the sti	if not, please explain	n:
ish Observed? (Y/N) Voucher? (Y/N)	Solomonders Observe to Are	otional. NOTE: all voucher samples must be labeled with the site the Primary Headwater Habitat Assessment Manual) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
omments Regarding Biology:		
DD4148MA AND MADE	The second secon	
Include important landmarks and other	VE DESCRIPTION OF STREAT	AM REACH (This <u>must</u> be completed):
	reactives of interest for site evaluation	on and a narrative description of the stream's location
	PFO	1300
ow > 1/1// stre	am channel cover	red with leaf 1111
		11770 (11/1/1)
		1 2 7 7
	OF	(6 9)
	PFO	E B B
	PFO	Sea .
State of the state	PHWH Form Page - 2	Se de la company

Primary Headwater Habitat Evaluation Form

Class I

CA District way	HHEI Score (sum of metrics 1, 2, 3):
LENGTH OF STREAM REACH (11) 59 LAT. 40.648572 LO DATE 1/30/2015 SCORER 8.51 COMMENTS COMMENTS NOTE: Complete All Items On This Form - Refer to "Field EV	
1. SUBSTRATE (Estimate percent of every type of substrate pre (Max of 40). Add total number of significant substrate types found TYPE BLDR SLABS [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:	I (Max of 8). Final metric score is sum of boxes A & B. PERCENT SILT [3 pt] LEAF PACKWOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts]
2. Maximum Pool Depth (Measure the maximum pool depth wite evaluation. Avoid plunge pools from road culverts or storm water > 30 centimeters [20 pts]	hin the 61 meter (200 ft) evaluation reach at the time of pipes) (Check ONLY one box): > 5 cm - 10 cm [15 pts] < 5 cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts] MAXIMUM POOL DEPTH (centimeters):
3. BANK FULL WIDTH (Measured as the average of 3-4 measured as	Check ONLY one box): Bankfull Width Width Wax=30
This information RIPARIAN ZONE AND FLOODPLAIN QUALITY AT RIPARIAN WIDTH FLOODPLAIN QUAL LR (Per Bank) LR (Most Pred Wide >10m Mature For Immature F	ominant per Bank). L R Conservation Tillage Forest, Shrub or Old Urban or Industriat Open Pasture. Row Crop Sture Mining or Construction Molst Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemerat)
STREAM GRADIENT ESTIMATE Flat (0.5 a/100 lt) Flat to Moderate	Moderate to Severe Severe (10 4/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Tyes Wino QHEI Score (If Yes, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S) WWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream	
MAPPING: ATTACH COMES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: Welf Powf NRCS Soil Map Page: NRCS Soil Map Stream Order	
county: Columbiana Township/City: Mardison TWP.	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation: Quantity:	
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open): 5	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:	
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)	
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)	
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location	
\'	n-NAny
	54 May
	STROM
FLOW	
PEO	^
FLOW PRO Seep	//
	/ 1
Forest	/ ()

Chief Primary Headwater Habitat Evaluation Form

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	HHEI Score (sum of metrics 1, 2, 3)	51
SITE NAME/LOCATIONSITE NUMBER	de energy interconnection	
DATE 4/30/15 SCORER L.S.C.	LAT. 40.043 LONG.80.710 RIVER CODE RIVER N	
NOTE: Complete All Items On This Fo	orm - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" fo	r Instructions
STREAM CHANNEL DINONEZA MODIFICATIONS:	LATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO	RECOVERY
TYPE	overy type of substrate present. Check ONLY two predominant substrate TYPE bo filicant substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT TYPE PERCENT	HHEI Metric
	CEAT BACKWOODY DEBRIS 13 pts]	Points
BEDROCK [16 pt]	FINE DETRITUS [3 pts] CLAY OF HARDPAN TO pt] D ARTIFICIAL [3 pts]	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock, SCORE OF TWO MOST PREDOMINATE SUE	(A) 3 (B)	1 A+B
Maximum Pool Depth (Measure the.)	maximum hool denth within the 65 mater (200 50 and below the 150 a	
evaluation. Avoid plunge pools from ro > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	ACCURVERS OF STORM WATER pipes) (Check ONLY one box): >5 cm - 10 cm [15 pts]	Pool Depth Max = 30
> 10 - 22.5 cm [25 pts]	O <5 cm [5 pts] NO WATER OR MOIST CHANNEL (0 pts)	15
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	O. I STANDAR
3. BANK FULL WIDTH (Measured as th > 4.0 meters (> 13) [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	e average of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (≤ 3' 3") [5 pts]	Bankfull Width Max=30
COMMENTS	AVERAGE BANKFULL WIDTH (meters)	.21 15
RIPARIAN ZONE AND FLOOD	This information <u>must</u> also be completed PLAIN QUALITY	4
RIPARIAN WIDTH L R (Per Bank)	FLOODPLAIN QUALITY	и
☐ ☐ Wide >10m ☐ ☑ Moderate 5-10m	(Most Predominant per Bank) Mature Forest, Wettand Conservation Title Immature Forest, Shrub or Old Utban or Industria	
Narrow <5m	Residential, Park, New Field Open Pasture, Ro	
O None COMMENTS		ction
FLOW REGIME (At Time of Eve Stream Flowing Subsurface flow with isolated poor COMMENTS	niuation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermols (Intermols (Interstitial)) Dry channel, no water (Ephemeral)	ittent)
SINUOSITY (Number of bends possible of bends pos	per 61 m (200 ft) of channel) (Check ONLY one box): 1.0	
STREAM GRADIENT ESTIMATE Flat (0.5 #/100 ft) Flat to Moderate	Moderate (2 t/100 t)	

/ 、	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	(
WWH Name:	Distance from Evaluated Stream
	Distance from Evaluated Stream
	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRI USGS Quadrangle Name: WEST POINT NE County: WIUM BIANA Township	RCS Soil Man Page: NRCS Soil Man Stream Outles
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Cup.## :-
Photograph Information: attacked	Quantity:
	_
Nere samples collected for water chemistry? (Y/N): (Note lab sam	nple no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (umhos/cm)
s the sampling reach representative of the stream (Y/N) If not, please	se explain:
	
BIOTIC EVALUATION erformed? (Y/N): V (If Yes Record all observations Vauches and	
renformed? (Y/N): (If Yes, Record all observations. Voucher collection in the properties of the data sheet ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Ma	acroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Cerformed? (Y/N): (If Yes, Record all observations. Voucher collection number. Include appropriate field data sherifish Observed? (Y/N) Voucher? (Y/N) Salamanders Observogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Maccomments Regarding Biology:	ved? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
renformed? (Y/N): (If Yes, Record all observations. Voucher collection in the properties of the data sheet ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Ma	ved? (Y/N) Voucher? (Y/N) vouche
renformed? (Y/N): (If Yes, Record all observations. Voucher collection number. Include appropriate field data sheet ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Materials Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF Include important landmarks and other features of interest for site	ved? (Y/N) Voucher? (Y/N) voucher
cerformed? (Y/N): (If Yes, Record all observations. Voucher collection number. Include appropriate field data shewish Observed? (Y/N) Voucher? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macomments Regarding Biology:	ved? (Y/N) Voucher? (Y/N) voucher? (Y/N) acroinvertebrates Observed? (Y/N) Voucher? (Y/N) STREAM REACH (This must be completed): evaluation and a narrative description of the stream's location Pasture
cerformed? (Y/N): (If Yes, Record all observations. Voucher collection number. Include appropriate field data shewish Observed? (Y/N) Voucher? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macomments Regarding Biology:	ved? (Y/N) Voucher? (Y/N) voucher
Performed? (Y/N): (If Yes, Record all observations. Voucher collection number. Include appropriate field data sherical data she	ved? (Y/N) Voucher? (Y/N) voucher? (Y/N) acroinvertebrates Observed? (Y/N) Voucher? (Y/N) STREAM REACH (This must be completed): evaluation and a narrative description of the stream's location Pasture
Performed? (Y/N): (If Yes, Record all observations. Voucher collection number. Include appropriate field data sherical data she	ved? (Y/N) Voucher? (
Performed? (Y/N): (If Yes, Record all observations. Voucher collection number. Include appropriate field data sherical data sherical collections of the property of the prope	ved? (Y/N) Voucher? (
cerformed? (Y/N): (If Yes, Record all observations. Voucher collection number. Include appropriate field data shewish Observed? (Y/N) Voucher? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macomments Regarding Biology:	ved? (Y/N) Voucher? (

June 20, 2008 Revision

PHWH Form Page - 2

Chieff Primary Headwater Habitat Evaluation Form

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	HHEI Score (sum of metrics 1, 2, 3):	41
SITE NAME/LOCATION SANTA HELD	Energy Interemperate	
DATE 4/30/15 SCORER L.Sau	5-18 RIVER BASIN DILO DRAINAGE AREA (m²) CLAT. 40.643 LONG SD. 716 RIVER CODE RIVER MILE COMMENTS	
NOTE: Complete All Items On This For	rm - Refer to "Field Evolution Manual for Objets Burney of	ructions
STREAM CHANNEL TO NONE NA MODIFICATIONS:	ATURAL CHANNEL ARECOVERED PRECOVERING PRECENT OR NO REC	OVERY
SUBSTRATE (Estimate percent of ev (Max of 40). Add total number of signific	very type of substrate present. Check ONLY two predominant substrate TYPE boxes cant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts]	PERCENT TYPE SILT [3 pi) LEAF PACKWOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY OF HARDPAN [0 pt] MUCK[0 pts] MUCK[0 pts]	HHEI Metric Points Substrate Max = 40
Total of Percentages of Bidr Siabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBS	(A) (B)	A+B
2. Maximum Pool Depth (Measure the mevaluation. Avoid plunge pools from read > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	naximum pool depth within the 61 meter (200 ft) evaluation reach at the time of collects or storm water pipes) (Check ONLY one box): Som - 10 cm [15 pts] Som [5 pts] NO WATER OR MOIST CHANNEL [0 pts]	Pool Depth Max = 30
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	All transport of
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13) [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	average of 3-4 measurements) (Check <i>ONLY</i> one box): >1.0 m -1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (≤ 3' 3") [5 pts]	Bankfull Width Max=30
COMMENTS	AVERAGE BANKFULL WIDTH (meters)	15
RIPARIAN ZONE AND FLOODP		
(Per Bank) Wide >10m Moderate 5-10m	FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Urban or Industrial	
□ □ Narrow <5m □ □ None COMMENTS	Residential, Park, New Field Open Pasture, Row Crop Fenced Pasture Mining or Construction	
Stream Flowing Subsurface flow with isolated pools COMMENTS	Mojet Channel instance and a control of	
SINUOSITY (Number of bends pe	1.0 (Check ONLY one box): 1.0	
STREAM GRADIENT ESTIMATE Flat (0.5 1/100 ft) Flat to Moderate	Moderate (2 \$1/100 ft)	i fit

MISCELLANEOUS Sase Flow Conditions? (YM): Date of last precipitation: Quantity: Chotograph Information: ATACLULA Benated Turbidity? (YM): Canopy (% open): D Vere samples collected for water chemistry? (YM): (Note lab sample no. or id. and attach results) Lab Number: set the sampling reach representative of the stream (YM); If not, please explain: Set the sampling reach representative of the stream (YM); If not, please explain: BIOTIC EVALUATION Seformed? (YM): (If Yee, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabuled with the site	ADDITIONAL STREAM INFORMATION (This information Must Also be Completed):
Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE STE LOCATION MASCELLANEOUS Date of last precipitation: Township / CRy. MISCELLANEOUS Date of last precipitation: Cuantity: Date of last precipitation: Cuantity: Date of last precipitation: Cuantity: Cuantity: Cuantity: Cuantity: Conductivity (Vin): Conductivity (Vin): Conductivity (Vin): Conductivity (Vin): Conductivity (Vin): Street sampling reach representative of the stream (V/h). If not, please explain: BIOTIC EVALUATION afformed? (V/n): (If Yes, Record all observations, Voucher collections optional, NOTE: all voucher camples must be labeled with the site. Dinumber: Include appropriate field data sheets from the Primary Headwaler Habitat Assessment Manual) Dinumber: Include appropriate field data absets from the Primary Headwaler Habitat Assessment Manual) Drawnents Regarding Biology. DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location WWW AND AND TOWN AN	QHEI PERFORMED? - Tyes No QHEI Score(If Yes, Attach Completed QHEI Form)
Distance from Evaluated Stream Distance from Evaluated Stream MAPPING: ATTACH COMES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION USGS Quadrengia Name: WGT PDINT NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Ma	DOWNSTREAM DESIGNATED USE(S)
Distance from Evaluated Stream Distance from Evaluated Stream MAPPING: ATTACH COMES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION USGS Quadrengia Name: WGT PDINT NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Map Stream Order NRCS Soil Map Page: NRCS Soil Ma	WWH Name: Distance from Evaluated Stream
Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE STE LOCATION USGS Guadrangio Name: WCS PDINT NRCS Soil Map Page: NRCS Soil Map Stream Order County: Columbiana Township / City. MaddS M Twop. MISCELLANEOUS Base Flow Conditions? (Y/N): J Date of last procipitation: Quantity: Chotograph Information: A Tached Gevated Turbidity? (Y/N): J Canopy (% open): / D Vere samples collected for water chemistry? (Y/N): J (Note lab semple no. or id. and attach results) Lab Number. Ielid Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm) Ielid Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm) Ielid Measures: Temp (*C) Dissolved Oxygen (mg/l) with finot, please explain: BEOTIC EVALUATION Enformed? (Y/N): J (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the size D number. Include appropriate field data sheets from the Primary Headwater Hability Assessment Manual) Enformed? (Y/N): Voucher? (Y/N) Salamenders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Township of the Stream (Y/N) Aquatic Macroinvertebristes Observed? (Y/N) Voucher? (Y/N) DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of fire stream's location with data interest for site evaluation and a narrative description of fire stream's location with data interest for site evaluation and a narrative description of fire stream's location with data interest for site evaluation and a narrative description of fire stream's location with data interest for site evaluation and a narrative description of fire stream's location with data interest for site evaluation and a narrative description of fire stream's location with data interest for site evaluation and a narrative description of fire stream's location with data in the site of the site of t	Distance from Evoluted Street
USGS Quadrangle Name: WSF PDINT NRCS Soil Map Page: NRCS Soil Map Stream Order County:	Distance from Evaluated Stream
MISCELLANEOUS Base Flow Conditions? (YAN): Date of tast precipitation: Quantity: Chotograph Information: A TLACKAG Bevaled Turbidity? (YAN): Canopy (% open): D Vere samples collected for water chemistry? (YAN): (Note lab sample no. or id. and attach results) Lab Number: reled Measures: Temp (*C) Dissolved Oxygen (mgd) pH (S.U.) Conductivity (umhos/cm) st the sampling reach representative of the stream (YAN) If not, please explain: dditional comments/description of postution impacts: BIOTIC EVALUATION erformed? (YAN): (If Yee, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site in D number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) shi Observed? (YAN): Voucher? (YAN): Salamenders Observed? (YAN): Voucher? (YAN): ogs or Tadpoles Observed? (YAN): Voucher? (YAN): Aquatic Macroinvertebrates Observed? (YAN): Voucher? (YAN): Opsion Tadpoles Observed? (YAN): Voucher? (YAN): Aquatic Macroinvertebrates Observed? (YAN): Voucher? (YAN):	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name: WEST PDINT NRCS Soil Map Page. NRCS Soil Map Page.
Antograph Information: A TACKAR Canopy (% open): Canopy (% open): Conductivity (V/N): Canopy (% open): Conductivity (V/N): Condu	county: Columbiana Township/City: Madison Two.
Bevated Turbidity? (Y/N): N Canopy (% open): /D Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number. Iteld Measures: Temp ("C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm) It not, please explain: BIOTIC EVALUATION erformed? (Y/N): N (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headweter Habitat Assessment Manual) ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinventotrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinventotrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Noucher? (Y/N)	
Bevated Turbidity? (Y/N): N Canopy (% open): /D Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number. Iteld Measures: Temp ("C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm) It not, please explain: BIOTIC EVALUATION erformed? (Y/N): N (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headweter Habitat Assessment Manual) ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinventotrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinventotrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Noucher? (Y/N)	Base Flow Conditions? (Y/N): Date of last precipitation: Quantity:
Canopy (% open): // D Were samples collected for water chemistry? (Y/N): // (Note lab sample no. or id. and attach results) Lab Number:	The formation A + HA Ched
is the sampling reach representative of the stream (Y/N) If not, please explain: BiOTIC EVALUATION	Elevated Turbidity? (Y/N): Canopy (% open):/D
is the sampling reach representative of the stream (Y/N) If not, please explain: BiOTIC EVALUATION	Nere samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
BIOTIC EVALUATION Enformed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) sh Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location WWW ADDITIONAL STREAM REACH (This must be completed): Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location WWW ADDITIONAL STREAM REACH (This must be completed): Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location WWW ADDITIONAL STREAM REACH (This must be completed):	
BIOTIC EVALUATION erformed? (Y/N):	s the sampling reach representative of the etmon (VAL)
BIOTIC EVALUATION erformed? (Y/N):	If not, please explain:
include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location Would Wo	erformed? (Y/N): (If Yes, Record all observations, Voucher collections onlined, NOTE: all years and the control of the control
W-13 pem dows)	Upung working and other features of interest for site evaluation and a narrative description of the stream's location working the stream's location with the stream's location and a narrative description of the stream's location with the stream's location with the stream's location and a narrative description of the stream's location with the stream's location and a narrative description of the stream's location with the st
1 (10) 11 11	Now 13 pem pem somes)
Young words	

	Primary		HHEI Score	(sum of m	(193 orm petrics 1, 2, 3) :	SI 31
SITE	NAMELOCATION SULTY THE	d ene	rgy interconnue non			
	SITE NUMBER_	5-19	RIVER BASIN Dhio	DI	RAINAGE AREA (mi²)	1
LEN	GTH OF STREAM REACH (11) 200 E 4 30 15 SCORER L.S.A.			VER CODE_	RIVER MILE_	
NO	OTE: Complete All Items On This Fo	rm - Refer	to "Field Evaluation Manual for	Ohio's PH	VH Streams" for Inst	ructions
STE	REAM CHANNEL ÎNONE?N DIFICATIONS:	ATURAL C	ANNEL ARECOVERED AREC	OVERING (RECENT OR NO REC	ÖVERÝ
1.	SURSTRATE (Estimate parent of a					
TYI	SUBSTRATE (Estimate percent of ex (Max of 40). Add total number of signifi-	ICSUIT SUDSILE	ite types found (Max of 8). Final metric	predominant score is sum	substrate TYPE boxes of boxes A & B.	HHE
	BLDR SLABS [16 pts]	PERCENT	TYPE SILT 13 pm		PERCENT 15	Metric Points
			LEAF PACKWOOD	Y DEBRIS (3 p	ts] <u>10</u>	
			FINE DETRITUS 13	pts].		Substrate Max = 40
	GRAVEL (2-64 mm) [9 pts]	10	MUCK [0 pts]	ro bd	20	
×	SAND (<2 mm) [6 pts]	45	ARTIFICIAL [3 pts]			
	Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock		(A)		(B) (T	A 1 5
SCO	RE OF TWO MOST PREDOMINATE SUB	STRATE TY	PES: TOTAL NUMBE	R OF SUBST	1 1	A+B
2.	Maximum Pool Depth (Measure the n	naximum n	noi clerate within the 64 many man	41		
П	evaluation. Avoid plunge pools from roa > 30 centimeters [20 pts]	d culverts o	r storm water pipes) (Check ONLY	one box):	acn at the time of	Pool Dept Max = 30
ğ	> 22.5 - 30 cm [30 pts]		> 5 cm - 10 cm [15]	pts]		
<u>U</u>	> 10 - 22.5 cm [25 pts]		NO WATER OR MC	DIST CHANNE	L[0 pts]	15
ána ána	COMMENTS		MAXIMUM PO	OOL DEPTH (centimeters);	and the same
3.	BANK FULL WIDTH (Measured as the	average of	f 3-4 measurements) (Chec	k ONLY one t	iox):	Bankfull
ŏ	> 4.0 meters (> 13) [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]		>1.0 m - 1.5 m (>3° ≤1.0 m (≤3°3") [5 p	3" - 4' 8") M5 r	otsi	Width
	> 1.5 m - 3.0 m (> 4" 8" - 9' 7") [20 pts]		yex ≥ 1.0 m (≤ 5 3) [5 þ	KS]	7==71	Max=30
	COMMENTS		AVERAGE BA	ANKFULL WI	OTH (meters)	5
		This	information must also be complete	d		
	RIPARIAN ZONE AND FLOODS	PLAIN QUA	LITY \$NOTE: River Left (L) and PLAIN QUALITY	Right (R) as ic	oking downstream&	
	L R (Per Bank) Wide >10m	L R	(Most Predominant per Bank)	L R		
	Moderate 5-10m	XI	Mature Forest, Wetland Immature Forest, Shrub or Old	00	Conservation Tillage	
	-×		Field		Urban or Industrial	
			Residential, Park, New Field		Open Pasture, Row Crop	
	□ □ None COMMENTS		Fenced Pasture		Mining or Construction	

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

None 1.0 2.0
0.5 1.5 2.5 None 3.0 0.5 >3 STREAM GRADIENT ESTIMATE Moderate (2 1/100 ft) Flat (0.5 ft/100 ft) ☐ Flat to Moderate Moderate to Severe Severe (10 t/100 ft)

Moist Channel, isolated pools, no flow (intermittent)

Dry channel, no water (Ephemeral)

FLOW REGIME (At Time of Evaluation) (Check ONLY one box);
Stream Flowing

COMMENTS_

ADDITIONAL STREAM INFORMATION (This Information	
QHEIPERFORMED? - TYes X No QHEIS	core(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
	Distance from Evaluated Stream
	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDIN	IG THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: WeST Point	NRCS Soil Map Page: NRCS Soil Map Stream Order
county: Columbiana	Township/City: Machson Twp.
	_ Township / City: Track Supri Coop.
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipits	ation:Quantity:
Photograph Information: attached	
Elevated Turbidity? (Y/N): Canopy (% open):	20
Were samples collected for water chemistry? (Y/N):	, (Note lab sample no. or id. and attach results) Lab Number
	ng/l) pH (S.U.) Conductivity (µmhos/cm)
is the sampling reach representative of the stream (YAN)	If not, please explain:
The second of the second (1711)	If not, please explain;
io namo. Modas appropriati	s. Voucher collections optional. NOTE: all voucher samples must be labeled with the site a field data sheets from the Primary Headwater Habitat Assessment Manual) anders Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
include important landmarks and other features of in	iPTION OF STREAM REACH (This must be completed): terest for site evaluation and a narrative description of the stream's location
V-15 HHHHHHH veg	young to forest
	pasture 5.20

M

SITE NAME/LOCATION SOUTH A	y Headwater	HHEI Score	(sum of n	netrics 1, 2, 3) :	17
SITE NUMBER LENGTH OF STREAM REACH (#) 40 DATE 4/30/15 SCORER 1.54 NOTE: Complete All Items On This F	LAT. 40.641	R BASIN DWD LONG \$\int 27/5 RI Evaluation Manual fo	VER CODE_	RIVER MILE	ructions
1. SUBSTRATE (Estimate percent of (Max of 40). Add total number of sign TYPE	PERCENT TYPE D D D D D D D D D	Ind (Max of 8). Final metri SILT [3 pr] LEAF PACKWOOD FINE DETRITUS [3 OLAY of HARDPAN MUCK [0 pts]	c score is sum Y DEBRIS [3] PIS] 10 PI	percent 20	HHEI Metric Points Substrate Max = 40 12 A + B
2. Maximum Pool Depth (Measure the evaluation. Avoid plunge pools from n > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS	maximum pool depth wat culverts or storm wat	within the 67 meter (200 f er pipes) (Check ONLY >5 cm - 10 cm [15 <5 cm [5 pts] NO WATER OR MC	to evaluation not one box): pts] DIST.CHANNE	each at the time of	Pool Dept Max = 30
3. BANK FULL WIDTH (Measured as ti > 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts] > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts] COMMENTS			k ONLY one '3" - 4'8") [15 ofs]	box): ptsj	Bankfull Width Max=36
RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None	FLOODPLAIN QUALITY FLOODPLAIN QUALITY R (Most Pre Mature For Immature Field	dominant per Bank) west, Wetland Forest, Shrub or Old	kd Right (R) as i	Conservation Tillage Urban or Industrial Open Pasture, Row Crop	Experience of the control of the con

FLOW REGIME (At Time of Evaluation) (Check OALY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Stream Flowing Moist Channel, isolated pools, no flow (intermittent) Subsurface flow with isolated pools (interstitial) Dry channel, no water (Ephemeral) COMMENTS_ None 0.5 2.0 2.5 3.0 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Moderate (2 ft/100 ft) ☐ Flat to Moderate ☐ Moderate to Severe Severe (10 t/100 ft)

ADDITIONAL STREAM INFORMATION (This information Must Also be Completed):
QHEI PERFORMED? - Tyes No QHEI Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
☐ WWH Name: Distance from Evaluated Stream
Dictance from Diplyated Character
Distance from Evaluated Stream
USGS Quadrangle Name: West Point NRCs Soil Map Page: NRCs Soil Map Stream Order County: (1) UM DIONAL Township (2) MG OUSDO TUDO
county: Columbiana Township/city: Madison Twp
MISCELLANEOUS
Base Flow Conditions? (Y/N): Date of last precipitation: Quantity: Photograph Information: Otto Check
Elevated Turbidity? (Y/N):
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number
Field Measures: Temp (°C) Dissolved Organs (mg/l)
Dissolved Oxygen (mg/r) ph (S.U.) Conductivity (umboe/orn)
is the sampling reach representative of the stream (Y/N) \(\frac{1}{2} \) If not, please explain:
Additional comments/description of pollution impacts:
DIOTIC EVALUATION
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the si
had date sies with the Filmary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology:
DRAWING AND NARPATIVE DESCRIPTION OF STREAM
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
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young Juring words
young young woods
Will Will Sing !
HHHHHMIN)
svern (ig)
HHII
pasture
Paro rac.

PHWH Form Page - 2

Primary Headwater Habitat Evaluation Form

	HHEI Score (sum of metrics 1, 2, 3) :
DATE 4/30/15 SCORER L'Sayre NOTE: Complete All Items On This Form.	RIVER BASIN DIWO DRAINAGE AREA (m²) AT. 40.040 LONG. 80.709 RIVER CODE RIVER MILE COMMENTS Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions RAL CHANNEL DRECOVERED RECOVERING TRECENT OR NO RECOVERY
TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [19 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE Maximum Pool Depth (Measure the month)	(A) 3 (B) (C) A+B
3. BANK FULL WIDTH (Measured as the ave > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	>1.0 m - 1.5 m (> 3'3"- 4'8") [15 pts] >1.0 m (< 3'3") [5 pts] AVERAGE BANKFULL WIDTH (meters)
Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with Isolated pools (Interest Comments) SINUOSITY (Number of bands per 61 None	Cood Conservation Conservation
STREAM GRADIENT ESTIMATE O Flat (0.5 fb/100 ft) O Flat to Moderate	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Tyes No QHEI Score(If Yes, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)	
☐ WWH Name: Distance from Evaluated Stream	
CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: WEST POINT NRCS Soil Map Page: NRCS Soil Map Stream Order	
county: Columbiana Township/city: Yellow Creek Tup.	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation: Quantity:	
Photograph Information: <u>Attached</u>	
Elevated Turbidity? (Y/N): N Canopy (% open): 70	
Were samples collected for water chemistry? (Y/N): V (Note lab sample no. or ld. and attach results) Lab Number:	
Fleid Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)	
is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)	
Fish Observed? (Y/N) Voucher? (Y/N) Setemphone Observed (Y/N)	
Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (VAI)	
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):	
include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location	
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Arrest	/ \
N' M'	V
FLOW	John John John John John John John John
war ance make	
Straw Ban IIVE STOCK	No
MS COM	ا
Forest Forest Forest	
lune 20, 2008 Revision PHWH Form Page - 2	

June 20, 2008 Revision

Orio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):	W
SITE NAMELOCATION SOUTH FREE ENERGY INTERCONNECTION	- 17
SITE NUMBER 5-22 RIVER BASIN DILLO DRAINAGE AREA (MI	2) <1
LENGTH OF STREAM REACH (1) 68 LAT. 40.640 LONG.80.702 RIVER CODE RIVER MIDDATE 430 15 SCORER LSayre COMMENTS	.E
NOTE: Complete All Items On This Form - Refer to "Fleid Evaluation Manual for Ohio's PHWH Streams" for	
STREAM CHANNEL UNONE NATURAL CHANNET REPROJECT THE STREAM CHANNEL	Instructions
MODIFICATIONS.	RECOVERY
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE box (Max of 40). Add total number of significant substrate types from the contract of the contr	as I
TYPE PERCENT TYPE PERCENT TYPE PERCENT TYPE	HHEI Metric
DOUBLES ASSESSMENT OF SUREMENT	Points
BEDROCK [16 pt] FINE DETRITUS 13 pts]	Substrate
OLAY OF HARDPAN TO HE	Max ≈ 40
SAND (<2mm) [6 pts] MUCK [0 pts] V 0	
Total of Percentages of (A)	(676/269034 ptd.
Bidt Slabs, Boulder, Cobble, Bedrock	A÷B
2. Maximum Pool Depth (Measure the maximum pool depth within the 65 mate (Reason L. I.)	
Check ONLY one box):	Pool Depth Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
O > 10 - 22:5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTSMAXIMUM POOL DEPTH (centimeters):	7
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfuli
> 4.0 meters (> 13) [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	Width _Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters)	
This information must also be completed	Address of the
ANOTE: River Left (L) and Right (R) as looking downstreams	r
L R (Per Bank) L R (Most Predominant per Bank) P	
Wide >10m	8
Field Urban or Industrial	
Narrow <5m	,
None Crop COMMENTS Mining or Construct	fon
FLOW REGIME (At Time of Evaluation) (Check ONLY one box);	No. of Concession, Name of
Stream Flowing Moist Channel, isolated pools, no flow (Infermit	enf\
Subsurface flow with Isolated pools (Interstitial) COMMENTS Dry channel, no water (Ephemeral)	one
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
1.0 <u>1.0</u> 2.0 3.0	
STREAM GRADIENT ESTIMATE	
☐ Flat (0.5 fr/100 ft) ☐ Flat to Moderate ☐ Moderate (2 fr/100 ft) ☐ Moderate to Severe ☐ Severe (10	AMAA
D Severe (16	WYOU IC)

AD	DITIONAL STREAM INFORMATION (This information Must Also be Completed):
	GHE PERFORMED? - Tyes No QHE Score(If Yes, Attach Completed QHE! Form)
-	DOWNSTREAM DESIGNATED USE(S)
	WWH Name: Distance from Evaluated Stream
	CWH Name: Distance from Evaluated Stream EWH Name: Distance from Evaluated Stream Distance from Evaluated Stream
	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
usc	SS Quadrangle Name: West Point NRCS Soil Map Page: NRCS Soil Map Stream Order
Cou	nty: Columbiana Township/city. Yellow Creek Tup.
	MISCELLANEOUS
Base	Flow Conditions? (Y/N); V Date of last precipitation:
	e Flow Conditions? (Y/N): Y Date of last precipitation: Quantity:
Eleva	ated Turbidity? (Y/N): N Canopy (% open): 20
Were	samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
	Measures: Temp (°C) Dissolved Oxygen (mg/l)pH (S.U.)Conductivity (µmhos/cm)
is the	e sampling reach representative of the stream (Y/N) if not, please explain:
Additi	ional comments/description of pollution impacts:
Fish C Frogs	BIOTIC EVALUATION The discreption of the Primary Headwater Habitat Assessment Manual) Disserved? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher?
	DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
'	include important (and marks and other features of interest for site evaluation and a narrative description of the stream's location
	forest
	- New 1111 11 11 11
FLOW	11 eaf 1
. 201	
Sheet	
.x X	forest
C.Nor.	
5//	
June 20, 20	DOS Revision PHWH Form Page - 2
	1111 \ 41 / 41

modified TT

Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2,

.3): 47
EA (mi ²) <u>0.036</u> /ER MILE
s" for Instructions OR NO RECOVERY

HUC OSOSDIOI SITE NUMBE LENGTH OF STREAM REACH (1) 45 DATE 12915 SCORER E	LAT. 40.6	MMENTS	VER CODE _	RIVER MILE	
NOTE: Complete All Items On This STREAM CHANNEL NONE MODIFICATIONS:		WINEL OF RECOVERED REC	COVERING (eams" for Instri	-
	percent PERCENT 10 10 25 5 45	substrate present. Check ONLY two e types found (Max of 8). Final metri TYPE SILT [3 pt] LEAF PACKWOOD FINE DETRITUS [3 CLAY OF HARDPAN MUCK [0 pts] ARTIFICIAL [3 pts] (A) 12 PES: TOTAL NUMBI	c score is sum Y DEBRIS [3 : pis] [0 pi]	per of boxes A & B PERCENT pets) 50 (B)	HHEI Metric Points Substrate Max * 40
2. Maximum Pool Depth (Measure & evaluation Avoid plunge pools from > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	ite maximum po n road culverts o	ool depth within the 61 meter (200 of storm water pipes) (Check ONL) > 5 cm - 10 cm [15 cm [5 pts] NO WATER OR M	ft) evaluation : / one box): - pts] OIST CHANN	each at the time of	Pool Depth Max = 30
3. BANK FULL WIDTH (Measured a: > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pt COMMENTS	s}	> 1.0 m - 1.5 m (> 3 4 1.0 m (≤ 3' 3") [5	pts]		Bankfull Width Max=30
RIPARIAN ZONE AND FLO RIPARIAN WIDTH L R (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS FLOW REGIME (At Time o. Stream Flowing) Subsurface flow with isolated COMMENTS	POPPLAIN QUA	PLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture theck ONLY one box): Moist Char	L Right (R) as	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	

3.0

Moderate to Severe

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

 None
 □
 1.0
 □
 2.0

 0.5
 □
 1.5
 □
 2.5

☐ Moderate (2 4/10) #)

Flat (0.5 g/190 t)

None
0.5

STREAM GRADIENT ESTIMATE

Flat Ic Moderate

ADDITIONAL STREAM INFORMATION (This information Must Also be Completed):	
QHEI PERFORMED? - Tyes You QHEI Score(If Yes, Attai	ch Completed QHEI Form)
OWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	
USGS Quadrangle Name: UEST POINT NRCS Soil Map P	Page: NRCS Soil Map Stream Order
County: COLUMBIANA Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): N Date of last precipitation:	Quantity:
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations, Voucher collections optional ID number. Include appropriate field data sheets from the Principle.	II. NOTE: all voucher samples must be labeled with the site
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N)	
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebra	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM	. —
include important fandmarks and other features of interest for site evaluation a	nd a narralive description of the stream's location
Include important tandmarks and other features of Interest for site evaluation as	1 Roces +
Collision a	
- Wak	
FLOW - S-1650 Grav	1
5-1650 grav	
180	Cost
Successional fo	13/
5	Y/

Appendix F:

Ohio Department of Natural Resources and U.S. Fish and Wildlife Service Correspondence



Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

Ohio Division of Wildlife Sue Howard, Acting Chief 2045 Morse Rd., Bldg. G Columbus, OH 43229-6693 Phone: (614) 265-6300

November 12, 2015

Lynn Gresock South Field Energy LLC 2 Lan Dr. Westford, MA 01886

Dear Ms. Gresock,

Per your request, I have e-mailed you a set of shapefiles with our Natural Heritage Program data for the South Field Energy Transmission Line Routes project, including a one mile radius, in Madison and Yellow Creek Townships, Columbiana County, Ohio. This data will not be published or distributed beyond the scope of the project description on the data request form.

Records included in the data layer may be for rare and endangered plants and animals, geologic features, high quality plant communities and animal assemblages. Fields included are scientific and common names, state and federal statuses, as well as managed area and date of the most recent observation. State and federal statuses are defined as: E = endangered, T = threatened, P = potentially threatened, SC = species of concern, SI = special interest, FE = federal endangered, FT = federal threatened and A = recently added to inventory, status not yet determined.

The managed areas layer includes state, federal and county lands, as well as areas owned by non-profits, museums and other entities. Managed areas are sites under formal protection for their natural resources. Please be aware that this layer may not be complete and we are continually updating it as new information becomes available to us.

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. This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Please contact me at 614-265-6818 if I can be of further assistance.

Sincerely,

Debbie Woischke Ohio Natural Heritage Program

Debbie Worschhe

Office of Real Estate
Paul R. Baldridge, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6649
Fax: (614) 267-4764

December 24, 2015

Lynn Gresock Tetra Tech Inc. 238 Littleton Road, Ste. 201B Westford, MA 01886

Re: 15-717; Threatened and Endangered Species Review, Information Request, East Ohio Energy

Project: The proposed project involves the construction of a combined-cycle electric generating facility and a potential infrastructure corridor

Location: The project is located in Yellow Creek Township, Columbiana County, Ohio.

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

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

Bowman's-root (Porteranthus trifoliatus), state threatened.

We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, state or national parks, state or national forests, or national wildlife refuges within the project area. The review was performed on the project area you specified in your request as well as an additional one mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity. Additional comments on some of the features may be found in pertinent sections below.

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

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

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

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

The project is within the range of the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.

The project is within the range of the channel darter (*Percina copelandi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.

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

The project is within the range of the eastern massasauga (*Sistrurus catenatus*), a state endangered and a federal candidate snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. Due to the location, the type of habitat present at the project site and within the vicinity of the project area, this project is not likely to impact this species.

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

The project is within the range of the black bear (*Ursus americanus*), a state endangered species. Due to the mobility of this species, this project is not likely to impact this species.

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

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler ODNR Office of Real Estate 2045 Morse Road, Building E-2 Columbus, Ohio 43229-6693 John.Kessler@dnr.state.oh.us

Laura Sayre

From: Gresock, Lynn < Lynn.Gresock@tetratech.com>
Sent: Wednesday, January 13, 2016 1:10 PM

To: Laura Sayre

Subject: FW: South Field Energy 345kV Transmission Line Routes, Columbia Co. OH

From: susan_zimmermann@fws.gov [mailto:susan_zimmermann@fws.gov] On Behalf Of Ohio, FW3

Sent: Tuesday, November 24, 2015 2:57 PM

To: Gresock, Lynn < Lynn.Gresock@tetratech.com>

Subject: South Field Energy 345kV Transmission Line Routes, Columbia Co. OH



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



TAILS# 03E15000-2016-TA-0195

Dear Ms. Gresock,

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

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

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-**

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

The proposed project is in the vicinity of one or more confirmed records of northern long-eared bats. Therefore, we recommend that trees ≥3 inches dbh be saved wherever possible. Because the project will result in a small amount of forest clearing relative to the available habitat in the immediately surrounding area, habitat removal is unlikely to result in significant impacts to Indiana bats or northern long-eared bats. Since northern long-eared bat presence in the vicinity of the project has been confirmed and presence of Indiana bats is assumed, clearing of trees during the summer roosting season may result in direct take of individuals. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and tree removal is unavoidable, we recommend that removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Following this seasonal tree clearing recommendation should ensure that any effects to Indiana bats and northern long-eared bats are insignificant or discountable. Please note that, because northern long-eared bat presence has already been confirmed in the project vicinity, any additional summer surveys would not constitute presence/absence surveys for northern long-eared bats.

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

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

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

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

Sincerely,

Dan Everson

Field Office Supervisor

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

1/15/2016 3:28:56 PM

in

Case No(s). 15-1717-EL-BTX

Summary: Application Appendix H - Wetland and Other Waters Delineation Report - Part 3 of 3 electronically filed by Mr. Scott M Guttman on behalf of South Field Energy LLC