Large Filing Separator Sheet Case Number : 08-170-EL-BTX File Date : 12/30/2008 Section : 2 of 2 Number of Pages : 66

Description of Document : Application Route and 6.0-mile Alternate Route. The Preferred Route crosses 161.6 feet of PEM wetland and 0.728 acre of wetland within a 200-foot corridor. The ORAM score for the wetland indicated a Category I PEM wetland within the Preferred Route corridor. The Alternate Route corridor encompasses 0.437 acre of wetland within a 200-foot corridor and crosses 64 feet of one PEM/PFO/POW wetland. The ORAM scores for the wetlands indicated three Category I PEM wetlands, one Category II PFO wetland, and one Category I PEM/PFO/POW wetland within the Alternate Route corridor. No Category III wetlands were identified within either route corridor.

Field surveys along the Preferred Route and Alternate Route identified the following rivers: the Scioto River and the Olentangy River. These rivers were not assessed for habitat quality.

Four primary headwater streams were surveyed within the Preferred Route corridor and included three Modified Class II streams and one Modified Class I stream. Field surveys along the Alternate Route identified two Modified Class II headwater streams. Both of the Modified Class II streams (S01 and S03) intersect both the Preferred and Alternate Routes.

There is no record of plant species of concern within the project corridors. One protected mussel was recorded by the ODNR-DNAP within 1,000 feet of the transmission line corridors. This species, pondhorn, is threatened in the state of Ohio and was last observed in February, 1983. No plant or animal species of concern was observed during field surveys.

One natural feature, a cave, was identified within 1,000 feet of the Preferred Route, northeast of the quarry along the Scioto River.

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TABLE 6

WETLAND VEGETATION AND INDIVIDUAL SPECIES WETLAND DESIGNATION

Scientific Name	Common Name	Wetland Status	Upland	Wetland
Acer negundo	Box elder	FAC+	X	X
Acer rubrum	Red maple	FAC	х	x
Acer saccharinum	Silver maple	FACW	х	X
Achillea millefolium	Yarrow	FACU	Х	
Acorus calamus	Calamus	OBL		X
Agrimonia parviflora	Small-flowered agrimony	FAC	X	x
Agrostis alba (gigantea)	Redtop	FACW	X	x
Ailanthus alussima	Tree of heaven	NI	х	
Alliaria petiolata	Garlic mustard	FACU-	X	
Allium canadense	Wild onion	FACU	x	
Amaranthus retroflexus	Redroot amaranth	FACU	X	
Ambrosia artemisiifolia	Common ragweed	FACU	X	
Ambrosia trifida	Giant ragweed	FAC	X	x
Andropogon virginicus	Broomsedge	FACU	X	
Aristida spp.	Wiregrass	NO	x	x
Artemisia vulgaris	Wormwood	UPL	x	
Asclepias incamata	Swamp milkweed	OBL		x
Asclepias syriaca	Common milkweed	FACU-	x	
Aster spp.	Heath aster	NI	X	
Bidens frondosa	Devil's beggartick	FACW	x	x
Boehmeria cylindrica	False pettle	FACW+	x	x
Brassica rapa	Field mustard	NI	x	
Calamagrostis canadensis	Bluejoint	FACW+	x	x
Carex blanda	Eastern woodland sedge	FAC	x	
Carex camosa	Longhair sedge	FACW	13	x
Carex frankeii	Frank's sedge	OBL	4	x
Carex Jurida	Shallow sedge	OBL		x
Carex spp.	Sedges	FAC-OBL		x
Carex spp. Carex stricta	Upright sedge	OBL		x
	Bitternut hickory	FACU+	x	^
Carya cordiformis	Pignut hickory	FACU-	x	
Carya glabra		FACU-	x	
Carya ovata	Shagbark hickory	FACU		
Celtis occidentalis	Hackberry	N	x	
Centaurea maculosa	Spotted knapweed Buttonbush	OBL	•	x
Cephalanthus occidentalis		0		^
Cercis canadensis	Redbud	FACU-	x	х
Chelone glabra	White turtlehead	OBL		л
Chenopodium album	Lambsquarter	FACU+	X	
Chrysanthemum leucanthemum	Oxeye daisy	NI	X	
Cichorium intybus	Chicory	N	X	
Cirsium arvense	Canada thistle	FACU	X	
Cirsium vulgare	Bull thistle	FACU-	X	
Convolvulus sepium	Hedge bindweed	FAC	X	Х
Cornus stolinifera	Flowering dogwood	NI	X	
Cyperus esculentus	Yellow nutsedge	FACW	X	х
Dactylis glomerata	Orchardgrass	FACU	x	
Daucus carota	Queen Anne's face	NI		
Dipsacus sylvestris	Teasel	NI	х	
Elacagnus umbeilata	Autumn olive	NI		
Eleocharis acicularis	Needle spikerush	OBL		<u>X</u>

.

,

WETLAND VEGETATION AND INDIVIDUAL SPECIES WETLAND DESIGNATION

Blunt spikerush Purple leaf willowherb Fleabane Spotted joepyeweed Common boneset Sweetscented joepyeweed Upland boneset American beech Tall fescue	OBL OBL FACU FACW FACW+ FAC	X X X	X X
Fleabane Spotted joepyeweed Common boneset Sweetscented joepyeweed Upland boneset American beech	FACU FACW FACW+ FAC	x	
Spotted joepyeweed Common boneset Sweetscented joepyeweed Upland boneset American beech	FACW FACW+ FAC	x	•
Common boneset Sweetscented joepyeweed Upland boneset American beech	FACW+ FAC		
Sweetscented joepyeweed Upland boneset American beech	FAC	v	X
Upland boneset American beech		F •	х
American beech		X	х
	NO	X	
Tall feams	FACU	X	
I AN ICSUNC	FACU	X	
Meadow ryegrass	FACU	X	
Nodding fescue	FACU	X	
Virginia strawberry	FACU	x	
Green ash	FACW	x	х
Catchweed bebstraw	FACU	х	
White avens	FACU	X	
Ground ivy	FACU	X	
Honeylocust	FAC-	x	
•	NI		
Jewelweed	FACW	x	x
Black walnut		-	
Soft rush	FACW+	x	х
Path rush	FAC-	x	
Ricecut grass		-	х
-		x	x
			x
Privet	FACU	x	
Northern spicebush		1	х
•		1	
•			
		1	
· · · · · · · · · · · · · · · · · · ·			
•			x
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			x
1 05 5		x I	x
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			X
v on humenso	FAL 11-		л
Switcherses	FAC		х
-			А
			х
•			X
	Meadow ryegrass Nodding fescue Virginia strawberry Green ash Catchweed bebstraw White avens Ground ivy Honeylocust Soybean Jewelweed Black walnut Soft rush Path rush Ricecut grass White grass Common duckweed	Meadow ryegrassFACUNodding fescueFACUVirginia strawberryFACUGreen ashFACWCatchweed bebstrawFACUWhite arensFACUGround ivyFACUHoneylocustFAC-SoybeanNIJewelweedFACWBlack walnutFACUSoft rushFACW-Path rushFACW-Path rushFACWCommon duckweedOBLWhite grassFACUNorthern spicebushFACUItalian ryegrassFACUJapanese honeysuckleFACUJapanese honeysuckleFACUVeetboxFACUSeedboxFACW+Common mallowNIAfiafaNOYellow sweetcloverFACUSpearmintFACW+Common evening primoseFACUSensitive fernFACW+SwitchgrassFACUSwitchgrassFACUSwitchgrassFACUSwitchgrassFACUSwitchgrassFACUSwitchgrassFACW+Oranno neeperFACUStoreperFACUStoreperFACUSwitchgrassFACUSwitchgrassFACUDitch stonecropOBL	Meadow ryegrassFACUXNodding fescueFACUXVirginia strawberryFACUXGreen ashFACUXCatchweed bebstrawFACUXWhite avensFACUXGround ivyFACUXHoneylocustFACXSoybeanNiXJewelweedFACWXBlack walnutFACWXSoft rushFACW+XBlack walnutFACW+XSoft rushFACW+XWhite grassOBLWite grassWhite grassFACWXCommon duckweedOBLYPrivetFACUXNorthern spicebushFACU-XItalian ryegrassFACU-XHoneysuckleFACU-XHoneysuckleFACU-XMarsh seedboxOBLYPurple loosestifeFACW+XMarsh seedboxOBLYPurple loosestifeFACU-XYellow sweetcloverFACU-XYellow sweetcloverFACU-XSpearmintFACU-XSensitive fernFACW+XAmerican white waterillyOBLCCommon creping printoseFACU-XSwitchgrassFACW-XSwitchgrassFACU-XSwitchgrassFACW-XSwitchgrassFACU-XSuitchgrassFACU-XSuitchgr

WETLAND VEGETATION AND INDIVIDUAL SPECIES WETLAND DESIGNATION

Scientific Name			Upland	Wetland	
Phleum pratense	Timothy	FACU	X		
Phytolacca americana	Common pokeweed	FACU+	X		
Plantago lanceolata	Common plantain	UPL	х		
Plantago major	Broadleaf plantain	FACU	х		
Platanus occidentalis	Eastern sycamore	Eastern sycamore FACW-		x	
Poa pratensis	Kentucky bluegrass	FACU	х		
Polyganum hydropiperoides	Swamp smartweed	OBL		х	
Polygonum pensylvanicum	Pennsylvania smartweed	FACW	X	х	
Polygonum persicaria	Spotted ladysthumb	FACW	X	Х	
Polygonum sagittatum	Arrowleaf tearthumb	OBL		х	
Populus deitoides	Cottonwood	FAC	X	X	
Potamogeton spp.		OBL		x	
Prunus serotina	Black cherry	FACU	X		
Quercus alba	White oak	FACU-	X		
~ Quercus macrocarpa	Bur oak	FAC-	x		
Quercus palustris	Pin oak	FACW	x	х	
Quercus pulusinis Quercus rubra	Northern red oak	FACW-	x	X	
Rhus radicans	Poison Ivy	FAC	x	x	
Robinia psuedoacacia	Black locust	FACW-	x	x	
Rosa carolina	Pasture rose	UPL	x		
Rosa multiflora	Multiflora rose	FACU	X		
Rubus allegheniensis	Allegheny blackberry	FACU-	x		
Rumex acetosella	Sheep sorrel	UPL	x		
Rumex crispis	Yeilow curlydock	FACU	x	х	
Rumex obtusifolius	Bitter Dock	FACU-	x		
Salix nigra	Black willow	FACU-	X	х	
Sambucus canadensis	Elderberry	FACW-	x	X	
Scirpus atrovirens	Green bulrush	OBL	Δ	x	
Scirpus anovnens Scirpus cyperinus	Woolgrass	FACW+	x	X	
Scirpus validus	Softstem bulrush	OBL	^	X	
Setaria glauca	Pearl millet (foxtail)	FAC	x	X	
Setaria spp.	Foxtail	FAC	X	X	
setarta spp. Sisyrinchium angustifolium	Narrowleaf blue-eved grass	FAC FACW-	X	X	
sisyrinchium angusujonium Smilax rotundifolia	Roundleaf greenbriar	FAC W-	x	X	
	Shorthair goldenrod	FAC FACU-	X	А	
Solidago altissima Solidago anno denois	•				
Solidago canadensis	Canada goldenrod	FACU		V	
Solidago nitida	Flat-topped goldenrod	FAC		Х	
Solidago spp.	Goldenrod	FACU	X		
Sorghum halepense	Johnsongrass	FACU	X		
Taraxaci, pffocoma:e	Common dandelion	FACU-	X		
Toxicodendron radicans	Poison ivy	FAC	x		
Trífolium hybridum	Alsike clover	FACU-	X		
Trifolium praiense	Red clover	FACU-	x		
Typha angustifolia	Narrow leaf cattail	OBL		X	
Typha latifolia	Broad leaf cattail	OBL	_	x	
Ulmus rubra	Slippery elm	FAC	X	x	
Urtica dioica	Stinging nettle	FACU	X		
Verbascum thapus	Common mullein	NI	x		
Verbesina alternifolia	Wingstem	FAC	X	x	
Vernonia gigantea	Giant ironweed	FAC	X	X	

TABLE 6 - CONTINUED

WETLAND VEGETATION AND INDIVIDUAL SPECIES WETLAND DESIGNATION

Scientific Name	Common Name	Wetland Status	Upland	Wetland
Vicia cracca tenuifolia	Cow veich	NO	X	
Viola popilionacea	Common blue violet	FAC	х	х
Vitis aestivalis	Summer grape	FACU	x	
Vitis riparia	River grape	FACW	x	X
Vitis labrusca	Fox grape	FACU	Х	
Xanthium strumarium	Common cocklebur	FAC	X	х
Zea Mays	Соп	NI	x	

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

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

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

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

Up1 = Occurs in uplands almost always (>99 percent) under favorable conditions

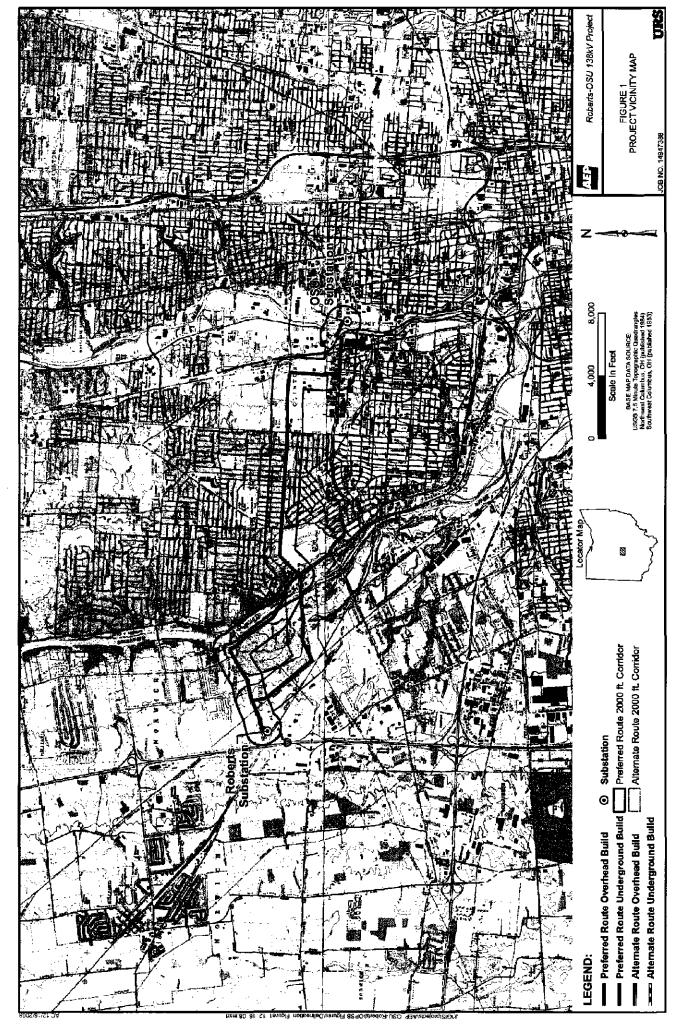
NI = Not indicated (no agreement as to designation)

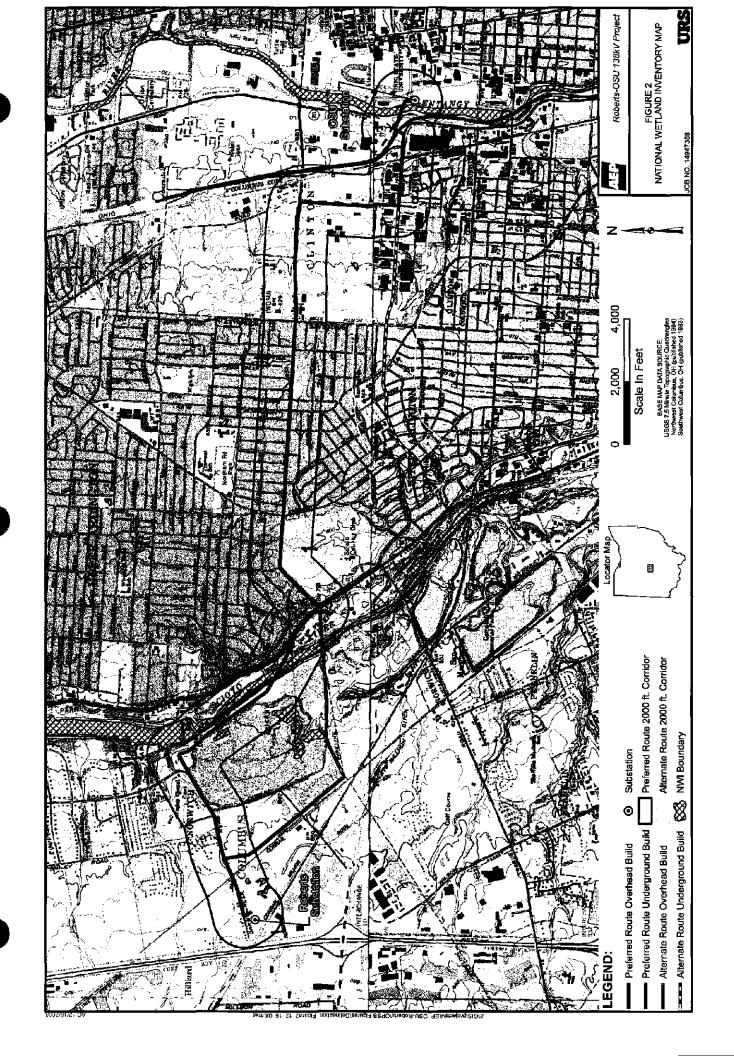
NO = No listings

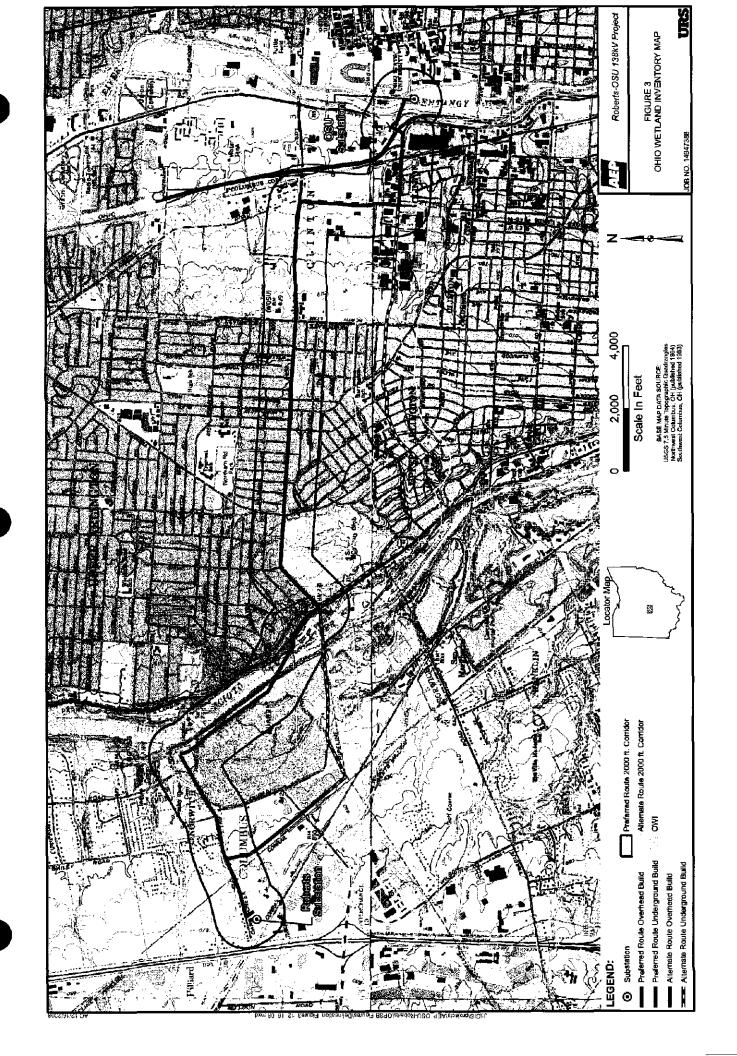
National Wetlands Inventory, U.S. Fish and Wildlife Service, Biological Report 88(24) Region 1 listings

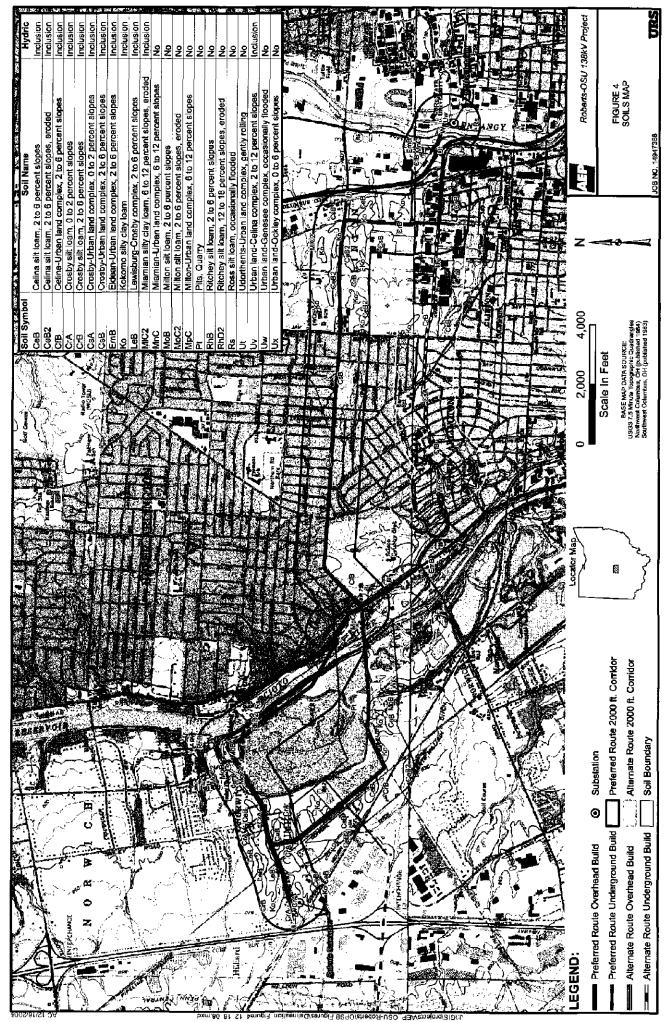
TABLE 7 ANIMAL SPECIES IDENTIFIED OR LIKELY TO OCCUR IN THE STUDY AREA

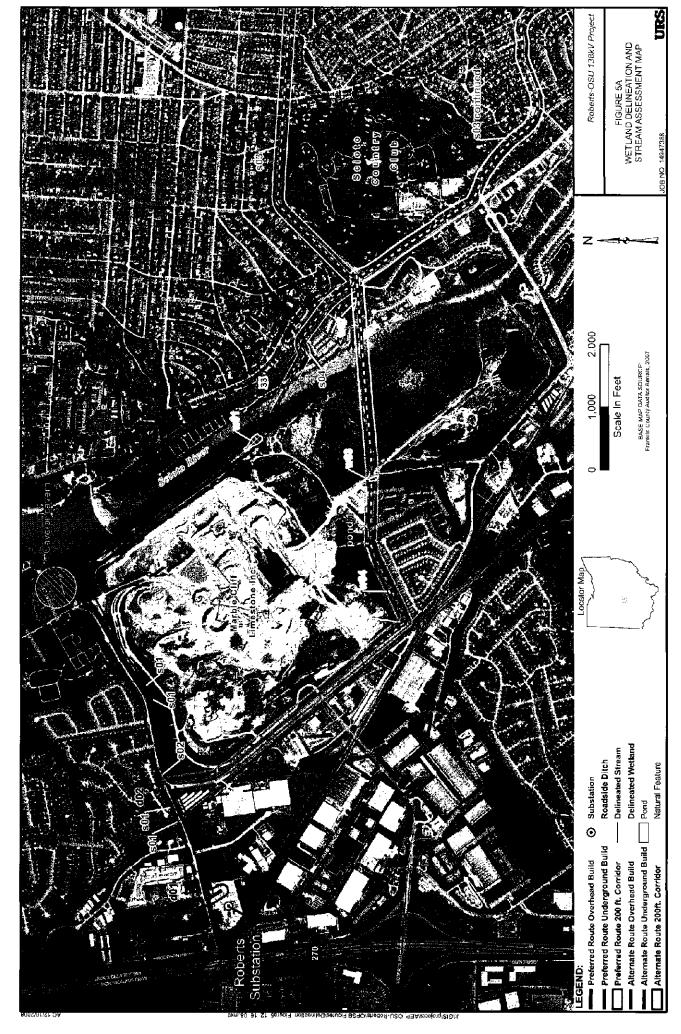
Amphibians	Reptiles	Birds	Mammals
American toad	Black rat snake	American crow	American beaver
Bullfrog	Broad-headed skink	American kestrel	Big brown bat
Dusky salamander	Copperhead	American redstart	Coyote
Fowler's toad	Eastern box turtle	American robin	Deer mouse
Gray treefrog	Eastern garter snake	American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

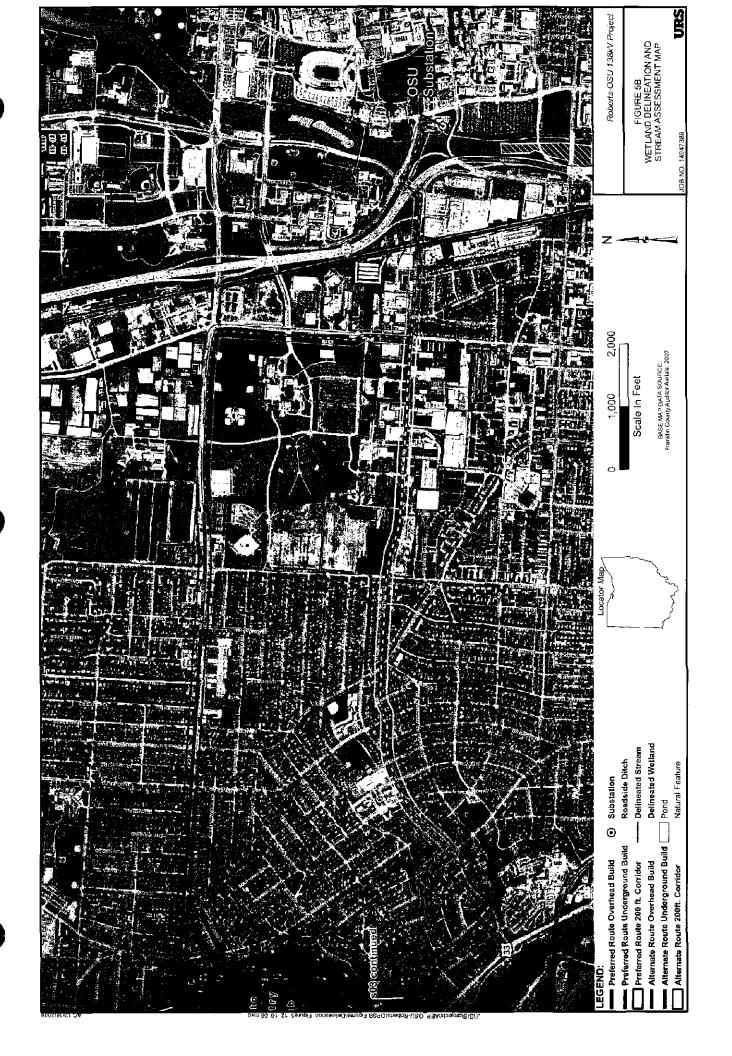












APPENDIX A

U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION FORMS

Project/Site: <u>Robert3- QSU</u>	Date: <u>3/20/09</u>
Applicant/Owner: <u>AEP</u>	County: <u>Franklin</u>
Investigator: <u>Savah Brewer/13en 0140</u>	State: <u>0610</u>
Do Normal Circumstances Exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	Community ID : <u>PEM</u> Transect ID: <u>WP</u> Plot ID: <u>I</u>

VEGETATION

	Stratum Indicator	Dominant Plant Species	Stratum Indicator
1. Phragmits aystralis	H FACN	9	
2. Typha angestifolia	H OBL	10	
3		11	
4		12	
5		13	
6		14	<u> </u>
7		15	
8		16	
Percent of Dominant Species that an (excluding FAC-).	e OBL, FACW or FAC	100 07 0	
Remarks:			
L			

HYDROLOGY

Recorded Data (Describe in Remarks): Stream, Lake, or 7ide Gauge Aerial Photographs Other No Recorded Data Available	Wetland hydrology Indicators: Primary Indicators:
Field Observations: Depth of Surface Water:(in.) Depth to Free Water in Pit:(in.) Depth to Saturated Soil:(in.)	Sediment Deposits Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12° Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)
Remarks: Hydrology due to Quanny, drainit	

Map Unit Name (Series and Phase): Taxonomy (Subgroup): _	2+(Pits, G	(narny)	Field	age Class: Observations onfirm Mapped Type? Yes No
Profile Description : Depth (inches) Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle <u>Abundance/Contrast</u>	Texture, Concretions, Structure, etc.
Hydric Soil Indicators:				
Histosol Histic Epipe Sulfidic Odd Aquic Moist Reducing C Gleyed or L	or ure Regime onditions CVLL [] ow-Chroma Colors		Concretions High Organic Conlent in Organic Streaking in Sar Listed on Local Hydric S Listed on National Hydri Other (Explain in Remar	ioils List c Soils List
Remarks: HU Sam (`OQN	se gravel	predude	d a full even reducer are like	soil profile y condutions du concumby
WETLAND DETERMI				duets regular inunderti
Hydrophytic Vegetation F Wetland Hydrology Prese Hydric Soils Present?		0	his Sampling Point With	(Circle) nin a Wetland? Yes No
Remarks: p.o.s.s.	to th	a Wething	it -	
				Approved by HQUSACE 3/02

Project/Site: <u>Roberts-tsU</u> Applicant/Owner: <u>AEP</u> Investigator: <u>Savan</u> Brava			Date: <u>328)08</u> County: <u>Franklin</u> State: <u>Chio</u>	
Do Normal Circumstances Exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes Yes Yes	28€	Community ID : <u>PEM/P</u> PD Transect ID: <u>MOY</u> Plot ID:3,	/pow

VEGETATION

Dominant Plant Species Stratum Indicator	Dominant Plant Species	Stratum Indicator
1	9	
2 Typha anoustifilia H OBL	10	
3. phragmite australis H FACW	11	
AFRAXINUS pennsylvanica T FACW	12	
5	13	
β	14	
7	15	
8	16	
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	(00 70	
Remarks:		

HYDROLOGY

μ

Recorded Data (Describe in Remarks):Stream, Lake, or Tide GaugeAerial PhotographsOtherNo Recorded Data Available	Wetland hydrology Indicators: Primary Indicators: Saturated Saturated in Upper 12 Inches Water Marks
Field Observations: +	Sediment Deposits Drainage Patterns in Wetlands Secondary Indicators (2 or more raquired): Oxidized Root Channels in Upper 12" Water-Stained Leaves Local Soil Survey Data X FAC-Neutral Test Other (Explain in Remarks)
Remarks: Adjucent to Quarr	y; Deep surface watch

Map Unit Name (Series and Phase): P+ (Pib; Quary) Drainage Class:						
Profile Des Depth (inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.	
Hydric Soil Indicators:						
Histosol Concretions Histoc Epipedon High Organic Content in Surface Layer Sandy Soils Sulfidic Odor Organic Streaking in Sandy Soils Aquic Moisture Regime Listed on Local Hydric Soils List Reducing Conditions Listed on National Hydric Soils List Gleyed or Low-Chroma Colors Other (Explain in Remarks)						
Remarks:	SAMP	4 NOt		able du		
	inu ore lit	uly present	> howeve	r reducing	. ouditian 	ے ر

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Wetland Hydrology Present? No (Circle) (Circle) No Hydric Soils Present? No is this Sampling Point Within a Wetland? (Yes) No Ye Hydric soils likely present. Soil is ponded for long duration of growing season Remarks:

Approved by HQUSACE 3/92

Project/Site: <u>Roberts-OSU</u>	Date: <u>4/10/08</u>
Applicant/Owner: <u>AEP</u>	County: <u>Franklin</u>
Investigator: <u>Sourach Brewer/Create</u> Stracco	State: <u>Ohio</u>
Do Normal Circumstances Exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	Community ID : PEM Transect ID: West Plot ID: 4

VEGETATION

Dominant Plant Species	Stratum Indicator	Dominant Plant Species	Stratum Indicator
1. Phragmites australis	H FACW	9	·····
2		10	
3		11,	
4		12	
5		13	
6		14	
7		15	<u> </u>
8		16	
Percent of Dominant Species that (excluding FAC-).	are OBL, FACW or FAC	100 %0	
Remarks:		······································	

HYDROLOGY

Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gauge Aerial Photographs Other No Recorded Data Available	Wetland hydrology Indicators: Primary Indicators: Inundated Saturated in Upper 12 Inches Water Marks Drift Lines
Field Observations: Depth of Surface Water: (in.) Depth to Free Water in Pit: (in.)	Sediment Deposits Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <u>X</u> Oxidized Root Channels in Upper 12" X Water-Stained Leaves Local Soil Survey Data
Depth to Saturated Soil:(in.)	FAC-Neutral Test Other (Explain in Remarks)
Remarks:	

•

Map Unit Name (Series and Phase): Taxonomy (Subgroup):	,	Quarry	Field	age Class: Observations onfirm Mapped Type? Yes (No	<u>, </u>
Profile Description: Depth (Inches) Hortzon ()-12 A- 	Matrix Color (<u>Murisell Moist)</u> <u>10ye412-</u> 	Mottle Colors (<u>Munsell Moist</u>)	Mottle <u>Abundance/Contrast</u>	Texture, Concretions, <u>Structure, etc.</u> <u>Clayloam</u>	
Hydric Soil Indicators: Concretions Histic Epipedon High Organic Content in Surfa ce Layer Sandy Soils Sulfidic Odor Organic Streaking in Sandy Soils Aquic Moisture Regime Listed on Local Hydric Soils List Reducing Conditions Listed on National Hydric Soils List Gleyed or Low-Chroma Colors Other (Explain in Remarks)					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Ass) No (Circle) Wetland Hydrology Present? (Tes) No Hydric Soils Present? (Tes) No	(Circle) Is this Sampling Point Within a Wetland?
Remarks: ON Quarry property	

Approved by HQUSACE 3/92

Project/Site: <u>Roberts -OSU</u>	Date: <u>4/10/0A</u>
Applicant/Owner: <u>AEP</u>	County: <u>Franklin</u>
Investigator: <u>Sarrah Brewer/Craig Straub</u>	State: <u>Ohio</u>
Do Normal Circumstances Exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	Community ID : <u>DEM</u> Transect ID: <u>Wet</u> Plot ID: <u>5</u>

VEGETATION

Dominant Plant Species	Stratum Indicator	Dominant Plant Species	Stratum Indicator
1 Phragmites australis	H FACW	9,	
2		10	
3		11	<u> </u>
4	1	12	
5		13	<u> </u>
6		14	·
7		15	
8		16	
Percent of Dominant Species that (excluding FAC-).	are OBL, FACW or FAC	100 93	
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gauge Aertal Photographs Other No Recorded Data Available	Wetland hydrology indicators: Primary Indicators: Inundated Saturated in Upper 12 Inches Water Marks Drift Lines
Field Observations: Depth of Surface Water:(in.) Depth to Free Water in Pit:(in.) Depth to Saturated Soil:(in.)	Sediment Deposits Drainage Patterns in Wetlands Secondary Indicators (2 or more required): X Oxidized Root Channels in Upper 12" Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)
Remarks:	

Map Unit Nan (Series and P Taxonomy (S	'hase):	+(Pitst	Quarry)	Field	age Class: Observations onfirm Mapped Type? Yes No
Profile Descr Depth (inches) (inches)	iption: Horizon A	Matrix Color (<u>Munsell Moist)</u> <u>IDye³12</u>	Mottle Colors (Munsell Moist)	Mottle <u>Abundance/Contrast</u>	Texture, Concretions, Structure, etc. <u>Clay Joam</u>
Hydric Soil Indicators:					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Ves No (Circle) Wetiand Hydrology Present? Ves No Hydric Soils Present? No	(Circle) is this Sampling Point Within a Wetland?
Remarks: ON QUARERY Property	

Approved by HQUSACE 3/92

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Project/Site: <u>Epbents-OSU</u>	Date: 32008
Applicant/Owner: <u>AEP</u>	County: Franklin
Investigator: <u>SQNAM BVEWEN</u> /BEN 0140	State: CH10
Do Normal Circumstances Exist on the site? Ves No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes Ver (If needed, explain on reverse.)	Community ID : PEM Transect ID: We +- Plot ID: C

VEGETATION

Dominant Plant Species Stratum Indicator		Stratum Indicator
1. Typha angustibilia H_OBL	9	
2	10	<u> </u>
3	11	
4	12	
5	13	
6	14	·
7	15	
8	16	
Percent of Dominant Species that are OBL, FACW or f (excluding FAC-).	AC 160 70	
Remarks: Cattail Stubs		
l		

HYDROLOGY

No Recorded Data Available	Water Marks Drift Lines
Field Observations:	Sediment Deposits Drainage Patterns in Wetlands Sondary Indicators (2 or more required):
Depth of Surface Water:(in.)	Oxidized Root Channels in Upper 12" Water-Stained Leaves
Depth to Free Water in Plt:(in.)	K Local Soil Survey Data
Depth to Saturated Soil:(in.)	Other (Explain in Remarks)

Map Unit Name (Series and Phase): Ko (Ko Komo Silty clay I barn) Taxonomy (Subgroup): Typic Argi aguolls Drainage Class: Very Doorly Field Observations Confirm Mapped Type? (Pes No									
Profile De Depth (inches) ()-12-		Metrix Color (Munsell Moist) 10 yp 51	Mottle Colors (Munsell Moist) <u>1048</u> 5/4	Mottle <u>Abundance/Contrast</u> <u>fcw/fa.int</u>	Texture, Concretions, <u>Structure, etc.</u> <u>Clacy</u>				
Hydric Soil Indicators:									

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) Wetland Hydrology Present? (Yes) Hydric Soits Present? (Yes)	No No No	(Circle)	Is this Sampling Point Within a Wetland? ((Circle) Yes No
Remarks:				

Approved by HQUSACE 3/92

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Project/Site: <u>OSU - Roberts</u>	Date: <u>25 April 2408</u>
Applicant/Owner: <u>AEP</u>	County: <u>Franklin</u>
Investigator: <u>M. Thomayer</u>	State: <u>Ohio</u>
Do Normal Circumstances Exist on the site? Ves No Is the site significantly disturbed (Atypical Situation)? Yes No is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID : <u>PF0</u> Transect ID: Plot ID: <u>W7</u>

VEGETATION

والمستقولة المربيطة فتعادل ويبعد فالمتعاد والمتعاد والمتعاد والمتعاد والمتعاد والمتعاد والمتعاد والمتعاد والمتع									
Dominant Plant Species	Stratum Indicator	Dominant_Plant_Species	<u>Stratum</u>	Indicator					
1. <u>Lopulus deltaides</u> 2. Fraxinus penasylvanica 3. <u>Acc. Negundo</u>	T FAC	9							
2. Fraxinus penasylvanica	T FACW	10							
3. Acer negundo	T FAC+	11							
4		12							
5		13							
6		14		••••••					
7		15							
8		16							
Percent of Dominant Species that (excluding FAC-).		100%.	·····						
Remarks: Fac Neutral - Gails Fac Neutral test 1:2									

HYDROLOGY

Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gauge Aerial Photographs Other No Recorded Data Available	Wetland hydrology Indicators: Primary Indicators: <u> Y</u> inundated <u> Y</u> Saturated in Upper 12 Inches <u> Y</u> Water Marks <u> Y</u> Drift Lines
Field Observations: Depth of Surface Water:	Sediment Deposits DraInage Pattems in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12" Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Cher (Explain in Remarks)
Remarks: Butressed trunks and Ho	ted roots

	(Oungroup)				onfirm Mapped Type? Yes
Profile Depth Depth (inches)		Matrix Color (Munsell Moist) 10/12 4/1	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, <u>Structure, etc.</u> <u>Silfy Clay</u>
	Indicators: Histosol Histic Epipe	don	H	Concretions ligh Organic Content in	Surfa ce Layer Sandy Soils
	Sulfidic Odo Aquic Moiste Reducing Co Gleyed or Lo	ure Regime	L	Drganic Streaking in Sar isted on Local Hydric Si isted on National Hydric Other (Explain in Remark	olls List c Soils List
Remarks:					

WETLAND DETERMINATION

Hydrophylic Vegetation Present? Tes No (Circle) Wetland Hydrology Present? No Hydric Soils Present? Tes No	(Circle) Is this Sampling Point Within a Wetland?
Remarks: Enbankment along southern water in wetland.	edge helps to impound
	Approved by HQUSACE 3/92

APPENDIX B

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

	Site: \	Net	١	Rater(s):	S. Pre	wer	Ben OH	σ	Date: 328	09
	en é pis	subtolał		Metric 1. Wetland Select one size class and a >50 acres (>20.2na) (6 pts) 25 to <50 acres (10.1 to <20. 10 to <25 acres (4 to <10.1 ta 3 to <10 acres (1.2 to <4na) (0.3 to <3 acres (0.12 to <1.21 0.1 to <0.3 acres (0.04 to <0. <0.1 acres (0.04ha) (0 pts)	ssign score. 2ha) (5 pls) a) (4 pls) 3 pls) na) (2pts)	2).			,	
]	Metric 2. Upland b 2a. Calculate average buffe			-			
	max 14 pts.	SUCKARI		WIDE. Buffers average 50m MEDIUM. Buffers average 25 NARROW. Buffers average 1 VERY NARROW. Buffers average 1 VERY NARROW. Buffers average 1 VERY LOW. 2nd growth or ol LOW. Old field (>10 years), s MODERATELY HIGH. Reside HIGH. Urban, industrial, open	(164fl) or more im to <50m (82 0m to <25m (3 grage <10m (< gland use, Sel der forest, prai hrubland, youn ential, fenced p	around we to <164(t) 2ft to <82(t) 2ft) around ect one of rie, savann g second g asture, par	Iland perimeter (7) around wetland perime tharound wetland perime d wetland perimeter (0) double check and av ah, wildlife area, etc. (7) prowth forest. (5) k, conservation tillage.	eter (4) eter (1) e rage. '}		
	7		7	Metric 3. Hydrolog	у.					
	mex 30 pts.	subiolei		3a. Sources of Water. Score High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface Perennial surface water (lake 3c. Maximum water depth. S >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2 <0.4m (<15.7in) (1) 3e. Modifications to natural None or none apparent (12) Recovered (7)	all that apply water (3) or stream) (5) Select one.)		b. Connectivity, Score 20 year floodplain (1) etween stream/lake and art of wetland/upland (e art of riparian or upland d. Duration inundation ami- to permanently inu egularly inundated/satu easonally inundated (2) easonally saturated in u re one or double chech neck all disturbances tch	d other human use (1 .g. forest), complex (corridor (1) i/saturation. Score c indated/saturated (4) rated (3) opper 30cm (12in) (1) k and average. observed	1) one or dbi check.	
			X	Recovering (3) Recent or no recovery (1)			ke	filling/grading road bed/RR dredging		
r		·	/ 7			s	ormwaler input	Pipe &	on quany	pumps
l	5 Thix 20 pis.	subtolal	1	Metric 4. Habitat A 4a. Substrate disturbance. S			•		U	vvarie į
				None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Se Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score	lect only one :	and assign	a score.			
	Í			None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1)			eck all disturbances ob owing azing earcutting lective cutting ody debris removal xic pollutants	shrub/sapling	quatic bed removal	
		sublotal this	page .	DRAM v. 5.0 Field Form Quan	tilative Rating					

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		1		
Site: INeA	Rater(s): S.B.	7	6.0 Date:	3/28/08
San at the mean of the second s	/			
	7 '			
subjoial th				
Solitian				-
	Metric 5. Special Wetlands.			
max 10 pts subtotal	Check all that apply and score as indi-	cale	d.	
	Bog (10) Fen (10)			
	Old growth forest (10)			
	Mature forested wetland (5)			
,	Lake Erie coastal/tributary wetland-unrestricted	-	••••••	
Ŕ	Lake Erie coastal/tributary wetland-restricted h	ydrol	ogy (5)	
Ý	Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10)			
•	Known occurrence state/federal threatened or o	enda	ngered species (10)	
	Significant migratory songbird/water fowl habita			
	Category 1 Wetland. See Question 5 Qualitativ			
$\overline{\mathcal{O}}$	Metric 6. Plant communities,	inte	erspersion, microtopography.	
max 20pts. subiotal	6a. Wetland Vegetation Communitie		Vegetation Community Cover Scale	
	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous a	rea
	Aqualic bed	1	Present and either comprises small part of wetland's 1	
	Emergeni		vegetation and is of moderate quality, or comprises a	
	Shrub Forest	2	significant part but is of low quality Present and either comprises significant part of welland's	0
		-	vegetation and is of moderate quality or comprises a sma	
	Open water		part and is of high quality	
	Other	3	Present and comprises significant part. or more, of wellar	nd's 3
	5b. horizontal (plan view) Interspersion.		vegetation and is of high quality	
	Select only one. High (5)		Narrative Description of Vegetation Quality	
	Moderately high(4)		Low spp diversity and/or predominance of nonnative or lo	w
	Moderate (3)		disturbance tolerant native species	
	Moderately low (2)		Native spp are dominant component of the vegetation, mo	od
	× Low (1)		although nonnative and/or disturbance tolerant native spp)
	None (0) 6c. Coverage of invasive plants. Refer		can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare	
	Table 1 ORAM long form for list. Add		threatened or endangered spp to	
	or deduct points for coverage		A predominance of native species, with nonnative spp hig	
	Extensive >75% cover (-5)		and/or disturbance tolerant native spp absent or virtually	
	Moderate 25-75% cover (-3)		absent, and high spp diversity and often, but not always,	
	Sparse 5-25% cover (-1) Nearly absent <5% cover (0)		the presence of rare, threatened, or endangered spp	
	Absent (1)		Mudflat and Open Water Class Quality	
	6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
	Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)	
	Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)	
	 O Coarse woody debris >15cm (6in) Q Standing dead >25cm (10in) dbh 	3	High 4ha (9.88 acres) or more	
	V Amphibian breeding pools		Microtopography 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	•
	TOTAL(max 100 pts)	3	quality or in small amounts of highest quality	· · · · · · · · · · · · · · · · · · ·
Lift GRAN	i u nelinax ivu hisi		Present in moderate or greater amounts	
'			and of highest quality	

CAT I.

Site: NoA	3	Rater(s): <	3. Brew	rev/B.	OHD		Date:	3128	03
	Metric 1.	Wetland A	rea (size)					• •	
ex é pis subioial	>50 acres (>2 25 to <50 acres 10 to <25 acres 3 to <10 acres 0.3 to <3 acres	es (10.1 to <20.2h) es (4 to <10.1ha) (5 (1.2 to <4ha) (3 p s (0.12 to <1.2ha) res (0.04 to <0.12h	a) (5 pts) 4 pts) ots) (2pts)						
2.	Metric 2.	Upland buf	fers and	surroundin	g land us	е.			
mox 14 pls. sublotał	WIDE. Buffers MEDIUM. Buff NARROW. Buf VERY NARRO 2b. Intensity of VERY LOW. 2 LOW. Old field MODERATEL	: average 50m (16 fers average 25m liffers average 10m 0W. Buffers average of surrounding la ind growth or older i (>10 years), shou	41() or more ar to <50m (82 to) to <25m (32ft ge <10m (<32f nd use. Selec r forest, prairie, bland, young s iai, fenced pas	ound wetland peri- <164ft) around we to <82ft) around wetland t around wetland t one or double c , savannah, wildlife second growth fore ture, park, consen	meter (7) etland perimet wetland perime perimeter (0) theck and ave e area, etc. (7) est. (5) wation tillage, n	iter (1) rage.			
aT		Hydrology.			•••••				
max 30 pts. subtotal	High pH groun Other groundw Precipitation (1 Seasonal/Inter Perennial surfa 3c. Maximum >0.7 (27.6in) (3 0.4 to 0.7m (15 <0.4m (<15.7ir 3e. Modification None or none a Recovered (7) Recovering (3) Recent or no ref	rater (3) mittent surface wa sce water (lake or water depth. Sele 3) 5.7 to 27.6in) (2) 1) (1) ons to natural hyd apparent (12) ecovery (1)	ater (3) stream) (5) ect one. drologic regin	100 year flo Between str Part of wetli Part of ipar 3d. Duratio Semi- to per Regularly in Seasonally i Seasonally i Seasonally i Check all d ditch tille dike weir stormwater	ream/lake and and/upland (e.s ian or upland (e.s ian or upland of in inundation/ rmanently inun undated/satura inundated (2) saturaled in up double check isturbances of input	other human use (1) g. forest), complex (1) corridor (1) saturation. Score or idated/saturated (4) ated (3) oper 30cm (12in) (1) and average.	ne or dbl ch onslomwate		
	4	Habitat Alte disturbance. Sco		•					
max 20 pts. subiotal	None or none a Recovered (3) Recovering (2) Recent or no re 4b. Habitat der Excellent (7) Very good (6) Good (5) Moderately goo Fair (3) Poor to fair (2) Poor (1)	apparent (4) scovery (1) velopment. Seleo ed (4) aration. Score on apparent (9)	t only one and	d assign score. heck and average	s, sturbances obs ting s removal	erved shrutu/sapling ro herbaceous/aqu sedimentation dredging farming nutrient enrichm	uetic bed ren	noval	
sudiotel this	page ORAM v. 5.0 Fi	eld Form Quantita	tive Rating						

Site: Wet	B Rater(s): 9, B	TBI	Date: 3/28/08
	7	•	• •
L]		
sublotal this	page		
	Metric 5. Special Wetlands		
ax 10 pts sublotal	Check all that apply and score as it		d.
ax 10 pts sublotal	Bog (10)		~ .
	Fen (10)		
	Old growth forest (10)		
	Mature forested welland (5)		
	Lake Erie coastal/tributary wetland-unrestri	icted hydi	rology (10)
1	Lake Erie coastal/inbutary wetland-restricte	ed hydrol:	ogy (5)
Ŕ	Lake Plain Sand Prairies (Oak Openings) ((10)	
\sim	Relict Wet Praires (10)		
•	Known occurrence state/federal threatened		
	Significant migratory songbird/water fowl ha		
	Category 1 Wetland. See Question 5 Qualit		
4 _	Metric 6. Plant communitie	s, inte	erspersion, microtopography.
x 20pts. sublicital	6a. Wetland Vegetation Commun	nities.	Vegetation Community Cover Scale
	Score all present using 0 to 3 scale.	0	Absent or comprises <0. tha (0.2471 acres) contiguous area
	Aqualic bed	1	Present and either comprises small part of wetland's 1
	Emergent		vegetation and is of moderate quality, or comprises a
	Shrub		significant part but is of low quality
	Forest	2	Present and either comprises significant part of wetland's 2
	Mudflats		vegetation and is of moderate quality or comprises a small
	Open water	3	part and is of high quality Present and comprises significant part, or more, of welland's 3
	Other 6b. horizontal (plan view) Interspersion.		vegetation and is of high quality
	Select only one.		Addemon and is or tedu drawn
	High (5)		Narrative Description of Vegetation Quality
	Moderately high(4)		Low spp diversity and/or predominance of nonnative or low
i	Moderate (3)		disturbance tolerant native species
i	Moderately low (2)		Native spp are dominant component of the vegetation, mod
	Low (1)		allhough nonnative and/or disturbance tolerant native spp
	None (0)		can also be present, and species diversity moderate to
	6c. Coverage of invasive plants. Refer		moderately high, but generallyw/o presence of rare
	Table 1 ORAM long form for list. Add		threatened or endangered spp to
	or deduct points for coverage		A predominance of native species, with nonnative spp high
1	Extensive >75% cover (-5)		and/or disturbance tolerant native spp absent or virtually
	Moderate 25-75% cover (-3)	;	absent, and high spp diversity and often, but not atways, the presence of rare, threatened, or endangered spp
ļ	Sparse 5-25% cover (-1) Nearly absent <5% cover (0)		The breaches of rate, threateneo, or chooligered shb
	Absent (1)		Mudflat and Open Water Class Quality
1	6d. Microtopography.	0	Absent <0.1ha (0.247 acres)
	Score all present using 0 to 3 scale.		Low 0.1 to <1ha (0.247 to 2.47 acres)
!	O Vegetated hummucks/tussucks		Moderate 1 to <4ha (2.47 to 9.88 acres)
	O Coarse woody debris >15cm (6in)		High 4ha (9.88 acres) or more
	C) Standing dead >25cm (10in) dbh	1	-
	Amphibian breeding pools		Microtopography Cover Scale
			Absent
L			Present very small amounts or if more common
I		I	of marginal quality
I			
I		2	Present in moderate amounts, but not of highest
		2	quality or in small amounts of highest quality
20 GRAND	TOTAL(max 100 pts)	2	-

CATI

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Site: W	4 4	Rater(s): S	. Brewer	(C. S	strand	Date: 4/10/09
O	Metric 1	. Wetland Are	ea (size).			1
San 6 pis Subion	>50 acres (> 25 to <50 ac 10 to <25 ac 3 to <10 acres 0.3 to <3 acr 0.1 to <0.3 a	size class and assig 20.2ha) (6 pts) res (10.1 to <20.2ha) res (4 to <10.1ha) (4 es (1.2 to <4ha) (3 pts es (0.12 to <1.2ha) (3 cres (0.04 to <0 12ha).04ha) (0 pts)	(5 pts) pts) ;) ;pts)			
	,	. Upland buff		•		
max 14 pis. subiot	WIDE. Buffe MEDIUM, Bu NARROW. B VERY NARR 2b. Intensity	e average buffer wid rs average 50m (1644 iffers average 25m to luffers average 10m t (OW. Buffers average r of surrounding lan- 2nd growth or older f	1) or more around we <50m (82 to <164ft) o <25m (32ft to <82f <10m (<32ft) aroun d use. Select one or	elland perime around weth t) around weth d wetland pe f double che	eter (7) and perimeter (4) tland perimeter (1) rimeter (0) ack and average.	uble check.
	LOW. Old fie MODERATE	ld (>10 years), shrub LY HIGH. Residentia , industriat, open pas	and, young second g , fenced pasture, par	growth forest rk, conservat	. (5) ion tillage, new fall	ow field. (3)
5		, muusiina, open pas . Hydrology.	ule, low cropping, h	nining, constr	uction. (r)	
max 30 pts. sublok	3a. Sources High pH grou Other ground Precipitation Seasonal/Inte Perennial sur 3c. Maximum >0.7 (27.6in) 0.4 to 0.7m (< 0.4m (<15.7 3e. Modificat None or none Recovered (7 Recovering (3	of Water. Score all : indwater (3) (1) ermittent surface water face water (take or st a water depth. Select (3) 15.7 to 27.6in) (2) in) (1) tions to natural hyde apparent (12)) secovery (1)	er (3) ream) (5) st one.	00 year flood etween streat art of wettand art of ripariar d. Duration i eemi- to perm egularly inun easonally inun easonally inun easonally sai re one or do heck all dist toh e ke eir tomwater in	m/lake and other h d/upland (e.g. fores nor upland corridor inundation/satura anently inundated/ dated/saturated (3) indated (2) lurated in upper 30 suble check and a surbances observed for the second second second put	iuman use (1) (1), complex (1) (1) tion. Score one or dbl check. saturated (4)) cm (12in) (1) verage.
mex 20 pts. subtota		Habitat Alter		-		
	None or none Recovered (3) Recovering (2) Recent or no 4b. Habitat d Excellent (7) Very good (5) Good (5) Moderately go Fair (3) Poor to fair (2) Poor (1)	apparent (4)) recovery (1) evelopment. Select pod (4)) teration. Score one apparent (9))	only one and assign or double check an Cl Cl Se Se Se Wro	n score. Id average.	rbances observed s g emoval	hrub/sapling removat erbaceous/aquatic bed removal edimentation redging urning utrient enrichment
		Ead Form Dupptiteti			6,,	

aubiotal this page ORAM v. 5.0 Field Form Quantitative Ratin

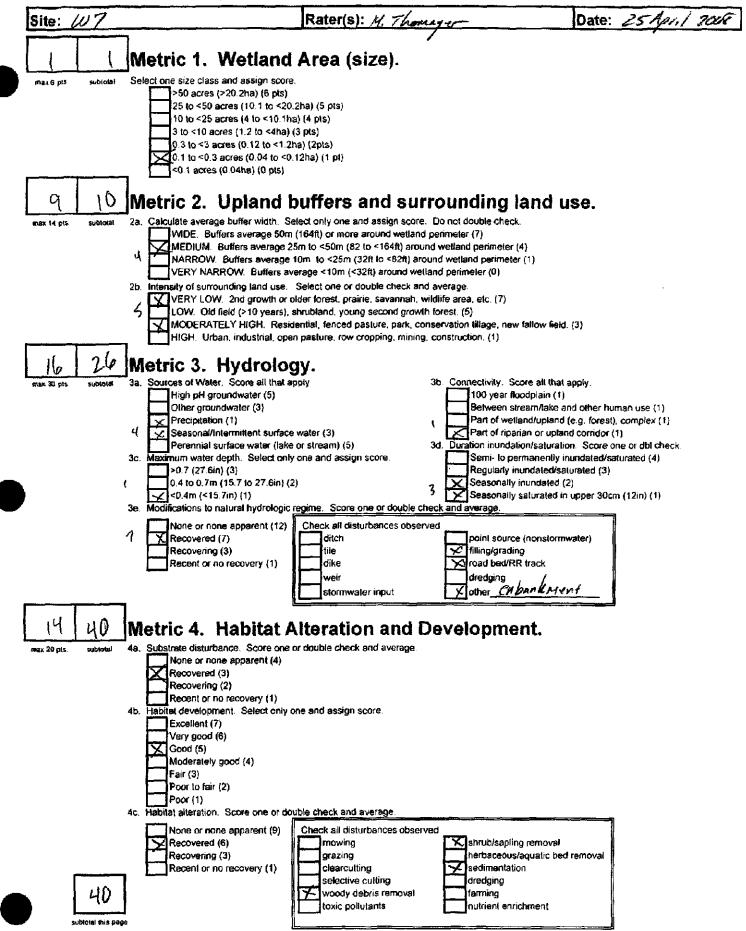
Site: Net	4 Rater(s): J. Brei	w	-/C.Straub Date: 4/10/08
	-1		•
	_1		
sublotal (hi			
	Metric 5. Special Wetlands.		
x 10 pls subtotal	Check all that apply and score as ind	licate	d.
	Bog (10)		
	Fen (10) Old growth forest (10)		
	Mature forested wetland (5)		
	Lake Erie coastal/tributary wetland-unrestricte	d hyđ	rology (10)
Ŷ.	Lake Erie coastal/tributary wetland-restricted t		ogy (5)
	Lake Plain Sand Prairies (Oak Opening\$) (10)	•	
	Relict Wel Praires (10) Known occurrence state/lederal threatened or	enda	noered species (10)
	Significant migratory songbird/water fowl habit		
	Category 1 Wetland. See Question 5 Qualitati		
-23	Metric 6. Plant communities,	Inte	erspersion, microtopography.
ix 20pi6. Subiolal	6a. Wetland Vegetation Communit		Vegetation Community Cover Scale
x 20010. 3004010.	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
	Aquatic bed	1	Present and either comprises small part of wetland's 1
	Emergent		vegetation and is of moderate quality, or comprises a
	Shrub		significant part but is of low quality Present and either comprises significant part of wetland's 2
	Forest Mudflats	2	vegetation and is of moderate quality or comprises a small
	Open water		part and is of high quality
	Other	3	Present and comprises significant part, or more, of wetland's 3
	6b. horizontal (plan view) Interspersion.		vegetation and is of high quality
	Select only one.		New New Description of Versite August
	High (5)		Narrative Description of Vegetation Quality
	Moderately high(4) Moderate (3)		disturbance tolerant native species
	Moderately low (2)		Native spp are dominant component of the vegetation, mod
	Low (1)		although nonnative and/or disturbance tolerant native spp
	None (0)		can also be present, and species diversity moderate to
	6c. Coverage of invasive plants. Refer		moderately high, but generallyw/o presence of rare
	Table 1 ORAM long form for list. Add or deduct points for coverage		threatened or endangered spp to A predominance of native species, with nonnative spp high
	Extensive >75% cover (-5)		and/or disturbance tolerant native spp absent or virtually
	Moderate 25-75% cover (-3)		absent, and high spp diversity and often, but not always,
	Sparse 5-25% cover (-1)		the presence of rare, threatened, or endangered spp
	Nearly absent <5% cover (0)		
	Absent (1)	~	Mudflat and Open Water Class Quality Absent <0.1ha (0.247 acres)
	6d. Microtopography. Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
	O Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)
	O Coarse woody debris >15cm (6in)		High 4ha (9.88 acres) or more
	Standing dead >25cm (10in) dbh		
	O Amphibian breeding pools	•	Microtopography Cover Scale
			Absent Present very small amounts or if more common
		1	of marginal quality
	-	2	Present in moderate amounts, but not of highest
		_	quality or in small amounts of highest quality
	TOTAL (move dag men)	3	Present in moderate or greater amounts
GRAN	7 101 AL(max 100 pts)	~	h researan underside of Alester sundares
7 GRAN	At I	-	and of highest quality

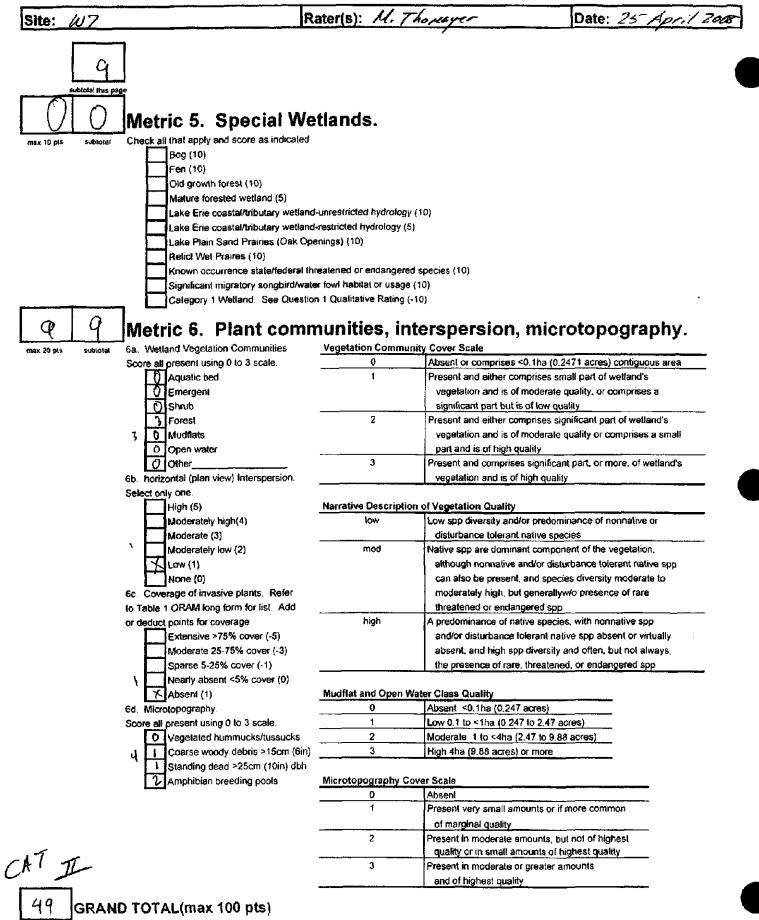
Site: - We	+ .5 Rater(s): S.Brcu	ver 1 C. Stand	Date: 41000
	Metric 1. Wetland Area (siz	70)	
ax 6 pls subiola	Select one size class and assign score	-	
	>50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts)		
•	10 to <25 acres (4 to <10.1ha) (4 pts)		
	3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts)		
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pl)		
	Metric 2. Upland buffers a	nd surrounding land use	
max 14 pts. subtolal	2a. Calculate average buffer width. Sele	-	
	WIDE. Buffers average 50m (164ft) or mo MEDIUM. Buffers average 25m to <50m (1		(4)
	NARROW. Buffers average 10m to <25m	(32ft to <82ft) around wetland perimeter	
	VERY NARROW. Buffers average <10m (2b. Intensity of surrounding land use, 5	• • • • • • • • • • • • • • • • • • • •	oe.
	VERY LOW. 2nd growth or older forest, pr LOW. Old field (>10 years), shrubland, you	airie, savannah, wildlife area, etc. (7)	• -
	MODERATELY HIGH. Residential, fenced	pasture, park, conservation tillage, nev	v fallow lietd. (3)
	HiGH. Urban, industrial, open pasture, row	cropping, mining, construction. (1)	
5	Metric 3. Hydrology.		
max 30 pts. subtotal	3a. Sources of Water. Score all that app	ly. 3b. Connectivity. Score all 100 year floodplain (1)	that apply.
	Other groundwater (3) Precipitation (1)	Between stream/lake and of Part of wetland/upland (e.g. l	her human use (1)
	Seasonal/Intermittent surface water (3)	Part of riparian or upland cor	ridor (1)
	Perennial surface water (lake or stream) (5 3c. Maximum water depth. Select one.) 3d. Duration inundation/sa	turation. Score one or dbl check. Ited/saturaled (4)
	>0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2)	Regularly inundated/saturate Seasonally inundated (2)	d (3)
	<0.4m (<15.7in) (1)	Seasonally saturated in uppe	
	3e. Modifications to natural hydrologic r None or none apparent (12)	egime. Score one or double check a Check all disturbances obs	
	Recovered (7) Recovering (3)	ditch	point source (nonstormwater)
	Recent or no recovery (1)	dike	road bed/RR track
		stormwater input	dredging
4	Metric 4. Habitat Alteration	and Development.	
mex 20 pts. sublotat	4a. Substrate disturbance. Score one or	double check and average.	
	None or none apparent (4) Recovered (3)		
	Recovering (2) Recent or no recovery (1)		
	4b. Habitat development. Select only on	and assign score.	
	Excellent (7) Very good (6)		
	Good (5) Moderately good (4)		
	Fair (3)		
	Poor to fair (2) Poor (1)		
	4c. Habitat alteration. Score one or doub	ie check and average. Check all disturbances obser	und
	Recovered (6)		shrub/sapling removal
	Recovering (3) Recent or no recovery (1)	grazing clearcutting	herbaceous/aquatic bed removat
		selective cutting	dredging
	_	toxic pollutants	farming nutrient enrichment
10	1		
sublotal this	ege ORAM v. 5.0 Field Form Quantitative Rating)	

e: Wet a	Rater(s): S. Brewer	/C Stanb Date: 4/10/08
		
subloiat this pag	P	
······	Metric 5. Special Wetlands.	
	Check all that apply and score as indica	ated
0pis subiola/	Bog (10)	
ŀ	Fen (10)	
ŀ	Old growth forest (10)	
	Mature forested welland (5)	
	Lake Erie coastal/tributary wetland-unrestricted hy	
d -	Lake Erie coastal/tributary wetland-restricted hydr Lake Plain Sand Prairies (Oak Openings) (10)	rology (o)
p -	Relict Wel Praires (10)	
	Known occurrence state/federal threatened or end	idangered species (10)
E	Significant migratory songbird/water fowl habitat o	+ · ·
	Category 1 Wetland. See Question 5 Qualitative F	Rating (-10)
5	Metric 6. Plant communities, in	nterspersion, microtopography.
ipis. subioisi	6a. Wetland Vegetation Communities.	 Vegetation Community Cover Scale
	Score all present using 0 to 3 scale. 0	
L	Aquatic bed 1	
Ц	Emergent	vegetation and is of moderate quality, or comprises a significant part but is of low quality
	Shrub Forest2	
-	Mudfiats	vegetation and is of moderate quality or comprises a small
	Open water	part and is of high quality
	Other 3	
	6b. horizontal (plan view) Interspersion.	vegetation and is of high quality
	Select only one. High (5)	Narrative Description of Vegetation Quality
	Moderately high(4)	Low spp diversity and/or predominance of nonnative or low
-	Moderate (3)	disturbance tolerant native species
	Moderately low (2)	Native spp are dominant component of the vegetation, mod
	Low (1)	although nonnative and/or disturbance tolerant native spp
L	None (0)	can also be present, and species diversity moderate to
	6c. Coverage of invasive plants. Refer Table 1 ORAM long form for list. Add	moderately high, but generallyw/o presence of rare threatened or endangered spp to
	or deduct points for coverage	A predominance of native species, with nonnative spp high
5	Extensive >75% cover (-5)	and/or disturbance tolerant native spp absent or virtually
	Moderate 25-75% cover (-3)	absent, and high spp diversity and often, but not always,
Ľ	Sparse 5-25% cover (-1)	the presence of rare, threatened, or endangered spp
<u> </u>	Nearly absent <5% cover (0) Absent (1)	Mudflat and Open Water Class Quality
l	dd. Microtopography. 0	Absent <0.1ha (0.247 acres)
	Score all present using 0 to 3 scale.	
ð	Vegetated hummucks/lussucks 2	
يتيسون المراجع	Coarse woody debris >15cm (6in) 3	High 4ha (9.88 acres) or more
	Standing dead >25cm (10in) dbh	
	Amphibian breeding pools	Microtopography Cover Scale
	<u>0</u> 1	Absent 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
GRAND TO	OTAL(max 100 pts) 3	Present in moderate or greater amounts
	HI	and of highest quality
		-

Site: W	ICA	6	Rater(s): S	Brewer	(B	Otto		Date:	32805
		Motrie 1	. Wetland Area	a /eize)	•				
ax 6 pts s	ubtolal	•	ize class and assign	•					
		>50 acres (>2 25 to <50 acr 10 to <25 acr 3 to <10 acre 0.3 to <3 acre	20.2ha) (6 pts) es (10.1 to <20.2ha) (es (4 to <10.1ha) (4 p s (1.2 to <4ha) (3 pts) es (0.12 to <1.2ha) (2p cres (0.04 to <0.12ha)	5 pts) is) its)					
		Metric 2.	Upland buffe	rs and sur	rounding	g land us	ie.		
max 14 pts. s	sublotal	WIDE, Buffer MEDIUM, Buf NARROW, Bu VERY NARRO	average buffer widt s average 50m (164ft) ffers average 25m to < uffers average 10m to OW. Buffers average	or more around 50m (82 to <164 <25m (32ft to <8 <10m (<32ft) aro	wetland perin (fl) around we (32ft) around v und wetland	meter (7) etland perimet vetland perime perimeter (0)	er (4) ster (1)		
		VERY LOW. : LOW. Old fiel MODERATEL	of surrounding land 2nd growth or older for d (>10 years), shrubla Y HIGH, Residential, industrial, open pastu	rest, prairie, sava nd, young secon fenced pasture, j	annah, wildlife d growth fore park, conserv	e area, etc. (7) est. (5) /ation tillage, r)		
6		Metric 3.	Hydrology.						
max 30 pis. s		High pH grour Other grounds Precipitation (Seasonal/Inte Perennial surf 3c. Maximum >0.7 (27.6in) (0.4 to 0.7m (1 <0.4 m (<15.7ii	vater (3) 1) mittent surface water ace water (lake or stre water depth. Select 3) 5.7 to 27.6in) (2)	(3) iam) (5) one.	100 year flo Between str Part of wetta Part of ripar 3d. Duratio Semi- to per Regularly in Seasonally i Seasonally i	odplain (1) ream/lake and and/upland (e. ian or upland n inundation manently inur undated/satur inundated (2) saturated in up	faaturation. Score or ndated/saturated (4) ated (3) oper 30cm (12in) (1)		eck.
	E	None or none Recovered (7)	• • •		ditch	isturbances (bserved	onstormwate	er')
•	ļ	Recovering (3) Recent or no r			tile dike weir stormwaler	input	filling/grading	ack	
31		Metric 4.	Habitat Altera	ition and D	evelopn	nent.			
məx 20 pis. əx		None or none Recovered (3) Recovering (2) Recent or no r 4b. Habitat de Excellent (7) Very good (5) Good (5) Moderately goo Fair (3)) ecovery (1) evelopment. Select o			erage.			
	Ŀ	Poor to fair (2) Poor (1)							
-	۲ آ آ	4c. Habitat alt None or none a Recovered (6) Recovering (3) Recent or no n		X II		sturbances obs ting s removal	served herbaceous/aquing ro herbaceous/aquing sedimentation dredging farming nutrient enrichn	uatic bed ren	novał
Lsut	plotat this pag	e_ ORAM v. 5.0 F	ield Form Quantitative	Rating					

te: We4	6 Rater(s): SP	BL	Date: 32808
	-	•	
subtotal thi	påge		
·····	Metric 5. Special Wetlan	de	
	-		- 4
0 pls subtolat	Check all that apply and score a	as muscau	20.
	Bog (10) Fen (10)		
	Old growth forest (10)		
	Mature forested welland (5)		
	Lake Erie coastal/tributary wetland-unr	estricted hyd	frology (10)
	Lake Erie coastal/tributary wetland-rest	-	
.	Lake Plain Sand Prairies (Oak Opening	js) (10)	
R	Relict Wet Praires (10)		Ng et
	Known occurrence state/federal threate		
•	Significant migratory songbird/water for		
	Category 1 Wetland. See Question 5 Q		-
-) _	Metric 6. Plant communi	ties, int	erspersion, microtopography.
Opts. subtotal	6a. Wetland Vegetation Com	nunities.	Vegetation Community Cover Scale
-	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
	Aquatic bed	1	Present and either comprises small part of wetland's 1
	Emergent		vegetation and is of moderate quality, or comprises a
	Shrub	_	significant part but is of low quality
	Forest	2	Present and either comprises significant part of wetland's 2
	Mudflats		vegetation and is of moderate quality or comprises a small part and is of high quality
	Open water Other	3	Present and comprises significant part, or more, of wetland's 3
	6b. horizontal (plan view) Interspersi	-	vegetation and is of high quality
	Select only one.		
	High (5)		Narrative Description of Vegetation Quality
	Moderately high(4)		Low spp diversity and/or predominance of nonnative or low
	Moderate (3)		disturbance tolerant native species
	Moderately low (2)		Native spp are dominant component of the vegetation, mod
	Low (1)		although nonnative and/or disturbance tolerant native spp
	None (0)	_	can also be present, and species diversity moderate to
	6c. Coverage of invasive plants. Refe	F	moderately high, but generallyw/o presence of rare
	Table 1 ORAM long form for list. Add or deduct points for coverage		threatened or endangered spp to A predominance of native species, with nonnative spp high
	Extensive >75% cover (-5)		and/or disturbance tolerant native spp absent or virtually
	Moderate 25-75% cover (-3)		absent, and high spp diversity and often, but not always,
	Sparse 5-25% cover (-1)		the presence of rare, threatened, or endangered spp
	Nearly absent <5% cover (0)		
	Absent (1)		Mudflat and Open Water Class Quality
	6d. Microtopography.	0	Absent <0.1ha (0.247 acres)
	Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
	O Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)
	Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more
	Standing dead >25cm (10in) dbh		Microtonography Cauer Scale
	Amphibian breeding pools	0	Microtopography Cover Scale Absent
		<u> </u>	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
GRAND	TOTAL(max 100 pts)	3	Present in moderate or greater amounts





Refer to the most recent ORAM Score Calibration Report for the scoring, breakpoints between welliand categories at the following address. http://www.epa.state.oh.us/dsw/401/401 html

APPENDIX C

HEADWATER HABITAT EVALUATION INDEX (HHEI) STREAM CHANNEL ASSESSMENT FORMS

M Class II

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Chie	EPA

Primary Headwater Habitat Evaluation Form

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

	ER BASIN Scipto RIVER DRAINAGE AREA (mi ²) 20.5
LENGTH OF STREAM REACH (1) 2000 LAT 40.01 DATE $3-28-08$ scorer <u>S. By CWCY</u> COMMENT	_ LONG. <u>- 83,11</u> RIVER CODE RIVER MILE
	d Evaluation Manual for Ohio's PHWH Streams" for Instructions
- -	!
STREAM CHANNEL D NONE / NATURAL CHANNEL MODIFICATIONS:	
(Max of 32). Add total number of significant substrate types : <u>TYPE</u> <u>PERCENT</u> <u>TY</u>	PEPERCENTMetric PointsSILT [3 pt] $40^{6}7_{0}$ NoLEAF PACK/WOODY DEBRIS [3 pts] $10^{6}7_{0}$ SubstrateFINE DETRITUS [3 pts] $10^{6}7_{0}$ Nax = 40CLAY or HARDPAN [0 pt] $10^{6}7_{0}$ Nax = 40
SAND (<2 mm) [6 pts]	
Total of Percentages of (A) Bidr Slabs, Boulder, Cobble, Bedrock しらのの (A)	(B) A+B
Bidr Slabs. Bouider. Cobble, Bedrock <u>157</u> 0 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:	TOTAL NUMBER OF SUBSTRATE TYPES:
 Maximum Pool Depth (Measure the maximum pool depth evaluation. Avoid plunge pools from road culverts or storm w 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS 	
3 BANK FULL WIDTH (Measured as the average of 3-4 mea	surements) (Check ONLY one box): Bankfull
 > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] 	□ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width □ ≤ 1.0 m (≤ 3' 3") [5 pts] Max=30 □ - -
COMMENTS axy 9ft	
This informat RIPARIAN ZONE AND FLOODPLAIN QUALITY <u>RIPARIAN WIDTH</u> <u>FLOODPLAIN Q</u>	ion <u>must</u> also be completed ☆NOTE: River Left (L) and Righl (R) as looking downstreams'r JALITY
LR (Per Bank) LR (Most I	Predominant per Bank) LR
Moderate 5-10m	Forest, Wetland re Forest, Shrub or Old Urban or Industrial
	ntial Park New Field
	Pasture Dia Mining or Construction
FLOW REGIME (At Time of Evaluation) (Check ON Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS heavy rain faul	LY one box): Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) ジーフォレター
SINUOSITY (Number of bends per 61 m (200 ft) of ct None 2 1.0 0.5 1.5	annel) (Check ON/LY one box): 2.0 3.0 2.5 3.0 >3
STREAM GRADIENT ESTIMATE	100 h) O Moderate to Severe O Severe (10 k/100 h)

,	lo QHEI Score (If Yes, Attac	n Completed QHEFForm)
DOWNSTREAM DESIGNATED USE(_ Distance from Evaluated Stream _ 0.70 nut
		Distance from Evaluated Stream
EWH Name:		Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAP	S, INCLUDING THE ENTIRE WATERSHED A	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: North VHCST. Col	umbu, OIT NRCS Soil Map Pi	age: NRCS Soil Map Stream Order
county: Franklin	Township / City:	Iliard / Columbies
MISCELLANEOUS		· · · · · · · · · · · · · · · · · · ·
Base Flow Conditions? (Y/N): N Date of I	last precipitation: 3 27/09	Quantity:
Photograph Information:		
Elevated Turbidity? (Y/N): N Canop	y (% open): <u>20 १</u> ७	
Were samples collected for water chemistry? (Y/	N): <u>N</u> (Note lab sample no. or id. ar	nd attach results) Lab Number:
		Conductivity (µmhos/cm)
		tream varies
extensively along	its A 1.0 mile	reach
Additional comments/description of pollution imp	acts:	· · · · · · · · · · · · · · · · · · ·
BIOTIC EVALUATION		
Performed? (Y/N): N (If Yes, Record all	le appropriate field data sheets from the Prin Salamanders Observed? (Y/N) her? (Y/N) Aquatic Macroinvertebrate	s Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all ID number, Includ Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouch	le appropriate field data sheets from the Prin Salamanders Observed? (Y/N) her? (Y/N) Aquatic Macroinvertebrate	nary Headwater Habitat Assessment Manual) Voucher? (Y/N) s Observed? (Y/N)Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all ID number, Includ Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouch	le appropriate field data sheets from the Prin Salamanders Observed? (Y/N) her? (Y/N) Aquatic Macroinvertebrate	nary Headwater Habitat Assessment Manual) Voucher? (Y/N) s Observed? (Y/N)Voucher? (Y/N)
Performed? (Y/N): (If Yes, Record all ID number. Includ Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouch Comments Regarding Biology:	le appropriate field data sheets from the Prin Salamanders Observed? (Y/N) er? (Y/N) Aquatic Macroinvertebrate	nary Headwater Habitat Assessment Manual) Voucher? (Y/N) s Observed? (Y/N)Voucher? (Y/N)
Performed? (Y/N): (If Yes, Record all ID number. Includ Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouch Comments Regarding Biology: 	le appropriate field data sheets from the Prin Salamanders Observed? (Y/N) er? (Y/N)Aquatic Macroinvertebrate	Tary Headwater Habitat Assessment Manual)
Performed? (Y/N):	le appropriate field data sheets from the Prin Salamanders Observed? (Y/N) her? (Y/N)Aquatic Macroinvertebrate E DESCRIPTION OF STREAM R eatures of Interest for site evaluation and	nary Headwater Habitat Assessment Manual) Voucher? (Y/N) s Observed? (Y/N)Voucher? (Y/N)
Performed? (Y/N):	E DESCRIPTION OF STREAM R Beatures of Interest for site evaluation and	Tary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all ID number. Includ Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouch Comments Regarding Biology: Comments Regarding Biology: DRAWING AND NARRATIV Include important landorarks and other for Rutk for	E DESCRIPTION OF STREAM R Beatures of Interest for site evaluation and	Tary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all ID number. Includ Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouch Comments Regarding Biology: Comments Regarding Biology: DRAWING AND NARRATIV Include important landorarks and other for Rutk for	le appropriate field data sheets from the Prin Salamanders Observed? (Y/N) her? (Y/N)Aquatic Macroinvertebrate E DESCRIPTION OF STREAM R eatures of Interest for site evaluation and	Tary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all ID number. Includ Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouch Comments Regarding Biology: Comments Regarding Biology: DRAWING AND NARRATIVE Include important landmarks and other for RULK E	Be appropriate field data sheets from the Print	The adwater Habitat Assessment Manual) Voucher? (Y/N) s Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) EACH (This must be completed): a narrative description of the stream's location P OAD
Performed? (Y/N): (If Yes, Record all ID number. Includ Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouch Comments Regarding Biology: Comments Regarding Biology: DRAWING AND NARRATIV Include important landorarks and other for Rotk & Curvert	E DESCRIPTION OF STREAM R Beatures of Interest for site evaluation and	The adwater Habitat Assessment Manual) Voucher? (Y/N) s Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) EACH (This must be completed): a narrative description of the stream's location P OAD
Performed? (Y/N): (If Yes, Record all ID number. Includ Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouch Comments Regarding Biology: Comments Regarding Biology: DRAWING AND NARRATIVE Include important landmarks and other for RULK E	Be appropriate field data sheets from the Print	Tary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all ID number. Includ Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouch Comments Regarding Biology: Comments Regarding Biology: DRAWING AND NARRATIV Include important landprarks and other for Rotk & Curvert	Be appropriate field data sheets from the Print	Tany Headwater Habitat Assessment Manual)
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PHWH Form Page - 2

M Class I

6



Onig EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION _ Roberts- OSL		
	SOZ_ RIVER BASIN Science $\mathbb{R}^{10} \xrightarrow{\mathbb{C}} \mathbb{C}^{-1}$ drainage area (mi ²) $\frac{2}{100} \xrightarrow{\mathbb{C}} \mathbb{C}^{-1}$ Lat. 40.01 Long. 83.11 River code River Mile	.01
LENGTH OF STREAM REACH (II)		·
	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	
·		
STREAM CHANNEL	TURAL CHANNEL PRECOVERED RECOVERING RECENT OR NO RECOVE	RY
MODIFICATIONS:		
		HHEI
		letric oints
BLDR SLABS [16 pts]	LEAF PACKWOODY DEBRIS [3 pts]	Onnes
BEDROCK [16 pt]	[] [] FINE DETRITUS (3 pts) [] [] 9% S	ubstrate lax = 40
	CLAY or HARDPAN [0 pt]	
	259 \square \square MUCK [0 pts] $_10.20$	9
Total of Percentages of Bidr Slabs. Boulder, Cobble. Bedrock	107. (A) 12 (B) 7	A + 8
SCORE OF TWO MOST PREDOMINATE SUBST	TRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	
2. Meximum Pool Depth (Measure the ma	naximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Po	ol Depth
evaluation. Avoid plunge pools from road > 30 centimeters [20 pts]	d culverts or storm water pipes) (Check ONLY one box): M Source - 10 cm {16 pts}	lax = 30
So centimeters [20 pts] 22.5 - 30 cm [30 pts]	2 < 5 cm [10 cm [10 pts] 2 < 5 cm [5 pts]	5
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	
COMMENTS heavy rain full	3 27 105 MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the a	average of 3-4 measurements} (Check ONLY one box): B	ankfull
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' B") [15 pts]	Width
3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] 3.1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	[Ø ≤ 1.0 m (≤ 3'3") [5 pts]	lax=30
COMMENTS	23 AVERAGE BANKFULL WIDTH (meters)	5
		* 100 800 M
	This information must also be completed	<u>متغد المتنب</u>
RIPARIAN ZONE AND FLOODPI RIPARIAN WIOTH	PLAIN QUALITY SYNOTE: River Left (L) and Right (R) as looking downstreams' FLOODPLAIN QUALITY	
L R , (Per Bank)	L R (Most Predominant per Bank) L R	
🗂 🎢 . Wide >10m	Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	Field Immature Forest, Shrub or Old II II Urban or Industrial	
₩ 💭 💭 Narrow <5m	Residential, Park, New Field Open Pasture, Row	
<u> </u>	Crop	
🗍 🗍 None	D Fenced Pasture D Mining or Construction	
COMMENTS	D Fenced Pasture D Mining or Construction	
COMMENTS	luation) (Check ONLY one box):	
COMMENTS FLOW REGIME (At Time of Evalue Stream Flowing Subsurface flow with isolated pools	luation) (Check ONLY one box):	
COMMENTS FLOW REGIME (At Time of Evalue Stream Flowing Subsurface flow with isolated pools COMMENTS	luation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Is (Interstitial) Dry channel, no water (Ephemeral) (ないたい) スロンスコレン	
COMMENTS FLOW REGIME (At Time of Evalue Stream Flowing Subsurface flow with isolated pools COMMENTS SINUOSITY (Number of bends pe None	luation) (Check ONLY one box): Is (Interstitial) Dry channel, isolated pools, no flow (Intermittent) (ないたいしょう) マゴロか er 61 m (200 ff) of channel) (Check ONLY one box): 1.0 2.0 3.0	
COMMENTS FLOW REGIME (At Time of Evalue Stream Flowing Subsurface flow with isolated pools COMMENTS	luation) (Check ONLY one box): Is (Interstitial) Dry channel, isolated pools, no flow (Intermittent) (ないたいしょう) 2 ゴロン er 61 m (200 ff) of channel) (Check ONLY one box):	
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ADDITIONAL STREAM INFORM	ATION (This Information Mus	st Also be Completed):			
QHEI PERFORMED?	- 🗆 Yes 💆 No 🛛 QHEI Score	(If Yes, Attacl	h Completed QHEI Form)		
DOWNSTREAM DESI	• •				
WWH Name:					
CWH Name: EWH Name:					
MAPPING: ATTACH CO	OPIES OF MAPS, INCLUDING T	HE <u>ENTIRE</u> WATERSHED A	REA. CLEARLY MARK THE	SITE LOCATION	
JSGS Quadrangle Name: <u>Nor-</u>	hurest Columbus, 1	DH NRCS Soil Map Pa	ge: NRCS Soil Ma	p Stream Order	
ounty: Franklin		Township / City:	Iliard		
MISCELLANEOUS	,	,			
ase Flow Conditions? (Y/N):	Date of last precipitation	3/27/00	Quantity:		
hotograph Information:					
levated Turbidity? (Y/N): <u>N</u>					
ere samples collected for water	chemistry? (Y/N): <u>IV</u> (No	ote lab sample no, or id, and	d attach results) Lab Numbe	er:	
iełd Measures: Temp (°C)					
the sampling reach representation	ve of the stream (Y/N) Y	If not, please explain:			
dditional comments/description of	of pollution impacts:				
an a su a					
BIOTIC EVALUATION					
Performed? (Y/N): (II	Yes, Record all observations. Vi	aucher cellections estimated			
	number. Include appropriate fiel				
ish Observed? (Y/N) Vo	oucher? (Y/N) Salamand	lers Observed? (Y/N)	Voucher? (Y/N)		
rogs or Tadpoles Observed? (Y/I				ucher? (Y/N)	
omments Regarding Biology:					
				<u> </u>	
	NARRATIVE DESCRIPT			• •	
include important landmar	ks and other features of interest $SCI OTO QAR$			the stream's location	
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	for the fi		- 23	Culvo	
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	A debris	zft		501	
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<u> </u>	La		· · · · · · · · · · · · · · · · · · ·	<u> </u>	
tober 24, 2002 Revision	PH	WH Form Page - 2			

M Class II

SITE NAMELOCATION K OD-CATD OS UL SITE NUMBER SO3 RIVER BASIN SAID PARY DRAINAGE AREA (m ²) Q.25 LENGTH OF STREAM REACH (n) Q.00 LAT. LONG. RIVER CODE RIVER MILE DATE O'HID BUD SCORER Q.100 LAT. LONG. RIVER CODE RIVER MILE DATE O'HID BUD SCORER Q.100 LAT. LONG. RIVER CODE RIVER MILE DATE O'HID BUD SCORER Q.100 LAT. LONG. RIVER MILE RIVER MILE DATE O'HID BUD SCORER Q.100 LAT. LONG. RIVER MILE RIVER MILE DATE Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions Streams" for Instructions STREAM CHANNEL INONE / NATURAL CHANNEL INONE / NATURAL CHANNEL Instructions Recent or No Recovery MODIFICATIONS: INONE / NATURAL CHANNEL Interminity of state or No Recovery MODIFICATIONS: 1 SUBSTRATE (Satinate present Check ONLY MooDPY DEBRIS (Satinate PRECENT PERCENT PERCENT PERCENT IPPE BLO SLAS
SITE NUMBER SO3 RIVER BASIN SAIA 10 DAVY DRAINAGE AREA (mP) Q.2.5 LENGTH OF STREAM REACH (h) Q.00 LAT. LONG. RIVER CODE RIVER MILE DATE Q.11 LONG. RIVER CODE RIVER MILE RIVER MILE DATE Q.11 LONG. RIVER CODE RIVER MILE DATE Q.11 COMMENTS COMMENTS RIVER MILE NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL INONE / NATURAL CHANNEL SCREOOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: INONE / NATURAL CHANNEL SCREOOVERED RECOVERING INCOMENTATE SUBSTRATE TYPE boxes HHEI MODIFICATIONS: INT [6] bis INT [7] PE Sint [3 pt] PERCENT IPE BLOR SLABS [16 pts] PERCENT YPE Sint [3 pts] Substrate TYPE boxes IPE BLOR SLABS [16 pts] INT [6] pts] INT [3 pt] PERCENT Substrate TYPE boxes IPE BLOR SLABS [16 pts] INT [3 pt] INT [3 pt] Substrate TYPE boxes HHEI IPE BLOR
LENGTH OF STREAM REACH (ft) 200 LAT. LONG RIVER CODE RIVER MILE DATE 0.416 0.02 SCORER 0.1014/01 COMMENTS RIVER CODE RIVER MILE NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL Inone / NATURAL CHANNEL RECOVERED RECENT OR NO RECOVERY MODIFICATIONS: Inone / NATURAL CHANNEL RECENT or NO RECOVERY RECENT OR NO RECOVERY 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY type predominant substrate TYPE boxes HHEI 1. SUBSTRATE (Estimate percent of significant substrate types found (Max of 8). Final metric score is sum of boxes A & 8. HHEI 1. SUBSTRATE (Estimate percent of significant substrate types found (Max of 8). Final metric score is sum of boxes A & 8. HHEI 1. BUDR SLABS (16 pts) PERCENT SLT [3 pt] Percent 1. BUDR SLABS (16 pts) PERCENT SLT [3 pt] Substrate 1. BUDR SLABS (16 pts) Percent Max of (0). Final metric Store is som of boxes A & 8. Max of (0). Final metric Store is som of boxes A & 8. 1. BUDR SLABS (16 pts) Percent
DATE OH/16 0.00 SCORER C. D.T.WW COMMENTS NOTE: Complete All items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL Inone / NATURAL CHANNEL Orego Recovered
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL INONE / NATURAL CHANNEL IRECOVERED IRECOVERING IRECENT OR NO RECOVERY MODIFICATIONS: INONE / NATURAL CHANNEL IRECOVERED IRECOVERING IRECENT OR NO RECOVERY 1. SUBSTRATE (Estimate percent of every type of substrate present. Check OWLY 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 baxes A & B. Image: Add total number of significant substrate types found (Max of 8). Final metric score is sum of baxes A & B. Image: Add total number of significant substrate types found (Max of 8). Final metric score is sum of baxes A & B. Image: Add total number of significant substrate types found (Max of 8). Final metric score is sum of baxes A & B. Image: Add total number of significant substrate types found (Max of 8). Final metric score is sum of baxes A & B. Image: Add total number of substrate types found (Max of 8). Final metric score is sum of baxes A & B. Image: Add total number of significant substrate types found (Max of 8). Final metric score is sum of baxes A & B. Image: Add total number of significant substrate types found (Max of 8). Final metric score is sum of baxes A & B. Image: Add total number of substrate types found (Max of 8). Final metric score is sum of baxes A & B. Image: Add total number of baxes A & B. Image: Add total number of baxes A & B. Image: Add total number of baxes A & B. Image: Add total number of baxes A & B. Image
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TYPEPERCENTTYPEPERCENTBLOR SLABS [16 pts] \square
BLOR SLABS [16 pts] SILT [3 pt] Enterin BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] ELAF PACK/WOODY DEBRIS [3 pts] Substrat BEDROCK [16 pt] BEDROCK [16 pt] BEDROCK [16 pt] Substrat Substrat BEDROCK [16 pt] BEDROCK [16 pt] BEDROCK [16 pt] Substrat Substrat BEDROCK [16 pt] BEDROCK [16 pt] BEDROCK [16 pt] Substrat Substrat BEDROCK [16 pt] BEDROCK [16 pt] BEDROCK [16 pt] Substrat Substrat BEDROCK [16 pt] BEDROCK [16 pt] BEDROCK [16 pt] Substrat Substrat BEDROCK [16 pt] BEDROCK [20 pts] BEDROCK [20 pts] MUCK [0 pts] MUCK [0 pts] Collar of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock O'T.' (A) D MUCK [0 pts] A+B SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Pool Depth (Measure the maximum pool depth within the 61 meter (200 h] evaluation reach at the time of Pool Depth (Max = 31 So Cort Wo MOST PREDOMINATE SUBSTRATE TYPES: So Con (10 pts] So Con (15 pts] So Con (16 pts]
BEDROCK [16 pt] FINE DETRITUS [3 pts] COBBLE (66-266 mm) [12 pts] CLAY or HARDPAN [0 pt] GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] SAND (<2 mm) [6 pts]
Image: Delta integration of the product of the pro
GRAVEL (2-64 mm) [6 pts] MUCK [0 pts] Image: Constant of Percentages of Bid Stabs. Boulder, Cabble, Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Boulder, Cabble, Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Boulder, Cabble, Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Boulder, Cabble, Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Boulder, Cabble, Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Boulder, Cabble, Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Boulder, Cabble, Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Boulder, Cabble, Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Boulder, Cabble, Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Bedrock of TW (A) (C) Image: Constant of Percentages of Bid Stabs. Bedrock of TW (A) (B) Image: Constant of Percentages of Bid Stabs. Bedrock of Constant of Percentages of Bid Stabs. Bedrock of Sta
Total of Percentages of Bidr Stabs, Boulder, Cobble, BedrockOTW (A) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (B) D A + B 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Pool Depth ax = 31 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Pool Depth ax = 31 3. COMMENTS C MCNEH MAXIMUM POOL DEPTH (centimeters): 5 3. BANK FULL WEDTH (Measured as the average of 3-4 measurements) > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [16 pts] Bankfull Width Max=30 3. BANK FULL WEDTH (Measured as the average of 3-4 measurements) > 3.0 m - 4.0 m (> 9'T - 13') [25 pts] > 1.0 m (≤ 3' 3'') [5 pts] Bankfull Max=30 3. BANK of (> 9'T - 4' 8'') [20 pts] S 1.0 m (≤ 3' 3'') [5 pts] S 2.0 m (≤ 3' 3'') [5 pts] S 2.0 m (≤ 3' 3'') [5 pts]
Bidr Stabs, Boulder, Cobble, Bedrock 0*0 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 evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts]
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Pool Depth 2. Maximum Pool Depth (Measure the maximum pool depth within the 67 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Pool Depth 3. 30 centimeters (20 pts) S cm (15 pts) S cm (15 pts) S COMMENTS C OVACKELL DOMENTS Maximum Pool DEPTH (centimeters): S 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): S S 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): S S 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): S S 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): S S 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): S S 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): S S 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): S
 Maximum Pool Depth (Measure the maximum pool depth within the 67 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS (An (25 pts)) COMMENTS (An (25 pts)) BANK FULL WEDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9'7' - 13') [25 pts] > 1.5 m - 3.0 m (> 9'7' - 4'8') [20 pts]
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] > 6 cm [5 pts] > 10 - 22.5 cm [25 pts] S NO WATER OR MOIST CHANNEL [0 pts] COMMENTS C (MCK f.H. McSHT0 m) MAXIMUM POOL DEPTH (centimeters): S ankfull S. BANK FULL WEDTH (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'') [16 pts] > 3.0 m - 4.0 m (> 9'7' - 13') [25 pts] > 1.0 m (≤ 3' 3'') [5 pts] > 1.5 m - 3.0 m (> 9'7' - 4'8'') [20 pts] C 1.0 m (≤ 3' 3'') [5 pts]
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> 10 - 22.5 cm [25 pts] Image: Second state and s
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> 1.5 m - 3.0 m (> 9'7" - 4"8") [20 pts]
This information <u>must</u> also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY & MOTE: River Left (L) and Right (R) as looking downstream & RIPARIAN WIDTH <u>FLOODPLAIN QUALITY</u>
L R (Per Bank) L R (Most Predominant per Bank) L R
Wide >10m Image Image Image Image Image Image Image
Field Croan or industrial
🖾 🔂 Narrow <5m 🛛 🖉 Residential, Park, New Fleid 🗍 🗍 Open Pasture, Row Crop
I None I I Fenced Pasture I I Mining or Construction
COMMENTS
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Motet Channel, isolated pools, no flow (Internitient)
Stream Proving Stream Proving Stream Proving Stream Proving Charters, isolated pools, fill now (internment)
COMMENTS
SINUOSITY (Number of bends per 61 m (200 lt) of channel) (Check ONLY one box):
□ None
STREAM GRADIENT ESTIMATE

October 24, 2002 Revision

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PHWH Form Page - 1

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	ELOW	Monsterfe
	Include important landmarks and other features of interest for site avaluation and a narrative description of the stream's location	
	DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):	I
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	Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology: Algeric Bbs Ev vcd Voucher? (Y/N)	
I	Sick Observed? (VIN) Voucher? (VIN) Selemenders Observed? (VIN) Voucher? (VIN)	
ı	BIOTIC EVALUATION Performed? (Y/N):	
-		
4	Additional comments/description of pollution impacts:	
ĺ	Is the sampling reach representative of the stream (Y/N) / If not, please explain:	
	Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)	
	Elevated Turbidity? (Y/N): N Cenopy (% open): 105 70 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and atlach results) Lab Number:	
	Photograph Information:	
	Base Flow Conditions? (Y/N): Date of last precipitation:223108_ Quantity:	
	MISCELLANEOUS	
	county: Franklin Township/ City: Hilliard	
	USGS Quadrangie Name: North west Columbus, Oth NRCS Soil Map Page: NRCS Soil Map Stream Order	
	Distance from Evaluated Stream	
	CWH Name: Distance from Evaluated Stream	
	DOWNSTREAM DESIGNATED USE(S)	

- - -

October 24, 2002 Revision

M ClassII_

ChieFPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) :	41
SITE NAMER. OCATION ROBERTS-0312	
SITE NUMBER SD4 RIVER BASIN Sci oto RI VON DRAINAGE AREA (MP)	0.01
LENGTH OF STREAM REACH (#) 200 LAT. LONG. RIVER CODE RIVER MILE	
DATE 4-10-08 SCORER S. BYEWER COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL O NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	1
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT TYPE PERCENT	HHEI Metric
$\Box \Box$ BLDR SLABS [16 pts] $\Box \Box$ SiLT [3 pt] $\Box \Box \sigma \tau^{2}$	Points
BOULDER (>266 mm) [16 pts] <u>10%</u> D LEAF PACK/WOODY DEBRIS [3 pts] <u>10%</u> BEDROCK [16 pt]	Substrate
CO88LE (65-256 mm) [12 pts] 20% CLAY or HARDPAN [0 pt]	Max = 40
GRAVEL (2-64 mm) [9 pts] 0 070 MUCK [0 pts]	21
SAND (<2 mm) [6 pts] 20 % C ARTIFICIAL [3 pts]	<i>a</i> _1
Total of Percentages of (A) (B) (Q) (B) (A) (B) (A) (B) (C) (B) (C) (C) (C) (C) (C) (C) (C) (C) (C) (C	A+B
BID Stabs, Boulder, Cobble, Bedrock 3000 15 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): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
☐ > 22.5 - 30 cm [30 pts]	0
□ > 10 - 22.5 cm [25 pts]	
COMMENTS MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check OWLY one box): Image: Constant of the system of the sys	Bankfull Width
	Max=30
20 > 1.5 m - 3.0 m (> 9'7" - 4'8") [20 pts]	120
COMMENTS AVERAGE BANKFULL WIDTH (meters)	20
This information <u>must</u> also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY If NOTE: River Left (L) and Right (R) as looking downstream fr RIPARIAN WIDTH FLOODPLAIN QUALITY	
LR (Per Bank) LR (Most Predominant per Bank) LR	
Image: Conservation Conserv	
Field Comparison Field	
XX Nerrow <5m XX Residential, Park, New Field D Open Pasture, Row Crop	
Image: COMMENTS Image: Communication of Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
🗍 Stream Flowing 💭 Molst Channel, isolated pools, no flow (Intermitteni)
Subsurface flow with isolated pools (Interstitial) COMMENTS COMMENTS	-
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
070 None 07 1.0 0 2.0 0 3.0 ∕0 0.5 0 1.5 0 2.5 0 >3	
STREAM GRADIENT ESTIMATE	00 A)

October 24, 2002 Revision

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PHWH Form Page - 1

	RFORMED? - D Yes DNo QHEI Score (II Yes, Attach Completed QHEI Form)
	REAM DESIGNATED USE(S)
	Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream
BEWH Name:	
	: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
	varne: Northwest Columbus, OHNRCS Soil Map Page: NRCS Soil Map Stream Order
-	
County: <u>IVA-P</u>	KIIN Township/City:_ Hilliard
MISCELL	
lase Flow Condition	NS? (Y/N): Date of last pracipitation: 3/2=+].0 B Quantity: 1
•	Non:
Elevated Turbidity?	(Y/N): N Canopy (% open): 45 70
	sted for water chemistry? (V/N): (Note lab sample no. or id, and attach results) Lab Number:
ield Measures:	Temp (*C) Dissolved Oxygen (mg/) pH (S.U.) Conductivity (µmhos/cm)
	h representative of the stream (Y/N) Y If not, please explain:
ddillonal comments	/description of pollution impacts:
	VALUATION
Performed? (Y/N): Fish Observed? (Y/N Frogs or Tadpoles O	(If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the si ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): iish Observed? (Y/N irogs or Tadpoles O	(If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the siting number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual))
Verformed? (Y/N): ish Observed? (Y/N rogs or Tadpoles O comments Regardin DRAM	(if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the siting number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the siting number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the siting number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher? (Y/N)
Verformed? (Y/N): ish Observed? (Y/N rogs or Tadpoles O comments Regardin DRAM	(if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the siting number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the siting number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher? (Y/N)
Performed? (Y/N): iish Observed? (Y/N rogs or Tadpoles O comments Regardin DRAM	(if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the sitin number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual))
Verformed? (Y/N): ish Observed? (Y/N rogs or Tadpoles O comments Regardin DRAM	(if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the sitin number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual))
erformed? (Y/N): ish Observed? (Y/N rogs or Tadpoles O comments Regardin DRAM	(if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the sitin number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual))
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erformed? (Y/N): ish Observed? (Y/N rogs or Tadpoles O comments Regardin DRAV Include impor	(if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the sitin number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual))
erformed? (Y/N): ish Observed? (Y/N rogs or Tadpoles O comments Regardin DRAV Include impor	(if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the site in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the site in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the site in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher? (Y/N)
erformed? (Y/N): ish Observed? (Y/N rogs or Tadpoles O comments Regardin DRAV Include impor	(if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the site in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the site in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the site in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (if Yes, Record all observations. Voucher? (Y/N)
Performed? (Y/N): iish Observed? (Y/N rogs or Tadpoles O comments Regardin DRAM	(if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be tabeled with the sitin number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual))

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APPENDIX D

SELECTED PHOTOGRAPHS



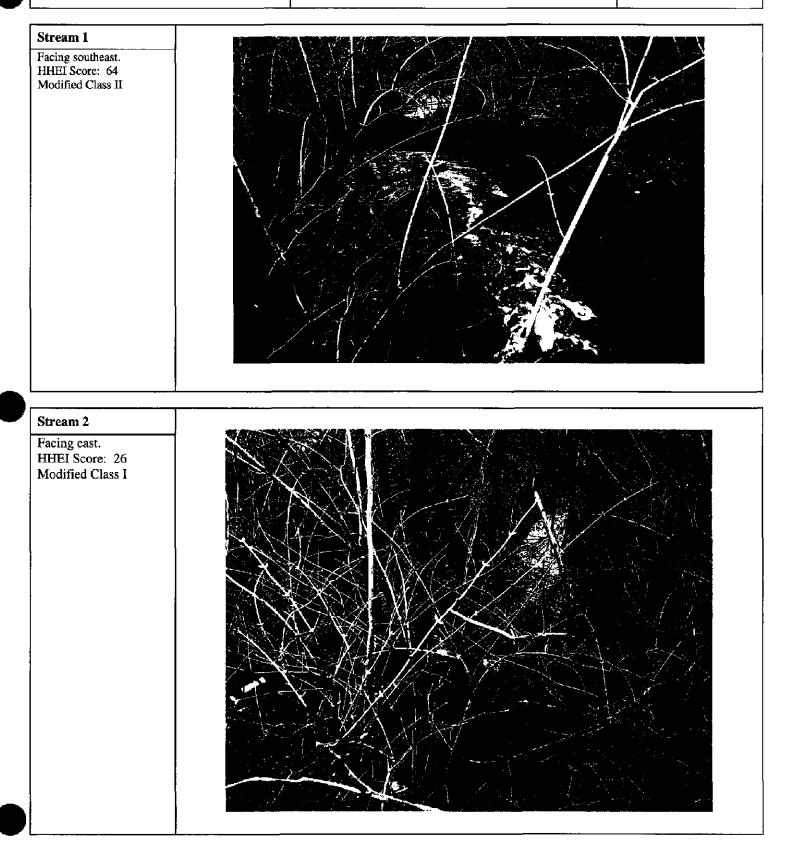
PHOTOGRAPHIC RECORD Roberts - OSU 138 kV Transmission Line

Client Name:

AEP

Site Location:

Franklin County, OH





Client Name:

Scioto River Facing southeast.

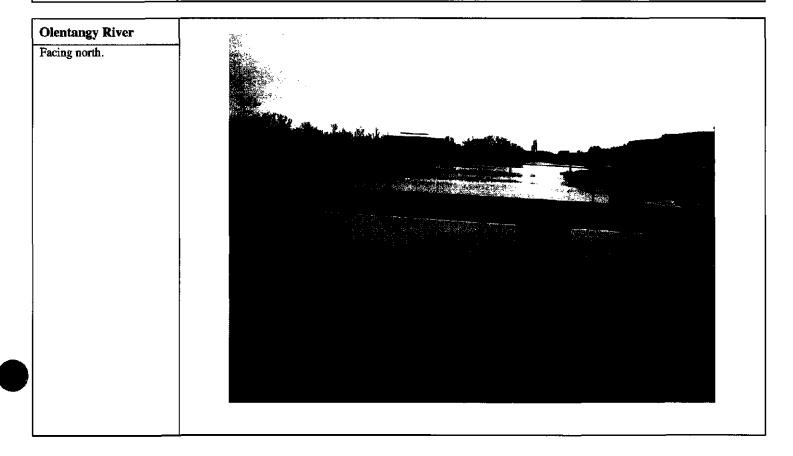
AEP

PHOTOGRAPHIC RECORD Roberts – OSU 138 kV Transmission Line

Site Location:

Franklin County, OH







Client Name:

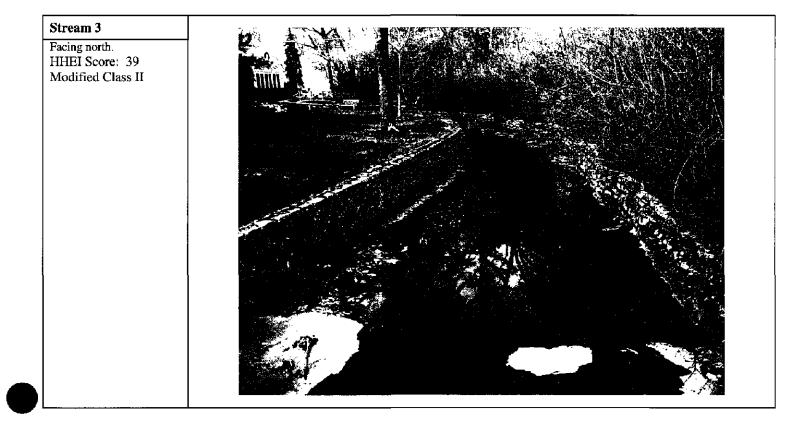
AEP

PHOTOGRAPHIC RECORD Roberts – OSU 138 kV Transmission Line

Site Location:

Franklin County, OH

Project No. 14947388



Stream 4 Facing south. HHEI Score: 41 Modified Class II



Chient Name:

AEP

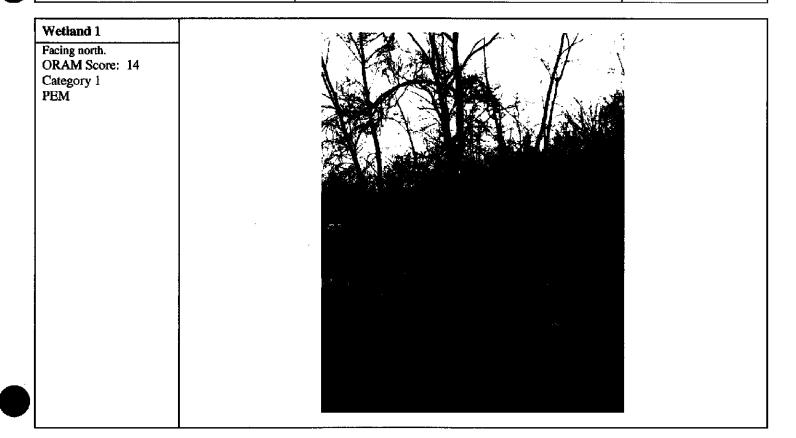
PHOTOGRAPHIC RECORD

Roberts - OSU 138 kV Transmission Line

Site Location:

Franklin County, OH

Project No. 14947388



Wetland 3

Facing southwest. ORAM Score: 20 Category 1 PEM/PFO/POW





Client Name:

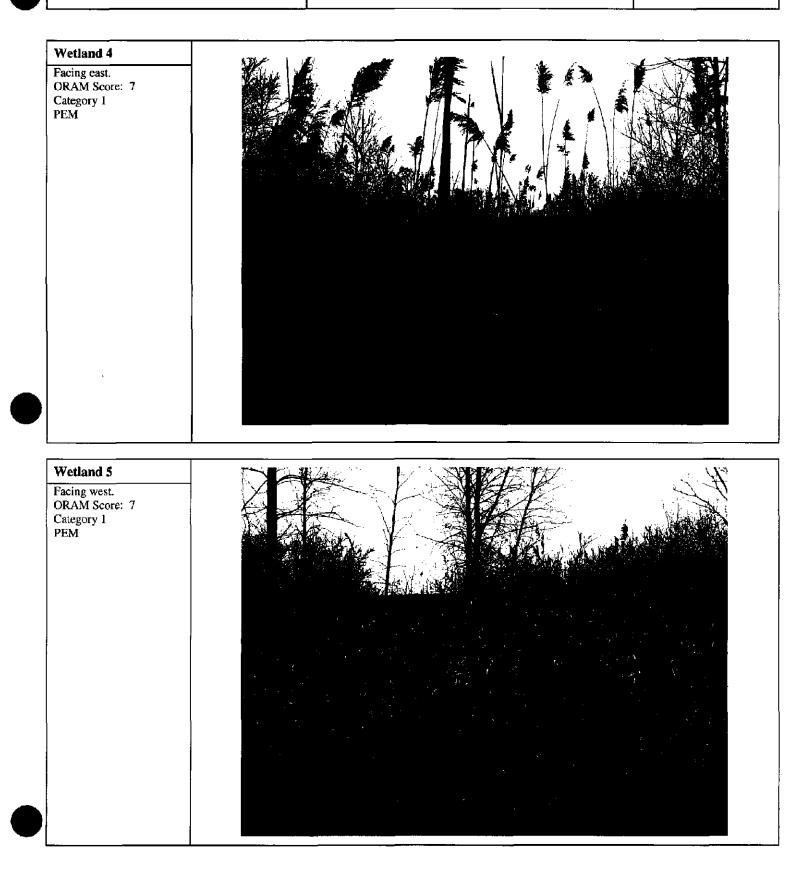
AEP

PHOTOGRAPHIC RECORD

Roberts - OSU 138 kV Transmission Line

Site Location:

Franklin County, OH





Client Name:

AEP

Wetland 6

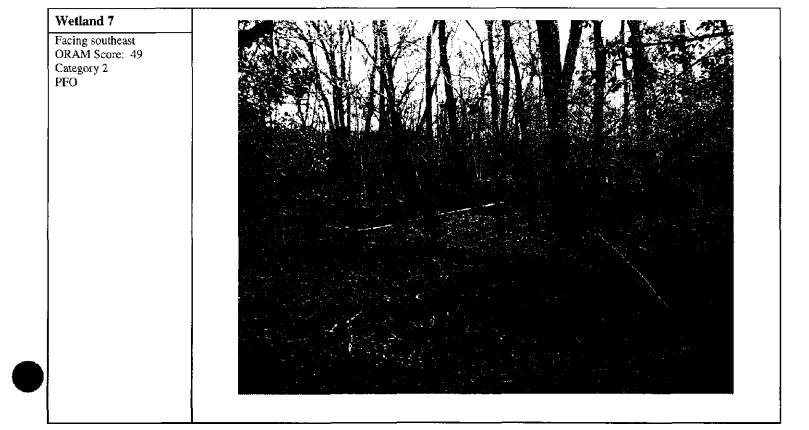
Facing south. ORAM Score: 10 Category 1 PEM

PHOTOGRAPHIC RECORD Roberts - OSU 138 kV Transmission Line

Site Location:

Franklin County, OH







PHOTOGRAPHIC RECORD

Roberts - OSU 138 kV Transmission Line

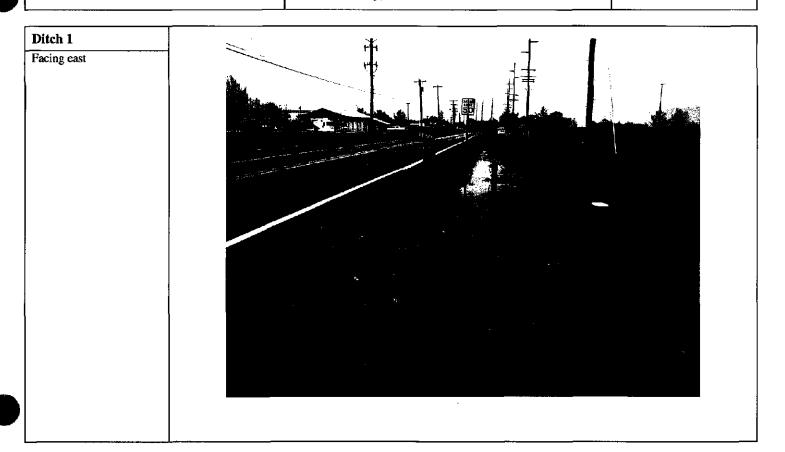
Client Name:

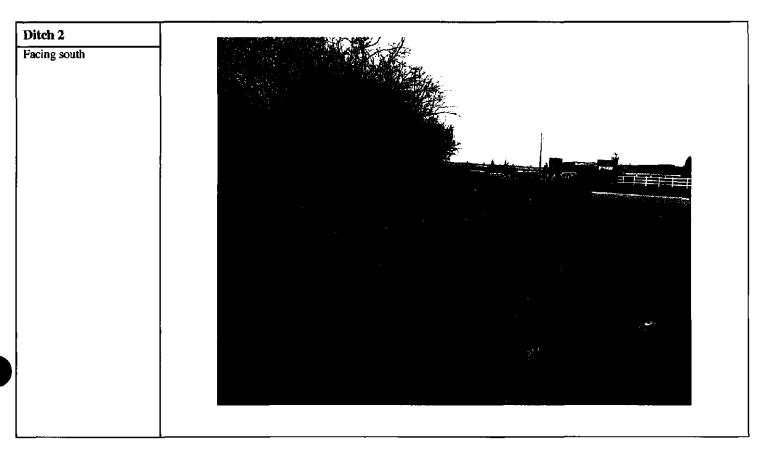
AEP

Site Location:

Franklin County, OH

14947388





	URS	PHOTOGRAPHIC RECORD Roberts – OSU 138 kV Transmission Line		
Į	Client Name:	Site Location:	Project No.	
	AEP	Franklin County, OH	14947388	

APPENDIX E

AGENCY CORRESPONDENCE



Ohio Department of Natural Resources

TED STRICKLAND, COVERNOR

SEAN D. LOGAN, DIRECTOR

Division of Natural Areas & Preserves Steven D. Maurer, Chief 2045 Morse Road, F-1 Columbus, OH 43229-6693 Phone: (614) 265-6453 Fax: (614) 267-3096

July 24, 2007

Sarah Brewer URS Corporation 36 E. 7th St., Suite 2300 Cincinnati, OH 45202

Dear Ms. Brewer:

After reviewing our Natural Heritage maps and files, I find the Division of Natural Areas and Preserves has records of rare or endangered species within one mile of the URS Corporation AEP-Roberts OSU Underground Transmission project. The site is located in Perry Twp., Franklin Co., Southwest Columbus Quadrangle. *Epioblasma triquetra*, Snuffbox, is Endangered in Ohio and was last observed at this location in October of 1960. *Nyctanassa violacea*, Yellowcrowned Night Heron, is Threatened in Ohio and was last observed at this location in April of 1983. *Villosa fabalis*, Rayed Bean, is Endangered in Ohio and was last observed at this location July 11, 1964. Becky Jenkins of the Division of Wildlife should be contacted regarding possible impacts to rare animal species. She can be reached at (614) 265-6631.

There are no existing or proposed state nature preserves at the project site. We are also unaware of any geologic features, breeding or non-breeding animal concentrations, state parks, scenic rivers, state nature preserves, state forests, or wildlife areas within the project area. However, the site is near a cave or cavern and a waterfall. Best management practices should be employed to avoid impacting these unique natural features.

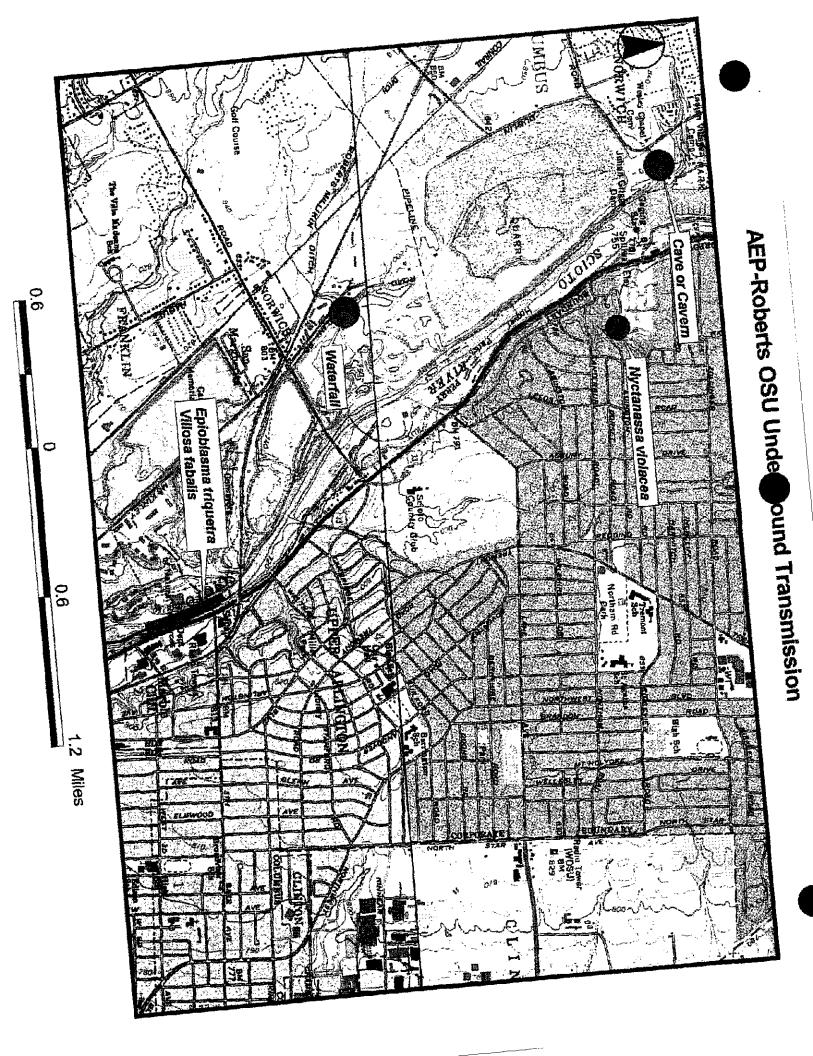
Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although we inventory all types of plant communities, we only maintain records on the highest quality areas. For National wetlands Inventory maps, please contact Madge Fitak in the Division of Geological Survey at (614) 265-6576. Aerial photos may be obtained from ODOT at (614) 275-1369. USGS maps can be requested directly from the U.S. Geological Survey at 1-888-275-8747.

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

Sincerely,

Butch Grieszmer, Data Specialist Resource Services Group

ohiodnr.com





NATURAL HERITAGE DATA REQUEST

OHIO DEPARTMENT OF NATURAL RESOURCES DIVISION OF NATURAL AREAS AND PRESERVES OHIO NATURAL HERITAGE PROGRAM 2045 MORSE ROAD, BUILDING F-1 COLUMBUS, OHIO 43229 PHONE: 614-265-6453: FAX: 614-267-3096

INSTRUCTIONS:

Please fill out both sides of this data request form, sign it and return it to the address or fax number listed above along with: (1) a letter formally requesting data and describing your project, and (2) a map detailing the boundaries of your study area. A photocopy from the pertinent portion of a USGS 7.5 minute topographic map is preferred but other maps are acceptable. Our tumaround time is two weeks, although we can often respond more quickly,

FEES:

Fees are determined by the amount of time it takes to complete your project. The charge is \$25.00 per ½ hour with a ½ hour minimum. We can perform a data search manually or by computer. The Heritage Data Services staff will determine the most cost-efficient method of doing your search. A cost estimate can be provided upon request. Unless otherwise specified, an invoice will accompany the data services response.

This request is being submitted by: 🎽 fax 🛛 mail 🖾 both						
Date: $\frac{7/1607}{1000}$						
Agency/Organization: URJ Corporation						
Name/Title: Sarah Brewer/Env. Scientist						
Address: 36 East Seventh Street Suite 2300						
city/state/Zip: Cincinnacti, OH 45202						
Phone/Fax: 613-419-3482 /Fax: 513-652-3452						
Project Name/Number: AEP - Roberts OSU underground forwarissian						
Project is located on the following USGS 7.5 minute tonographic man(s):						

S.7.5 minute topographic map(s): ated on the following u

Columbus (OH) Jouthwest

If there is a program or contracting agency requiring this information, please give the name and phone number of a contact person:

The Natural Heritage Data Base contains records for the categories of species and features listed below. Check the appropriate boxes to indicate your selection.

PLANTS:	☐ Federal Statu ☐ State Legal S ☐ Rare (non-leg ﷺ All of the above	tatus Only al status)	ANIMALS:	□ Federal Status Only □ State Legal Status Only □ Rare (non-legal status)) All of the above	
PLANT CO	OMMUNITIES:	All Wetlands Only Other			
other fi	□ Sta □ Sta □ Sta ⊠ Sta ⊠ All	edding/Non-breeding ate Nature Preserves ate Wild, Scenic and ate Parks, Forests, W of the above	and Natural Area Recreational Riv /ildlife Areas	36	ue vivers

Besides name, location and status, specify any additional information you need:

ease provide GIS shapefiles onlyt

The area you want searched: I study area as outlined on the map

🗖 study area plus ½ mile radius

Study area plus 1 mile radius

Sother Study area plus Emile radius

How will the information be used:

and feasibility study.

The information supplied above is complete and accurate. Any materials or digital data supplied by the Natural Heritage Database will not be published without prior written permission and without crediting the Division of Natural Areas and Preserves as the source. Electronic data sets may not be distributed to third parties without the written permission of the Division of Natural Areas and Preserves

Signature Jani Jonewa

DNR	5203
REV	9/97



Mr. David Graham, Chief Division of Wildlife Ohio Department of Natural Resources 2045 Morse Rd., Building G Columbus, Ohio 43229

May 2, 2008

Dear Mr. Graham,

American Electric Power has a critical need to reinforce its transmission system in the greater Columbus, Ohio, and Ohio State University campus areas to meet increasing electric demand due to continued growth and development in those parts of its service area. To accomplish this, AEP is proposing to construct a new 138,000-volt approximate 6 - 6.5 mile overhead/underground transmission line from Roberts Station to OSU Station. Approximately 4 - 4.5 miles of the project is planned to be built underground primarily within existing road rights-of-way. Additionally, about 0.5 - 1.0 miles will be built aboveground within existing transmission line rights-of-way.

The new line is designed to prevent overloads of critical facilities and provide sufficient capacity for future growth and development in the area, whose load is projected to increase more than 2.3 percent each year for the next 10 years. Without these improvements, AEP engineers project the performance of the company's transmission system in the area will deteriorate to unacceptable levels, jeopardizing the reliability of electric service for customers in the Ohio State University and the greater Columbus areas.

The proposed project falls under the jurisdiction of the Ohio Power Siting Board (OPSB) and requires preparation of an application for a Certificate of Environmental Compatibility and Public Need (Application). OPSB rules require the applicant to present a Preferred and Alternate Route for consideration. The enclosed topographic maps show the study area where route alternatives are being considered.

AEP has retained URS, an engineering firm that specializes in utility site and route selection, to prepare an application to the OPSB for the proposed transmission line. As part of the application, URS is conducting a route selection study, which includes identification of potentially sensitive areas.

The purpose of this letter is to solicit any preliminary comments that you might have concerning the identified area, and the potential for impact, if any, to plant and/or animal species of concern in the area. If you have any questions regarding this request please do not hesitate to contact the undersigned.

Sincerely, URS

Matthew Storage

Matt Thomayer Environmental Scientist



Mr. Randy Sanders Division of Real Estate and Land Management Ohio Department of Natural Resources 1952 Belcher Drive, Building C-4 Columbus, Ohio 43224

May 2, 2008

Dear Mr. Sanders,

American Electric Power has a critical need to reinforce its transmission system in the greater Columbus, Ohio, and Ohio State University campus areas to meet increasing electric demand due to continued growth and development in those parts of its service area. To accomplish this, AEP is proposing to construct a new 138,000-volt approximate 6 - 6.5 mile overhead/underground transmission line from Roberts Station to OSU Station. Approximately 4 - 4.5 miles of the project is planned to be built underground primarily within existing road rights-of-way. Additionally, about 0.5 - 1.0 miles will be built aboveground within existing transmission line rights-of-way.

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The purpose of this letter is to solicit any preliminary comments that you might have concerning the identified area, and the potential for impact, if any, to sensitive land management resources in the area. If you have any questions regarding this request please do not hesitate to contact the undersigned.

Sincerely, URS

Matthew Strange

Matt Thomayer Environmental Scientist



Dr. Mary Knapp US Fish and Wildlife Service Division of Ecological Services 6950 Americana Parkway, Suite H Reynoldsburg, Ohio 43068

May 2, 2008

Dear Dr. Knapp,

American Electric Power has a critical need to reinforce its transmission system in the greater Columbus, Ohio, and Ohio State University campus areas to meet increasing electric demand due to continued growth and development in those parts of its service area. To accomplish this, AEP is proposing to construct a new 138,000-volt approximate 6 - 6.5 mile overhead/underground transmission line from Roberts Station to OSU Station. Approximately 4 - 4.5 miles of the project is planned to be built underground primarily within existing road rights-of-way. Additionally, about 0.5 - 1.0 miles will be built aboveground within existing transmission line rights-of-way.

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Sincerely, URS

Matthew Stomage

Matt Thomayer Environmental Scientist