ORAM Summary Worksheet

Wetland 21

		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 MO	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 (10)	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	1	
	Metric 2. Buffers and surrounding land use	9	
	Metric 3. Hydrology	13,5	
	Metric 4. Habitat	8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	33.5	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 (including 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	(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 of information for this determination should be provided.	

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name: Nathan Noland	
Date: 1/3/2020	
Affiliation: Stanter Consulting Services, Inc.	
Address: 11687 Lebanon Rd. Cincinnati, OH	
Phone Number:	
513-847-8700 e-mail address:	
ratuan. noland @stanter.com	
Name of Wetland: Wetland 22	
Vegetation Communit(ies):	
HGM Class(es): Slope	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
The vernor	
650 X /2	
2 1 2	
62	
1- I Newark	
Lat/Long or UTM Coordinate 40,335408, -82,498656	
USGS Quad Name Homer 7.5x7,5 Minute	
County Knox Co,	
Township TSN, RI3W	
Section and Subsection	
Hydrologic Unit Code 050400030304	
Site Visit 1/3./2020	
National Wetland Inventory Map	
Ohio Wetland Inventory Map	
Soil Survey	
Delineation report/map See Ecological Resource Inventory Report	

Name of Wetland: Wetland 7	22	
Wetland Size (acres, hectares): 0.36	ac	
Sketch: Include north arrow, relationship with	other surface waters, vegetation zones, etc.	1
Ceclo	de le le le	
Stream /3/11/12	Knot child	3,
1 /10	referion > u u	Com Com
7	D D	3 N
	A W	12 Low
1	11	K
1 1	•	1
AT A		7
07		1/
	1	1/2
	7	PF
		1 10
1 1		11/
· 3		1
1/1 3	1	~/
1 1		1
1 2 3	u les	1//
3 200	1	//
S OF 7	The	e ^{der} .
1/1	1	
Comments, Narrative Discussion, Justification	n of Category Changes:	
	2	4.4
See kcolonical	Resource Inventory Ker	-01 T
Final score: 32	Category:	Z
30	-attogory.	6

Scoring Boundary Worksheet

Wetland 22

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.	V	
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.	V	
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.	V	
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.	V	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.		

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	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	has had critical habitat proposed (65 FR 41812 July 6, 2000). Threatened or Endangered Species. Is the wetland known to contain	YES	(NO)
4	an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question 3
		Go to Question 3	0
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	YES	(NO)
	contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland	Go to Question 5
		Go to Question 5	1
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	YES	(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%?	Wetland is a Category 3 wetland	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that	Go to Question 7	(NO)
	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%?	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	YES	(NO)
	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?	Wetland is a Category 3 wetland. Go to Questlon 8b	Go to Question 8b

Wetland ZZ

8b	Mature forested wetlands. Is the wetland a forested wetland with	YES	(NO)
	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?	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	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to	YES YES	NO NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	11
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	Go to Question 9d	Go to Question 10
d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
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	NO Go to Question 10
		Go to Question 10	0
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	YES	(NO)
	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	Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
	type of wetland and its quality.		1
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	YES	(NO)
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	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,	evaluated for possible Category 3 status	Quantitative Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Wetland ZZ

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	5 55		
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

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

Site: Wetl	and 22	Rater(s): / \	oland	Date: 1/3/2020
2 2	Metric 1.	Wetland Area (size).		
max 6 pts. subtotal	>50 acr 25 to <5 10 to <2 3 to <10 > 0.3 to < 0.1 to < <0.1 acr	ass and assign score. es (>20.2ha) (6 pts) 0 acres (10.1 to <20.2ha) (5 pts) 5 acres (4 to <10.1ha) (4 pts) acres (1.2 to <4ha) (3 pts) 3 acres (0.12 to <1.2ha) (2pts) 0.3 acres (0.04 to <0.12ha) (1 pt) res (0.04ha) (0 pts)		
8 10	Metric 2.	Upland buffers and sur	rounding land use	2.
max 14 pts. subtotal	WIDE. MEDIUI NARRO VERY N 2b. Intensity of su VERY L LOW. (MODER	rage buffer width. Select only one and assign Buffers average 50m (164ft) or more around M. Buffers average 25m to <50m (82 to <16 W. Buffers average 10m to <25m (32ft to VIARROW. Buffers average <10m (<32ft) are arounding land use. Select one or double to OW. 2nd growth or older forest, prairie, say old field (>10 years), shrub land, young sect ATELY HIGH. Residential, fenced pasture Urban, industrial, open pasture, row croppin	d wetland perimeter (7) ' i4ft) around wetland perimeter (4) <82ft) around wetland perimeter (ound wetland perimeter (0) check and average. vannah, wildlife area, etc. (7) ond growth forest. (5) , park, conservation tillage, new fa	1)
11 21		Hydrology.	-	
max 30 pts. subtota	High ph- Other g Precipit Season Perenni 3c. Maximum wat >0.7 (2) 0.4 to 0 <0.4m (3e. Modifications	al/Intermittent surface water (3) al surface water (lake or stream) (5) er depth. Select only one and assign score f.6in) (3) 7m (15.7 to 27.6in) (2) <15.7in) (1) to natural hydrologic regime. Score one or	Part of wetland Part of riparian 3d. Duration inundation/s Semi- to perma Regularly inun Seasonally inun Seasonally sat double check and average.	plain (1) m/lake and other human use (1) d/upland (e.g. forest), complex (1) or upland corridor (1) caturation. Score one or dbl check anently inundated/saturated (4) dated/saturated (3)
	Recove Recove		point source (r filling/grading road bed/RR ti dredging	nonstormwater) rack
9 30	Metric 4.	Habitat Alteration and	Development.	
max 20 pts. subtota	None of Recove Recove Recent 4b. Habitat devel Exceller Very go Good (6 Modera Fair (3) Poor to Poor (1 4c. Habitat altera	ring (2) or no recovery (1) opment. Select only one and assign score. it (7) od (6) i) tely good (4) fair (2) tion. Score one or double check and average chapter none apparent (9) Check all disturbance	ge.	removal
30 subtotal this	Recove		herbaceous/ac sedimentation dredging	quatic bed removal

last revised 1 February 2001 jjm

32

End of Quantitative Rating. Complete Categorization Worksheets.

0

2

Absent

of marginal quality

and of highest quality

Present very small amounts or if more common

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

Present in moderate or greater amounts

ORAM Summary Worksheet

Wetland 22

			Welland.
		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 MO	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	
	Metric 2. Buffers and surrounding land use	8	
	Metric 3. Hydrology	ĬĬ	
	Metric 4. Habitat	9	
	Metric 5. Special Wetland Communities	Ó	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	32	Category based on score breakpoints / ov Z gray Tov

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Wetland 22

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 greater than the Category 2 scoring threshold (including 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?	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	NO 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, loca 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.	

Fin	al Category \	
Choose one Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Instructions

The investigator is STRONGLY URGED to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland may be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is VERY IMPORTANT to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: Agran Kwalek	
Date: 1/13/Z/	
Affiliation: 5-lantec	
Address: 11687 Lebanon Add Cincinnetti OH 45241	
Phone Number: 513 842 8200	
e-mail address: Acron. Knolek @ Stanter, com	
Name of Wetland: Wetland 23	
Vegetation Communit(les):	
HGM Class(es): Deocessions	
Location of Wetland; include man, address, north arrow landmarks, distances, roads, etc.)	1
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USGS Quad Name Ubics	
County Licking	
Township T3N	
Section and Subsection QSV R IZW	
Hydrologic Unit Code 0504000 60Z05	
Site Visit 1/13/21	
National Wetland Inventory Map	
Ohio Wotland Inventory Map	
Soil Survey 517-51-0915 4:1t loam, 0-290 slopes, occasionally Flooded Delineation report/map SEE Fee logical Inventory Report	
SEE Feelogical Inventory Report	

ame of Wetland: Wetland 23			
etland Size (acres, hectares): 0,03 e	2		
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Scoring Boundary Worksheet

wetland 23

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.	/	
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.	1	
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.	/	
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.	/	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	/	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wellands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		-

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

Narrative Rating

wetland 23

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 welland 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 Welland 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	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the welland 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	NO 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 areai 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 Calegory 1 wetland Go to Question 6	Go to Question 6
	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly Sphagnum 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 Welland is a Category 3 welland Go to Question 7	Go to Question 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	NO) Go to Question 8a
Ba	"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 8th

86	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	(NO)
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	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)
04	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	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 Welland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
90	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	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Calegory 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES	NO
		Welland should be evaluated for possible Category 3 status	Go to Question 10
		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	YES	NO)
	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	Wetland is a Category 3 wetland:	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	NO
	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,	Wetland should be evaluated for possible Category 3 status	Complete Quantitative Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria Myriophyllum spicaum Najas minor Phalaris arundinacea Phragmites auswalis Potamogeton crispus Ranunculus ficaria Rhamuus frangula Typha angustifolia Typha xglauca	Zvgadenus elegans var glaueus Cacalia plantagmea Carex flava Carex sterilis Carex streta Deschampsia eaespitaxa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruicosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis Tofieldia glutinosa Triglochin maritimum Triglochin palustre	Calla palustris Carex atlantica var. capillacea Carex echinata Carex oligosperma Carex trisperma Chamuedaphne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus mucronatus Schechzeria palustris Sphagnum spp. Vaccinium macrocarpon Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris.difformis	Carcy crypiolepis Carex lasiocarpa Carex stricta Cladium mariscoides Calamagrostis stricta Calamagrostis canadensis Quercus palustris	Calamagrosiis canadensi Calamogrosiis strich Carex atherode Carex buxbaumi Carex pelliti Gariana andrewsi Helianthius grosseserratu. Liatris spicate Lysimachia quadriflore Lythrum alatun Pycnanthemum virginianun Silphium terebinthiaceun Sorghastrum nutani Spartina pectinate Solidago riddelli

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

Site: Wetla	md 23	Rater(s): ATE	Date: 1/13/21
00	Metric 1. Wetla	ind Area (size).	
max 6.pts. subtotal	10 to <25 acres (4 3 to <10 acres (1, 0.3 to <3 acres (0	na) (6 pts) 0.1 to <20.2ha) (5 pts) to <10.1ha) (4 pts) 2 to <4ha) (3 pts) 12 to <1.2ha) (2pts) (0.04 to <0.12ha) (1 pt)	
1 1		nd buffers and surroun	iding land use.
max 14 pts. subtotal	WIDE. Buffers av MEDIUM. Buffers NARROW. Buffers VERY NARROW. 2b. Intensity of surrounding VERY LOW. 2nd LOW. Old field (> MODERATELY H	r width. Select only one and assign score erage 50m (164ft) or more around welland average 25m to <50m (82 to <164ft) arous average 10m to <25m (32ft to <82ft) around we land use. Select one or double check an growth or older forest, prairie, savannah, 10 years), shrub land, young second growt (GH. Residential, fenced pasture, park, custnal, open pasture, row cropping, mining	d perimeter (7) und welland perimeter (4) ound welland perimeter (1) elland perimeter (0) did average wildlife area, etc. (7) vth forest. (5) onservation tillage, new fallow field. (3)
78	Metric 3. Hydr		
max 30 pts. subtotal	Perennial surface 3c Maximum water depth. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 <0.4m (<15.7in) (ater (5) If (3) Ident surface water (3) water (lake or stream) (5) Select only one and assign score.	3b. Connectivity. Score all that apply. 100 year floodplain (1) Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1) Part of riparian or upland corridor (1) 3d. Duration inundation/saturation. Score one or dbl chec Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) check and average.
	None or none app Recovered (7) Recovering (3) Recent or no reco	darent (12) Check all disturbances observed ditch	
3 11	Metric 4. Habi	at Alteration and Deve	lopment.
max 20 pts. subtotal	None or none app Recovered (3) Recovering (2) Recent or no rece 4b. Habitat development. S Excellent (7) Very good (6) Good (5) Moderately good Fair (3) Poor to fair (2)	very (1) select only one and assign score.	
	None or none app		shrub/sapling removal
11	Recovering (3) Recent or no reco	grazing	herbaceous/aquatic bed removal sedimentation dredging farming nutrient enrichment
subtotal this plast revised 1 Februa			

Site: vet and Z3 Rater	(s): A5	Date: 1/13/2/
Subtotal Trist page Metric 5. Special Wetlan	ıds.	
Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-t Lake Erie coastal/tributary wetland-t Lake Plain Sand Prairies (Oak Oper Relict Wet Prairies (10) Known occurrence state/federal three Significant migratory songbird/water Category 1 Wetland. See Question Metric 6. Plant commun	restricted hydronings) (10) eatened or end fowl habitat or 1 Qualitative F	angered species (10) rusage (10)
3 2		and parameters and parameters.
max 20 pts subtotal 6a. Wetland Vegetation Communities.		Community Cover Scale
Score all present using 0 to 3 scale. Aquatic bed Emergent Shrub	1	Absent or comprises <0.1ha (0.2471 acres) contiguous area Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a
Forest Mudflats Open water	2	significant part but is of low quality Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
6b horizontal (plan view) Interspersion	3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality
Select only one.	Navrativa D	location of Vessier Ovelity
High (5) Moderately high(4) Moderate (3)	low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
Moderately low (2) Low (1) None (0) 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add	mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)	high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp
Nearly absent <5% cover (0)		2 2
Absent (1)	-	d Open Water Class Quality
6d. Microtopography.	0	Absent <0.1ha (0.247 acres)
Score all present using 0 to 3 scale. Vegetated hummucks/tussucks	2	Low 0.1 to <1ha (0.247 to 2.47 acres) Moderate 1 (o <4ha (2.47 to 9.88 acres)
Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more
Slanding dead >25cm (10in) dbh Amphibian breeding pools		graphy Cover Scale
The state of the s	0	Absent
	= 1	Present very small amounts or if more common of marginal quality
	2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
	3	Present in moderate or greater amounts and of highest quality

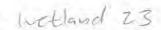
End of Quantitative Rating. Complete Categorization Worksheets.

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 (O)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
277774	Metric 2. Buffers and surrounding land use		
	Metric 3. Hydrology	7	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	-3	
	TOTAL SCORE	8	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet | Local 23



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 Welland is categorized as a Category 3 welland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the welland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the welland 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 calegorized as a Calegory 1 wetland	NO)	Is quantitative rating score greater than the Category 2 scoring threshold (including 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 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 moderale 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 Welland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	NO 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, loca 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
Category 2 Choose one Category 1 Category 3

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Metho 10 Page Form for Wetland Cat	
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is STRONGLY URGED to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is VERY IMPORTANT to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wctlands/WetlandEcologySection.aspx

Background Information

Name: Agran Kwalek
Date: (/)3/7/
Affiliation: Stantec
Addrose
Phone Number:
e-mail address:
Name of Wetland:
Vegetation Communities):
HGM Class(es):
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.
trestnat Hills Rd
that Hill-
HIIIS Rd
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01111
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Lat/Long or UTM Coordinate 40.134771, -87,461477
USGS Quad Name Uticg
County Licking
Township T3N
Section and Subsection Q5 W RIZW
Hydrologic Unit Code 050460060205
Site Visit 1/13/71
National Wetland Inventory Map
Ohio Wetland Inventory Map
Soil Survey Sh-Strog's silt losm, 0-2% slopes, occasionally flooded
Delineation report/map See Ecological Inventory Repost
The Ecological Printer of 1-chose

Name of Wetland: Wetland 24	
Wetland Size (acres, hectares): 0 / 9 C	numbers vegetation range atc
Sketch: include north arrow, relationship with other s	durace waters, vegetation zones, etc.
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	hetland 24
	(ENI
	/
X	
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Cern	155
upland esp55x	Sbw 1
(4855)	2
/	
Comments, Narrative Discussion, Justification of Cat	egory Changes:
inal score: 26	Category: /

Scoring Boundary Worksheet

wetland 24

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.

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Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.		
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.	/	
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.	/	
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.	/	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	/	
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.	/	

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

Narrative Rating

wetland 24

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 Welland 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 welland?	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 Welland is a Calegory 3 welland Go to Question 5	NO So 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	NO 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 Sphagnum 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
Z	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	NO 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

Inetland 24

			1
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 Welland should be evaluated for possible Calegory 3 status. Go to Question 9a	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the welland 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 welland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the welland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Calegory 3 status	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence,	Go to Question 10	NO
	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.	Go to Question 9d	Go to Question 10
9d	Does the welland 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	NO Go to Question 9e
		Go to Question 10	
9e	Does the welland 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	YES /	NO)
	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.	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 Quantilative Rating

Table 1.	Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria Myriophyllum spicatum Najas minor Phalaris arundinacea Phragmites australis Potaniogeton crispus Ranunculus ficaria Rhamnus frangula Typha angustifolia Typha xglauca	Zygadenus elegans var. glaucus Cacalia plantaginea Carex flava Carex sterilis Carex stricta Deschampsia caespitosa Eleocharis rostellaia Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla frutcosa Rhammus alnifolia Rhynchospora capillacea Salix candida Salix nvricoides Salix serissima Solidago ohioensis Tofieldia glutinosa Triglochin maritimum Triglochin palustre	Calla palustris Carex atlamica var. capillacea Carex echinala Carex oligosperma Carex Irisperma Chamaedaphne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus nuoronatus Schechzeria palustris Sphagnum spp. Vaccinium macrocarpon Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris difformis	Carex cryptolepis Carex lasiocarpa Carex stricta Cladium mariscoides Calamagrostis stricta Calamagrostis canadensis Quercus palustris	Calamagrostis canadensi. Calamogrostis stricta Carex atherode. Carex beusbaumi Carex sellita Carex sartwelli Gentiana andrewsi Helianthus grosseserrand Liatris spicate Lysimachia quadrillora Lythrum alatun Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum nutans Spartina pectinata Solidago riddellii

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

Rater	s):	A-	T	K
				-	

Site.	1000	10 Cl 24	Rater(s):	Date: 1/15/7-1
		Metric 1 Wetland A	roa (ciza)	
1		Metric 1. Wetland A	irea (Size).	
тах 6 pts	subtotal	Select one size class and assign sco >50 acres (>20.2ha) (6 pts 25 to <50 acres (10.1 to) 20,2ha) (5 pts) (ha) (4 pts) a) (3 pts) ,2ha) (2pts) =0,12ha) (1 pt)	
3	4	Metric 2. Upland bu	iffers and surroun	ding land use.
max 14 pts.	Subtotal	MEDIUM. Buffers average NARROW. Buffers average VERY NARROW. Buffers 2b. Intensity of surrounding land use VERY LOW. 2nd growth o LOW. Old field (>10 years MODERATELY HIGH. Re	om (164ft) or more around wetland a 25m to <50m (82 to <164ft) around the 10m to <25m (32ft to <82ft) around average <10m (<32ft) around wetlet. Select one or double check and or older forest, prairie, savannah, web), shrub land young second growth.	perimeter (7) nd wetland perimeter (4) und wetland perimeter (1) land perimeter (0) d average. vildlife area, etc. (7) In forest. (5) nservation tillage, new fallow field. (3)
16	20	Metric 3. Hydrology		1 4416
max 30 pts	subtotal	3a. Sources of Water Score all tha High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface Perennial surface water (la 3c. Maximum water depth. Select of >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) -0.4m (<15.7in) (1) 3e. Modifications to natural hydrology	ace water (3) ske or stream) (5) nly one and assign score.	b. Connectivity. Score all that apply 100 year floodplain (1) Between stream/lake and other human use (1 Part of wetland/upland (e.g. forest), complex (Part of riparian or upland corridor (1) Duration inundation/saturation. Score one or dbl che Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) neck and average.
		None or none apparent (1) Recovered (7) Recovering (3) Recent or no recovery (1)		
2	23	Metric 4. Habitat A	teration and Devel	opment.
max 20 pts.	subtota'	4a. Substrate disturbance. Score of None or none apparent (4). Recovering (2). Recent or no recovery (1). Habitat development. Select on Excellent (7). Very good (6). Good (5). Moderately good (4). Fair (3). Poor to fair (2). Poor (1). Ac. Habitat alleration. Score one or None or none apparent (9). Recovered (6).	ly one and assign score. double check and average.	shrub/sapling removal
	73	Recovering (3) Recent or no recovery (1)	grazing clearcutting selective cutting woody debris removal toxic pollutants	herbaceous/aquatic bed removal sedimentation dredging farming nutrient enrichment

subtotal this page last revised 1 February 2001 jjm

Site:	wetle	not	24	F	Rater(s):	AT	Ic .	Date: ///3/2
	23							1
0	23	1	ric 5. Spe	ecial We	etlands.			
nav 10 ots	subtolal	Check	all that apply and Bog (10) Fen (10) Old growth for Mature foreste Lake Erie coas Lake Plain Sai Relict Wet Pra	est (10) d welland (5) stal/tributary w stal/tributary w nd Prairies (Oa iries (10)	etland-unrestr etland-restricte ak Openings) (ed hydro 10)	logy (5)	
2		Met	Significant mig Category 1 W	ratory songbir etland. See Q	d/water fowl house	abitat or litative R		otopography.
nax 20 pts	Z-S	-						otopograpity,
nax zu piş	and the same		etland Vegetation all present using (Veg	etation	Community Cover Scale	(0.2471 acres) contiguous area
		Score	Aquatic bed Emergent Shrub	TO S SCALE.		1	Present and either comprises vegetation and is of modera significant part but is of low	small part of wetland's ate quality, or comprises a
			Forest Mudflats Open water			2	part and is of high quality	ate quality or comprises a sma
		6b. hor	Other rizontal (plan view	v) Interspersio	n.	3	Present and comprises signification and is of high qui	cant part, or more, of wetland ality
		Select	only one.		Nas	entino D		
			High (5) Moderately high	h(4)	Nai	low	escription of Vegetation Quali Low spp diversity and/or pred	
			Moderate (3)	6.47.16		1011	disturbance tolerant native s	
			Moderately love Low (1) None (0) Verage of invasive 1 ORAM long for	e plants. Refe		mod		disturbance tolerant native spr pecies diversity moderate to ally w/o presence of rare
		or dedu	Extensive >75 Moderate 25-7 Sparse 5-25%	% cover (-5) '5% cover (-3) cover (-1)		high		native spp absent or virtually ity and often, but not always,
			Nearly absent Absent (1)	<5% cover (0		iflat and	d Open Water Class Quality	
		6d Mir	crotopography		WILL	0	Absent <0.1ha (0.247 acres)	
			all present using (to 3 scale.	-	1	Low 0.1 to <1ha (0.247 to 2.4	
			Vegetated hur	nmucks/tussu		2	Moderate 1 to <4ha (2.47 to	9.88 acres)
			Coarse woody			3	High 4ha (9.88 acres) or more	9
			Standing dead Amphibian bre			rotonos	raphy Cover Scale	

25

End of Quantitative Rating. Complete Categorization Worksheets.

Absent

and of highest quality

Present very small amounts or if more common of marginal quality

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

Present in moderate or greater amounts

ORAM Summary Worksheet

refland 24

		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 (10)	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	1	
	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	16	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	25	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet Lettend 24

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 Welland 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 greater than the Category 2 scoring threshold (including 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 Welland 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?	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, loca 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.	

		al Category	
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet

Instructions

The investigator is STRONGLY URGED to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland may be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is VERY IMPORTANT to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: Agron Knolek	
Date: 1/13/2/	
Affiliation: Stanfec	
Address: 11687 Lobanon Rd Cincinnati, 014	45241
Phone Number: 513 842 8200	
e-mail address: Accon, Kuclek @ stantec, com	
Name of Wetland: wetland 25	
Vegetation Communit(ies):	
HGM Class(es): Depressione Riverine Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
Comment of the contract of the	
Lat/Long or UTM Coordinate 40.128463 -82.456388	
USGS Quad Name Uticy	
County Licking	
Township T3 N	
Section and Subsection QSW RIZW	
Hydrologic Unit Code 0564 5Co 6 0 2 05	
Site Visit 1/13/21	
National Wetland Inventory Map	
Ohio Welland Inventory Map	
Soil Survey GFA-Glenford Silt logm, 0-2505/qpes Delineation report/map See Ecological Inventory Report	
See Ecological Inventory Report	

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.		
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.		
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.	/	
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.	V	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	5	
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.		

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

without 25

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/dhap. 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	NO 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	NO Go to Question 3
3	Documented High Quality Wetland. Is the welland 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	NO 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 Sphagnum 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 Welland is a Category 3 welland Go to Question 7	NO Go to Question 7
Z	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	NO So to Question 8b

86	Mature forested wetlands. Is the wetland a forested wetland with	YES	NO
	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?	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)
9b	elevation, or along a tributary to Lake Erie that is accessible to fish? Does the wetland's hydrology result from measures designed to	Go to Question 9b	Go to Question 10
	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	NO Go to Question 9c
OC.	Are Lake Ene water levels the waller for second to the level of	Go to Question 10	NO
50	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	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
_		Ga to Question 10	
9e	Does the welland 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	YES (NO
	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	Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
	type of wetland and its quality.		
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 Myriophyllum spicatum Najas minor Phalaris arundinacea Phragmites australis Polamageton crispus Ranunculus ficuria Rhammus frangula Typha angustifolia Typha aglauca	Zygadenus elegans var. glaucus Cacalia plantaginea Carex slava Carex sterills Carex stricta Deschampsia caespitosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruticosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis Tofieldia glutinosa Triglochin maritimum Triglochin palustre	Calla palustris Carex atlantica var, capillacea Carex echinata Carex oligosperma Chamaedaphne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus mucronatus Schechzeria palustris Sphagnum spp. Vaccinium macrocarpon Vaccinium corymbosum Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris difformis	Carex cryptolepis Carex lasiocarpa Carex stricta Cladium marissoides Calamagrostis stricta Calamagrostis canadensis Quercus palustris	Calamagrostis canadensi. Calamogrostis stricto Carex atherode. Carex busbaumi Carex pellitic Carex sartwelli Gentiana andrewsi Helianthus grosseserratu. Liatris spicate Lysimachia quadrifloro Lythrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum mutan. Spartina pectinata Solidago riddelli

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

Site: Wetla	nd 25	Rater(s): A	JK	Date: 1/13/2/
2 2	Metric 1. Wetla	and Area (size).		
max 6 pts subtotal	10 to <25 acres (4 3 to <10 acres (1, 0,3 to <3 acres (0	na) (6 pts) 0.1 to <20.2ha) (5 pts) to <10.1ha) (4 pts) 2 to <4ha) (3 pts) 12 to <1.2ha) (2pts) (0.04 to <0.12ha) (1 pt)		
3 5		nd buffers and su	rrounding la	nd use.
max 14 pts subtotal	WIDE. Buffers av. MEDIUM. Buffers NARROW. Buffers VERY NARROW. 2b. Intensity of surrounding VERY LOW. 2nd LOW. Old field (2) MODERATELY H	er width. Select only one and as erage 50m (164ft) or more arous average 25m to <50m (82 to < s average 10m to <25m (32ft to Buffers average <10m (<32ft): land use. Select one or double growth or older forest, prairie, s 10 years), shrub land, young se IGH. Residential, fenced pasturustrial, open pasture, row cropp	nd welland perimeter (7 164ft) around welland p o <82ft) around welland around welland perimete e check and average, avannah, wildlife area, e cond growth forest (5) re, park, conservation til) erimeter (4) perimeter (1) er (0) etc, (7) lage, new fallow field. (3)
10/15	Metric 3. Hydr		ing, mining, construction	ALL)
max 30 pts. subtotal	Perennial surface 3c, Maximum water depth >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 <0.4m (<15.7in) (ater (5) er (3) Itent surface water (3) water (lake or stream) (5) Select only one and assign sco to 27.6in) (2)	3d. Duration ire.	ority Score all that apply. It year floodplain (1) It of wetland/upland (e.g. forest), complex (1) It of riparian or upland corridor (1) Inundation/saturation. Score one or dbl chemi- to permanently inundated/saturated (4) It of riparian or upland corridor (1) Inundation/saturation. Score one or dbl chemi- to permanently inundated/saturated (4) It openantly inundated/saturated (3) It openantly inundated (2) It openantly inundated (2) It openantly inundated (1) It openantly inundated (2) It openantly inundated (1) It openantly inundated (1) It openantly inundated (2) It openantly inundated (1) It openantly inundated (1) It openantly inundated (2) It openantly inundated (1) It openantly inundated (2) It openantly inundated (2) It openantly inundated (1) It openantly inundated (2) It openantly inundated (2) It openantly inundated (2) It openantly inundated (3) It openantly inundated (4) It openantly inundated (3) It openantly inundated (3) It openantly inundated (4) It openantly in
	None or none app Recovered (7) Recovering (3) Recent or no reco	Check all disturbance ditch tile	ces observed poi	nt source (nonstormwater) ig/grading d bed/RR track dging
3 18	Metric 4. Habi	tat Alteration and		nt.
max 20 pts subtotal	None or none app Recovered (3) Recovering (2) Recent or no recovered Ab. Habitat development. Structured (7) Very good (6) Good (5) Moderately good Fair (3) Poor to fair (2)	ivery (1) Select only one and assign score	a.	
	None or none app		ces observed shr	ub/sapling removal
18	Recovering (3) Recent or no reco	grazing	ng dre removal fan	baceous/aquatic bed removal dimentation dging ming rient enrichment
ast revised 1 Februar	1777			

6c. Coverage of invasive plants, Refer

to Table 1 ORAM long form for list. Add

Extensive >75% cover (-5)

Sparse 5-25% cover (-1) Nearly absent <5% cover (0)

Moderate 25-75% cover (-3)

Vegetated hummucks/tussucks

Coarse woody debris >15cm (6in).

Standing dead >25cm (10in) dbh Amphibian breeding pools

or deduct points for coverage

Absent (1)

Score all present using 0 to 3 scale.

6d. Microtopography

21

End of Quantitative Rating. Complete Categorization Worksheets.

high

0

1

3

2

moderately high, but generally w/o presence of rare

A predominance of native species, with nonnative spp.

and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always,

the presence of rare, threatened, or endangered spp

threatened or endangered spp

Absent < 0.1ha (0.247 acres)

High 4ha (9.88 acres) or more

of marginal quality

and of highest quality

Low 0.1 to <1ha (0.247 to 2.47 acres)

Moderate 1 to <4ha (2.47 to 9.88 acres)

Present very small amounts or if more common

Present in moderate amounts, but not of highest

quality or in small amounts of highest quality Present in moderate or greater amounts

Mudflat and Open Water Class Quality

Microtopography Cover Scale

O Absent

ORAM Summary Worksheet

Wetland 25

		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
	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	
, raming	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	10	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	21	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

wetland 25

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 Welland is categorized as a Category 1 welland	(NO)	Is quantitative rating score greater than the Category 2 scoring threshold (including 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, loca 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.

Choose one	Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Metho 10 Page Form for Wetland Cat	
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is STRONGLY URGED to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland may be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is VERY IMPORTANT to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To properly answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

A PART OF THE PART	
Name: Agray Kwolek	
Date: 1/13/2/	
Affiliation:	
Stantec Address:	
11687 Lebanon Rd, Cindingti OH 45	241
Phone Number: 513 84 Z 8 Z CC	
e-mail address: Aaron, Knolek & Stantec, com	
Name of Wetland: Wetland 26	
Vegetation Communities):	
HGM Class(os): PEM / PS5	
Depotssions / Riverine	
Location of Wetland: Include map, address, north arrow, landmarks, distances, roads, etc.	
reflored 26	
Deliver	
15	
10.3"	
Stury 3	
G Hills	
165 200	
willing 26 Crestant Hills Rd Cos	1.0
	1
Lat/Long or UTM Coordinate	4
10,124623, -84,933113	
USGS Quad Name Utics	
County Lie king	
Township T3N	
Section and Subsection & SW 212W	
Section and Subsection QSW 212W Hydrologic Unit Code 0564000 603.65	
Hydrologic Unit Code 0504000 60 2 05	
Site Visit 1/13/21	
Site Visit / 13 / 2 National Wetland Inventory Map Ohio Wetland Inventory Map	
Site Visit / \	
Site Visit / \	
Site Visit / \	

lame of Wetland 26	
Vetland Size (acres, hectares): 0, 19 GC	
Sketch: Include north arrow, relationship with other surface w	Main tained 10 - n
Comments, Narrative Discussion, Justification of Category Ch	anges:
Final score: 7 / 2	Category:

wetland 26.

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.	V	
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.	1	
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.	/	
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.		-
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	/	

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

Narrative Rating

Wetland 26

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.stale.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	Ga 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	NO 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	NO 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	NO 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 Sphagnum 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	YES	(NO)
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	Wetland should be evaluated for possible Calegory 3 status.	-66 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)
9b	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b YES	Go to Question 10
ρu	Does the welland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the welland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland	YES Go to Question 9d	NO Go to Question 10
	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.	Go to Question 90	Go to Guestion 10
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be evaluated for possible Category 3 status	Go to Question 10
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	YES (NO)
	Lucas, Fullon, 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	Wetland is a Category 3 wetland	Go to Question 11
	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	Go to Question 11	
11	type of wetland and its quality. Relict Wet Prairies. Is the wetland a relict wet prairie community.	YES	(NO)
	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 (Wyandol, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Wetland should be evaluated for possible Category 3 status	Complete Quantitative Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
Lythrum salicavia Myriophyllum spicatum Najas minor Pihalaris arundinacea Phragmites australis Potamogeton crispus Ramuneulus ficaria Rhamms frangula Typha angustifolia Typha sglauca	Zvgadėnus elegans var, glaucus Cacalia plantaginea Carex flava Carex sterilis Carex sterilis Carex sterila Deschampsia caespilosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla frinteosa Rhammis alnifolia Rhynchospora capillaeca Salix candida Salix myricoides Salix serissima Solidago ohtoensis Tofieldia glutinosa Triglochin maritimum Triglochin palustre	Calla palustris Carex atlantico var. capillacea Carex ochinata Carex oligosperma Carex trisperma Chamaedophne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus mucronatus Schechzeria palustris Sphagnum spp. Vaccinium macrocarpon Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris difformis	Carex cryptolepis Carex lasiocarpa Carex stricta Cladium mariscoides Calamagrostis stricta Calamagrostis canadensis Quercus palustris	Calamagrostis canadensi Calamagrostis stricto Carex atherode Carex buxbaumi Carex pelliti Carex sartwelli Gentiana andrewsi Helianthus grosseserratu. Liatris spicate Lysimachia quadriflora Lythrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghästrum nutans Spartina pectinata Solidago riddellii

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

Site: wetland	126	Rater(s): ATIC	Date: 1/13/2/
	Metric 1. Wetlan	nd Area (size).	
max 6 pts subtotal 5	Select one size class and ass	Nam sacan	
Company of the Compan	>50 acres (>20.2ha	ign score	
	25 to <50 acres (10	1.1 to <20 2ha) (5 pts)	
	10 to <25 acres (4)	lo <10.1ha) (4 pts)	
	3 to <10 acres (1.2	to <4ha) (3 pts)	
	0.3 to <3 acres (0.1	2 to <1.2ha) (2pts)	
	<0.1 acres (0.04ha	0.04 to <0.12ha) (1 pt)	
4 7		d buffers and surround	ing land use.
max 14 pts subtotal	2a. Calculate average buffer	width. Select only one and assign score. D	Do not double check.
	WIDE. Buffers ave	rage 50m (164ft) or more around wetland pe	erimeter (7)
		average 25m to <50m (82 to <164ft) around	
		average 10m (o <25m (32ft to <82ft) aroun Buffers average <10m (<32ft) around wetlar	
		and use. Select one or double check and a	
	VERY LOW 2nd g	rowth or older forest, prairie, savannah, wild	dlife area, etc. (7)
	LOW Old field (>1	0 years), shrub land, young second growth	forest. (5)
		GH. Residential, fenced pasture, park, cons	
		strial, open pasture, row cropping, mining, o	construction (1)
13 20	Metric 3. Hydro	logy.	
1) 40			
nax 30 pts subtotal	Sa. Sources of Water. Score	all that apply. 3b.	Connectivity. Score all that apply.
	High pH groundwat		100 year floodplain (1)
	Other groundwater Precipitation (1)	(3)	Between stream/lake and other human use (1
		ent surface water (3)	Part of wetland/upland (e.g. forest), complex (Part of riparian or upland corridor (1)
			Duration inundation/saturation. Score one or dbl chi
		Select only one and assign score	Semi- to permanently inundated/saturated (4)
	>0.7 (27.6in) (3)	salu nut	Regularly inundated/saturated (3)
	0.4 to 0.7m (15.7 to		Seasonally inundated (2)
	3e Modifications to natural h	lydrologic regime. Score one or double che	Seasonally saturated in upper 30cm (12in) (1)
	None or none appa		
	Recovered (7)	ditch	point source (nonstormwater)
	Recovering (3)	tile	filling/grading
	Recent or no recov	ery (1) dike	road bed/RR track
		weir	dredging
		stormwater input	other
	Matria A Habit	at Alteration and Develo	nmont
7.5 27,5	Wetric 4. Habita	at Aiteration and Develo	philetic.
max 20 pts. subtotal		version and the second second	
max 20 pts subtotal	None or none appa	Score one or double check and average,	
	Recovered (3)	tent (4)	
	Recovering (2)		
	Recent or no recov		
		elect only one and assign score.	
	Excellent (7)		
	Very good (6)		
	Good (5) Moderately good (4	N.	
	Fair (3)	1.	
	Poor to fair (2)		
	Poor (1)		
	lc. Habitat alteration. Score	one or double check and average.	
	None or none appa		
	Recovered (6)	mowing	shrub/sapling removal
	Recovering (3)	grazing	herbaceous/aquatic bed removal
	Recent or no recov		sedimentation
27,5		selective cutting woody debris removal	dredging
6/12		loxic pollutants	farming nutrient enrichment
subtotal this page		L Trocks Policiality	
st revised 1 February			

Site: Wetland Z	Rater Rater	(s): AT	Date: 1/13/2
0. 610	It hat apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/Iributary wetland- Lake Plain Sand Prairies (Oak Ope Relict Wet Prairies (10)	unrestricted hydrostricted hyd	
- 26,5 Metr	Known occurrence state/federal three Significant migratory songbird/wate Category 1 Wetland. See Question	r fowl habitat or 11 Qualitative R	usage (10)
max 20 pts. subtotal 6a. Wel	lland Vegetation Communities,	Vegetation	Community Cover Scale
Score al	present using 0 to 3 scale	0	Absent or comprises < 0.1ha (0.2471 acres) contiguous area
0	Aquatic bed Emergent Shrub	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
	Forest Mudflats Open water	2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
6b. hori	Other	3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality
Select o	nly one.		
	High (5)	Narrative D	escription of Vegetation Quality
	Moderately high(4) Moderate (3)	low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
	Moderately low (2) Low (1) None (0) erage of invasive plants. Refer 1 ORAM long form for list. Add	mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
or deduc	et points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)	high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp
	Nearly absent <5% cover (0)	Muddles	d Onen Water Class Quality
A	Absent (1)		d Open Water Class Quality
	otopography. I present using 0 to 3 scale.	0	Absent <0.1ha (0.247 acres) Low 0 1 to <1ha (0.247 to 2.47 acres)
pcore all	Vegetated hummucks/tussucks	- 2	Moderate 1 to <4ha (2.47 to 9.88 acres)
1	Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more
1	Standing dead >25cm (10in) dbh		Thigh this (state dates) of their
1100	Amphibian breeding pools	Microtopog	graphy Cover Scale
-		0	Absent
		1	Present very small amounts or if more common of marginal quality
		2	Present in moderate amounts, but not of highest

76,5

End of Quantitative Rating. Complete Categorization Worksheets.

quality or in small amounts of highest quality Present in moderate or greater amounts

and of highest quality

ORAM Summary Worksheet

wetland 26

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Calegory 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 (10)	If yes, evaluate for Category 3, may also be 1 or 2.
Quantitative Rating	Metric 1, Size	1	
, was in g	Metric 2. Buffers and surrounding land use	6	
	Metric 3. Hydrology	13	
	Metric 4. Habitat	7,5	
	Metric 5. Special Wetland Communities	G	
	Metric 6. Plant communities, interspersion, microtopography	-/	
	TOTAL SCORE	26.5	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet Wetland 76

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 Welland is categorized as a Category 3 welland	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 Welland should be evaluated for possible Category 3 status	NO	Evaluate the welland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the welland is determined to be a Category 3 welland using either of these, it should be categorized as a Category 3 welland. Detailed biological and/or functional assessments may also be used to determine the welland'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 greater than the Category 2 scoring threshold (including 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?	Welland is assigned to the appropriate category based on the scoring range	00	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	2	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 Welland 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, loca 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.

Choose one	Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

NORTH NEWARK-SHARP ROAD 138 KV TRANSMISSION LINE REBUILD PROJECT ECOLOGICAL RESOURCES INVENTORY REPORT

April 23, 2021

D.3 HHEI AND QHEI DATA FORMS



Primary Headwater Habitat Field Evaluation Form HHEI Score (sum of metrics 1+2+3)	-D
SITE NAMELOCATION North Neway & Shave Road 138 KV Training Live Rehald P. SITE NUMBER STREAM REACH (FI) 200 LAT 40.09353 N LONG 92.44159 W RIVER MILE DATE 20191211 SCORER ATK COMMENTS artificial draining. NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	m12
STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO	RECOVER
TYPE	HHEI Metric Points Substrate Max = 40
	ool Depti Max = 30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [45 pts]	Bankfull Width Max=30
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream* RIPARIAN WIDTH L R (Per Bank) L R L R Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial Victor of Pasture, Row Crop None Residential Park New Field Mining or Construction COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing	

Stream 1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? Yes No	QHEI Score (If Yes, Attach Completed QHEI form)
DOWNSTREAM DESIGNATED USE(S	,
WWH Name: Log Pond Run CWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS,	INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.
	NRCS Soil Map Page: NRCS Soil Map Stream Order:
County: Licking	Township/City: Newark.
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of	last precipitation: 12 11 19 Quantity: 40,1
Photo-documentation Notes:	
Elevated Turbidity?(Y/N):	(% open): 100
Were samples collected for water chemistry? (Y	(/N): Lab Sample # or ID (attach results):
Field Measures:Temp (°C)	Oxygen (mg/l)pH (S.U.) 11.3 Conductivity (umhos/cm)
Is the sampling reach representative of the stream	am (Y/N) If not, explain:
Additional comments/description of pollution imp	pacts: Road runoff
	BIOLOGICAL OBSERVATIONS (Record all observations below)
Fish Observed? (Y/N) Species observ	ved (if known):
Frogs or Tadpoles Observed? (Y/N) Sp	ecies observed (if known):
Salamanders Observed? (Y/N) Species	observed (if known);
Aquatic Macroinvertebrates Observed? (Y/N)_	Species observed (if known):
	observed
	E DESCRIPTION OF STREAM REACH (This <u>must</u> be completed) r features of interest for site evaluation and a narrative description of the stream's location
outfall	
FLOW	cover in stream
00	cover in stream
Maintained	200/

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

AKK & SO/ 2 Pag Pond Run)

tream	20	-09	PONO
QHEI :	Scor	e:	48,75

Stream & Location: North Nework-Strack 2d 138 KU Transmission Line RM:	Date: Z 9
Rebuild Protect, Low Road Run Scorers Full Name & Affiliation: A Kun	olek/ stantes
River Code: STORET #:	4438 Office verified location □
1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present Check ONE (Or 2 &	
BEST TYPES POOL RIFFLE OTHER TYPES POOL RIFFLE ORIGIN	QUALITY
D BLDR /SLABS [10] D HARDPAN [4] LIMESTONE [1]	☐ HEAVY [-2]
BOULDER [9] DETRITUS [3] WETLANDS [0] SILT	MODERATE [-1] Substrate
GRAVEL [7] SILT [2] WETLANDS [0] HARDPAN [0]	FREE [1]
SAND ISI SAND ISI SAND STONE [0] ARTIFICIAL [0] SANDSTONE [0] ADDEA	EXTENSIVE [-2]
Score natural substrates; ignore RIP/RAP [0]	Maximum 20
NOWBER OF BEST TIE EST 3 OF less [0]	□ NONE [1] -1.5
Comments	
diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.	Channel Channel MAMOUNT Check ONE (Or 2 & average) EXTENSIVE >75% [11] MODERATE 25-75% [7] SPARSE 5-<25% [3] NEARLY ABSENT <5% [1] Cover Maximum 20 Channel Maximum 20
NONE / LITTLE [3] MODERATE 10-50m [3] SHRUB OR OLD FIELD [2] Indicate Indica	CONSERVATION TILLAGE [1] JRBAN OR INDUSTRIAL [0] MINING / CONSTRUCTION [0] Predominant land use(s) Om riparian. Riparian
Comments	Maximum 10
5] POOL / GLIDE AND RIFFLE / RUN QUALITY	Recreation Potential
*MAXIMUM DEPTH CHANNEL WIDTH CURRENT VELOCITY Check ONE (ONLY!) Check ONE (Or 2 & average) Check ALL that apply	Primary Contact
> 1m [6] POOL WIDTH > RIFFLE WIDTH [2] TORRENTIAL [-1] SLOW [1]	Secondary Contact
0.7-<1m [4] POOL WIDTH = RIFFLE WIDTH [1] VERY FAST [1] INTERSTITIAL [-1]	(circle one and comment on back)
0.4-<0.7m [2] □ POOL WIDTH < RIFFLE WIDTH [0] □ FAST [1] □ INTERMITTENT [-2] □ 0.2-<0.4m [1] □ EDDIES [1]	Pool /
O.2m [0] Indicate for reach - pools and riffles.	Current
Comments	Maximum 12
BEST AREAS > 10cm [2] MAXIMUM > 50cm [2] STABLE (e.g., Cobble, Boulder) [2] SEST AREAS 5-10cm [1] MAXIMUM < 50cm [1] MOD. STABLE (e.g., Large Gravel) [1] SEST AREAS < 5cm UNSTABLE (e.g., Fine Gravel, Sand) [0]	NO RIFFLE [metric=0] NEMBEDDEDNESS ONE [2] OW [1] ODERATE [0] Maximum Maximum 8
61 GRADIENT () / A Marily CI VERYLOW LOW 12 41	
6] GRADIENT (46.5 ft/mi) VERY LOW - LOW [2-4] %POOL: 6 %GLIDE WITH MICH - VERY HIGH [10-6] %RUN: 70 %RIFFLE	Maximum

F] MEASUREMENTS bankfull max. depth Roodprone x2 width bankfull x depth x bankfull width Comment RE: Reach consistency/Is reach typical of steam? Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc. entrench. ratio egacy Tree: max. depth W/D ratio x depth x width LOGGING / IRRIGATION / COOLING HARDENED / URBAN / DIRT&GRIME FALSE BANK / MANURE / LAGOON BMPs-CONSTRUCTION-SEDIMENT NATURAL / WETLAND / STAGNANT WWTP / CSO / NPDES / INDUSTRY ACID / MINE / QUARRY / FLOW ATMOSPHERE / DATA PAUCITY BANK / EROSION / SURFACE WASH H₂0 / TILE / H₂0 TABLE PARK / GOLF / LAWN / HOME CONTAMINATED / LANDFILL EJ ISSUES gravel bottom Circle some & COMMENT 010 5410 50/2 PUBLIC / PRIVATE / BOTH / NA ACTIVE (HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD FLOOD CONTROL / DRAINAGE MODIFIED / DIPPED OUT / NA MOVING-BEDLOAD-STABLE IMPOUNDED / DESICCATED SPRAY / SNAG / REMOVED DI MAINTENANCE RELOCATED / CUTOFFS **ARMOURED / SLUMPS** ISLANDS / SCOURED LEVEED / ONE SIDED Doton tici INVASIVE MACROPHYTES ☐ CSOs/SSOs/OUTFALLS **BJAESTHETICS** NUISANCE ALGAE **EXCESS TURBIDITY** ☐ SLUDGE DEPOSITS POOL: □>100ft2□>3ft AREA DEPTH ☐ NUISANCE ODOR DISCOLORATION ☐ TRASH / LITTER 0 FOAM / SCUM OIL SHEEN Ó 11=HV CJ RECREATION ES ☐ SECCHI DEPTH☐ D'NORMALEI DLOW 1st -sample pass- 2nd 1st --sample pass-□ > 70 cm/ CTB CLARITY STAGE D-20-<40 cm HIGH | Stream Drawing. AJ SAMPLED REACH □ 40-70 cm Check ALL that apply □ < 20 cm <10%-CLOSED □ > 85%- OPEN CANOPY ☐ 30%-<55% ☐ 10%-<30% DISTANCE 55%-<85% 0.15 Km 0.12 Km D BOAT VADE METHOD 0.5 Km 0.2 Km OTHER meters

Stream

ChicEPA

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:



Stream & Location: North Newark-Sharp Rd 138 KN Transmission Line RM: Date: 2/12/19
Rebuild Project. Dry Creek Scorers Full Name & Affiliation: Knolek/Stantec
River Code: STORET #: Lat./ Long.: 40. 1 2 182. 4 3 1 Office verified location
1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present BEST TYPES POOL RIFFLE OTHER TYPES POOL RIFFLE BLDR /SLABS [10]
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] AQUATIC MACROPHYTES [1] SPARSE 5-<25% [3] SHALLOWS (IN SLOW WATER) [1] BOULDERS [1] LOGS OR WOODY DEBRIS [1] NEARLY ABSENT <5% [1] Comments
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 FLOOD PLAIN QUALITY ROOSION WIDE > 50m [4] SHRUB OR OLD FIELD [2] WODERATE [2] NARROW 5-10m [2] RESIDENTIAL, PARK, NEW FIELD [1] RIPARIAN WIDTH ROOSION AND RIPARIAN & average) RIPARIAN WIDTH ROOSION AND RIPARIAN WIDTH
5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH CHANNEL WIDTH Check ONE (ONLY!) Check ONE (Or 2 & average) Check ALL that apply > 1m [6] POOL WIDTH > RIFFLE WIDTH [2] TORRENTIAL [-1] SLOW [1] 0.7-<1m [4] POOL WIDTH = RIFFLE WIDTH [1] Very FAST [1] INTERSTITIAL [-1] 0.2-<0.4m [1] POOL WIDTH < RIFFLE WIDTH [0] FAST [1] INTERMITTENT [-2] 0.2-<0.4m [1] MODERATE [1] EDDIES [1] < 0.2m [0] Indicate for reach - pools and riffles. Comments Indicate for functional riffles; Best areas must be large enough to support a population
of riffle-obligate species: RIFFLE DEPTH RUN DEPTH BEST AREAS > 10cm [2] BEST AREAS 5-10cm [1] Comments Check ONE (Or 2 & average). RIFFLE / RUN SUBSTRATE RIFFLE / RUN EMBEDDEDNESS NONE [2]
6] GRADIENT (3/,9 ft/mi) UVERY LOW-LOW [2-4] %POOL: 5 %GLIDE: 6 Gradient 6-10] %RUN: 85 %RIFFLE: 6 Maximum 10

sess directions, etc.	FT MEA SUREMENTS	3
Comment RE: Reach consistency Is reach typical of steam?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc. A	WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPS-CONSTRUCTION-SEDIMENT: LOGGING / IRRGATION / 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 ATMOSPHERE / DATA PAUCITY	
v/ Observed - Inferred, <i>Other</i> ,	Circle some & COMMENT	The state of the s
S reach typical of steam?, Recreation Proston Hrough Stream	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 FLOOD CONTROL / DRAINAGE	Service of the servic
Some Ocal E	BJ AESTHETICS NUISANCE ALGAE INVASIVE MACROPHYTES EXCESS TURBIDITY DISCOLORATION COLISHER TRASH / LITTER NUISANCE ODOR SLUGE DEPOSITS CSOS/SSOS/OUTFALLS 47/ON AREA DEPTH POOL: >100ff2 >3ff	
ED REACH ALL that apply STAGE 1st -sample passs-2nd HIGH UP UP CANORMAL	NITY Pass 2nd CIB CIB COPTHCC CM C	Stream Drawing:

DHWM

October 2018 Revision

W=4,6

Version 4.0 October 2018

Protection Agency				m of metrics 1+2+3)	52
SITE NUMBER STOOM LENGTH OF STREAM DATE 18 2020		Muskinghum F LAT40.15421818 COMMENTS	LONG -82.4	DRAINAGE AREA (mir)	nstruction
(Max of 32). A TYPE BLDR SLA BOULDER BEDROCK GRAVEL (SAND (<2) Total of Pe	PEI ABS [16 pts] (>256 mm) [16 pts]	eant substrate types four RCENT TYPE O O O O O O O O O O O O O O O O O O O		PERCENT D	HHEI Metric Points Substra Max = 4
	ation. Avoid plunge pools f rs [20 pts] [30 pts]		rm water pipes) (Chec 5 cm - 10 cm [16 pts] < 5 cm [5pts] NO WATER OR MOIST		Pool Dep Max = 3
> 4.0 meters (> > 3.0 m - 4.0 m	WIDTH (Measuredas the > 13') [30 pts] n (> 9' 7'- 13') [25 pts] n (> 4' 8" - 9' 7") [20 pts]	eaverage of 3 - 4 meas	> 1.0 m - 1.5 m (> 3' 3' <1.0 m (< 3' 3')[5 pts]	- 4' 8')[15 pts]	Bankfu Width Max=30
		This information r	nustalso be completed		
L R (F	Per Bank) de >10m derate 5-10m trow <5m	L R Mature Fores	QUALITY (Most Predom st, Wetland) rest, Shrub or Old Field [Park, New Field	ght (R) as looking downstream- inant per Bank) L R Conservation Tillage Urban or Industrial Open Pasture, Row C	rop
COMM	ENIS		ana haw):		_
Stream Subsur COMM	REGIME (At Time of Eval Flowing face flow with isolated pool ENTS	els (interstitial)	Moist Channel, is Dry channel, no	solated pools, no flow (intermitt water (ephemeral)	ent)

Stream 4

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

DOWNSTREAM DESIGNATED USE(S) (WWN Name: (1/24 for X 1, (1/4) or X 1, (1	QHEI PERFORMED? Yes Who QHEI Sco	re (If Yes, Attach Complet	ed QHEI form)	
EWH Name: Distance fromEvaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION. SGS Quadrangle Name: (1)10.00 NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Stream Order:	DOWNSTREAM DESIGNATED USE(S)		* 1	9
EWH Name: Distance fromEvaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION. SGS Quadrangle Name: (1)10.00 NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Stream Order:	WWH Name: CLEAN TOYK //CKIN	Distance fro	mEvaluated Stream (1977)	-
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION. SGS Quadrangle Name: (1)1-0.0 NRCS Soil Map Page: NRCS Soil Map Stream Order: NRCS Soil Map Str] EWH Name:	Distance fro	omEvaluated Stream	
Township/City: National V MISCELLANEOUS ase Flow Conditions? (V/N). No Date of last precipitation: 15 2020 Quantity; 0.019 hoto-documentation Notes: 71" rain on 1/3 and 1/4 fere samples collected for water chemistry? (V/N): 1000 fere samples collected for water chemistry? (V/N): 1100 fere samples are Discoved for for interest for site evaluation and a narrative description of the stream's location for features of interest for site evaluation and a narrative description of the stream's location for features of interest for site evaluation and a narrative description of the stream's location for features of interest for site evaluation and a narrative description of the stream's location for features of interest for site evaluation and a narrative description of the stream's lo	MAPPING: ATTACH COPIES OF MAPS, INCLUDIN			
Township/City: National V MISCELLANEOUS asse Flow Conditions? (V/N): Note of last precipitation: 15 2020 Quantity; 0.019 note-documentation Notes: 71" rain on 1/3 and 1/4 ere samples collected for water chemistry? (V/N): 1 Lab Sample # or ID (attach results): 1 Lab Sample # or ID (attac	SGS Quadrangle Name: Unica	NRCS Soil Map Page: / NF	RCS Soil Map Stream Order:	/
All SCELLANEOUS ase Flow Conditions? (Y/N): N Date of last precipitation: 15 2070 Quantity: 0.015 hoto-documentation Notes: 71" rain on 1/3 and 1/4 levated Turbidity?(Y/N): Canopy (% open): 100 fere samples collected for water chemistry?(Y/N): Lab Sample \$ or D (attach results): eld Measures.Temp (°C) 2.5 Dissolved Oxygen (mg/l) pH (S.U.) 10.1 Conductivity (umhos/cm) the sampling reach representative of the stream (Y/N) If not, explain: BIOLOGICAL OBSERVATIONS (Record all observations below) ish Observed? (Y/N) N Species observed (if known): alamanders O				
evated Turbidity?(Y/N):	0			
evated Turbidity?(Y/N):	ase Flow Conditions? (Y/N): N Date of last preci	otation: 15 2020 Quant	ity: 0.01"	
evated Turbidity?(Y/N):	noto-documentation Notes:	/71" rain on 1	3 and /4	
Lab Sample ** or ID (attach results): Lab Sample ** or ID (attach results): PH (S.U.) D. Conductivity (umhos/cm) the sampling reach representative of the stream (Y/N) If not, explain: BIOLOGICAL OBSERVATIONS (Record all observations below) Ish Observed? (Y/N) Species observed (if known): rogs or Tadpoles Observed? (Y/N) Species observed (if known): alaimanders Observed? (Y/N) Species observed (if known): quatic Macroinvertebrates Observed? (Y/N) Species observed (if known): pummenta 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 Welland Welland				
eld Measures:Temp (°C)	·		its):	
## If not, explain: ## If not				/
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(Record all observations below) sish Observed? (Y/N) N Species observed (if known): alamanders Observed? (Y/N) N Species observed (if known): quatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): omments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location We Man d	BIOLOGI	CAL OBSERVATIONS		
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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 We Man All All All All All All All All All Al	alamanders Observed? (Y/N) N Species observed	(if known):		
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location Welland				
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 Welland				
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location We land	- Programme and the second sec	· ·		
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location We land				
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Chief Primary Headwater Habitat Evaluation Form

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	rifici acore (sum of metrics 1, 4 s):	
SITE NAME/LOCATION NOW IN NEWS	ark-Snarp Road 138 KV Line Debuild Project	
LICKING COINTY SITENUMBER	Stream 5 RIVER BASIN MUSKINGUVY DRAINAGE AREA (MP) O:	12 mi
LENGTH OF STREAM REACH (#) 200	LAT. 40.152308 LONG. 82.410217 RIVER CODE RIVER MILE	
DATE 1/8/2020 SCORER ATK		
NOTE: Complete All Items On This F	Form - Refer to "Field Evaluation Manual for Ohio's FHWH Streams" for Instruc	tions
	NATURAL CHANNEL TRECOVERED RECOVERING TRECENT OF NO RECOV	
MODIFICATIONS:	The state of the s	
MODIFICATIONS.		in the same of
1. SUBSTRATE (Estimate percent of	every type of substrate present. Check ONLY two predominant substrate TYPE boxes	COURT I
(Max of 40). Add total number of sign	nificant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHE! Metric
TYPE BLOR SLASS (16 ptm)		Points
3 80ULDER (>250 mm) [18 pts]	LEAF PACKWOODY DEBRIS [3 pts]	S ubstrate
☐ ☐ SEPROCK (18 pal)	FINE DETRITUS (3 pic)	Max = 40
OOBBLE (65-256 mm) [12 pts]		4 35
GRAVEL (2-64 mm) [9 pts]	10 D MUCK [0 pts]	13
3AND (47 mm) (6 pts)		
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock	(A) G	A + B
SCORE OF TWO MOST PREDOMINATE SU		
	e maximum peol depth within the 61 meter (290 ft) evaluation reach at the time of	Poel Depti
 Maximum Pool Depth (Measure the evaluation Avoid plunge pools from the 	road culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pis]	
> 22.5 - 30 am [30 pts] > 10 - 22.5 cm [25 pts]	S cm (5 pts) NO WATER OR MOIST CHANNEL [0 pts]	15
710 - 223 Gir [23 Vis]	711	No. of Concession,
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
	the average of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3.3" - 4"8") (15 pts)	Bankfull Width
> 4.0 meters (> 13) [30 pte] > 3.0 m - 4.0 m (> 9° 7° - 13) [25 pte]		Max=30
3.0m (>48'-0'7') (20 pts)	1	-
COMMENTS	AVERAGE BANKFULL WIDTH (meters)	15
COMMENTS		
	This information <u>must</u> also be completed	
RIPARIAN ZONE AND FLOC	ODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream?	
RIPARIAN WIDTH L R (Per Bank)	FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R	
L R (Per Bank) Wide >10m	Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	Immature Forest, Shrub or Old I Urban or Industrial	18
	Residential, Park, New Field Open Pasture, Row	
☐ ☐ Narrow <5m	Сгор	
None COMMENTS	Fenced Pasture	12
and the state of t	Charle Call Vang box	
FLOW REGIME (At Time of E	Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated p		220
COMMENTS		*
SHUO SITY (Number of bend	ds per 61 m (200 ft) of channel) (Check ONLY one box):	
None 1	1.0 U 2.0 U 3.0 1.5 U 2.5 U >3	
□ 0,5 L		
STREAM GRADIENT ESTIMATE		
Flat (05 it/100 it) Flat to Moderate	Moderate (2 1/105 ft) Moderate to Severe Severe Severe (10 ft/100 ft)	r

OHWM W= 2.5

ADDITIONAL STREAM INFO	RMATION (This Information	n Must Also be Comple	ted):	700
	7 - Tyes ONO QHEIS	7	s, Attach Completed QHEI	Form)
The same of the sa	SIGNATED USE(S)	ne ne	of Miden Completed GIVE	roilly
WWH Name:Clear	FORK LICKING PIN	er	Distance from Ev	aluated Stream \sim $l.2$ m i
CWH. Name:			Distance from Eva	lluated Stream
0.00		44 4		duated Stream
MAPPING: ATTACH	COPIES OF MAPS, INCLUD	ING THE ENTIRE WATE	RSHED AREA. CLEARLY M	ARK THE SITE LOCATION
USGS Quadrangle Name:	Utica .	NRCS Soi	Map Page:NRO	S Soil Map Stream Order
County: Li	cking		Newark	
MISCELLANEOUS		(ownship) city	10000001	
			20	mull de la company
Base Flow Conditions? (Y/N):				
Photograph Information:	1 3	9	· 71".00	in 1= and /4
	Canopy (% oper			· · · · · · · · · · · · · · · · · · ·
Were samples collected for wa				/
Field Measures: Temp (°C	. 2 7	(Note lab sample no.	or id. and attach results) Li	ab Number:
Lieur Measures: 1emb (C	Dissolved Oxygen	(mg/l)pH (S.U.) 8.8 Conductivity	y (µmhos/cm)
is the sampling reach represe	ntative of the stream (Y/N)_	If not, please expl	ain:	
14		4		The state of the s
Additional comments/descripti	ion of pollution impacts:		- 7 - 7	T 10 10 10 17 1
	- Political Interest	1-		
				19
BIOTIC EVALUATI	<u>ION</u>			
Performed? (Y/N):	(If Yes, Record all observation of the control of t	ons. Voucher collections fate field data sheets from	optional. NOTE: all voucher the Primary Headwater Hab	samples must be labeled with the site
Fish Observed? (Y/N)	Voucher? (Y/N) Sal	amandere Observed? O	//Ni 'V	
Frogs or Tadpoles Observed?	(Y/N) Voucher? (Y/N)	Aquatic Macroiny	ertebrates Observed? (Y/N)	Voucher? (Y/N)
Comments Regarding Biology	•			
		-		
	Y. F. C.			· ·
DRAMING		- 1 · 1 · 1	ring on their ray ray.	
Include important to a	ND NARRATIVE DES	CRIPTION OF STR	EAM REACH (This m	ust be completed):
morada important tand	marks and other features o	of interest for site evalu	ation and a narrative descr	iption of the stream's location
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FLOW	10.	1		
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ChioFPA Primary Headwater Habitat Evaluation Form



LENGTH OF STREAM REACH (ft) Z CO DATE 12/13/19 SCORER ATT	LAT. 40,159 5 LONG. 82.482 Z RIVER CODE RIVER MILE COMMENTS COMMENTS REPORT OF THE REPORT OF THE PROPERTY OF THE RESERVENCE OF THE RIVER MILE COMMENTS RESERVENCE OF THE RES	4/m12
	TURAL, CHANNEL RECOVERED RECOVERING RECENT OR NO RE	
MODIFICATIONS: Culvert		COVERT
-		
(Max of 40). Add total number of significa	ry type of substrate present. Check ONLY two predominant substrate TYPE boxes ant substrate types found (Max of 8). Final metric score is sum of boxes A & B. ERCENT TYPE SILT [3 pt] PERCENT	HHEI Metric Points
□ □ BOULDER (>256 mm) [16 pts] _	LEAF PACK/WOODY DEBRIS [3 pts]	Substrate
BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts]	50 CLAY or HARDPAN [0 pt]	Max = 40
	2 0	26
Total of Percentages of	(A) (B)	1
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBST	7 7 7	A+B
	aximum pool depth within the 61 meter (200 ft) evaluation reach at the time of deliverts or storm water piges) (Check ONLY one box):	Pool Depth Max = 30
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	> 5 cm - 10 cm [15 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	13
10727000000000	0	
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	'
3. BANK FULL WIDTH (Measured as the a > 4.0 meters (> 13') [30 pts]	average of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Wldth
3, BANK FULL WIDTH (Measured as the	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]	
3, BANK FULL WIDTH (Measured as the 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 pts]	average of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
3, BANK FULL WIDTH (Measured as the 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 pts]	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] AVERAGE BANKFULL WIDTH (meters)	Width
3. BANK FULL WIDTH (Measured as the a > 4.0 meters (> 13') [30 pts]	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] AVERAGE BANKFULL WIDTH (meters) This information must also be completed PLAIN QUALITY ★NOTE: River Left (L) and Right (R) as looking downstream ★	Width
3. BANK FULL WIDTH (Measured as the 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 pts] COMMENTS RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH L R (Per Bank)	AVERAGE BANKFULL WIDTH (meters) This information must also be completed PLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R	Width
3. BANK FULL WIDTH (Measured as the a > 4.0 meters (> 13') [30 pts]	This information must also be completed AVERAGE BANKFULL WIDTH (meters) This information must also be completed LAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Ulthan or Industrial	Width
3. BANK FULL WIDTH (Measured as the 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 pts] COMMENTS RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH (Per Bank) Wide > 10m Moderate 5-10m	This information must also be completed AVERAGE BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) This information must also be completed PAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Shrub or Old Withan or Industrial Field	Width
3. BANK FULL WIDTH (Measured as the a > 4.0 meters (> 13') [30 pts]	AVERAGE BANKFULL WIDTH (meters) This information must also be completed PLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Urban or Industrial	Width Max=30
3. BANK FULL WIDTH (Measured as the a > 4.0 meters (> 13') [30 pts]	AVERAGE BANKFULL WIDTH (meters) LAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream froodplan QUALITY R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Shrub or Old Field Open Pasture, Row Crop	Width Max=30
3. BANK FULL WIDTH (Measured as the 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 pts] COMMENTS RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH L B	AVERAGE BANKFULL WIDTH (meters) This information must also be completed PLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Wetland Residential, Park, New Field Residential, Park, New Field Residential, Park, New Field Mining or Construction Waterian Wetland Residential (Check ONLY one box): Worst Channel, isolated pools, no flow (Intermitter)	Width Max=30
BANK FULL WIDTH (Measured as the 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 pts] COMMENTS	AVERAGE BANKFULL WIDTH (meters) This information must also be completed PLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R	Width Max=30
BANK FULL WIDTH (Measured as the 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 pts] COMMENTS	AVERAGE BANKFULL WIDTH (meters) This Information must also be completed PLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Shrub or Old Immature Forest, Shrub or Old Residential, Park, New Field Residential, Park, New Field Residential, Park, New Field Moist Channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral)	Width Max=30

QHEI PERFORMED? - Tyes No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
TWWH Name: Clear fork Licking River	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	,
SGS Quadrangle Name: Utica NRC	
ounty: Licking Township/	city: 4tica
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Y Date of last precipitation: 12//	1/19 Quantity (0,1"
notograph Information.	
evated Turbidity? (Y/N): Canopy (% open):	
/ere samples collected for water chemistry? (Y/N): (Note lab samp	ple no, or id, and altach results) Lab Number
eld Measures: Temp (°C) Z J Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N) Y If not, pleasing	
ine sampling recorrepresentative of the sheam (17/4)t_ If not, pleasi	с слугант
dditional comments/description of pollution Impacts: rune FF	
BIOTIC EVALUATION	
erformed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data shee ish Observed? (Y/N) Salamanders Observogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Market Salamanders Observed?	ets from the Primary Headwater Habitat Assessment Manual)
erformed? (Y/N): (If Yes, Record all observations. Voucher colle	ets from the Primary Headwater Habitat Assessment Manual)
erformed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data shee ish Observed? (Y/N)	ets from the Primary Headwater Habitat Assessment Manual)
erformed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data shee ish Observed? (Y/N) Salamanders Observogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Market Salamanders Observed?	ets from the Primary Headwater Habitat Assessment Manual)
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cerformed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data sheet ish Observed? (Y/N) Salamanders Observed or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Managements Regarding Biology:	STREAM REACH (This must be completed): evaluation and a narrative description of the stream's location
erformed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data shee ish Observed? (Y/N)	STREAM REACH (This must be completed): evaluation and a narrative description of the stream's location
erformed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data shee ish Observed? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Managements Regarding Biology: Voucher? (Y/N) Aquatic Managements Regarding Biology: Voucher? (Y/N) Advanced to the features of interest for site	Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) STREAM REACH (This must be completed): evaluation and a narrative description of the stream's location
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erformed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data shee ish Observed? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Managements Regarding Biology: Voucher? (Y/N) Aquatic Managements Regarding Biology: Voucher? (Y/N) Advanced to the features of interest for site	STREAM REACH (This must be completed): evaluation and a narrative description of the stream's location
erformed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data shee ish Observed? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Marks of Tadpoles Observed?	STREAM REACH (This must be completed): evaluation and a narrative description of the stream's location
erformed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data shee ish Observed? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Marks of Tadpoles Observed?	STREAM REACH (This must be completed): evaluation and a narrative description of the stream's location
(If Yes, Record all observations. Voucher colle ID number. Include appropriate field data sheet ish Observed? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Managements Regarding Biology Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Vouche	STREAM REACH (This must be completed): evaluation and a narrative description of the stream's location
erformed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data shee ish Observed? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Marks of Tadpoles Observed?	STREAM REACH (This must be completed): evaluation and a narrative description of the stream's location

Stream 7 (Clear Fork Licking River) AKKBZ019 1213506

OhioEPA

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:



Stream & Location: North	Baklishin Bires	ers Full Name & Affiliati	line RM:	Date: 7 13 / 19
River Code:	STORET #:	Lat./ Long.: (NAD 83 - decimal °) * _	/8 .	Office verified
1] SUBSTRATE Check ONL estimate % BEST TYPES POOL BLDR /SLABS [10] BOULDER [9] BOULDER [9] BOULDER [7] BEDROCK [5] NUMBER OF BEST TYPE Comments 2] INSTREAM COVER Indiquation in model and incomplete in grant is stable, well a consideration of the complete in the complet	Two substrate TYPE BOXES; or note every type present OTHER TYPES HARDPAN [4] DETRITUS [3] MUCK [2] SILT [2] ARTIFICIAL [0] (Score natural substrate of the substrate of greater amounts, but not of erate or greater amounts (e.g., very developed rootwad in deep / fast water amounts [1] POOLS > 70cm ROOTWADS [1]	OCH RIFFLE ORIGIN ORIGI	eck ONE (Or 2 & average) O	ODERATE [-1] ONE [1] AMOUNT ONE (Or 2 & average) ENSIVE [-2] ENSIVE [-2] ONE [1] AMOUNT ONE (Or 2 & average) ENSIVE >75% [11] ERATE 25-75% [7] RSE 5-<25% [3]
SHALLOWS (IN SLOW W ROOTMATS [1] Comments	ATER) [1] BOULDERS [1]	L LOGS OR WOODY	DEBRIS [1] NEA	Cover Maximum 20
SINUOSITY DEVELO HIGH [4]	LENT [7] NONE [6] [5] RECOVERED [4] [1] RECOVERING [3] [1] RECENT OR NO R RIPARIAN ZONE Check ONE RIPARIAN WIDTH WIDE > 50m [4]	TION STABILITY HIGH [3] MODERATE LOW [1]	K (Or 2 per bank & avera	Channel Maximum 20 age) RVATION TILLAGE [1] OR INDUSTRIAL [0]
MODERATE [2] [2] HEAVY/SEVERE [1] [1]	☐ NARROW 5-10m [2] ☐ ☐ ☐ ☐ YERY NARROW < 5m [1] ☐ ☐	RESIDENTIAL, PARK, NEW F FENCED PASTURE [1] OPEN PASTURE, ROWCRO	IELD [1] MINING	I CONSTRUCTION [0]
□ 0.7-<1m [4] □ PC	CHANNEL WIDTH Check ONE (Or 2 & average) DOL WIDTH > RIFFLE WIDTH [2] DOL WIDTH = RIFFLE WIDTH [1] DOL WIDTH < RIFFLE WIDTH [0]		Pr. [1] Sec [circle:	reation Potential imary Contact ondary Contact one and comment on back) Pool / Current Maximum 12
of riffle-obligate spec RIFFLE DEPTH BESTAREAS>10cm [2]	RUN DEPTH BIFFL MAXIMUM > 50cm [2] STABLE MAXIMUM < 50cm [1] MOD. S	E (Or 2 & average). E / RUN SUBSTRATE E (e.g., Gobble, Boulder) [2]	RIFFLE / RUN EME	2/47-1
6] GRADIENT (/ 7, 7 ft/m DRAINAGE AREA	i)	%POOL: 10 %RUN: 70	%GLIDE:	Gradient Maximum 10

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

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ı	1.1	0	
١	4	4	
ı	- 6	- 1	

LICKING COUNTY SITE NUMBER STYLLENGTH OF STREAM REACH (ft) 200 LADATE 12/13/19 SCORER AJK	eam 8 RIVER BASIN Muskivau	M DRAINAGE AREA (mi²)
NOTE: Complete All Items On This Form -	Refer to "Field Evaluation Manual for C	
SUBSTRATE (Estimate percent of every (Max of 32). Add total number of significant	type of substrate present. Check ONLY two processions trate types found (Max of 8). Final metric structure of the control of t	DEBRIS [3 pts] DEBRIS [3 pts] DEBRIS [3 pts]
evaluation. Avoid plunge pools from road cu > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]		ne box): Max :
3. BANK FULL WIDTH (Measured as the average > 4.0 meters (> 13') [30 pts]	erage of 3-4 measurements) (Check > 1.0 m - 1.5 m (> 3' 3'') ≤ 1.0 m (≤ 3' 3") [5 pt	ONLY one box): Bank 3" - 4' 8") [15 pts] Wid
RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH	This information <u>must</u> also be completed IN QUALITY ☆NOTE: River Left (L) and F FLOODPLAIN QUALITY	! Right (R) as looking downstream☆
L R (Per Bank) ☐ Wide >10m	L R (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 Evaluate Stream Flowing Subsurface flow with isolated pools (I COMMENTS SINUOSITY (Number of bends per 6	nterstitial)	el, isolated pools, no flow (Intermittent) no water (Ephemeral)
None	1.0 2.0 1.5 2.5 Moderate (2 ft/100 ft)	3.0

ADDITIONAL STREAM INFORMATION (This Information Must Also be Compl	leted):
QHEI PERFORMED? - Yes No QHEI Score(If Y	Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED LISE(S)	
OWH Name: Clear Fork Licking River CWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
D LYVI I NAME.	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE	ERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: 4ticq NRCS So	oil Map Page:NRCS Soil Map Stream Order
County: Licking Township / City:_	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	9 Quantity: <0, 1 /1
Photograph Information:	
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) 1, 7 Dissolved Oxygen (mg/l)pH (
is the sampling reach representative of the stream (Y/N) If not, please expl	olain:
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations Voucher collections	s optional NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate field data sheets from Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Yogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinv	m the Primary Headwater Habitat Assessment Manual)
1	/ertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology: None Observed	
DRAWING AND MADDATINE DECORPTION OF ATO	
DRAWING AND NARRATIVE DESCRIPTION OF STR	
Include important landmarks and other features of interest for site evalu-	ation and a narrative description of the stream's location
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Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

LENGTH OF STREAM REACH (ft) 200 L DATE 12/13/19 SCORER AJK	Shack Red 138 ky Transmission Line Rebuild Projects com 9 RIVER BASIN MASKingum DRAINAGE AREA (mi²) 40. AT. 40, 17178 LONG. 82, 48 9178 RIVER CODE RIVER MILE COMMENTS - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	
STREAM CHANNEL ON NONE / NATU MODIFICATIONS: g cadec	RAL CHANNEL PRECOVERED PRECOVERING RECENT OR NO RECOVE	ERY
(Max of 32). Add total number of significant 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]	SILT [3 pt] SILT [3 pt] LEAF PACKWOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] (A) (B)	HHEI Metric Points Substrate Max = 40
	Value Val	Bankfull Width Width
RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS FLOW REGIME (At Time of Evaluation	FLOODPLAIN QUALITY L R (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	
Stream Flowing Subsurface flow with isolated pools (I COMMENTS SINUOSITY (Number of bends per 6 None 0.5 STREAM GRADIENT ESTIMATE	Moist Channel, isolated pools, no flow (Intermittent)	

ADDITIONAL STREA	AM INFORMATION (This Info	rmation Must Also be Co	mpleted):		
QHEI PERI	FORMED? - Yes No	QHEI Score	(if Yes, Attach Completed Q	HEI Form)	
DOWNSTR	REAM DESIGNATED USE(S)	15			
WWH Name:	Į.			Evaluated Stream	
CWH Name:			Distance from	Evaluated Stream	
CVVI Name.			Distance from	Evaluated Stream	
	ATTACH COPIES OF MAPS, I				
USGS Quadrangle Na	ame: Utica	NRCS	Soil Map Page: N	RCS Soil Map Stream Order	
County: Lic!	king	Township / Ci	y: Utica		
MISCELLA					
Base Flow Conditions	s? (Y/N): Date of las	et precipitation: 12/1	1/19 Quantity:		
Photograph Information	on:				
Elevated Turbidity? (Y	Y/N): Canopy ((% open):5G			
Were samples collected	red for water chemistry? (Y/N)	(Note lab sample	no or id and attach results) Lab Number:	
Field Measures: T	emp (°C) A Dissolved (Oxygen (mg/l) p	oH (S.U.) NA Conduct	tivity (µmhos/cm)	
Is the sampling reach	representative of the stream	(Y/N) If not, please	explain:		
	description of pollution impact				
Performed? (Y/N):	(If Yes, Record all of ID number. Include	oservations. Voucher collecti appropriate field data sheets	ons optional. NOTE: all voucl	ner samples must be labeled w Habitat Assessment Manual)	vith the site
	voucher? (Y/N) oserved? (Y/N) Voucher selfology:		I? (Y/N) Voucher? (Y pinvertebrates Observed? (Y	·	
DRAW	ING AND NARRATIVE	DESCRIPTION OF S	TREAM REACH (This	must be completed):	
Include importa	ant landmarks and other feat	tures of interest for site ev	aluation and a narrative de	scription of the stream's lo	cation
	mla		C	1 201	
	407		-	CHENNEL	
		1	4	of channel wet	land
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FLOW 🦈		1	//	4	
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Protection Agency				um of metrics 1+2+3)	30
SITE NUMBER LENGTH OF S DATE 12 30		LAT 40.19420 COMMENTS	PRIVER CODE	S 300 W RIVER MILE	_
				hio's PHWH Streams" for the Recovering Recent of	
TYPE BL BO CO GR	DR SLABS [16 pts] DULDER (>256 mm) [16 pts] DUCDER (16 pts] DROCK [16 pts] DBBLE (65-256 mm) [12 pts] RAVEL (2-64 mm) [9 pts] AND (<2 mm) [6 pts]			PERCENT PERCENT PERCENT PERCENT PERCENT	HHEI Metric Points Substrat Max = 40
Bldr Slat	tal of Percentages of bs, Boulder, Cobble, Bedrock VO MOST PREDOMINATE SUI	STRATE TYPES:	TOTAL NUMBER OF	SUBSTRATE TYPES:	A + B
time o	num Pool Depth (Measure th f evaluation. Avoid plunge pool entimeters [20 pts] - 30 cm [30 pts] 22.5 cm [25 pts]			ck ÖNLYone box): 	Pool Dep Max = 30
COMP	MENTS		MAXIMUM POOL	DEPTH (centimeters):	
> 4.0 m > 3.0 m	FULL WIDTH (Measured as neters (> 13') [30 pts] n - 4.0 m (> 9' 7"-13') [25 pts] n - 3.0 m (> 4' 8" - 9' 7") [20 pts		asurements) (Check O. > 1.0 m - 1.5 m (> 3' 3' ≤ 1.0 m (≤ 3' 3")[5 pts	-4' 8")[15 pts]	Bankful Width Max=30
COMM	MENTS		AVERAGE BANK	FULL WIDTH (meters)	
	DIDADIAN ZONE AND ELOC		n <u>must</u> also be completed	d ight (R) as looking downstream	
5 L R	RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m	L R Mature Fo	NOTE: River Left(L) and R NM QUALITY (Most Predor rest, Wetland Forest, Shrub or Old Field II, Park, New Field		Crop
ZZ	None	Fenced Pa	sture	mining of contained	
	None COMMENTS FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS SINUOSITY (Number of bend None	Fenced Privaluation) (Check ON	LYone box): Moist Channel, Dry channel, no	isolated pools, no flow (intermit water (ephemeral)	-

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: Lake Fork Licking River 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: Utica NRCS Soil Map Page: _____ NRCS Soil Map Stream Order:____ County: Licking Township/City: Newark MISCELLANEOUS Base Flow Conditions? (Y/N): N Date of last precipitation: 12/31/2019 Quantity: 0.07" Photo-documentation Notes: Elevated Turbidity?(Y/N): N Canopy (% open): 85 Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): Field Measures:Temp (°C) 7:3 Dissolved Oxygen (mg/l) _____ pH (S.U.) 9.7 Conductivity (umhos/cm) Is the sampling reach representative of the stream (Y/N) _____ If not, explain: _____ Additional comments/description of pollution impacts: **BIOLOGICAL OBSERVATIONS** (Record all observations below) Fish Observed? (Y/N) N Species observed (if known); Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) N Species observed (if known); Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): 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 old field

Primary Headwater Habitat Field Evaluation Form HHEI Score (sum of metrics 1+2+3)	UI
SITE NAME/LOCATION NORTH NEWAYK - Sharp Road 138 KV Transmission Line Rebuild SITE NUMBER STREAM (RIVER BASIN MUSKing in River RIVER CODE DRAINAGE AREA (MF) _ LENGTH OF STREAM REACH (ft) 200 LAT 40.204017"N LONG-92.498131"W RIVER MILE _ DATE 12/20 14 SCORER KB COMMENTS REFER TO "Field Evaluation Manual for Ohio's PHWH Streams" for	0.27mi2
STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OF	NO RECOVERY
1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B TYPE BLDR SLABS [16 pts] PERCENT PERCENT BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] BEDROCK [16 pts] FINE DETRITUS [3 pts] GRAVEL (2-64 mm) [9 pts] 40 MUCK [0 pts] SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock (A) (B) (B)	HHEI Metric Points Substrate Max = 40
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts]	Pool Depth Max = 30
COMMENTS MAXIMON FOOL DEFTIN (Continue cols).	-
3. BANK FULL WIDTH (Measuredas 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 * NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) L R Wide >10m	Сгор
COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (intermit Dry channel, no water (ephemeral)) COMMENTS One Moist Channel, isolated pools, no flow (intermit Dry channel, no water (ephemeral)) COMMENTS One One	tent)
STREAM GRADIENT ESTIMATE Flat (05 \$100 \$) Flat to Moderate Moderate (2 \$100 \$) Moderate to Severe Severe (10)	R/100 R)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

	ore (If Yes, Attach Completed QHEI form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Lake Fork Lickin CWH Name:	ag River Distance from Evaluated Stream 1/Mi
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDIT	NG THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.
USGS Quadrangle Name: Utica	NRCS Soil Map Page: NRCS Soil Map Stream Order:_
County: Licking	Township/City: Newark
MISCELLANEOUS	
Base Flow Conditions? (Y/N)	ipitation: 12 36 2019 Quantity: 1.03"
Photo-documentation Notes:	A A
Elevated Turbidity?(Y/N): N Canopy (% open): 100
Were samples collected for water chemistry? (Y/N):	Lab Sample # or ID (attach results):
Field Measures:Temp (°C) Bio Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)
is the sampling reach representative of the stream (Y/N)	Y If not, explain:
Additional comments/description of pollution impacts:	eroded banks
	CAL OBSERVATIONS
Fish Observed? (Y/N) N Species observed (if kno	I all observations below)
Species observed (if kno	wn):
- N N	
Frogs or Tadpoles Observed? (Y/N) N Species obs	
Frogs or Tadpoles Observed? (Y/N) N Species obs Salamanders Observed? (Y/N) N Species observed	d (if known):
Frogs or Tadpoles Observed? (Y/N) N Species obs Salamanders Observed? (Y/N) N Species observed	

Pool Prosion

Primary Hea	dwater Habitat Field Evaluation Form HHEI Score (sum of metrics 1+2+3)	50
LENGTH OF STREAM REACH (#) 200 LA DATE 12/30/19 SCORER KB	LONG -82.497402W RIVER MILE	0.051
	Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for In	
1. SUBSTRATE (Estimate percent of every (Max of 32). Add total number of significan PERC TYPE PERCENTIAL PERCENT PERC	SILT [3 pt] 5 LEAF PACK/WOODY DEBRIS [3 pts] 1.5 FINE DETRITUS [3 pts]	HHEI Metric Points Substrate Max = 40
2. Maximum Pool Depth (Measure the matime of evaluation, Avoid plunge pools from > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS	simum pool depth within the 61 meter (200 feet) evaluation reach at the mroad culverts or storm water pipes) (Check ONLY one box): S cm - 10 cm [15 pts] < 5 cm [5pts] NO WATER OR MOIST CHANNEL [0pts] MAXIMUM POOL DEPTH (centimeters):	Pool Dept Max = 30
	verage 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] AVERAGE BANKFULL WIDTH (meters)	Bankfull Width Max=30
	This information must also be completed	
Wide >10m Moderate 5-10m Narrow <5m None	AIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream* FLOODPLAIN QUALITY (Most Predominant per Bank) L R L R Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Penced Pasture Mining or Construction	-op
None 1	Moist Channel, isolated pools, no flow (intermitte	ent)
STREAM GRADIENT ESTIMATE Flat (05 \$100 \$) Flat to Moderate	Moderate (2 to 100 to)	100 T)

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: Lake Furk Licking River CWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIR	EWATERSHED AREA. CLEARLY MARK THE SITE LOCATION.
SGS Quadrangle Name: Utica NRCS	
ounty: Licking Townshi	ip/City:NewarK
MISCELLANEOUS	
ase Flow Conditions? (Y/N): N Date of last precipitation:	38/19 Quantity: 1:03"
hoto-documentation Notes:	
levated Turbidity?(Y/N): Canopy (% open):98	,
/ere samples collected for water chemistry? (Y/N): Nab	
ield Measures:Temp (°C) $\frac{7.8}{}$ Dissolved Oxygen (mg/l)	pH (S.U.) 10,3 Conductivity (umhos/cm)
the sampling reach representative of the stream (Y/N) $\underline{\hspace{1cm}}$ If not,	explain:
(Record all observation ish Observed? (Y/N) Species observed (if known): rogs or Tadpoles Observed? (Y/N) N Species observed (if known): alamanders Observed? (Y/N) N Species observed (if known): quatic Macroinvertebrates Observed? (Y/N) N Species observed	wn):ed (if known):
omments Regarding Biology:	
	OF STREAM REACH (This <u>must</u> be completed) site evaluation and a narrative description of the stream's location
DW Pool	old Field
01d B	eld
R0W _	

Page 2

October 2018 Revision

Field Methods for Evaluating Primary Headwater Streams in Ohio Ohio EPA, Division of Surface Water

Version 4.0 October 2018

SITE NAMELOCATION NOTH NEWEY Sharp Rd. 138 NV Transmittor Line Polatic Project SITE NUMBER STEAM REACH (#) 10 LAT 40.200412 LONG 92.493556 RIVER MALE DATE 12 12 15 SCORER LB MILE COMMENTS NOTE: Complete All items on This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins STREAM CHANNEL MODIFICATIONS: NONE/ NATURAL CHANNEL RECOVERED RECOVERING RECENT TYPE ON STREAM CHANNEL MODIFICATIONS: NONE/ NATURAL CHANNEL RECOVERED RECOVERING RECENT OR MALE 12 12 12 12 12 12 12 12 12 12 12 12 12	49
STREAM CHANNEL MODIFICATIONS: NONE/NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NOT NOT NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NOT NOT NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NOT NOT NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NOT NATURAL CHANNEL RECOVERING RECENT OR NOT NATURAL CHANNEL RECOVERING RECENT OF NATURAL CHANNEL RECOVERING RECENT OR NOT NATURAL CHANNEL RECOVERING RECOVERING RECENT OR NOT NATURAL CHANNEL RECOVERING RECENT OR NATURAL CHANNEL RECOVERING RECOVERING RECOVERING RECENT OR NATURAL CHANNEL RECOVERING RECOVERING RECENT OR NATURAL CHANNEL RECOVERING RECOVERING RECENT OR NATURAL CHANNEL RECOVERING RECOVERING RECOVERING RECENT OR NATURAL SOURCE RECOVERING RECOVER RECOVERING RECOVERING RECOVERING RECOVERING RECOVERING RECOVERING RECOVERING RECOVERING RECOVERING RECOVER RECOVERY R	18mi
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & 8 PERCENT TYPE BLDR SLABS [16 pts] BUDLDER (>256 mm) [16 pts] COBBLE (65-256 mm) [12 pts] COLAY or HARDPAN [0 pt] SAND (<2 mm) [8 pts] Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock (A) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or slorm water pipes) AND WATER OR MOIST CHANNEL [0 pts] COMMENTS MAXIMUM POOL DEPTH (centimeters): AVERAGE BANKFULL WIDTH (Measuredas the average of 3-4 measurements) (Check ONLY one box): 3. BANK FULL WIDTH (Measuredas the average of 3-4 measurements) (Check ONLY one box): 3. BANK FULL WIDTH (Measuredas the average of 3-4 measurements) (Check ONLY one box): 3. COMMENTS MAXIMUM POOL DEPTH (centimeters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstreams REPARIAN WIDTH L R (Per Bank) L R Conservation Tillage	
2. Maximum Pool Depth (Messure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or sform water pipes) (Check ONLY one box): > 30 centimeters [20 pts]	HHEI Metric Points Substra Max = 4
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 3.0 m + 4.0 meters (> 13') [30 pts]	Pool Dep Max = 3
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts] > 1.5 m - 3.0 m (> 4' 8' - 9' 7'') [20 pts] ≤ 1.0 m (≤ 3' 3') [5 pts] ≤ 1.0 m (≤ 3' 3'	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstreams RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank) L R Conservation Tillage	Bankfu Width Max=30
RIPARIAN ZONE AND FLOODPLAIN QUALITY A NOTE: River Left (L) and Right (R) as looking downstreams RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank) L R Per Bank L R Mature Forest, Wetland Conservation Tillage	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro 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 (intermitter	
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 0.5 1.5 2.5 >3	
STREAM GRADIENT ESTIMATE Flat (05 \$100 \$) Flat to Moderate Moderate (2 \$100 \$) Moderate to Severe Severe (10 \$10	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: Lake Fork Licking River Distance from Evaluated Stream ∠/Mi CWH Name: Distance from Evaluated Stream EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION. USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order: _ Township/City:_ MISCELLANEOUS _ Date of last precipitation: 123114 Quantity: 0.07" Base Flow Conditions? (Y/N):_/V Photo-documentation Notes: _ Canopy (% open): 95 Elevated Turbidity?(Y/N): ___ Were samples collected for waterchemistry? (Y/N): ______ Lab Sample # or ID (attach results): _____ Field Measures:Temp (°C) Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) is the sampling reach representative of the stream (Y/N) Y If not, explain: Additional comments/description of pollution impacts: BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) _____ Species observed (if known):_____ Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known): Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

Primary Headwater Habitat Field HHEI Sco	valuation Form (sum of metrics 1+2+3)
SITE NAMELOCATION North Nowark - Sharp Road 138 KV Transite Number Stream 14 RIVER BASIN Muskingum River RIVER CODE LENGTH OF STREAM REACH (#) LOT LAT 40.210901 LONG DATE 12/3/19 SCORER KB MID COMMENTS	DRAINAGE AREA (mF) 0,98 m12
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual	1-1
STREAM CHANNEL MODIFICATIONS: NONE/NATURAL CHANNEL RECOVER	RECOVERING RECENT OR NO RECOVER
1. SUBSTRATE (Estimate percent of every type present). Check ONLY Ywo present (Max of 32). Add total number of significant substrate types found (Max of 8). Find YPPE PERCENT TYPE SILT [3 pt] SILT [3 pt] SILT [3 pt] LEAF PACKWO BEDROCK [16 pts] SILT [3 pt] LEAF PACKWO GRAVEL (2-64 mm) [9 pts] GRAVEL (2-64 mm) [9 pts] GRAVEL (2-64 mm) [9 pts] ARTIFICIAL [3 pt] ARTIFICIAL [3 pt] Total of Percentages of	PERCENT Y DEBRIS [3 pts] [0 pt] PERCENT 30 70 Substrate Max = 40
Bidr Slabs, Boulder, Cobble, Bedrock (A)	OF SUBSTRATE TYPES: A + B
7	Check ONLY one box): Max = 30
BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Ch	
> 4.0 meters (> 13') [30 pts]	3' 3' -4' 8')[15 pts] Width Max=30
COMMENTS AVERAGE	ANKFULL WIDTH (meters)
This information <u>must</u> also be con RIPARIAN ZONE AND FLOODPLAIN QUALITY ** NOTE: River Left (L	
RIPARIAN WIDTH (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Ok Narrow <5m None COMMENTS	edominant per Bank) L R Conservation Tillage
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Ch	nel, isolated pools, no flow (intermittent) I, no water (ephemeral) Dine box):
0.5 1.5 2.5 STREAM GRADIENT ESTIMATE	>3 to Severe (10 %100 %)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

OHEL PERFORMED?	Tives Tive OHEL Score	(If Yes, Attach Completed QHEI form)
, DOWNSTREAM DESIG		
WWH Name:	We Fork Litting River	Distance from Evaluated Stream
CWH Name:		Distance from Evaluated Stream
		Distance from Evaluated Stream
		IRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.
JSGS Quadrangle Name:	Utica NRCS	S Soil Map Page: NRCS Soil Map Stream Order:
County: Licking	Towns	ship/city: Newark
MISCELLANEOUS		_
Base Flow Conditions? (Y/N):	Date of last precipitation:	12/31/19 Quantity: 0,07"
Photo-documentation Notes:		
Elevated Turbidity?(Y/N):	Canopy (% open): 95	
Mara complee collected for wet	ar chemistry 2 (V/N): V	ah Sample # or (D) (attach requite):
ield Measures:Temp (°C)	Dissolved Oxygen (mg/l)	pH (S.U.) 10 Conductivity (umhos/cm)
		ot, explain:
s the sampling reach represents	itive of the stream (Y/N) If hi	ot, explain:
Additional comments/description	of pollution impacts:	
	BIOLOGICAL OBSE (Record all observat	
Fish Observed? (Y/N)	Species observed (if known):	
Frogs or Tadpoles Observed? ()	(/N) N Species observed (if kr	nown):
Salamanders Observed? (Y/N)	N Species observed (if known);
	1	rved (if known):
Comments Regarding Biology:		
		N OF STREAM REACH (This <u>must</u> be completed) for site evaluation and a narrative description of the stream's location
	Row	Crop
1	/ 0.	<u> </u>
1		After
y m	1/10	and the second
OW)		
)	(P001)	ROSION /
	R	7
		No.
		M.
		7

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

Maria de la companya	Design to the state of the stat	
SITE NAMELOCATION NOVEN NEWO	Stream 15 RIVER BASIN MUSKING UM DRAINAGE AREA (MP) D.	32 mi2
LICELIA COUNTY SITE NUMBER	LAT.40,229098 LONG. 82. SD5283 RIVER CODE RIVER MILE	
		111
DATE 18 2020 SCORER AJK	COMMENTS	
NOTE: Complete All Items On This Fo	rm - Refer to "Flete Evaluation Manual for Ohio's PHWH Streams" for Instru	ictions
STREAM CHANNEL ONONE / NE	ATURAL CHANNEL TRECOVERED TRECOVERING TRECENT OF NO RECO	VERY
MODIFICATIONS:		
The second secon		-
1. SUESTRATE (Estimate percent of ex	very type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
The state of the s	icent substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT TYPE PERCENT	Metric
TYPE BLOR SLABS [16 pts]	SILT (3 pt)	Points
☐ ☐ BOULDER (>250 mm) [16 pts]	LEAF PACKWIOODY DEBRIS [3 pts]	Substrate
BEDROCK [16 pt]	FINE DETRITUS [3 pie]	Max = 40
OBBLE (65-256 mm) [12 pts] OBAVEL (2-64 mm) [9 pts]	70 MUCK [0 pts]	17
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ SAND (<2 mm) [6 pts]	25 ARTIFICIAL (3 pto)	()
	(A) (B)	A+B
Total of Percentages of Bidr Stabs, Boulder, Cobble, Bedrock	``!9	ATR
SCORE OF TWO MOST PREDOMINATE SUB	STRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	
2. Maximum Pool Depth (Measure the r	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Paal Depth
evatuation. Avoid plunge pools from ro	ad culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [30 pts] > 22.5 - 30 cm [36 pts]	> 5 cm - 10 cm [15 pts]	25
>10 - 22.5 cm (25 pts)	NO WATER OR MOIST CHANNEL [0 pts]	
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	-
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	Bankfi II
3. BANK FULL WIDTH (Measured as th	MAXIMUM POOL DEPTH (centimeters):	Bankfull Width
3. BANK FULL WIDTH (Measured as th > 4.0 meters (> 13) [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13") [25 pts]	MAXIMUM POOL DEPTH (centimeters): a average of 3-4 measurements) (Check ONLY one box):	
3. BANK FULL WIDTH (Measured as th	MAXIMUM POOL DEPTH (centimeters): ie average of 3-4 measurements) (Check ONLY one box): □ > 1.0 m + 1.5 m (> 3 3" [5 pts] □ > 1.0 m (≤ 3 3" [5 pts]	Width
3. BANK FULL WIDTH (Measured as th > 4.0 meters (> 13) [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13") [25 pts]	MAXIMUM POOL DEPTH (centimeters): average of 3-4 measurements (Check ONLY one box): > 1.0 m + 1.5 m (> 3 3" - 4"8") (15 pict)	Width Max=30
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]	MAXIMUM POOL DEPTH (centimeters): average of 3-4 measurements) (Check ONLY one box): > 1.0 m (> 3'3" (5 pts) (15 pts) > 1.0 m (≤ 3'3" (5 pts)	Width Max=30
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] COMMENTS	MAXIMUM POOL DEPTH (centimeters): average of 3-4 measurements)	Width Max=30
3. BANK FULL WIDTH (Measured as the state of	MAXIMUM POOL DEPTH (centimeters): average of 3-4 measurements)	Width Max=30
3. BANK FULL WIDTH (Measured as the state of	MAXIMUM POOL DEPTH (centimeters): average of 3-4 measurements)	Width Max=30
3. BANK FULL WIDTH (Measured as the state of	This information must also be completed PLAIN QUALITY L R (Most Predominant per Bank) L R (Most Predominant per Bank) MAXIMUM POOL DEPTH (centimeters): (Check ONLY one box): (Check ONLY one box): (Check ONLY one box): (A ST 3 per	Width Max=30
3. BANK FULL WIDTH (Measured as the state of	This information must also be completed PLAIN QUALITY L R (Most Predominant per Bank) R (Most Predominant per Bank) MAXIMUM POOL DEPTH (centimeters): (Check ONLY one box): > 1.0 m (> 3 3" 4 8") (15 pts) AVERAGE BANKFULL WIDTH (meters) 2.5 AVERAGE BANKFULL WIDTH (meters) L R (Most Predominant per Bank) L R (Most Predominant per Bank) Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial	Width Max=30
3. BANK FULL WIDTH (Measured as the state of	This information must also be completed PLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Wetland Method (R) Quality (R) Q	Width Max=30
3. BANK FULL WIDTH (Measured as the street of 13) [30 pts] > 4.0 meters (> 13) [30 pts] > 3.0 m	MAXIMUM POOL DEPTH (centimeters):	Width Max=30
3. BANK FULL WIDTH (Measured as the state of	This information must also be completed PLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Wetland Method (R) Quality (R) Q	Width Max=30
3. BANK FULL WIDTH (Measured as the structure of the stru	This information must also be completed AVERAGE BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) This information must also be completed AVERAGE BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) This information must also be completed AVERAGE BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) L R FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Welland Mature Forest, Welland Mature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Mining or Construction	Width Max=30
3. BANK FULL WIDTH (Measured as the structure of the stru	MAXIMUM POOL DEPTH (centimeters):	Width Max=30
3. BANK FULL WIDTH (Measured as the stream flowing Subsurface flow with isolated po	MAXIMUM POOL DEPTH (centimeters):	Width Max=30
3. BANK FULL WIDTH (Measured as the street of the street o	MAXIMUM POOL DEPTH (centimeters):	Width Max=30
3. BANK FULL WIDTH (Measured as the street of 13) (30 pts) 3.0 m 4.0 m (> 9 T - 13) (25 pts) 3.0 m 4.0 m (> 9 T - 13) (25 pts) 1.5 m 3.0 m (> 4.8 - 9 T) (20 pts) 1.5 m 3.0 m	MAXIMUM POOL DEPTH (centimeters):	Width Max=30
3. BANK FULL WIDTH (Measured as the state of	MAXIMUM POOL DEPTH (centimeters):	Width Max=30
3. BANK FULL WIDTH (Measured as the strength of the strength o	MAXIMUM POOL DEPTH (centimeters):	Width Max=30
3. BANK FULL WIDTH (Measured as the state of	MAXIMUM POOL DEPTH (centimeters):	Width Max=30 Zo

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)	i sala Sala
WWH Name: Lake Fork Licking Paver Distance from Evaluated Stream 10,5 mg	1
CWH. Name: Distance from Evaluated Stream	
Distance non Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order	
County: Licking Township/City: Newark	
MISCELLANEOUS	
	3
Photograph Information: (71 vain on /2 and: 1/4	
Elevated Turbidity? (Y/N): \(\sum_\) Canopy (% open): \(\sum_\)85.	-
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:	
Field Measures: Temp (°C) 7 6 Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)	- 7
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	7 .
Thor, please explain:	-
Additional comments/description of pollution impacts:	_
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the	
ID number: Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)	site
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)	
Progs of 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	1
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and and the state of the state	-
Ald bes	
FLOW	
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The state of the s	
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June 20, 2006 Revision

ChicEPA

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 32.5



Society Full Name & Affiliation: Society Full N			Scorore Full	Nama & Affiliation: K	ate Bomar Stante c
1) SUBSTRATE Check ONLY TWo substrate TYPE BOXES estimate % for one every type present a sectional % for one every type present and the section of the secti					18 2 5040 12 Office
BEST TYPES POOL RIFLE OTHER TYPES POOL RIFLE ORIGIN QUALITY HEAVY [-2] HEAVY [-			POVES	33 - decimal ")	102.50141210
BOULDER [9]	esti	mate % or note every type pres	sent		1,195,3174, 45,1374, 15
□ GOBLE [8] □ □ DETRITUS [3] □ MUCK [2] □ METLANDS [0] □ MOREMATE [1] Sult □ NORMAL [0] □ GOBLE [8] □ MUCK [2] □ MARDPAN [0] □		POOL RIFFLE	PAN [4]	LIMESTONE [1]	
□ GRAVEL (7)				☑ TILLS [1]	MODERATE [-1]
GRAVEL				☐ WETLANDS [0]	LI NORMAL [0]
SAND [8] SOROCK [5] Goor natural substrates; ignore SANDSTONE [0] SOROCK [5] MODERATE [1] MODERAT				☐ HARDPAN [0]	☐ FREE [1]
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 in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate amounts (e.g., very large boulders in deep of fast valer, large and present amounts of highest quality in small amounts of highest present				SANDSTONE [0]	DDE EXTENSIVE [-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 in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate amounts (e.g., very large boulders in deep of fast valer, large and present amounts of highest quality in small amounts of highest present	□□ BEDROCK [5]	(Scon	e natural substrates; igno	ore RIP/RAP [0]	MODERATE [-1]
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 in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate or greater amounts, but not of highest quality or in small amounts of highest quality in moderate amounts (e.g., very large boulders in deep of fast valer, large and present amounts of highest quality in small amounts of highest present	NUMBER OF BEST	TYPES: 4 or more [2] S	ludge from point-source	es) LACUSTURINE [0]	NORMAL [0]
2 INSTREAM COVER Indicate presence 0 to 3. 0.Absent: 1-Very small amounts of more common of marginal analysis and provided to present amounts. But not of highest quality of in small amounts of highest characteristic presents amounts. But not of highest quality of in small amounts of highest characteristic presents amounts. But not of highest quality of in small amounts of highest characteristic presents amounts. But not of highest quality of in small amounts of highest characteristic presents amounts. But not of highest quality of indicate for functional pools. Quality 3-Highest quality in moderate to present amounts (e.g., very large boulders in deep of read water, large diameter log that is stable, well developed roplyad in deep / fast water, or deep, well-defined, functional pools. Quality 3-Highest quality in moderate 1975 Quality 19	_	3 or less [0]		☐ SHALE [-1]	☐ NONE [1]
quality; 3-Highest quality; qu					
OVERHANGING VEGETATION [1] ROOTWADS [1] AQUATIC MACROPHYTES [1] SPARSE 5-25% [3] SPARSE 5-25% [3] SOURCE TO STABLE T	quality; 3-Highest quality djameter log that is stab	quality; 2-Moderate amour y in moderate or greater amoun ile, well developed rootwad in d	nts, but not of nignest q nts (e.g., very large bou leep / fast water, or dee	uality of in small amounts of Iders in deep or fast water, la p, well-defined, functional po	rge Check ONE (Or 2 & aver ols. EXTENSIVE >75% [11] MODERATE 25-75% [
Comments Comments Comments Channel C		VEGETATION [1] ROO	OTWADS [1]		
3] CHANNEL MORPHOLOGY Check ONE in each category (0r 2 & average) SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY HIGH [4]	() ROOTMATS [1]		-	To the state of the same of th	
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY HIGH [4]	Comments			7	Maximum 20
HIGH [4]	3] CHANNEL MORE	PHOLOGY Check ONE in ea	nch category (Or 2 & av		
MODERATE [3]					
Channel Comments	☐ HIGH [4] ☐	EXCELLENT [7] NONE	[6]	☐ HIGH [3]	
NONE [1]	☐ MODERATE [3] ☐	GOOD [5] RECO	VERED [4]		
BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)	X LOW [2]	FAIR [3] RECO	VERING [3]	Z LOW [1]	
A BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)		POOR [1] RECEI	NT OR NO RECOVERY	/ [1] /	
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 ROSION NONE / LITTLE [3] MODERATE 10-50m [4] MODERATE [10-50m [3] MODERATE [10-50m [3] MODERATE [2] MINING / CONSTRUCTION IILLAGE MAXIMUM DEPTH CHANNEL WIDTH Check ONE (ONLY) MODERATE [1] MAXIMUM MODERATE [1] MODERATE [1] MAXIMUM MODERATE [1] MODERATE [1] MAXIMUM MODERATE		20 F 1 S 1 E 4			
Somments	River right looking downst	RIPARIAN WID	TH FL FOREST	OOD PLAIN QUALITY	L R
5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH Check ONE (O/LY!) Check ALL that apply Ch	MODERATE [2]	NARROW 5-10m [2] NARROW 5-10m [2] VERY NARROW < 5	5m [1] CRESIDER	NTIAL, PARK, NEW FIELD [1] PASTURE [1]	URBAN OR INDUSTRIAL
MAXIMUM DEPTH Check ONE (ONLY!) Check ONE (Or 2 & average) Check ALL that apply POOL WIDTH > RIFFLE WIDTH [2] Check ALL that apply Pool WIDTH > RIFFLE WIDTH [2] Check ALL that apply Primary Contact Secondary Contact Secondary Contact Secondary Contact Secondary Contact INTERMITTENT [-2] O.2-<0.4m [1] Comments 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 RIFFLE / RUN EMBEDDEDNESS BEST AREAS 5-10cm [1] BEST AREAS 5-10cm [1	MODERATE [2]	NARROW 5-10m [2] NARROW 5-10m [2] VERY NARROW < 5	5m [1] CRESIDER	NTIAL, PARK, NEW FIELD [1] PASTURE [1]	URBAN OR INDUSTRIAL I MINING / CONSTRUCTIO Indicate predominant land use(s)
Check ONE (Only!) Check ONE (Or 2 & average) Check ALL that apply Primary Contact Secondary	MODERATE [2] HEAVY / SEVERE	☐ NARROW 5-10m [2] [1] ☐ VERY NARROW < 5 ☐ ☐ NONE [0]	5m [1] CRESIDER	NTIAL, PARK, NEW FIELD [1] PASTURE [1]	URBAN OR INDUSTRIAI I MINING / CONSTRUCTIO Indicate predominant land use(s) past 100m riparian. Riparian Maximum
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0.7-<1m [4]	MODERATE [2] HEAVY/SEVERE Comments 5] POOL/GLIDE A MAXIMUM DEPT	NARROW 5-10m [2]	E] RESIDER Sm [1] FENCED OPEN P. LITY OTH CI	JRRENT VELOCITY	Indicate predominant land use(s) past 100m riparian. Maximum 10 Recreation Potent
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F] MEASUREMENTS bankfull max, depth floodprone x2 width bankfull x depth x bankfull width Comment RE: Reach consistency/ Is reach typical of steam?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc. entrench. ratio egacy Tree: max. depth W/D ratio x depth x width HARDENED / URBAN / DIRT&GRIME BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING FALSE BANK / MANURE / LAGOON NATURAL / WETLAND / STAGNANT WWTP / CSO / NPDES / INDUSTRY ATMOSPHERE / DATA PAUCITY ACID / MINE / QUARRY / FLOW BANK / EROSION / SURFACE WASH H₂0 / TILE / H₂0 TABLE PARK / GOLF / LAWN / HOME CONTAMINATED / LANDFILL EJ ISSUES Circle some & COMMENT W = 34 * 2 2 S ACTIVE / HISTORIC / BOTH / NA FLOOD CONTROL / DRAINAGE PUBLIC / PRIVATE / BOTH / NA **MODIFIED / DIPPED OUT / NA** MOVING-BEDLOAD-STABLE IMPOUNDED / DESICCATED SPRAY / SNAG / REMOVED YOUNG-SUCCESSION-OLD RELOCATED / CUTOFFS DI MAINTENANCE **ARMOURED / SLUMPS** LEVEED / ONE SIDED **ISLANDS / SCOURED** OHANA S Prostor 614 Ges INVASIVE MACROPHYTES ☐ SLUDGE DEPOSITS
☐ CSOS/SSOS/OUTFALLS **BJAESTHETICS EXCESS TURBIDITY NUISANCE ALGAE** POOL: □>100ft²□>3ft ☐ DISCOLORATION ☐ FOAM / SCUM ☐ OIL SHEEN AREA DEPTH □ NUISANCE ODOR ☐ TRASH / LITTER CJ RECREATION 2nd ☐ SECCHI DEPTH☐ O UP
O NORMAL
C LOW
D DRY 1st-sample pass- 2nd --sample pass--□ > 70 cm/ CTB CLARITY STAGE ☐ 20-<40 cm Stream Drawing: AJ SAMPLED REACH □ 40-70 cm Check ALL that apply M HIGH □ < 20 cm <10%-CLOSED 1st A> 85%- OPEN □ 55%-<85% CANOPY DISTANCE 10%-<30% 30%-<55% 0.15 Km 0.12 Km METHOD OTHER □ 0.5 Km BOAT WADE L. LINE □ OTHER 0.2 Km meters Elisa Min

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

8	1717	
1	7	7
ш)	1
- 31		- 1

LENGTH OF STREAM REACH (#) 200 L DATE 18/20 SCORER AJK NOTE: Complete All Kents On This Form	Sharp Road 38 KV Transmission cam 17 RIVER BASIN MUSKINGUM AT. 40.250126 LONG. 82.507316 RIVER C	DRAINAGE AREA (m²) COLINICODE RIVER MILE ODE RIVER MILE O'S PHWH Streams" for Instructions
(Max of 40). Add total number of significant TYPE PE BLOR SLABS [16 pts] BOULDER (>250 mm) [16 pts] BEDROCK [16 pt]	r type of substrate present. Check ONLY two predent substrate types found (Max of 8). Final metric score recent substrate types found (Max of 8). Final metric score recent substrate types found (Max of 8). Final metric score recent substrate types substrate types.	PERCENT Metric Points Ris [3 pts] Substrate Max = 40
2. Maximum Pool Depth (Measure the maxevaluation. Avoid plungs pools from road to > 30 centimeters [30 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS SANK FULL WIDTH (Measured as the at > 4.0 maters (> 13) [30 pts] > 3.0 m · 4.0 m (> 9 P - 13) [26 pts] > 1.5 m · 3.0 m (> 48 - 97) [20 pts] COMMENTS COMENTS COMMENTS C	verage of 3-4 measurements) (Check ON) > 1.0 m (1.5 m (> 3'3" - 4 5 1.0 m (≤ 3'3" 5 pts)	OKANNEL (0 pts) DEPTH (centimeters): Bankfull
RIPARIAN ZONE AND FLOODPL RIPARIAN WIDTH (Per Bunk) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS FLOW REGIME (At Time of Evalue) Stream Flowing Subsurface flow with isolated pools COMMENTS E phen Cu	L R (Most Predominant per Benk) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Moist Channel, isc (Interstitial) Dry channel, no we also contains the contain	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction
None 0.5 STREAM GRADIENT ESTIMATE Flat to Moderate	61 m (200 ft) of channel) (Check ONLY one box): 1.0	3.0 >3 >3

	M (This Information Must Also be Comple		25 45
QHEI PERFORMED?		s, Attach Completed QHEI Form)	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
DOWNSTREAM DESIGNATE	ED USE(S)		- A C . 12.
CWH.Name:	· weeks states	Distance from Evaluated Stream Distance from Evaluated Stream	
J EWH Name;		Distance from Evaluated Stream	***************************************
MAPPING: ATTACH COPIES	S OF MAPS, INCLUDING THE ENTIRE WATER	RSHED AREA: CLEARLY MARK THE SITE LOCATIO	1
	TOWN THE LET		
County Licking Cou	14,65 601	Map Page: NRCS Soll Map Stream Order	
MISCELLANEOUS	Township / City:	Nowa k	
Base Flow Conditions? (Y/N): N	Date of last precipitation: 1 5 201	9	1
	Date of last precipitation.	Quantity: 0,01	- 4
Photograph Information:	TALL PAL	n over 13 and 14	
Elevated Turbidity? (Y/N):	Canopy (% open):		
Nera samples collected for water chem	mistry? (Y/N): _ Note lab sample no.	or id. and attach results) Lab Number:	<u> </u>
	_ Dissolved Oxygen (mg/l) pH (8		
	of the stream (Y/N) If not, please expl		
	in our stream (TAV) I in not, please expli	ain;	State of
STATE OF STATE			
Additional comments/description of poll	flution impacts:		
		-4 - 1	
BIOTIC EVALUATION			
Performed? (Y/N): V (If Yes	Record all observations. Vouchat sellections	optional. NOTE: all voucher samples must be labeled to	-
ID num!	ber: Include appropriate field data sheets from	n the Primary Headwater Habitat Assessment Manual)	with the site
ish Observed? (Y/N) Vouche	ner? (Y/N) Salamanders Observed? (Y	(/N) Voucher? (Y/N)	1.
rogs or Tadpoles Observed? (Y/N) Comments Regarding Biology: 100 600	Voucher? (Y/N) Aquatic Macroinven	ertebrates Observed? (Y/N) Voucher? (Y/N)	=1 0
continents regarding biology.	1.10		
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DRAWING AND NA	RRATIVE DESCRIPTION OF STR	EAM REACH (This must be completed)	
Include important landmarks a	and other features of interest for site evalu	ation and a narrative description of the stream's le	ecation
			caron
	Ag. Field		4
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June 20, 2008 Revision

Chiefpa Primary Headwater Habitat Evaluation Form

2	3
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	HHEI Score (sum of metrics 1, 2, 3):
	ewark-SharpRd. 138KV Line Rebuild Project
Licking County SITE NUMBE	R Stream 18 RIVER BASIN MUSKINGUM DRAINAGE AREA (mi²)
	LAT. 40.24819 LONG. 82.501318 RIVER CODE RIVER MILE
DATE 18 2020 SCORER A	
	Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
	NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
MODIFICATIONS:	
1000	f every type of substrate present. Check ONLY two predominant substrate TYPE boxes initiate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT TYPE PERCENT Metric
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]	□□ SILT [3 pt] □□ FOINTS □□□ LEAF PACKWOODY DEBRIS [3 pts]
BEDROCK [16 pt]	☐ ☐ FINE DETRITUS [3 pts] Substrate
COBBLE (65-256 mm) [12 pts]	
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	MUCK [0 pts] ARTIFICIAL [3 pts]
Total of Percentages of	
Bldr Slabs, Boulder, Cobble, Bedroo	× 1 9 1 7 1 1 2
SCORE OF TWO MOST PREDOMINATE S	UBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:
	ne maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of 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] > 10 - 22.5 cm [25 pts]	< 5 cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS	MAXIMUM POOL DEPTH (centimeters):
	the average of 3-4 measurements) (Check ONLY one box): Sankfull Sankfull
> 4.0 meters (> 13') [30 pts] > 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	9,8 5
COMMENTS	AVERAGE BANKFULL WIDTH (meters)
	This left we also would also be completed
RIPARIAN ZONE AND FLO	This information <u>must</u> also be completed ODPLAIN QUALITY
RIPARIAN WIDTH L R (Per Bank)	FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R
C15 Wide >10m	Mature Forest, Wetland Conservation Tillage
☐ ☐ Moderate 5-10m	Immature Forest, Shrub or Old Urban or Industrial
Narrow <5m	Residential Park New Field Open Pasture, Row
□ □ None	☐ ☐ Fenced Pasture ☐ ☐ Mining or Construction
COMMENTS	
Stream Flowing Subsurface flow with isolated	Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Pools (Interstitial) Dry channel, no water (Ephemeral) Tom recent rain
SINUOSITY (Number of ben	ds per 61 m (200 ft) of channel) (Check ONLY one box):
None 0.5	1.0
None	1.0 2.0 3.0

QHEI PERFORMED? -	Yes No QHEI Score	_ (If Yes, Attach Completed QHEI Form)
, DOWNSTREAM DESIG	GNATED USE(S)	
WWH Name: North Fo	ark Licking River	Distance from Evaluated Stream Distance from Evaluated Stream
EWH Name:		Distance from Evaluated Stream
		WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
		CS Soil Map Page: NRCS Soil Map Stream Order
ounty: Lick	ing County Township/	city: Newark
MISCELLANEOUS	3	
ase Flow Conditions? (Y/N): N	Date of last precipitation: \\ \ 5 \ \ 2	020 Quantity: 0:01" (>1" raiv
hotograph Information:		1/3,1/
	Canopy (% open):85%	2
	_	
•		ple no, or id, and attach results) Lab Number:
		pH (S.U.) 91 7 Conductivity (µmhos/cm)
the sampling reach representat	ive of the stream (Y/N) If not, pleas	se explain:
administrativo ministrato de Scription :		
BIOTIC EVALUATION	Yes, Record all observations. Voucher colle	actions optional。NOTE: all voucher samples must be labeled with the ets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION	Yes, Record all observations. Voucher colle number. Include appropriate field data shee	ections optional。NOTE: all voucher samples must be labeled with the ets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION Performed? (Y/N): (II III IIIIIIIIIIIIIIIIIIIIIIIII	FYes, Record all observations. Voucher colle number. Include appropriate field data she oucher? (Y/N) Salamanders Obsen N) Voucher? (Y/N) Aquatic Ma	ections optional。NOTE: all voucher samples must be labeled with the ets from the Primary Headwater Habitat Assessment Manual) ved? (Y/N) Voucher? (Y/N) croinvertebrates Observed? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): (II III IIIIIIIIIIIIIIIIIIIIIIIII	Yes, Record all observations. Voucher colle number. Include appropriate field data shee	ections optional。NOTE: all voucher samples must be labeled with the ets from the Primary Headwater Habitat Assessment Manual) ved? (Y/N) Voucher? (Y/N) croinvertebrates Observed? (Y/N) Voucher? (Y/N)
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BIOTIC EVALUATION Performed? (Y/N): (In the content of the content	FYes, Record all observations. Voucher collection of the collectio	ections optional. NOTE: all voucher samples must be labeled with the ets from the Primary Headwater Habitat Assessment Manual) ved? (Y/N) Voucher? (Y/N) acroinvertebrates Observed? (Y/N) Voucher? (Y/N) STREAM REACH (This must be completed):
BIOTIC EVALUATION Performed? (Y/N): (In the content of the content	FYes, Record all observations. Voucher collection of the collectio	ections optional。NOTE: all voucher samples must be labeled with the ets from the Primary Headwater Habitat Assessment Manual) ved? (Y/N) Voucher? (Y/N) heroinvertebrates Observed? (Y/N) Voucher? (Y/N)
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BIOTIC EVALUATION Performed? (Y/N): (II III IIII IIIIIIIIIIIIIIIIIIII	FYes, Record all observations. Voucher collection of the collectio	ections optional. NOTE: all voucher samples must be labeled with the ets from the Primary Headwater Habitat Assessment Manual) ved? (Y/N) Voucher? (Y/N) acroinvertebrates Observed? (Y/N) Voucher? (Y/N) STREAM REACH (This must be completed):
BIOTIC EVALUATION Performed? (Y/N): (In the content of the content	FYes, Record all observations. Voucher collection of the collectio	ections optional. NOTE: all voucher samples must be labeled with the ets from the Primary Headwater Habitat Assessment Manual) ved? (Y/N) Voucher? (Y/N) acroinvertebrates Observed? (Y/N) Voucher? (Y/N) STREAM REACH (This must be completed):
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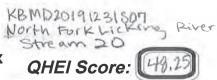
ChieFPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

LENGTH OF STREAM REACH (16) NOTE: Complete All Items on This Form	LAT. 40,24030 LONG. 82.507002 RIVER CODE RIVER MILE COMMENTS TO Refer to "Fletch Evaluation Manual for Ohio's PHWH Streams" for Instructional Channel Or Recovered Recovering Or Received Or NO RECOVERED	ctions
MODIFICATIONS: 1. SUESTRATE (Estimate percent of ever (Max of 40). Add total number of signific	ary type of substrate present. Check ONLY two predominant substrate TYPE boxes tent substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT TYPE SILT [3 pt] SILT [3 pt] CLAY or HARDPAN [9 pt]	HHEI Metric Points Substrate Max = 40
2. Maximum Pool Depth (Measure the mevaluation. Avoid plunge pools from road > 30 centimeters [28 pts] > 22.5 - 30 cm [38 pts] > 10 - 22.5 cm [25 pts] COMMENTS	destrictive poor works.	Max = 30
3. BANK FULL WIDTH (Measured as the > 4.0 maters (> 13) (30 pts) > 3.0 m · 4.0 m (> 9 T - 13) (26 pts) > 1.5 m · 3.0 m (> 4 8 - 9 7) (20 pts) COMMENTS	average of 3-4 measurements) (Check ONLY one box): 10 m - 1.5 m (> 3 3" - 4'8") [18 pix] 1.0 m (x 3'3") [5 pix] AVERAGE BANKFULL WIDTH (maters)	Bankfull Width Max=30
RIPARIAN ZONE AND FLOODING RIPARIAN WIDTH L R (Per Bank) Wide > 10m Moderate 5-10m Narrow <5m None COMMENTS	This information must also be completed PLAIN QUALITY &NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Wetland Immature Forest, Shrub or (ke) Residential, Park, New Field Penced Pasture Mining or Construction	
FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated poo COMMENTS EPNEME	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
Flat (05 st/100 st) Flat to Moderate	Moderate (2 e/100 ft) Moderate to Severe Severe (10 ft/100 ft	ıt

ase Flow Conditions? (Y/N): N Date of last precipitation: 15/2070 Quantity: 0.01 hotograph Information: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): N Canopy (% open): 95% Vere samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: leid Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) 1 Conductivity (µmhos/cm) the sampling reach representative of the stream (Y/N) If not, please explain: dditional comments/description of pollution impacts: BIOTIC EVALUATION (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)	ADDITIONAL STREAM INF	ORMATION (This Information Must Also be Completed):
DOWNSTREAM DESIGNATED USE(S) LOWH Name: Distance from Evaluated Stream Distance from Evaluation NRCS Soil Map Page: NRCS So	QHEI PERFORMI	ED? - ET Yes All No QHEI Score(If Yes, Attach Completed QHEI Form)
Distance from Evaluated Stream	DOWNSTREAM	DESIGNATED USE(S)
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED, AREA. CLEARLY MARK THE SITE LOCATION SGS Quadrangle Name; Fredonia NRCS Soil Map Page: NRCS Soil Map Stream Order Ounty: Township / City: NRCS Soil Map Stream Order MISCELLANEOUS ase Flow Conditions? (Y/N): Date of last precipitation: 15 / 2020 Quantity: 0.01' hotograph Information: 7 / 2010 And 14 / 4 levated Turbidity? (Y/N): Canopy (% open): 95%. Vere samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number: 1 / 2010 And 14 / 2010 And 14 / 2010 And 14 / 2010 And	WWH Name: Nov	The Fork Licking River Distance from Eveluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED, AREA CLEARLY MARK THE SITE LOCATION SGS Quadrangle Name; Fredonia NRCS Soil Map Page: NRCS Soil Map Stream Order	EWH Name:	Distance work Evaluation of Carlo
SGS Quadrangle Name; Fredonia NRCS Soil Map Page: NROS Soil Map Stream Order		
Township / City: Newark Miscellaneous ase Flow Conditions? (Y/N): Note of last precipitation: 15/2070 Quantity: 0.01 hotograph Information: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rain on 1/3 and 1/4 levated Turbidity? (Y/N): Note of last precipitation: 21" rai	MAPPING: ATTAC	CH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
Township / City: Newark Miscellaneous ase Flow Conditions? (Y/N): N Date of last precipitation: 15/2070 Quantity: 0.01* hotograph Information: 7 and 1/4 levated Turbidity? (Y/N): N Canopy (% open): 95% fere samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: 1eld Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) 7 Conductivity (umhos/cm) the sampling reach representative of the stream (Y/N) If 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 Headwater Habitat Assessment Manual) Ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Vouche	USGS Quadrangle Name:_	- Fredonia NRCS Soil Map Page: NRCS Soil Map Stream Order
ase Flow Conditions? (Y/N): Note of last precipitation: 15 2020 Quantity: 0.01 And 14 hotograph Information: 21" rain on 1/3 and 1/4 hotograph Information: 21" rain o	County:	216 8
BIOTIC EVALUATION BIOTIC EVALUATION Ciff Yes, Record all observations. Voucher? (Y/N): Note the sample of the stream (Y/N): Note the sample of the sample of the stream (Y/N): Note the sample of the stream (Y/N): Note the sample of the sample o	MISCELLANFOU	
hotograph Information: Canopy (% open):		1/2/2020 000
levated Turbidity? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number: Series samples colle	7.9 1	Date of last precipitation: 13 VVV Quantity: Quantity: 1/0
Variety Vari	Photograph Information:	Train on 13 and 14
ield Measures: Temp (°C) / Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) the sampling reach representative of the stream (Y/N) If not, please explain: dditional comments/description of pollution impacts:	Elevated Turbidity? (Y/N): _	N Canopy (% open):
ield Measures: Temp (°C) / Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) the sampling reach representative of the stream (Y/N) If not, please explain: dditional comments/description of pollution impacts:	Were samples collected for	water chemistry? (Y/N): (Note lab sample no. or id, and attach results) I sh Number
the sampling reach representative of the stream (Y/N) If not, please explain:	The second second	1 7
dditional comments/description of pollution impacts: BIOTIC EVALUATION erformed? (Y/N):		V
BIOTIC EVALUATION erformed? (Y/N):	is the sampling reach repres	sentative of the stream (Y/N) If not, please explain:
BIOTIC EVALUATION erformed? (Y/N):	- 14	
erformed? (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) Ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Vouche	Additional comments/descri	ption of pollution impacts:
erformed? (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) Ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Vouche		
	Performed? (Y/N): N Fish Observed? (Y/N) Frogs or Tadpoles Observe	(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) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
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the state of the s		the same of the sa
	Include important la	ndmarks and other features of interest for site evaluation and a narrative description of the stream's location
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location	1.50	
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location		
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location		
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location	1	
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location	FLOW	
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location		1000
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location	1	
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location		
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location	- 11	3"
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location		of Acepple
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location	,	of reality

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

OHEL	Score:
WHEI	Score.



	Pebuild Project				ornar/Stante	
River Code:		STORET #:	Lat./ Long.: 40 2538	55 182.	506989 OH	ice verifie locatio
BEST TYPE BLDR /SLABS BOULDER [9] COBBLE [8] GRAVEL [7] SAND [6] BEDROCK [5] NUMBER OF BES	Check ONLY Two subsestimate % or note everage pool RIFFLE [10] X X X X X ST TYPES: 4 or 3 or	strate TYPE BOXES; ery type present OTHER TYPES HARDPAN [4] DETRITUS [3] SILT [2] SILT [2] SILT [2] SCore natural suremore [2] sludge from ress [0]	Check ORIGIN ORIGIN LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] bstrates; ignore RIP/RAP [0] point-sources) LACUSTURINE [0] SHALE [-1] COAL FINES [-2]	SILT SILT On of margina	average) QUALITY HEAVY [-2] MODERATE [-1] NORMAL [0] EXTENSIVE [-2] MODERATE [-1] NORMAL [0]	Subs
diameter log that is st UNDERCUT BA OVERHANGING	ality in moderate or greatable, well developed a ANKS [1] G VEGETATION [1] N SLOW WATER) [1]	eater amounts (e.g., ve rootwad in deep / fast v POOLS > 70ci ROOTWADS [r, large pools. [ERS [1] [TES [1] \	Check ONE (Or 2 & a] EXTENSIVE >75%] MODERATE 25-75 [SPARSE 5-<25%] NEARLY ABSENT Cov Maximum	[11] % [7] 3] <5% [1]
3] CHANNEL MOI						20
	☐ EXCELLENT [7] ☐ GOOD [5] ☐ FAIR [3] ☐ POOR [1]	☐ NONE [6] ☐ RECOVERED [4] ☑ RECOVERING [3] ☐ RECENT OR NO] 💆 LOW [1]		Chan Maximi	1 7
River right looking dow		IAN MIDTH	in each category for <i>EACH BANK</i> (Control of the category for the category for <i>EACH BANK</i> (Control of the category for t		& average)	
O NONE / LITTLE D MODERATE [2] HEAVY / SEVER	NARRO RE [1] VERY N NONE [0	W 5-10m [2]	FOREST, SWAMP [3] SHRUB OR OLD FIELD [2] RESIDENTIAL, PARK, NEW FIELD FENCED PASTURE [1] OPEN PASTURE, ROWCROP [0]		ONSERVATION TILL RBAN OR INDUSTR IINING / CONSTRUC predominant land use om riparian. Ripar	IAL [0] FION [0] (s)
MODERATE [2] HEAVY / SEVER	AND RIFFLE / R. CHAN Check ON POOL WIDTH	ATE 10-50m [3] A W 5-10m [2]	□ SHRUB OR OLD FIELD [2] □ RESIDENTIAL, PARK, NEW FIELD □ FENCED PASTURE [1]	Indicate past 100	RBAN OR INDUSTR IINING / CONSTRUC predominant land use om riparian. Ripari Maximu	IAL [0] FION [0] (s) an im 10 intial act ptact ptact
MODERATE [2] HEAVY / SEVER Comments 5] POOL / GLIDE MAXIMUM DEP Check ONE (ONL)	AND RIFFLE / R. NONE [C. NOE [C. NONE [C. NONE [C. NONE [C. NOE [C.	W 5-10m [3] ARROW Sm [2] ARROW Sm [1] D C C C C C C C C C	CURRENT VELOCITY Check ALL that apply TORRENTIAL [-1] SLOW [1] VERY FAST [1] INTERSTI MODERATE [1] EDDIES [1]	ITIAL [-1] TENT [-2] Iffies. a populat	RBAN OR INDUSTR INNING / CONSTRUCT predominant land use m riparian. Ripari Maximu Recreation Pote Primary Cont Secondary Cont (circle one and comment of Maximu Maximu NO RIFFLE	IAL [0] FION [0] (s) an im 10 Intial act otact o
MODERATE [2] HEAVY / SEVER Comments 5] POOL / GLIDE MAXIMUM DEP Check ONE (ONL) > 1m [6] 0.7-<1m [4] 0.2-<0.4m [1] < 0.2m [0] Comments Indicate for full of riffle-obligs RIFFLE DEPTI BEST AREAS > 10c BEST AREAS > 5cc [metr	AND RIFFLE / R. AND RIFFLE / R. CHAN YI) Check ON POOL WIDTH POOL WIDTH POOL WIDTH POOL WIDTH MAXIMUM MMAXIMUM Mice o] O Riffle, No run	W 5-10m [3] ARROW Sm [2] ARROW Sm [1] D C C C C C C C C C	SHRUB OR OLD FIELD [2] RESIDENTIAL, PARK, NEW FIELD FENCED PASTURE [1] COPEN PASTURE, ROWCROP [0] CURRENT VELOCITY Check ALL that apply TORRENTIAL [-1] SLOW [1] VERY FAST [1] INTERMIT MODERATE [1] DEDDIES [1] Indicate for reach - pools and ri be large enough to support NE (Or 2 & average). LE / RUN SUBSTRATE RIFI LE (e.g., Cobble, Boulder) [2] STABLE (e.g., Large Gravel) [1]	ITIAL [-1] TENT [-2] Iffies. a populat	RBAN OR INDUSTR INNING / CONSTRUCT predominant land use m riparian. Ripari Maximu Recreation Pote Primary Cont Secondary Cont (circle one and comment of Maximu ION RIFFLE I EMBEDDEDNE DNE [2] W [1] DERATE [0] TENSIVE [-1] Maximu	IAL [0] FION [0] FION [0] Intial FION [0] FION [

	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:	Lava Lava	
Typical reach	EJ ISSUES WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / ÉROSION / SURFACE FALSE BANK / TMANURE / LAGOON WASH H20 / TILE / H20 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY		
	Circle some & COMMENT	2 6	No.
	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		POW CROPS
	BJAESTHETICS □ NUISANCE ALGAE □ INVASIVE MACROPHYTES □ EXCESS TURBIDITY □ DISCOLORATION □ FOAM / SCUM □ OIL SHEEN □ TRASH / LITTER □ NUISANCE ODOR □ SLUDGE DEPOSITS □ SSOS/SSOS/OUTFALLS 77/ON AREA DEPTH POOL: □ >100ft² □ >3ft		
Check ALL that apply METHOD STAGE BOAT Stample pass-2nd WADE CHIGH LINE DOPRMAL DISTANCE COW	CLARITY	Stream Drawing: Ottwin Str 7 W=45 N=2,5 N=17	1

Field Methods for Evaluating Primary Headwater Streams in Ohio Ohio EPA, Division of Surface Water

Version 4.0 October 2018

	HHEI Score (sum of metrics 1+2+3)	
SITE NUMBER Stream 21 RIVER BASIN MAIASK ENGTH OF STREAM REACH (#) 200 LAT 4	- Sharp Road 138 KV Transmission Line R Lingum RIVER CODE DRAINAGE AREA (MF)	0.08mi2
	r to "Field Evaluation Manual for Ohio's PHWH Streams" for In	
Max of 32). Add total number of significant subTYPE PERCENT	pe present). Check ONLY two predominant substrate TYPE boxes. betrate types found (Max of 8). Final metric score is sum of boxes A & B TYPE SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts]	HHEI Metric Points Substrate Max = 40
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock CORE OF TWO MOST PREDOMINATE SUBSTRATE Maximum Pool Depth (Measure the maximum)	(A) (B) (B) TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Z	A + B
time of evaluation. Avoid plunge pools from roa > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	5 cm - 10 cm [15 pts]	Max = 30
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
BANK FULL WIDTH (Measuredas the average > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7"-13') [25 pts] > 1.5 m - 3.0 m (> 4' 8' - 9' 7") [20 pts]	ge of 3 - 4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8")[15 pts] ≤ 1.0 m (≤ 3' 3")[5 pts]	Bankfull Width Max=30
COMMENTS	AVERAGE BANKFULL WIDTH (meters) 1.25	
	is information <u>must</u> also be completed	
RIPARIAN WIDTH L R (Per Bank) L R Wide >10m	AVALITY * NOTE: River Left (L) and Right (R) as looking downstream* FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland	гор
FLOW REGIME (At Time of Evaluation) Stream Flowing Subsurface flow with isolated pools (inter	Moist Channel, isolated pools, no flow (intermitte	ent)
None 1.0 0.5 1.5	n (200 ft) of channel) (Check ONLY one box): 2.0	
STREAM GRADIENT ESTIMATE		

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

OHEI DEDEODMEDS TIVE OUT O	May Amak Completed Burn Service
QHEI PERFORMED? Yes No QHEI Score	(IT Yes, Attach Completed CHEI form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: North Fork Licking River	Distance from Evaluated Stream V/mi
CWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.
USGS Quadrangle Name: HOMEY NI	RCS Soil Map Page: NRCS Soil Map Stream Order:
county: Licking County Tou	wnship/City: Mt. Vernon
MISCELLAHEOUS	4 1
Base Flow Conditions? (Y/N): Date of last precipitation	: 12 31 2019 Quantity: 0,07"
Photo-documentation Notes:	va
Elevated Turbidity?(Y/N): N Canopy (% open):	
Were samples collected for water chemistry? (Y/N): N	Lab Sample # or ID (attach results):
Field Measures:Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (umhos/cm)
is the sampling reach representative of the stream (Y/N)	If not, explain:
Additional comments/description of pollution impacts:	water
BIOLOGICAL O	
(Record all observed? (Y/N) N Species observed (if known):	ervations below)
Frogs or Tadpoles Observed? (Y/N) Species observed (
Salamanders Observed? (Y/N) Species observed (if kno	
Aquatic Macroinvertebrates Observed? (Y/N) Species observed (II Milo	
Comments Regarding Biology:	
	ION OF STREAM REACH (This <u>must</u> be completed) est for site evaluation and a narrative description of the stream's location
	· · · · · · · · · · · · · · · · · ·
Ag Fic	14
) 11	forest
- S- WILLY	tores,
LOW	
TOWN XX	
y de la constantina della constantina de la constantina della cons	VINTER
sores Sh	id (
Ko.	14
Ag Fre	Ta Ta
)	

Stream 22 KBMD20200102509

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: S1.5



Stream & Location: Vance Creek North Newark-Sharp Road 138KV Transmir RM: Date: 12 120	20
Line Rebuild Project Scorers Full Name & Affiliation: Kate Bornar / Stanler	
River Code: STORET #: Lat./ Long.: 40.206/18 182.505835 Office verified (NAD 83 - decimal *)	
1] SUBSTRATE Check ONLYTwo substrate TYPE BOXES; estimate % or note every type present BEST TYPES POOL RIFFLE OTHER TYPES POOL RIFFLE BLDR /SLABS [10]	mum
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] — OVENHANGING VEGETATION [1] — ROOTWADS [1] — AQUATIC MACROPHYTES [1] — SHALLOWS (IN SLOW WATER) [1] — BOULDERS [1] — LOGS OR WOODY DEBRIS [1] — NEARLY ABSENT <5% [1] — Cover Maximum 20	
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 2 3 Channel Maximum 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 RIPARIAN	5
Solution Pool Glide And Riffle / Run Quality MAXIMUM DEPTH CHANNEL WIDTH Check ONE (ONLY!) Check ONE (Or 2 & average) Check All that apply Check ONE (Or 2 & average) Check All that apply Check All that apply Check ONE (Or 2 & average) Check All that apply Check All that	
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 RIFFLE / RUN EMBEDDEDNESS BEST AREAS > 10cm [2]	=0]
6] GRADIENT (24) 4 ft/mi) UERY LOW - LOW [2-4] DRAINAGE AREA (1-1-1) MODERATE [6-10] WRUN: 40 %RIFFLE: 20 Maximum Maximum 10	

F) MEASUREMENTS bankfull max. depth floodprone x2 width bankfull x depth x bankfull width Comment RE: Reach consistency/ Is reach typical of steam?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc. entrench. ratio egacy Tree: max. depth W/D ratio x depth x width temp=3.2 PH = 4.4 LOGGING / IRRIGATION / COOLING BMPs-CONSTRUCTION-SEDIMENT HARDENED/URBAN/DIRT&GRIME FALSE BANK / MANURE / LAGOON WWTP / CSO / NPDES / INDUSTRY NATURAL / WETLAND / STAGNANT ATMOSPHERE / DATA PAUCITY ACID / MINE / QUARRY / FLOW WASH H₂0 / TILE / H₂0 TABLE BANK / EROSION / SURFACE PARK / GOLF / LAWN / HOME CONTAMINATED / LANDFILL EI ISSUES Stran ap Circle some & COMMENT FLOOD CONTROL / DRAINAGE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA MODIFIED / DIPPED OUT / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MOVING-BEDLOAD-STABLE IMPOUNDED / DESICCATED RELOCATED / CUTOFFS DI MAINTENANCE ARMOURED / SLUMPS LEVEED / ONE SIDED ISLANDS / SCOURED ROW Vana INVASIVE MACROPHYTES CSOs/SSOs/OUTFALLS **BI AESTHETICS EXCESS TURBIDITY** ☐ SLUDGE DEPOSITS ☐ NUISANCE ALGAE CJ RECREATION AREA DEPTH POOL: □>100ft²□>3ft NUISANCE ODOR DISCOLORATION ☐ TRASH / LITTER FOAM / SCUM OIL SHEEN Typical reach ☐ 40-70 cm ☐ > 70 cm/ CTB ☐ ☐ SECCHI DEPTH☐ E 1st -sample pass- 2nd 1st --sample pass--CLARITY 17. W STAGE ☐ 20-<40 cm M: 2. Stream Drawing: AJ SAMPLED REACH Check ALL that apply □ < 20 cm <10%-CLOSED N= 85%- OPEN CANOPY DISTANCE 30%-<55% 25%-<85% 10%-<30% VINTO BOAT WADE C. LINE 0.5 Km 0.2 Km 0.15 Km 0.15 Km 0.12 Km 0.12 Km 0.15 Km 0.12 Km METHOD meters

OhioEPA

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score

QHEI Score:

- 4	e	-		-	ě
- 6	150	-1	1.1		ı
. 1	116		1.1	-	ı
- 11	115	1		1	ı
- 80				-	я

Stream & Location:	Stream 23 N. Nowo	LIL-Sharp Rol 138 KV	RM:Date:	110510050
Transmission Lie	ne Rebuild s	corers Full Name & Affiliation	n: Nathas Molard	/Stantec
River Code:	STORET #:	Lat./ Long.:	/8	Office verified location
1] SUBSTRATE Check estime BEST TYPES BEST TYPES BEDR/SLABS [10] BOULDER [9] COBBLE [8] SAND [6] BEDROCK [5] NUMBER OF BEST TO Comments 2] INSTREAM COVE	ONLY Two substrate TYPE BOXES; ate % or note every type present OTHER TYPE HARDPAN [4] DETRITUS [3] SILT [2] SCORE natural YPES: 4 or more [2] sludge from [4] 3 or less [0] R Indicate presence 0 to 3: 0-Absent quality: 2-Moderate amounts, but it	Check ORIGIN POOL RIFFLE I LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] SUBSTRATES; ignore Om point-sources) LACUSTURINE SHALE [-1] COAL FINES [-2] t; 1-Very small amounts or if more common of highest quality or in small amounts.	ONE (Or 2 & average) QUA HEAVY SILT MODER NORM FREE [EXTEN NORM NONE MODER NONE	LITY [-2] RATE [-1] Substrate AL [0] 1] SIVE [-2] RATE [-1] AL [0] Maximum 20
UNDERCUT BANKS VOVERHANGING VE SHALLOWS (IN SLOTEMENTS) Comments	well developed rootwad in deep / fa: [1] POOLS > 7: [GETATION [1] ROOTWAD OW WATER) [1] BOULDERS	S [1] AQUATIC MACROPH S [1] X LOGS OR WOODY D	nal pools. EXTENSIVE MODERATE MYTES [1] SPARSE 5	E >75% [11] E 25-75% [7]
SINUOSITY DEV HIGH [4]	COLOGY Check ONE in each category ELOPMENT CHANNEL XCELLENT [7] NONE [6] COOD [5] RECOVERED AIR [3] RECOVERING OOR [1] RECENT OR I	IZATION STABILITY HIGH [3] MODERATE [2]	Channel Maximum 20
4] BANK EROSION A River right looking downstrea EROSION NONE / LITTLE [3] MODERATE [2] HEAVY / SEVERE [1]	RIPARIAN WIDTH	ONE in each category for EACH BANK FLOOD PLAIN QUA X	LITY	NDUSTRIAL [0] ISTRUCTION [0]
5] POOL / GLIDE AN MAXIMUM DEPTH Check ONE (ONLY!) > 1m [6] 0.7-<1m [4] 0.4-<0.7m [2] (0.2-<0.4m [1] <0.2m [0] Comments	D RIFFLE / RUN QUALITY CHANNEL WIDTH Check ONE (Or 2 & average) ☐ POOL WIDTH > RIFFLE WIDTH ☐ POOL WIDTH > RIFFLE WIDTH ☐ POOL WIDTH > RIFFLE WIDTH	[1] VERY FAST [1] INTERS	Primar Seconda (circle one and	Pool/Current Maximum 12
Indicate for function of riffle-obligate RIFFLE DEPTH BEST AREAS > 10cm [2] BEST AREAS 5-10cm [1] BEST AREAS < 5cm [metric=0] Comments	SPECIES: Check RUN DEPTH RIF ☐ MAXIMUM > 50cm [2] ☐ STA ☐ MAXIMUM < 50cm [1] M MO		rt a population FFLE / RUN EMBEDI NONE [2] LOW [1] MODERATE [0] EXTENSIVE [-	Riffle /
6] GRADIENT (て),の DRAINAGE AREA	☐ MODERATE [6-10]	701 302.	%GLIDE:(35) %RIFFLE:(30)	Gradient 10

Strain 23

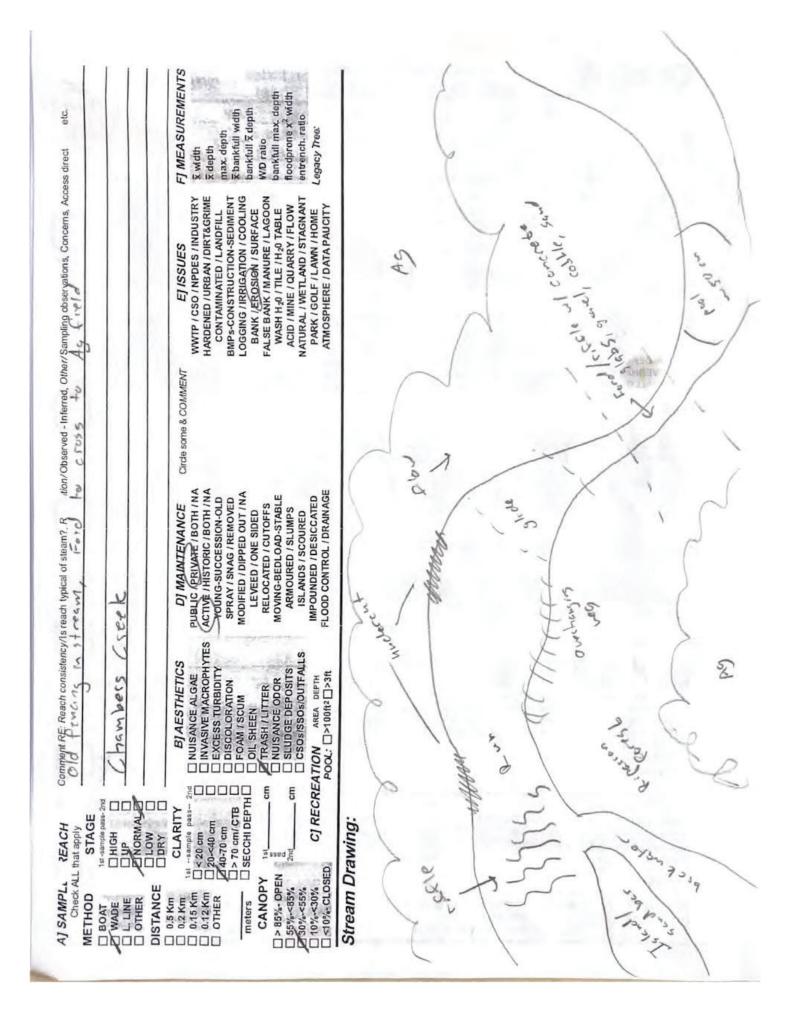
OhioEPA

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI	Score:	58
		The Person Name of Street, or other Person Name of Street, or

06/16/06

Stream & Location	:N-Neverk to sherp R	d 138 KV T	ransmission !	RM: Date:	041151-08-21
Line Robuild	Project Stream 23.	Scorers Full Nam	ne & Affiliation:	4 Kwolek/	Stanted
River Code: -	STORET #:	Lat./Lo		7182.5060	Office verified location
BEST TYPES BLDR /SLABS [10] BOULDER [9] COBBLE [8] GRAVEL [7] SAND [6] BEDROCK [5]		POOL RIFFLE 41	ORIGIN LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0]	SILT DECLES MODER SILT STEELS SOURCE SOURCE	[-2] ATE [-1] L [0] J ATE [-1] ATE [-1] ATE [-1] L [0] Maximum 20
quality; 3-Highest quality diameter log that is stabeled UNDERCUT BAN OVERHANGING		t not of righest quality of the control of rights and the control of the control	or in small amounts of n deep or fast water, la	Check ONE (Or go ols Department of the control of t	or 2 & average) >75% [11] 25-75% [7]
SINUOSITY DE HIGH [4] MODERATE [3] LOW [2]	PHOLOGY Check ONE in each cate EVELOPMENT CHANNEL EXCELLENT [7] NONE [6] GOOD [5] RECOVERED FAIR [3] RECOVERIN POOR [1] RECENT OR	IZATION	STABILITY HIGH [3] MODERATE [2] COW [1]	7	Channel Aaximum 20
A] BANK EROSION River right looking downstr EROSION NONE / LITTLE [3] MODERATE [2] HEAVY / SEVERE		FLOOD FOREST, SWAI	PLAIN QUALITY MP [3] D FIELD [2] PARK, NEW FIELD [1] URE [1]	CONSERVATIO URBAN OR IND MINING / CONS Indicate predominant la past 100m riparian.	USTRIAL [0] TRUCTION [0]
5] POOL / GLIDE AI MAXIMUM DEPTH Check ONE (ONLY!)	ND RIFFLE / RUN QUALITY CHANNEL WIDTH Check ONE (Or 2 & average) POOL WIDTH > RIFFLE WIDTH POOL WIDTH > RIFFLE WIDTH POOL WIDTH > RIFFLE WIDTH	Check [2] TORRENTIAL [1] VERY FAST [1] [0] FAST [1] MODERATE [NT VELOCITY ALL that apply [-1] SLOW [1] [] INTERSTITIAL [] INTERMITTEN [1] EDDIES [1] [2] [3] [4]	17 [-2]	Contact Contact
Indicate for fund of riffle-obligate RIFFLE DEPTH	RUN DEPTH RIF	k ONE (Or 2 & average FFLE / RUN SUBS ABLE (e.g., Cobble, B	e). STRATE RIFFLE oulder) [2] ge Gravel) [1] avel, Sand) [0]	opulation NO F	Riffle /
DRAINAGE AREA		0/1			Gradient 10



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



	TITLE 3CC	ore (sum of metrics 1, 2, 3).	
LENGTH OF STREAM REACH (ft) ZOO DATE 1/2/70 SCORER WTN	Stream 24 River Basin Musici LAT. 40.287531 LONG-87.50411 COMMENTS	DRAINAGE AREA (mi²) O RIVER CODE RIVER MILE	
	atural Channel ☑ recovered ☑ chinn	RECOVERING TRECENT OR NO RECO	OVERY
1. SUBSTRATE (Estimate percent of (Max of 40). Add total number of sign TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]	very type of substrate present. Check ONL ficant substrate types found (Max of 8) Final PERCENT SILT [3 pt]	.Y two predominant substrate TYPE boxes metric score is sum of boxes A & B. PERCENT SO (OODY DEBRIS [3 pts]	HHEI Metric Points
BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts]	FINE DETRITU CLAY OF HARD MUCK [0 pts] ARTIFICIAL [3	US [3 pts]	Substrate Max = 40
SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedroc SCORE OF TWO MOST PREDOMINATE SU	O · (A) 3	(B) UMBER OF SUBSTRATE TYPES:	A + B
2. Maximum Pool Depth (Measure the evaluation. Avoid plunge pools from > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]		ONLY one box): m [15 pts]	Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as > 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts] > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts COMMENTS	ne average of 3-4 measurements) > 1.0 m - 1.5 m ≤ 1.0 m (≤ 3 :	(Check ONLY one box): m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
Repth Oi	This information must also be cor	maleted	
RIPARIAN ZONE AND FLO RIPARIAN WIDTH L R (Per Bank) Wide > 10m Moderate 5-10m	DPLAIN QUALITY	L) and Right (R) as looking downstream☆	
* •		Open Pasture, Row	
☑ □ Narrow <5m □ □ None COMMENTS	Residential, Park, New Field Fenced Pasture	Crop Mining or Construction	_
Stream Flowing Subsurface flow with isolated		Channel, isolated pools, no flow (Intermittent)	-
SINUOSITY (Number of ben None 0.5	s per 61 m (200 ft) of channel) (Check <i>ONL</i> 1.0 2.0 1.5 2.5	Y one box): 3.0 >3	
STREAM GRADIENT ESTIMATE	☐ Moderate (2 ₦/100 ₦) ☐ Mod	derate to Severe	00 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Tyes 1 No QHEI Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name:
☐ CWH Name: Distance from Evaluated Stream ☐ EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: KNUX Township/City TSN R13W
MISCELLANEOUS
Base Flow Conditions? (Y/N): N Date of last precipitation: 12/29-12/31 Quantity: 1.35
Photograph Information
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) <u>6 . 2</u> Dissolved Oxygen (mg/l) pH (S _i U _i) <u>B.9</u> Conductivity (µmhos/cm)
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. 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)
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology: Nove
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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Field Methods for Evaluating Primary Headwater Streams in Ohio Ohio EPA, Division of Surface Water

Version 4.0 October 2018

Primary Headwater Habitat Field Evaluation Form HHEI Score (sum of metrics 1+2+3)	4
	siect Smi2
STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO R	
TYPE	HEI letric oints lbstrate ax = 40
The state of the s	ol Depth ax = 30
> 4.0 meters (> 13') [30 pts]	enkfull Vidth eax=30
COMMENTS AVERAGE BANKFULL WIDTH (meters) This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream* RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank)	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing	
0.5 1.5 2.5 >3 STREAM GRADIENT ESTIMAPE Flat to Moderate Moderate 2 %100 % Moderate to Severe Severe (10 %100 %) October 2018 Revision Page 1	_

QHEI PERFORMED? Yes No QHEI Score	(If Yes, Attach Completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Sycamore Creek	Distance from Evaluated Stream Distance from Evaluated Stream
EWH Name:	
	IRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION.
ISGS Quadrangle Name: Homer NRCS	Soil Map Page:NRCS Soil Map Stream Order:
County: Knox County Towns	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): N Date of last precipitation:	12 31 20 Quantity: 0.07"
Photo-documentation Notes:	
levated Turbidity?(Y/N): N Canopy (% open): 15	_
Vere samples collected for water chemistry? (Y/N): LE	
Field Measures:Temp (°C) 5.5 Dissolved Oxygen (mg/l) $_$	pH (S.U.) 9,0 Conductivity (umhos/cm)
s the sampling reach representative of the stream (Y/N) $\underline{\hspace{1cm}}$ If no	
Additional comments/description of pollution impacts:	
BIOLOGICAL OBSE	
(Record all observations of the Control of the Cont	
Frogs or Tadpoles Observed? (Y/N) N Species observed (if kn	umu).
Salamanders Observed? (Y/N) N Species observed (if known)	
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed	
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION	OF STREAM REACH (This must be completed)
Include important landmarks and other features of interest fe	or site evaluation and a narrative description of the stream's location
Include important landmarks and other features of interest for	n X /
Mo	1
	1/
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(wo.	() ()
THE LANGE	
1 / Comment	P081
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ROW MESSODE	
- KONO PUR	7

Page 2

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

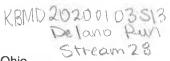
QHEI Score: 49.5

KBMD20200103512

Stream & Location:	Sycamore Creek/North A	Lewas K-Sharp Road 138 KV	_RM:Date:	1 13 1062
ransmission Line Rubu	ald Project s	Scorers Full Name & Affiliation	: Kate Bomar /s	stantec
River Code:	STORET #:	Lat./ Long.: 40 . 3087	17482.501870°W	Office verified location
BEST TYPES BLDR /SLABS [10] BOULDER [9] COBBLE [8] GRAVEL [7] SAND [6]	ONLY Two substrate TYPE BOXES ate % or note every type present OTHER TYPE HARDPAN [4] DETRITUS [3] MUCK [2] SILT [2] ARTIFICIAL [(Score natura 3 or less [0]	ORIGIN ORIGIN I LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] SANDSTONE [0]	ONE (Or 2 & average) QUA HEAVY MODER FREE [FREE [MODER MODER NORMA	[-2] RATE [-1] Substrat
quality: 3-Highest quality in	quality; 2-Moderate amounts, but in moderate or greater amounts (e.g., well developed rootwad in deep / fa: S [1] POOLS > 7: GETATION [1] ROOTWAD	S [1] AQUATIC MACROPHY	c of highest r, large Check ONE (I pools. EXTENSIVIERS [1] MODERAT	E 25-75% [7]
SINUOSITY DEV HIGH [4]	COLOGY Check ONE in each categoric recovered and recovered recovering recent or M	IZATION STABILITY HIGH [3] MODERATE [2]		Channel Maximum 20
River right looking downstrea EROSION NONE / LITTLE [3] MODERATE [2] HEAVY / SEVERE [1]	M	ONE in each category for EACH BANK (OF FLOOD PLAIN QUALITY) Comparison of the process of the	TY R CONSERVATION URBAN OR IN Indicate predominant I past 100m riparian.	DUSTRIAL [0] STRUCTION [0] land use(s) Riparian
Comments	3			Maximum 10
5] POOL / GLIDE AND MAXIMUM DEPTH Check ONE (ONLY!) > 1m [6] 0.7-<1m [4] 0.4-<0.7m [2] 0.2-<0.4m [1] < 0.2m [0] Comments	O RIFFLE / RUN QUALITY CHANNEL WIDTH Check ONE (Or 2 & average) □ POOL WIDTH > RIFFLE WIDTH [2 □ POOL WIDTH = RIFFLE WIDTH [6	1] VERY FAST [1] INTERSTIT	FIAL [-1] FENT [-2] Iffles.	Pool/ Current Maximum 12
Indicate for funct of riffle-obligate s RIFFLE DEPTH BEST AREAS > 10cm [2] BEST AREAS 5-10cm [1] BEST AREAS < 5cm [metric=0] Comments	RUN DEPTH RIF □ MAXIMUM > 50cm [2] □ STA □ MAXIMUM < 50cm [1] □ MOD		A population NONE [2] LOW [1] MODERATE [0] EXTENSIVE [-1]	RIFFLE [metric=0] EDNESS Riffle
6] GRADIENT (25.) DRAINAGE AREA	ft/mi)	/// 552	%GLIDE:	Gradient 8

Prosection Agency			HHEI Sco	re (sum of m	n Form etrics 1+2+3)	40
ENGTH OF STREAM	SCORER LABIN	LAT 40,30	RIVER CODE _ 8309'N LONG =	2.50 948	27.600.5	20,1
	Items On This For			1.1		
(Max of 32). A TYPE BLDR SLA BOULDER BEDROCK COBBLE GRAVEL	(Estimate percent of Add total number of sign ABS [16 pts] (1 < >256 mm) [16 pts] (16 pts] (16 pts] (65-256 mm) [12 pts] (2-64 mm) [9 pts] (2 mm) [6 pts]	every type present initicant substrate type PERCENT TYPE	es found (Max of 8), Fir <u>*E</u> SLT [3 pt]	DODY DEBRIS [3; (3 pts) PAN [0 pt]	PERCENT	HHEI Metric Points Substra Max = 40
Bldr Slabs, Bou	ercentages of Ider, Cobble, Bedrock ST PREDOMINATE SU	(A) BSTRATE TYPES:	12 TOTAL NUM	BER OF SUBSTRA	(B)	A + B
Maximum Potime of evalue > 30 centimete > 22.5 - 30 cm > 10 - 22.5 cm	[30 pts] [26 pts]	ne maximum pool de ls from road culverts	or storm water pipes) 5 cm - 10 cm < 5 cm [5pts NO WATER O	(Check ONLY of [15 pts]] R MOIST CHANNE	ne box):	Pool Dep Max = 30
BANK FULL	WIDTH (Measuredas > 13') [30 pts]	the average of 3 - 4	> 1.0 m - 1.5 m	n (> 3' 3" - 4' 8")[1		Bankful Width Max=30
> 4.0 meters (> 3.0 m - 4.0 m	n (> 9' 7"- 13') [25 pts] n (> 4' 8" - 9' 7") [20 pt		<u>≤1.0 m (≤3'3</u>) (o prej		
> 4.0 meters (> 3.0 m - 4.0 m	n (> 9' 7"-13') [25 pts] n (> 4' 8" - 9' 7") [20 pt			E BANKFULL WID	OTH (meters)	15
> 4.0 meters (> 3.0 m - 4.0 n > 1.5 m - 3.0 n COMMENTS	n (> 9' 7"-13") [25 pts] n (> 4' 8" - 9' 7") [20 pt	This informs	AVERAG	E BANKFULL WID		15
> 4.0 meters (> 3.0 m - 4.0 m > 1.5 m - 3.0 m COMMENTS RIPAR L R Wix Mo- Noi	RIAN ZONE AND FLOO ARIAN WIDTH Per Bank) de >10m derate 5-10m ne	This information of the control of t	AVERAG	E BANKFULL WID Ompleted L) and Right (R) as st Predominant per L R	looking downstream+	15 Top
> 4.0 meters (> 3.0 m - 4.0 m > 1.5 m - 3.0 m COMMENTS RIPAR (III Wike Wike	RIAN ZONE AND FLOOR RIAN WIDTH Per Bank) de >10m derate 5-10m rrow <5m ne IENTS I REGIME (At Time of a Flowing rface flow with isolated	This informs DDPLAIN QUALITY FLOOD L R Mature Immatu Reside Fence Evaluation) (Check pools (interstitial)	AVERAG ation mustalso be co NOTE: River Left (PLAIN QUALITY (Mo- Forest, Wetland are Forest, Shrub or C ential, Park, New Field d Pasture ONLY one box): Moist C Dry ch	E BANKFULL W/ID Impleted L) and Right (R) as st Predominant per L R Did Field	looking downstreams Bank) Conservation Tillage Urban or Industrial Open Pasture, Row Co Mining or Construction pols, no flow (intermitte	15
> 4.0 meters (> 3.0 m - 4.0 m > 1.5 m - 3.0 m COMMENTS RIPAR RIPAR Wice Non COMM FLOW Stream Subsui COMM SINUC None 0.5	RIAN ZONE AND FLOOR RIAN WIDTH Per Bank) de >10m derate 5-10m rrow <5m ne IENTS V REGIME (At Time of n Flowing rface flow with isolated	This informs DDPLAIN QUALITY FLOOD L R Mature Immatu Reside Fence Evaluation) (Check pools (interstitial)	AVERAG ation mustalso be co NOTE: River Left (PLAIN QUALITY (Mo- Forest, Wetland are Forest, Shrub or C ential, Park, New Field d Pasture ONLY one box): Moist C Dry ch	E BANKFULL W/ID Impleted L) and Right (R) as st Predominant per L R Did Field	looking downstreams Bank) Conservation Tillage Urban or Industrial Open Pasture, Row Co Mining or Construction pols, no flow (intermitte	15

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: Sycamore Greek CWH Name: Distance from Evaluated Stream ☐ EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION. Homer NRCS Soil Map Page: NRCS Soil Map Stream Order: USGS Quadrangle Name: __ Knox Township/City: Mt. Vernon **MISCELLANEOUS** Base Flow Conditions? (Y/N): N Date of last precipitation: 1/3 20 Quantity: 0.47" Photo-documentation Notes: Elevated Turbidity?(Y/N): Y Canopy (% open): 40 Were samples collected for water chemistry? (Y/N): ______ Lab Sample # or ID (attach results): _____ Field Measures:Temp (*C) U Dissolved Oxygen (mg/l) _____ pH (S.U.) _______ Conductivity (umhos/cm) Is the sampling reach representative of the stream (Y/N) _____ If not, explain: ______ Additional comments/description of pollution impacts: **BIOLOGICAL OBSERVATIONS** (Record all observations below) Species observed (if known): Frogs or Tadpoles Observed? (Y/N) / Species observed (if known): Salamanders Observed? (Y/N) N Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location FLOW



Field Methods for Evaluating Primary Headwater Streams in Ohio Ohio EPA, Division of Surface Water

	Primary Headwater Habitat Field Evaluation Form HHEI Score (sum of metrics 1+2+3)	57
	SITE NAMEROCATION NORTH NUMBER STORM ROAD ROAD 138KN Transmission Live Rel SITE NUMBER STORM RIVER BASIN MUSKINGULIN RIVER CODE DRAINAGE AREA (mf) DELENGTH OF STREAM REACH (ft) 200 LAT 40.319071 LONG 82.500404 RIVER MILE DATE 1000 SCORER 18 MD COMMENTS OTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio's PHWH Streams" for Institute of the complete All Items On This Form - Refer to "Field Evaluation Manual For Ohio'	3400;2
5	STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO	RECOVERY
	BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] BEDROCK [16 pts] FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts] ARTIFICIAL [3 pts]	HHEI Metric Points Substrate Max = 40
	Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock (A) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	A + B
	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
	COMMENTS MAXIMUM POOL DEPTH (centimeters): 25	
priti cal	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
5'	COMMENTS AVERAGE BANKFULL WIDTH (meters) 1.5	20
4,	This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*	
1.25'	RIPARIAN WIDTH L R (Per Bank) L R Wide >10m Mature Forest, Wetland Moderate 5-10m Narrow <5m None Residential, Park, New Field Mining or Construction	D
	COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (interstitial) COMMENTS COMMENTS	t)
	SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None	

QHEI PERFORMED? Yes No QHEI Score	(If Yes, Attach Completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	Distance from Evaluated Stream /m/
WWH Name: KOKOSING RIVER	Distance from Evaluated Stream
EWH Name:	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE EN	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.
SGS Quadrangle Name: Homer NRC	CS Soil Map Page: NRCS Soil Map Stream Order:
ounty: YNOX Town	nship/city: Mt. Vernon
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Date of last precipitation:	1/3/2020 Quantity: 0.117"
noto-documentation Notes:	n
evated Turbidity?(Y/N): Canopy (% open): 100	
ere samples collected for water chemistry? (Y/N):	pH (S.U.) Conductivity (umhos/cm)
the sampling reach representative of the stream (Y/N) $\underline{\hspace{1cm}}$ If	not, explain:
sh Observed? (Y/N) Species observed (if known): sogs or Tadpoles Observed? (Y/N) Species observed (if known): species observed (if known): species observed? (Y/N)	known):served (if known):
	ON OF STREAM REACH (This <u>must</u> be completed) it for site evaluation and a narrative description of the stream's location
Row -	1
	OLD FIELD
	7 1
	> 4
V / / / / / / / / / / / / / / / / / / /	
	P001-
The state of the s	
POOL	ROW CROP

Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): SITE NAMELOCATION NI Neuro & - Sharp Ild. 138 KV Transmission Line Rebuild Throx Con Ohio SITE NUMBER STREAM 29 RIVER BASIN MUSICIALITY DRAINAGE AREA (mi) OL LAT 40,32278 LONG-82,499 THEIVER CODE RIVER MILE LENGTH OF STREAM REACH (ft) 200 DATE 1/3/20 SCORER NTA NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions 📈 NONE / 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 HHEI (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric PERCENT **Points** BLDR SLABS [16 pts] SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts] BOULDER (>256 mm) [16 pts] Substrate BEDROCK [16 pt] FINE DETRITUS [3 pts] Max = 40COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 70 凶口 SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) A + BBldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of 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 OLIWIN 1614 TOTS 4,1m **AVERAGE BANKFULL WIDTH (meters)** 12,5514 This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old 对对 Moderate 5-10m Urban or Industrial Open Pasture, Row Narrow <5m 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 Internition! SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 2.5 0.5 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Moderate (2 ft/100 ft) ☐ Moderate to Severe Severe (10 ft/100 ft) ☐ Flat to Moderate

DDITIONAL STREAM INFORMATION (This Information Must	Also be Completed):
QHEI PERFORMED? - TYes No QHEI Score_	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
	Distance from Evaluated Stream
	Distance from Evaluated Stream
J EWH Name:	Distance from Evaluated Stream
11	E ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
SGS Quadrangle Name: Howel	NRCS Soil Map Page: NRCS Soil Map Stream Order
ounty: Know Con T	Township/CityTSN_, 1213W
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Date of last precipitation:	1/3/20 Quantity 67
notograph Information:	
evated Turbidity? (Y/N):N Canopy (% open):	55 71
/ere samples collected for water chemistry? (Y/N):t (Not	te lab sample no. or id. and attach results) Lab Number:
eld Measures: Temp (°C) 6.2 Dissolved Oxygen (mg/l)	pH (S.U.) 1.4 Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N) If	fnot, please explain:
ID number Include appropriate fiel ish Observed? (Y/N) Voucher? (Y/N) Salamand	oucher collections optional. NOTE: all voucher samples must be labeled with the site lid data sheets from the Primary Headwater Habitat Assessment Manual) ders Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
	TION OF STREAM REACH (This must be completed): est for site evaluation and a narrative description of the stream's location
ELOW TO THE TOTAL THE TOTAL TO THE TOTAL TOT	17 012 2 nd

NNRVS04

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



		HUEI Scole	(sum of metrics 1, 2	., 3) .
SITE NAME/LOCATION AND PLANE	ril - Sharp	RA 158 KV Transmis	Sion Line Revuy	10
Musy, Co. SITE NUMBER	Shram 201	RIVER BASIN MUSKINGO	JW DRAINAGE AF	REA (mi²) 0.0Z
LENGTH OF STREAM REACH (ft) 700	1 41) 3340	187 LONG -82,4981)781	/EP CODE RIV	/ER MILE
			VER CODE KIN	ZER WILL
DATE 1/3/20 SCORER NOTO	COMM			
NOTE: Complete All Items On This Fo	rm - Refer to "F	ield Evaluation Manual for	Ohio's PHWH Stream	s" for Instructions
STREAM CHANNEL ONONE / N.	ATURAL CHANNE	EL DRECOVERED DREC	OVERING TRECENT	OR NO RECOVERY
MODIFICATIONS:				
Mobil Tox (Trotto)				
SUBSTRATE (Estimate percent of e-	ery type of subs	trate present. Check ONLY two	prèdominant substrate T	PE boxes
(Max of 40). Add total number of signif	icant substrate typ	es found (Max of 8). Final metri	score is sum of boxes A 8	& B. HHEI
TYPE	PERCENT	TYPE SILT [3 pt]		Z Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]		SILT [3 pt] LEAF PACKWOOD		<u> </u>
BEDROCK [16 pt]		FINE DETRITUS [3		Substrate
COBBLE (65-256 mm) [12 pts]		CLAY OF HARDPAN	[0 pt]	Max = 40
☐ ☐ GRAVEL (2-64 mm) [9 pts]	2	☐ ☐ MUCK [0 pts]		- 15
SAND (<2 mm) [6 pts]	10	ARTIFICIAL [3 pts]	_	
Total of Percentages of	(A			(B) A + B
Bldr Slabs, Boulder, Cobble, Bedrock	<u> </u>	9		6
SCORE OF TWO MOST PREDOMINATE SUB	STRATE TYPES:	TO TAL NUMBE	R OF SUBSTRATE TYPE	:5:
2. Maximum Pool Depth (Measure the	maximum pool d	epth within the 61 meter (200 i	(t) evaluation reach at the ti	ime of Pool Depth
evaluation. Avoid plunge pools from ro	ad culverts or sto	m water pipes) (Check ONLY > 5 cm - 10 cm [15		Max = 30
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]		< 5 cm [5 pts]	brel	30
> 10 - 22.5 cm [25 pts]			DIST CHANNEL [0 pts]	211
COMMENTS		MAXIMIME	OOL DEPTH (centimeter	296
COMMENTS		III OXIM OIII T	OOL BEI III (COILLINGISI	
3. BANK FULL WIDTH (Measured as th	e average of 3-4	measurements) (Chec > 1.0 m - 1.5 m (> 3	ck ONLY one box):	Bankfull Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]		≤ 1.0 m (≤ 3' 3") [5		Max=30
> 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]				10 15
COMMENTS CHUNK 3	Din 7108	Tylow AVERAGE E	SANKFULL WIDTH (meter	1 7 7 1
Verkla	0.331	MA 5132		
	This info	rmation must also be complet	ed	
RIPARIAN ZONE AND FLOO				rstream☆
RIPARIAN WIDTH		IN QUALITY		
L R (Per Bank) Wide >10m	`	lost Predominant per Bank) ature Forest, Wetland	L R Conserva	tion Tillage
		mature Forest, Shrub or Old	Urban or I	
Moderate 5-10m	M K In	eld		
☐ ☐ Narrow <5m	O O R	esidential. Park, New Field	Crop Open Pas	ture, Row
□ □ None		enced Pasture		Construction
COMMENTS				
FLOW REGIME (At Time of E	/aluation) (Chec	k ONLY one box):		
Stream Flowing	(2.1.2.1.2.1.)	☐ Moist Char	nel, isolated pools, no flow	(Intermittent)
Subsurface flow with isolated p	ools (Interstitial)	☐ Dry channe	el, no water (Ephemeral)	
COMMENTS / A 4				
		of channel) (Check ONLY one		
☐ None ☐ 0.5	1.0 1.5	☐ 2.0 ☐ 2.5	3.0	
	1.0		_	
STREAM GRADIENT ESTIMATE	W	—	to Course	Severe (10 ft/100 ft)
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate	Moderat	e (2 ft/100 ft) Moderate	10 Severe	Gevere (10 II/100 II)

ADDITIONAL STREAM INFORMATION					
QHEI PERFORMED? - Tyes	No QHEI Score	(If Yes, At	ttach Completed QH	El Form)	
DOWNSTREAM DESIGNATED	USE(S)				
NWH Name: Pelako CWH Name:	1CUN		Distance from I	Evaluated Stream	
DEWH Name:			Distance from E	valuated Stream	
MAPPING: ATTACH COPIES OF					
JSGS Quadrangle Name: How					
					am Order
County: Krox	To	wnship / City:	1510 ELS	W	
MISCELLANEOUS		1 1		, ,	
Base Flow Conditions? (Y/N):D	ate of last precipitation:	1/3/20	Quantity:	0,67	
hotograph Information					
Elevated Turbidity? (Y/N):	Conany (N anan) 40)/			
Vere samples collected for water chemist					
ield Measures: Temp (°C)D	issolved Oxygen (mg/l) _	pH(SU)	Conductiv	rity (µmhos/cm)	
s the sampling reach representative of the	e stream (Y/N) If n	iot, please explain:			
ID number	ecord all observations. Vouc Include appropriate field of (Y/N) Salamanders Voucher? (Y/N) Aqu	data sheets from the F	Primary Headwater Ha Voucher? (Y/N rates Observed? (Y/N	abitat Assessment I N) Voucher?	Manual)
DRAWING AND NARE	RATIVE DESCRIPTION	ON OF STREAM	REACH (This I	nust be comp	eleted):
Include important landmarks and					
3				1	
2	ISTE			7	
S.	old fie			1	reway
- Jan	old the	10			dy
LOW			/- F		- 1
1	- Est		-	3/1	
3	V 0 =		18 ms	196	0) /
5		c. 11		12	5
}	old.	1 1 1 11		-	~ 0
	C.Co.	HUIO		5	15.5
Lacon L.	O co.	tiel0		E	3.3

NNRVS05

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



SITE NAME/LOCATION _ N. NEWWY !!	- SMARD RILL, 138 KI) LINE REDOUND	
	Stram 3 RIVER BASIN MUSICING UIN DRAINAGE AREA (mi²) C	1,8
7(97)	LAT. 40,33133 LONG. 82,4989 3 RIVER CODE RIVER MILE	
DATE 1/3/70 SCORER MTN	JCOMMENTS	
NOTE: Complete All Items On This Fo	orm - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
	NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	N/EDN/
STREAM CHANNEL ANONE / N	NATURAL CHANNEL RECOVERED DIRECOVERING DIRECENT OR NO RECO	VERT
MODIFICATIONS:		
1. SUBSTRATE (Estimate percent of e	every type of substrate present, Check ONLY two predominant substrate TYPE boxes	HHEI
	ificant substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT TYPE PERCENT	Metric
TYPE BLDR SLABS [16 pts]	PERCENT TYPE PERCENT 15	Points
BOULDER (>256 mm) [16 pts]	LEAF PACKWOODY DEBRIS [3 pts]	8 1 4
☐ ☐ BEDROCK [16 pt]	FINE DETRITUS [3 pts]	Substrate Max = 40
OBBLE (65-256 mm) [12 pts]	CLAY OF HARDPAN [0 pt]	last last
GRAVEL (2-64 mm) [9 pts]	MUCK [0 pts]	73
SAND (<2 mm) [6 pts]	25 ARTIFICIAL [3 pts] 2	-
Total of Percentages of	(A) (B)	A + B
Bidr Slabs, Boulder, Cobble, Bedrock		
SCORE OF TWO MOST PREDOMINATE SUE	BSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	·
2. Maximum Pool Depth (Measure the	e maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from re	road culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts] < 5 cm [5 pts]	70
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL IS DES	70
	5811	
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as ti	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]		70
COMMENTS	OHUM 2.660 HIS 3.14 M AVERAGE BANKFULL WIDTH (meters)	
	Teph Oilem 0.49M	
	This information <u>must</u> also be completed	
RIPARIAN ZONE AND FLOO		
RIPARIAN WIDTH	FLOODPLAIN QUALITY L, R (Most Predominant per Bank) L R	
L R (Per Bank) Wide >10m	Mature Forest, Wetland Conservation Tillage	
☐ ☐ Moderate 5-10m	Immature Forest, Shrub or Old	
Uvoderate 5- 10m	Tield	
🗹 🔼 Narrow <5m	Residential, Park, New Field	
□ □ None	Fenced Pasture Mining or Construction	
		100
COMMENTS		
	Evaluation) (Check ONLY one hov):	
FLOW REGIME (At Time of E	Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent)	
FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p	Moist Channel, isolated pools, no flow (Intermittent) pools (Interstitial) Dry channel, no water (Ephemeral)	
FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p	Moist Channel, isolated pools, no flow (Intermittent)	
FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS Name of bendance None	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) ds per 61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.0 3.0	
FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS SINUOSITY (Number of bend	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) ds per 61 m (200 ft) of channel) (Check ONLY one box):	
FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS None	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) ds per 61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.0 3.0	

DDITIONAL STREAM INFORMATION (This Information Must Also be Co	ompleted):
QHEI PERFORMED? - Tyes KNo QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: DE LOYAG RUN	
	Distance from Evaluated Stream
	Distance from Evaluated Stream
PEVALINAME.	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE V SGS Quadrangle Name: NRC	
1	
ounty: KAOX Township / C	Sity: 15N 10 SW
MISCELLANEOUS	4.0"
ase Flow Conditions? (Y/N): Date of last precipitation:	Quantity: 0,67
hotograph Information:	
levated Turbidity? (Y/N): Canopy (% open):	
ere samples collected for water chemistry? (Y/N): (Note lab samples	
eld Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S,U.) 7.2 Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N) If not, please	e explain:
dditional comments/description of pollution impacts: H'GL Wi	
erformed? (Y/N): (If Yes, Record all observations. Voucher collections)	ctions optional NOTE: all voucher samples must be labeled with the site ts from the Primary Headwater Habitat Assessment Manual)
sh Observed? (Y/N) Salamanders Observerogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macomments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This must be completed):
Include Important landmarks and other features of interest for site	
	Hayfield
	Hayere
CY THE	1
- Amily Man	the Luce Fool
LOW ON ON STREET OF THE PARTY O	The LINE
MIXED TOWN	- W
Po Forest Done	THE VIEW OF THE PROPERTY OF TH
allo o a distance	
7 What I sweet	1
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2 Mrs Albo Succession	& Hurfield

Primary Headwater Habitat Evaluation Form

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- 88	٠.	/		

	HHEI Score (si	um of metrics 1, 2, 3):
LENGTH OF STREAM REACH (ft) 200 L	CAM 32 RIVER BASIN MUSCINGUM AT 40:337845 ONG 82:4984 PHRIVER COMMENTS	DRAINAGE AREA (mi²) 0.15
NOTE: Complete All Items On This Form	- Refer to "Field Evaluation Manual for Oh	nio's PHWH Streams" for Instructions
	URAL CHANNEL DRECOVERED DRECOV	
(Max of 40). Add total number of significar TYPE	y type of substrate present. Check ONLY two prent substrate types found (Max of 8). Final metric so RCENT TYPE SILT [3 pt] LEAF PACK/WOODY DI FINE DETRITUS [3 pts] CLAY or HARDPAN [0 MUCK [0 pts] ARTIFICIAL [3 pts]	PERCENT POINTS EBRIS [3 pts] pt] HHEI Metric Points Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTI	(A) TOTAL NUMBER C	DF SUBSTRATE TYPES:
	kimum pool depth within the 61 meter (200 ft) eviculverts or storm water pipes) (Check ONLY one Storm - 10 cm [15 pts Storm - 5 cm [5 pts] NO WATER OR MOIS	e box): Max = 30
3, BANK FULL WIDTH (Measured as the 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 pts]	verage of 3-4 measurements) (Check C	
COMMENTS TO THE TOTAL THE TOTAL TO THE TOTAL THE TOTAL TO THE TOTAL TH	AVERAGE BAN	KFULL WIDTH (meters)
RIPARIAN ZONE AND FLOODPL RIPARIAN WIDTH (Per Bank) Wide > 10m Moderate 5-10m	This information must also be completed AIN QUALITY ☆NOTE: River Left (L) and Rig FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field	ght (R) as looking downstream☆ L R Conservation Tillage Urban or Industrial
□ □ Narrow <5m ☑ ☑ None COMMENTS	Residential, Park, New Field Fenced Pasture	Open Pasture, Row Crop Mining or Construction
FLOW REGIME (At Time of Evalue) Stream Flowing Subsurface flow with isolated pools COMMENTS	Moist Channel,	isolated pools, no flow (Intermittent) water (Ephemeral)
SINUOSITY (Number of bends pe None 0,5	1.0 (Check <i>ONLY</i> one box 1.5 (Check <i>ONLY</i> one box 2.5	3.0 >3
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate	☐ Moderate (2 n/100 h) ☐ Moderate to S	Severe (10 m/100 m)

	f Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	. 199, гадан бөлүнсөө үлстгону
WWH Name: Zelano RUM	Distance from Evaluated Stream
CWH Name:	
	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WA	
USGS Quadrangle Name: Homer NRCS	
County: KACY Township / City	TSIU RIBW
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation 1/3/2	Quantity: 0, 67
Photograph Information:	
Elevated Turbidity? (Y/N): Y Canopy (% open): 45%	
Were samples collected for water chemistry? (Y/N): (Note lab sample	no or id. and attach results) Lab Number:
**	H (S.U.) 7, 4 Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) / If not, please e	
is the sampling reach representative of the stream (1774)_1 in not, please e	xpiairi
Additional comments/description of pollution impacts: Impacts from	dolonic /a muss co
evented bruded channel through ?	
even burner channel through 10	
BIOTIC EVALUATION	
	ons optional. NOTE: all voucher samples must be labeled with the site
	from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed' Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro	
Comments Regarding Biology: Nith	
PRAMING AND MADRATIVE DECORPORATION OF CO	
DRAWING AND NARRATIVE DESCRIPTION OF ST Include important landmarks and other features of interest for site even	
modes important farialisms and other foatales of interest for site of	
Hay	Geld Pastire
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	FR
3	-3 -1 23
FLOW	N No
FLOW	A 735
FLOW →	J 25
3/1/2	Janes X
3/1/2	Janes X Pas
3/1/2	Janes X Pas

June 20 2008 Revision

Con Languages Pressure Agency	Water Habitat Field Evaluation Form HHEI Score (sum of metrics 1+2+3)
LENGTH OF STREAM REACH (#) 200 LAT. DATE 1/13/21 SCORER ATIC	40,13824 LONG 82,444280 RIVER MILE
	er to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction
	SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY OF HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] (A) (B) A+B
time of evaluation, Avoid plunge pools from r > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	mum pool depth within the 61 meter (200 feet) evaluation reach at the road culverts or storm water pipes) (Check ONLY one box): 5 cm - 10 cm [15 pts]
COMMENTS	MAXIMUM POOL DEPTH (centimeters): 12
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]	Parage of 3 - 4 measurements) (Check ONLY one box): Bankfu Width Width Max=30
COMMENTS	AVERAGE BANKFULL WIDTH (meters) 2. 3
	This information mustalso be completed
RIPARIAN WIDTH L R (Per Bank) L	Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial
Stream Flowing Subsurface flow with isolated pools (into COMMENTS)	Moist Channel, isolated pools, no flow (intermittent)
None 1.0 0.5 1.5 STREAM GRADIENT ESTIMATE	m (200 ft) of channel). (Check ONLY one box):

DOWNSTREAM DESIGNATED USE(S)	
WWH Name A Fork Licking River	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	
GS Quadrangle Name: Utiza NRCS Si	
unty: Licking Township	icty: St. Louisville
MISCEL LANFOUS	
se Flow Conditions? (Y/N): Y Date of last precipitation: 13	2/30/20 Quantity: 40,1
oto-documentation Notes:	
vated Turbidity?(Y/N): _/ Canopy (% open):	
ere samples collected for water chemistry? (Y/N): Lab s	Sample # or ID (attach results):
ld Measures:Temp (°C) Dissolved Oxygen (mg/l)	
the sampling reach representative of the stream (Y/N) If not, e	
the sampling reach representative of the stream (Y/N) If not, 6	хрын.
iditional comments/description of pollution impacts:	
BIOLOGICAL OBSERV (Record all observations	
h Observed? (Y/N) Species observed (if known); N	The state of the s
ogs or Tadpoles Observed? (Y/N) _ / _ Species observed (if know	
lamanders Observed? (Y/N) Species observed (if known);	
putic Macroinvertebrates Observed? (Y/N) Species observed	
mments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION (OF STREAM REACH (This must be completed)
Include important landmarks and other features of interest for s	ite evaluation and a narrative description of the stream's location
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yes - I Dave	
Cu / care	Reglaun
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October 2018 Revision

Field Methods for Evaluating Primary Headwater Streams in Ohio Ohio EPA, Division of Surface Water

ALKRSOL

Primary Head	HHEI Score (sum of metrics 1+2+3)
LENGTH OF STREAM REACH (N) 200 LATE 1/13/21 SCORER ATK	Rd 138 kV Transmission Line Robuild Peoletic River CODE DRAINAGE AREA (MF) 6 mile COMMENTS Per to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
	ONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVE
	type present). Check ONL Y two predominant substrate TYPE boxes substrate types found (Max of 8). Final metric score is sum of boxes A & B NT TYPE SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt) MUCK [0 pts] ARTIFICIAL [3 pts] (A) (B) A + B
	Pool Dep mood culverts or storm water pipes) (Check ONLY one box): 5 cm - 10 cm [15 pts] < 5 cm [5pts] NO WATER OR MOIST CHANNEL [0pts]
COMMENTS	MAXIMUM POOL DEPTH (centimeters): / 🤇
3. BANK FULL WIDTH (Measured as the av. > 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]	// Perage of 3 - 4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width Max=30
COMMENTS	AVERAGE BANKFULL WIDTH (meters) 1. 2
	This information must also be completed
RIPARIAN WIDTH L R (Per Bank) L D Wide > 10m	## NOTE: River Left (L) and Right (R) as looking downstream. FLOODPLAIN QUALITY (Most Predominant per Bank)
FLOW REGIME (At Time of Evalual Stream Flowing Subsurface flow with isolated pools (COMMENTS FEEDING)	tion) (Check ONLY one box): Moist Channel, isolated pools, no flow (intermittent)
	0
	Moderate (2 th 100 t) Moderate to Severe Severe Severe (10 th 100 to

QHEI PERFORMED? Yes No QHEI Score	(If Yes, Attach Completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
DTWH Name: N FOCK LICKING RIVER	Distance from Evaluated Stream
	Distance nonite voloated do sain
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WA	ATERSHED AREA. CLEARLY MARK THE SITE LOCATION.
USGS Quadrangle Name: Utica NRCS Soil I	Map Page:NRCS Soil Map Stream Order:
county Licking Township/City	y. St. Louisville
MISCELLANEOUS	
Base Flow Conditions? (Y/N): 12 Date of last precipitation: 12	130/20 Quantity 40.1"
Photo-documentation Notes:	V Comments
Elevated Turbidity?(Y/N): N Canopy (% open): 100	
Were samples collected for water chemistry? (Y/N): Lab Sam	mple # or ID (attach results):
Field Measures:Temp (*C) Dissolved Oxygen (mg/l)	pH (S.U.) 7, Z Conductivity (umhos/cm)
is the sampling reach representative of the stream (Y/N) If not, expl	lain:
Additional comments/description of pollution impacts:	
BIOLOGICAL OBSERVAT	
(Record all observations be	
Fish Observed? (Y/N) Species observed (if known):/A	
Frogs or Tadpoles Observed? (Y/N) Species observed (if known):	
Salamanders Observed? (Y/N) Species observed (if known):	
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if	fknown):
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF	그 보다 가장 보는 사람들이 되었다. 그 아내는 것이 되었다면 하는 것이 되었다면 하고 있다고 했다.
Include important landmarks and other features of interest for site	evaluation and a narrative description of the stream's location
	1 24
Pasture	Vielend 241 PEM
164.	/ PEM
TOM TICE 10 boul	
LOW Yan Tree	
TOW The Time	45
2775	2955 run
gastre	7
V	ca's
1,	V

U		128299 LONG - \$2.456215 RIVER MILE
		MMENTS
	TE: Complete All Items On This Form - Refer to REAM CHANNEL MODIFICATIONS: NONE / N	Field Evaluation Manual for Ohio's PHWH Streams" for Instru ATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO F
		oresent). Check ONLY two predominant substrate TYPE boxes rate types found (Max of 8) Final metric score is sum of boxes A & B TYPE SILT [3 pt] LEAF PACKWOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] (A) YPES: 45 TOTAL NUMBER OF SUBSTRATE TYPES: 47
2	Maximum Pool Depth (Measure the maximum)	pool depthwithin the 61 meter (200 feet) evaluation reach at the culverts or storm water pipes) (Check ONLY one box) 5 cm - 10 cm [15 pts] < 5 cm [5pts] NO WATER OR MOIST CHANNEL [0pts]
3	BANK FULL WIDTH (Measured as the average > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7"- 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8' - 9' 7") [20 pts]	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]
	COMMENTS	AVERAGE BANKFULL WIDTH (meters)
-		information mustalso be completed ALITY * NOTE River Left (L) and Right (R) as looking downstream.
3		FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial Residential, Park, New Field Open Pasture, Row Crop Fenced Pasture
htrued	FLOW REGIME (At Time of Evaluation) (Stream Flowing	Moist Channel, isolated pools, no flow (intermittent) Dry channel, no water (ephemeral)
	None None 1.0	200 ft) of channel) (Check ONLY one box):

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: N Fork Licking River Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream ☐ EWH Name: MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION. USGS Quadrangle Name: Utics NRCS Soil Map Page: _____NRCS Soil Map Stream Order:_____ county: Lie king Township/City: St, Louis ville Base Flow Conditions? (Y/N): 1 Date of last precipitation: 12/30/20 Quantity: <0.1" Photo-documentation Notes:_ Elevated Turbidity?(Y/N): _____ Canopy (% open): ____ 1 6 6 Were samples collected for water chemistry? (Y/N): ______ Lab Sample # or ID (attach results): _____ Field Measures:Temp (°C) Z Dissolved Oxygen (mg/l) _____ pH (S.U.) ____ 8, 3 Conductivity (umhos/cm) Is the sampling reach representative of the stream (Y/N) Y If not, explain: Additional comments/description of pollution impacts: **BIOLOGICAL OBSERVATIONS** (Record all observations below) Fish Observed? (Y/N) | Species observed (if known): Frogs or Tadpoles Observed? (Y/N) _____ Species observed (if known):______ Salamanders Observed? (Y/N) _____ Species observed (if known):_____ Aquatic Macroinvertebrates Observed? (Y/N) / Species observed (if known): 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 lasture etland ZS

LENGTH OF STREAM REACH (A) 50 LAT	20 138 EU Trunchission Free Robuild Proje OF RIVER CODE DRAINAGE AREA (MF) C 40,127413 LONG - 82,453145 RIVER MILE	141
DATE 1/13/21 SCORER ATK	COMMENTS	_
NOTE: Complete All Items On This Form - Refe	er to "Field Evaluation Manual for Ohio's PHWH Streams" for In	struc
STREAM CHANNEL MODIFICATIONS: TONON	E / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR)	חחח
	ALCOTERED MEGOTERING MEGET ON	10 1120
(Max of 32). Add total number of significants PERCEN	SILT [3 pt] LEAF PACKWOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY OF HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts]	HI- Me Poi Sub Max
SCORE OF TWO MOST PREDOMINATE SUBSTRAT	E TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES:	Α •
2. Maximum Pool Depth (Measure the maximum e of evaluation. Avoid plunge pools from recommendation) 30 centimeters [20 pts] 22.5 - 30 cm [30 pts] 10 - 22.5 cm [25 pts]	num pool depth within the 61 meter (200 feet) evaluation reach at the oad culverts or storm water pipes) (Check ONLY one box): 5 cm - 10 cm [15 pts] < 5 cm [5pts] NO WATER OR MOIST CHANNEL [0pts]	Pool Max
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	-
3. BANK FULL WIDTH (Measured as the ave	rage of 3 - 4 measurements) (Check ONLY one box):	Ban
> 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]	
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7"-13') [25 pts]		
> 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	≤1.0 m (≤3'3')[5 pts] AVERAGE BANKFULL WIDTH (meters)	
> 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	≤1.0 m (≤3'3')[5 pts]	Max
> 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 RIPARIAN ZONE AND FLOODPLAIN RIPARIAN WIDTH	AVERAGE BANKFULL WIDTH (meters) This information mustalso be completed	Max
> 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 BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) This information mustalso be completed I QUALITY • NOTE: River Left (L) and Right (R) as looking downstream • FLOODPLAIN QUALITY (Most Predominant per Bank) R L R	Max
> 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 BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) This information mustalso be completed I QUALITY • NOTE: River Left (L) and Right (R) as looking downstream• FLOODPLAIN QUALITY (Most Predominant per Bank) R L R Mature Forest, Wetland Conservation Tillage	Max
> 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 BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) This information mustalso be completed I QUALITY • NOTE: River Left (L) and Right (R) as looking downstream • FLOODPLAIN QUALITY (Most Predominant per Bank) R L R	Max
> 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 BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) This information mustalso be completed I QUALITY • NOTE: River Left (L) and Right (R) as looking downstream. FLOODPLAIN QUALITY (Most Predominant per Bank) R L R Mature Forest, Wetland	Max
> 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 BANKFULL WIDTH (meters) AVERAGE BANKFULL WIDTH (meters) This information mustalso be completed I QUALITY * NOTE River Left (L) and Right (R) as looking downstream* FLOODPLAIN QUALITY (Most Predominant per Bank) R	Max
> 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	AVERAGE BANKFULL WIDTH (meters) This information mustalso be completed QUALITY * NOTE River Left (L) and Right (R) as looking downstream* FLOODPLAIN QUALITY (Most Predominant per Bank) R Mature Forest, Vetland	S
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> 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 RIPARIAN ZONE AND FLOODPLAIN RIPARIAN WIDTH R (Per Bank) L Wide > 10m Moderate 5-10m Moderate 5-10m	AVERAGE BANKFULL WIDTH (meters) This information mustalso be completed QUALITY NOTE River Left (L) and Right (R) as looking downstream. FLOODPLAIN QUALITY (Most Predominant per Bank) R Mature Forest, Vetland	S
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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: A Fork Linking River Distance from Evaluated Stream Distance from Evaluated Stream ☐ EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER SHED AREA. CLEARLY MARK THE SITE LOCATION. USGS Quadrangle Name: Utorg NRCS Soil Map Page: ______NRCS Soil Map Stream Order:_____ county Licking Township/City St. Louis ville Base Flow Conditions? (Y/N): Y Date of last precipitation: 17/30/20 Quantity: 40-1/1 Photo-documentation Notes: _ Elevated Turbidity?(Y/N): M Canopy (% open): 60 Were samples collected for water chemistry? (Y/N): ______ Lab Sample # or ID (attach results): _____ Field Measures:Temp (*C) 2,5 Dissolved Oxygen (mg/l) _____ pH (S.U.) 8 , 1 Conductivity (umhos/cm) ____/ Is the sampling reach representative of the stream (Y/N) 1 If not, explain: Additional comments/description of pollution impacts: **BIOLOGICAL OBSERVATIONS** (Record all observations below) Fish Observed? (Y/N) Species observed (if known): Frogs or Tadpoles Observed? (Y/N) M Species observed (if known): Salamanders Observed? (Y/N) ______ Species observed (if known):_____ Aquatic Macroinvertebrates Observed? (Y/N) / Species observed (if known): Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location steem 36 Res lawn retland 1855

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steem 37

Field Methods for Evaluating Primary Headwater Streams in Ohio Ohio EPA, Division of Surface Water

Open Companyone Restriction Agency	HHEI Score (sum of metrics 1+2+3)	4
SITE NAME/LOCATION A NEW CE - SHAPE SITE NUMBER 1 199 27 RIVER BASIN OF LENGTH OF STREAM REACH (II) 100 LATE DATE 1/13/24 SCORER ATK	TEN 138 & Transpission Line 12 - School 12 12 12 13 14 15 15 15 15 15 15 15	froi m. J
	er to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of Natural Channel Recovered Recovering Recent or No.	
	T TYPE PERCENT SILT [3 pt] SILT [3 pt] SILT [3 pts] PERCENT CLAY or HARDPAN [0 pt] 3 or MUCK [0 pts] ARTIFICIAL [3 pts]	HHEI Metric Points Substrat Max = 40
2. Maximum Pool Depth (Measure the maxim time of evaluation. Avoid plunge pools from ro > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS		oolDep Max = 30
	rage of 3 - 4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3' - 4' 8")[15 pts]	Bankful Width Max=30
	This information must also be completed	
RIPARIAN WIDTH L R	Mature Forest Wetland Conservation Tillage Immature Forest. Shrub or Old Field Urban or Industrial Residential Park, New Field Dpen Pasture, Row Crop	
FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (interpretation) SINUOSITY (Number of bends per 61 None 0.5	Moist Channel, isolated pools, no flow (intermittent perstitial) Dry channel, no water (ephemeral) m (200 ft) of channel) (Check ONLY one box): 2.0).
STREAM GRADIENT ESTIMATE	□ 2.5 □ >3	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): QHEI PERFORMED? Thes No QHEI Score _____ (If Yes, Attach Completed QHEI form) DOWNSTREAM DESIGNATED USE(S) WWH Name: N Fork Licking River Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream ☐ EWH Name: MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION. USGS Quadrangle Name: U 6 re 4 NRCS Soil Map Page: ______ NRCS Soil Map Stream Order._____ county Licking Township/City St. Louis ville Base Flow Conditions? (Y/N). Y Date of last precipitation: 12/30/20 Quantity: <0.1" Photo-documentation Notes:_ Elevated Turbidity?(Y/N): _____ Canopy (% open): _____6.0 Field Measures:Temp (°C) 2.7 Dissolved Oxygen (mg/l) _____ pH (S.U.) ____ 8.7 Conductivity (umhos/cm) _____ Is the sampling reach representative of the stream (Y/N) _____ If not, explain; Additional comments/description of pollution impacts: **BIOLOGICAL OBSERVATIONS** (Record all observations below) Fish Observed? (Y/N) / Species observed (if known): Frogs or Tadpoles Observed? (Y/N) / Species observed (if known): Salamanders Observed? (Y/N) ____ Species observed (if known):_____ Aquatic Macroinvertebrates Observed? (Y/N) V Species observed (if known): Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) Include important landmarks and other features of interest tor site evaluation and a narrative description of the stream's location netland Zb PEM/PSS FLOW

Field Methods for Evaluating Primary Headwater Streams in Ohio Ohio EPA, Division of Surface Water

s L	SITE NAMELOCATION N. Nowark - Class PRO Transmission Line Rebuild Project SITE NUMBER Street JR RIVER BASIN OF RIVER CODE DRAINAGE AREA (mr) Class ENGTH OF STREAM REACH (M) OO LAT 40.12 05 9 7 LONG 82 . 45 0 12 BRIVER MILE OATE 01/13/20 SCORER ATK COMMENTS OTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction
	REAM CHANNEL MODIFICATIONS: NONE NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO
	SUBSTRATE (Estimate percent of every type present). Check ONLY Iwo 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 PERCENT TYPE BLDR SLABS (16 pts] BOULDER (>256 mm) (16 pts] BEDROCK (16 pts] COBBLE (65-256 mm) (12 pts) GRAVEL (2-64 mm) [9 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock (A) CORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:
2	Maximum Pool Depth (Measure the maximum pool depthwithin the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): 30 centimeters [20 pts] 5 cm - 10 cm [15 pts] 22.5 - 30 cm [30 pts] <5 cm [5pts] >10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts] COMMENTS MAXIMUM POOL DEPTH (centimeters): 15
3	BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] Bank Width (Maxe) 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
L	COMMENTS AVERAGE BANKFULL WIDTH (meters)
3,5	RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream. RIPARIAN WIDTH L R (Per Bank) L R Wide > 10m Mature Forest, Wetland Moderate 5-10m Narrow <5m Residential, Park, New Field) Penced Pasture 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 Comment of Evaluation Check ONLY one box):
	None

Stream 38

ADDITIONAL STREAM I	NFORMATION (This Inform	mation Must Also be Cor	mpleted):	
QHEI PERFORMED? Yes No	QHEI Score	(If Yes, Attach Complete	d QHEI form)	
DOWNSTREAM DESIGNATED USE	(S)			
WWH Name: N Fork		Distance from	nEvaluated Stream	4
CWH Name:		Distance from	Evaluated Stream	
EWH Name;			nEvaluated Stream	
MAPPING: ATTACH COPIES OF MAPS,				
SGS Quadrangle Name: 45169	NRCS Soil N	Map Page:NRC	S Soil Map Stream Order:	
county. Licking	Township/City	y St. Louisv	1116	
MISCELLANEOUS			10	
ase Flow Conditions? (Y/N): Y Date of	of last precipitation: 12/3	36/20 Quantity	60.1"	
hoto-documentation Notes:				
levated Turbidity?(Y/N): Canop	ov (% onen): 40			
Vere samples collected for water chemistry? (nnie # or ID (attach requite	sV.	
		ALL ALL COLORS OF THE PROPERTY	,	
ield Measures:Temp (°C) 2, 2 Dissolved			The state of the s	-
s the sampling reach representative of the stre	eam (Y/N) If not, expl	lain:		_
				_
Additional comments/description of pollution im	pacts:			
				2
	BIOLOGICAL OBSERVATI			
V	(Record all observations bel			
ish Observed? (Y/N) Y Species obser				-
rogs or Tadpoles Observed? (Y/N) N S				-
alamanders Observed? (Y/N)/ Species				-
Aquatic Macroinvertebrates Observed? (Y/N)_	Species observed (if	known):		-
omments Regarding Biology:				_
				_
DRAWING AND NARRATIV	/E DESCRIPTION OF	STREAM REACH /	This must be completed)	-
Include important landmarks and other				
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15	5 1/20		5555	
ow () 355	5 1/20		5555	
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ow (*) 355	5 1/20		2	

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Field Methods for Evaluating Primary Headwater Streams in Ohio Ohio EPA, Division of Surface Water

NAMELOCATION & News K- Sheep	ed 138 Ku Trangmission Line Rebuild	
NUMBERSTORM 3 PRIVER BASIN O'	T10 RIVER CODE DRAINAGE AREA (MF) 5 T10.134058 LONG 82.461542 RIVER MILE COMMENTS	w
	efer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	
SUBSTRATE (Estimate percent of every	type present). Check ONL Ytwo predominant substrate TYPE boxes. substrate types found (Max of 8). Final metric score is sum of boxes A & B NT	HH let oir oir oir
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock 7 RE OF TWO MOST PREDOMINATE SUBSTRA	(A)	+1
Maximum Pool Depth (Measure the maximum Pool Depth (Measure the maximum of evaluation. Avoid plunge pools from > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS	5 cm - 10 cm [15 pts]	oi D
	> 1.0 m - 1.5 m (> 3' 3" - 4' 8")[15 pts] W	nki lidt
COMMENTS	AVERAGE BANKFULL WIDTH (meters) Z	-0
DIDADIAN ZONE AND EL CODRI AN	This information mustalso be completed	
RIPARIAN ZONE AND FLOODPLAIN RIPARIAN WIDTH L R (Per Bank) Wide >10m	QUALITY	
FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (introduced COMMENTS COMME	Moist Channel, isolated pools, no flow (intermittent)	
	m (200 ft) of channel) (Check ONLY one box):	

ADDITIONAL STREAM INFORMATION (TI	his Information Must Also be Completed):
QHEI PERFORMED? Yes No QHEI Score	(If Yes, Attach Completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
TWWH Name: N FORK LICKING RIVER	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.
	RCS Soil Map Page: NRCS Soil Map Stream Order:
county: Licking Tow	unshiproty: St, Loui's ville
MISCELLANEOUS	. / /
Base Flow Conditions? (Y/N): Y Date of last precipitation:	/Z/Z Quantity: 1.04"
Photo-documentation Notes:	
Elevated Turbidity?(Y/N): Canopy (% open):	30
Were samples collected for water chemistry? (Y/N):	Lab Sample # or D (attach results):
	pH (S.U.) 7,9 Conductivity (umhos/cm)
is the sampling reach representative of the stream (Y/N)	If not, explain:
Additional comments/description of pollution impacts:	
	BSERVATIONS
Fish Observed? (Y/N) Species observed (if known);	ervations below)
Frogs or Tadpoles Observed? (Y/N) Species observed	
	(nwo):
Aquatic Macroinvertebrates Observed? (Y/N) Species of	bserved (if known):
Comments Regarding Biology:	
10 Sept 5 7 A	
DDAWING AND NADDATIVE DESCRIPT	TION OF STREAM REACH (This must be completed)
	rest for site evaluation and a narrative description of the stream's location
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	75/4/2000
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J. W.	

	DATE 1/13/21 SCORER COMMENTS DTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
ST	TREAM CHANNEL MODIFICATIONS: NONE NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER
	SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B TYPE PERCENT SILT [3 pt] SILT [3 p
2	time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts]
3	State
1	COMMENTS AVERAGE BANKFULL WIDTH (meters) 2,7
2.5	This information mustalso be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE River Left (L) and Right (R) as looking downstream* RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank) L R (Per Bank) L R L R Wide > 10m
	Stream Flowing Moist Channel, isolated pools, no flow (intermittent) Subsurface flow with isolated pools (interestial) Dry channel, no water (ephemeral)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed)	
QHEI PERFORMED? Yes No QHEI Score (If Yes, Attach Completed QHEI f	orm)
DOWNSTREAM RESIDNATED MEETS	
Distance from Evaluation Distance from Evaluation	ed Stream
CWH Name: Distance from Evaluate	ed Stream
EWH Name: Distance from Evaluate	d Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK TH	
USGS Quadrangle Name: U b 'c q NRCS Soil Map Page:NRCS Soil M	ap Stream Order:
county Licking Townshipicity St. Loub ville	
MISCELLANEOUS	1.7
Base Flow Conditions? (Y/N): 1 Date of last precipitation: 1/2/21 Quantity: 1:0	4 11
Photo-documentation Notes:	
Elevated Turbidity?(Y/N): Canopy (% open):	
Were samples collected for water chemistry? (Y/N) Lab Sample # or ID (attach results):	
Field Measures:Temp (°C) 3, 0 Dissolved Oxygen (mg/l) pH (S.U.) 512 Conductivity	/ (umhos/cm)
s the sampling reach representative of the stream (Y/N) If not, explain:	
Additional comments/description of pollution impacts;	
BIOLOGICAL OBSERVATIONS (Record all observations below)	
Fish Observed? (Y/N)/ Species observed (if known);	
Frogs or Tadpoles Observed? (Y/N) Species observed (if known)	
Salamanders Observed? (Y/N) Species observed (if known):	
Aquatic Macroinvertebrates Observed? (Y/N) _ Species observed (if known):	
Comments Regarding Biology:	
Julinents regarding bloody.	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This mu	
Include important landmarks and other features of interest for site evaluation and a narrative description	of the stream's location
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	NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of every typ	be present). Check CNLY two predominant substrate TYPE boxes. Distrate types found (Max of 8). Final metric score is sum of boxes A & B TYPE SILT [3 pt] LEAF PACKWOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] (A) (B) A + B
Maximum Pool Depth (Measure the maximum time of evaluation. Avoid plunge pools from ros > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	um pool depth within the 61 meter (200 feet) evaluation reach at the ad culverts or storm water pipes) (Check ONLY one box): 5 cm - 10 cm [15 pts] < 5 cm [5pts] NO WATER OR MOIST CHANNEL [0pts]
COMMENTS	MAXIMUM POOL DEPTH (centimeters): 12/
BANK FULL WIDTH (Measuredas the avera > 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9 7"-13") [25 pts] > 1.5 m - 3.0 m (> 4"8" - 9" 7") [20 pts]	Bankfull Same Sam
COMMENTS	AVERAGE BANKFULL WIDTH (meters) 1,25
	his information must also be completed QUALITY + NOTE. River Left (L) and Right (R) as looking downstream.
RIPARIAN WIDTH L R (Per Bank) L R Wide >10m DE Narrow <5m DE None COMMENTS	FLOODPLAIN QUALITY (Most Predominant per Bank) L R
FLOW REGIME (At Time of Evaluation) Stream Flowing Subsurface flow with isolated pools (inte	 Moist Channel, isolated pools, no flow (intermittent)
COMMENTS TNT	m (200 ft) of channel) (Check ONLY one box):

QHEI PERFORMED? Yes No QHEI Score (If Y	es. Attach Completed QHEI form)	
DOWNSTREAM DESIGNATED USE(S)	ou, made a supposed with the supposed and the supposed as the	
DWWH Name Clear tock Licking QIVER	Distance from Evaluated Stream	
CWH Name:	Distance from Evaluated Stream	
EWH Name:	Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS	HED AREA. CLEARLY MARK THE SITE LOCATION.	
USGS Quadrangle Name: 4 Freq NRCS Soil Map P	Page: NRCS Soil Map Stream Order:	
county: Licking Township/City:		
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation: 1/2/	Quantity: 1.04/	
Photo-documentation Notes:		
Elevated Turbidity?(Y/N): Canopy (% open): G		
Were samples collected for water chemistry? (Y/N) Lab Sample #	tor D (attach results)	
Field Measures:Temp (*C) Dissolved Oxygen (mg/l) pH (
	The Control of the Co	-
is the sampling reach representative of the stream (Y/N) If not, explain:		
Additional comments/description of pollution impacts:		
BIOLOGICAL OBSERVATIONS		
(Record all observations below)		
Fish Observed? (Y/N) N Species observed (if known);		
Frogs or Tadpoles Observed? (Y/N) P Species observed (if known):		
Salamanders Observed? (Y/N) Species observed (if known);		
Aquatic Macroinvertebrates Observed? (Y/N) // Species observed (if know		
Comments Regarding Biology:		
DRAWING AND NARRATIVE DESCRIPTION OF STR	보고 있다면 하는 것이 있다면 하는 사람들이 있다는 그리는 하는 하는 하는 사람들이 없는 사람들이 없는 사람들이 없는 사람들이 되었다면 하는 것이다.	
Include important landmarks and other features of interest for site evalua		
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October 2018 Revision Page 2		

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

5/14/2021 4:34:44 PM

in

Case No(s). 21-0525-EL-BLN

Summary: Notice Letter of Notification Application for the North Newark-Sharp Road 138 kV Transmission Line Rebuild Project 701-841 electronically filed by Tanner Wolffram on behalf of AEP Ohio Transmission Company, Inc.