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1-800-646-0400

March 15, 2017

FILE

Ms. Barcy F. McNeal
Secretary
Docketing Division
The Public Utilities Commission of Ohio
180 East Broad Street
Columbus, OH 43215-3793

Letter of Notification
Clark-Urbana 138 kV Loop to Broadview Substation Project
Case No. 16-2282-EL-BLN
Supplemental Information

Dear Ms. McNeal:

Please accept this letter and the attached information as a supplemental filing to be considered as part of the Letter of Notification application filed in this docket. Specifically, the attached correspondence with the Ohio Department of Natural Resources ("ODNR") and U.S. Fish and Wildlife Service ("FWS"), as well as the Wetland Delineation Report regarding the above captioned Project, supplement the information in the application required by Ohio Administrative Code (OAC) Rule 4906-6-05 (B)(10)(e), "Endangered, Threatened, and Rare Species Investigation," and OAC Rule 4906-6-05 (B)(10)(f), "Areas of Ecological Concern."

Further, ATSI will be conducting habitat evaluation and considering best practices to avoid adversely impacting federally and state listed species as identified in these materials and the application. Copies of relevant future correspondence with ODNR and FWS will be provided to OPSB.

Should the Ohio Power Siting Board desire further information or discussion of this submittal, please contact me at (330) 761-4473.

Sincerely,



Nataliya Bryksenkova
Engineer
Energy Delivery
Transmission and Substation Design
FirstEnergy Service Company

cc: J. O'Dell

This is to certify that the above information is an accurate and complete copy of the original documents submitted in the original course of business.
Technician AS Date Processed 3/17/17



Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

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

January 27, 2017

Alicia M Cross
CH2M
400 E. Business Way, Suite 400
Cincinnati, OH 45241

Re: 16-901; State-Listed Threatened and Endangered Species Impact Assessment, ATSI - Broadview 138 kilovolt (kV) Transmission Line Projects

Project: The proposed project involves the construction of a new overhead electric transmission line from the existing East Springfield-Tangy 138 kV line to the proposed expansion of the Broadview substation as well as the construction of a new 138 kV line from the Broadview substation to the existing Clark-Urbana 138 kV line.

Location: The proposed project is located in Moorefield Township, Clark County, Ohio.

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

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

Fen indian-plantain (*Arnoglossum plantagineum*), P
Yellow sedge (*Carex flava*), P
Little green sedge (*Carex viridula*), T
Tufted hair grass (*Deschampsia cespitosa*), P
Few-flowered spike-rush (*Eleocharis quinquefolia*), T
Bearded wheat grass (*Elymus trachycaulus*), T
Small fringed gentian (*Gentianopsis procera*), P
Baltic rush (*Juncus balticus*), P
Prairie rattlesnake-root (*Prenanthes racemosa*), P
White beak-rush (*Rhynchospora alba*), P
Blue-leaved willow (*Salix petiolaris*), T
Prairie dropseed (*Sporobolus heterolepis*), T
Arbor vitae (*Thuja occidentalis*), P

False asphodel (*Triantha glutinosa*), P
 Seaside arrow-grass (*Triglochin maritimum*), T
 Marsh arrow-grass (*Triglochin palustris*), P
 Three-birds orchid (*Triphora trianthophora*), P
 Flat-leaved bladderwort (*Utricularia intermedia*), T
 Northern bog violet (*Viola nephrophylla*), T
 White wand-lily (*Zigadenus elegans*), P
 Prairie fen plant community
 Seepage dancer (*Argia bipunctulata*), E
 A burrowing mayfly (*Litobranchia recurvata*), E
 Tonguetied minnow (*Exoglossum laurae*), T
 Spotted turtle (*Clemmys guttata*), T
 Eastern massasauga (*Sistrurus catenatus*), E, FC
 Kirtland's snake (*Clonophis kirtlandii*), T, FSC
 Upland sandpiper (*Bartramia longicauda*), E
 Sedge wren (*Cistothorus platensis*), SC
 Least bittern (*Ixobrychus exilis*), T
 Weber Road Fen Conservation Site
 Buck Creek Fen Conservation Site
 Cedar Bog State Nature Preserve – Ohio History Connection
 Prairie Road Fen State Nature Preserve – ODNR Division of Natural Areas & Preserves
 Buck Creek State Park – ODNR Division of Parks & Watercraft

The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity.

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

Statuses are defined as: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; A = species recently added to state inventory, status not yet determined; X = presumed extirpated in Ohio; FE = federal endangered, FT = federal threatened, FSC = federal species of concern, FC = federal candidate species.

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

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

The project is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*),

post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2016), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2016) can be found at: <http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf>

The project is within the range of the Iowa darter (*Etheostoma exile*), a state endangered fish, and the tongue-tied minnow (*Exoglossum laurae*), a state threatened fish. The DOW recommends no in-water work from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact these or other aquatic species.

As noted, the Natural Heritage Database has records within the vicinity of the project route for the spotted turtle (*Clemmys guttata*), a state threatened species. This species prefers fens, bogs and marshes, but is also known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches. The DOW recommends that a habitat suitability survey be conducted by an approved herpetologist to determine if suitable habitat is present along the project route. If suitable habitat is found to be present, the DOW recommends that an avoidance/minimization plan be developed and implemented by the approved herpetologist. Please submit the approved herpetologist's report to Nathan Reardon, at Nathan.reardon@dnr.state.oh.us.

As noted, the Natural Heritage Database has records within the vicinity of the project route for the eastern massasauga (*Sistrurus catenatus*), a state endangered and a federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. The DOW recommends that a habitat suitability survey be conducted by an approved herpetologist to determine if suitable habitat is present along the

project route. If suitable habitat is found to be present, the DOW recommends that an avoidance/minimization plan be developed and implemented by the approved herpetologist. Please submit the approved herpetologist's report to Nathan Reardon, at Nathan.reardon@dnr.state.oh.us.

As noted, the Natural Heritage Database has records within the vicinity of the project route for the Kirtland's snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet meadows and other wetlands. The DOW recommends that a habitat suitability survey be conducted by an approved herpetologist to determine if suitable habitat is present along the project route. If suitable habitat is found to be present, the DOW recommends that an avoidance/minimization plan be developed and implemented by the approved herpetologist. Please submit the approved herpetologist's report to Nathan Reardon, at Nathan.reardon@dnr.state.oh.us.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the least bittern (*Ixobrychus exilis*), a state threatened bird. Nesting bitterns prefer large undisturbed wetlands that have scattered small pools amongst dense vegetation. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

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

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

<http://water.ohiodnr.gov/water-use-planning/floodplain-management#PUB>

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

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



UNITED STATES DEPARTMENT OF THE INTERIOR

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



December 8, 2016

Ms. Alicia Cross
400 E. Business Way
Suite 400
Cincinnati, Ohio 45241

TAILS# 03E15000-2017-TA-0342

Re: American Transmission Systems, Incorporated, Broadview 138kV Transmission Line Projects, Clark County, Ohio

Dear Ms. Cross,

We have received your December 1, 2016 letter requesting information about the proposed construction of a new overhead electric transmission line from the existing East Springfield-Tangy 138 kV line to the existing Broadview substation and from the Broadview substation to the existing Clark-Urbana 138kV line. The project is located in Moorefield Township, Clark County, Ohio.

There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. However, Prairie Road Fen and Buck Creek State Park are within the vicinity of the proposed line from the Broadview substation to the Clark Urbana 138kV line. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

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

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥ 3 inches

diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Should the proposed site contain trees ≥ 3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, we recommend that removal of any trees ≥ 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see <http://www.fws.gov/midwest/endangered/mammals/nleb/index.html>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that summer surveys may only be conducted between June 1 and August 15.

If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed.

The project lies within the range of the **eastern massasauga** (*Sistrurus catenatus*), a small, docile rattlesnake that is federally listed as threatened. Several factors have contributed to the decline of the species including habitat loss and fragmentation, indiscriminate killing, collection, gene pool contamination and incompatible land use practices.

Eastern massasaugas use both upland and wetland habitat and these habitats differ by season. During the winter, massasaugas hibernate in low wet areas, primarily in crayfish burrows, but may use other structures. Presence of a water table near the surface is important for a suitable hibernaculum. In the summer, massasaugas use drier, open areas that contain a mix of grasses and forbs such as goldenrods and other prairie plants that may be intermixed with trees or shrubs. Adjoining lowland and upland habitat with variable elevations between are critical for the species to travel back and forth seasonally. The proposed Broadview substation to East Springfield-Tangy 138kV line is within the vicinity of Prairie Road Fen where there are multiple records of this species. You have indicated that wetlands and adjacent grassy, upland habitat is

located within the project area. **Therefore, we request that a habitat evaluation be completed to determine if suitable habitat for the species exists within the vicinity of the proposed site.** Please note that habitat assessments should only be conducted by approved eastern massasauga surveyors due to variable habitat types and cryptic nature of the species. Any habitat assessments or surveys should be coordinated with this office.

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

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

If you have any questions regarding our response or if you need additional information, please contact Jenny Finfera at extension 13.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Everson", with a long horizontal stroke extending to the right.

Dan Everson
Field Supervisor

Enclosure: Qualified Eastern Massasauga Surveyors for Ohio

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



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994

April 2016

**Qualified Eastern Massasauga Surveyors for Ohio*

Kent Bekker 542 Centerfield Drive Maumee, OH 43537 (419) 376-4384 kbekker@gmail.com	Jeffery G. Davis 625 Crescent Road Hamilton, OH 45013 (513) 868-3154 anura@fuse.net
Colin Diehl Diehlux, LLC 194 Park Street Canandaigua, NY 14424 (607) 742-0977 cdiehl@diehluxllc.com	Gregory Lipps, LLC 1473 County Road 5 2 Delta, OH 43515 (419) 376-3441 greglipps@gmail.com
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*Surveyors must have a valid permit issued by the Ohio Division of Wildlife in order to conduct surveys for the eastern massasauga in Ohio.

Wetland and Waterbody Delineation Report, FirstEnergy Corporation Clark-Urbana 138 kV Loop to Broadview Substation Project, Clark County, Ohio

Prepared for



November 2016



Cincinnati, OH 45241

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A	U.S. Army Corps of Engineers Wetland Determination Field Datasheets
B	Ohio Environmental Protection Agency Ohio Rapid Assessment Method version 5 Datasheets
C	Ohio Environmental Protection Agency Headwater Habitat Evaluation Index Datasheets
D	Ohio Environmental Protection Agency Qualitative Habitat Evaluation Index Datasheets
E	Wetlands and Streams Photo Documentation

Exhibit

2-1	Precipitation in Springfield, Ohio
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Tables

2-1	Hydric Soils Rating Summary - Preferred Route
3-1	Project Study Area Wetland Summary
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Figures

1	Overview Map
2A-B	Preferred Route Soils Map
3A-B	Preferred Route Soils NWI, Wetland, and Waterbodies Delineation Map

Acronyms and Abbreviations

amsl	above mean sea level
ATSI	American Transmission Systems, Inc.
CH2M	CH2M HILL Engineers, Inc.
CWA	Clean Water Act
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
kV	kilovolt
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OAC	Ohio Administrative Code
OEPA	Ohio Environmental Protection Agency
OHWM	ordinary high water mark
ORAM	Ohio Rapid Assessment Method
PEM	palustrine emergent
PHWH	primary headwater habitat
Project	Clark-Urbana 138 kV Loop to Broadview Substation Project
PSS	palustrine scrub-shrub
PUB	palustrine unconsolidated bottom
QHEI	Qualitative Habitat Evaluation Index
ROW	right-of-way
TNW	traditionally navigable water
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Introduction

This report summarizes the results of the wetland and waterbody delineation conducted in Clark County, Ohio by CH2M HILL Engineers, Inc. (CH2M) for American Transmission Systems, Inc. (ATSI), a FirstEnergy Corporation company, Clark-Urbana 138 kilovolt (kV) Loop to Broadview Substation Project (Project). Field surveys were conducted July 25 through October 12, 2016.

ATSI is proposing to install a new, approximately 2-mile, 138 kV overhead electric transmission line from the expanded Broadview substation west to connect to the existing Clark-Urbana 138 kV line (Figure 1). The Project will require a new 60-foot-wide right-of-way (ROW) and will likely use wood poles.

Supporting information is contained in the following:

- Figure 1 provides an overview map of the environmental survey corridor based on a U.S. Geological Survey (USGS) topographic map.
- Figures 2A and 2B provide the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) mapped soil units, and Table 2-1 lists the soil types identified within the Project area.
- Figures 3A and 3B provide National Wetland Inventory (NWI) information and the field-delineated wetlands and waterbodies.
- Appendix A contains the U.S. Army Corps of Engineers (USACE) wetland determination field datasheets.
- Appendix B contains the Ohio Environmental Protection Agency (OEPA) Ohio Rapid Assessment Method, Version 5.0 (ORAM) datasheets for each wetland identified within the environmental survey corridor.
- Appendix C contains OEPA Headwater Habitat Evaluation Index (HHEI) datasheets for streams identified in the environmental survey corridor.
- Appendix D contains OEPA Qualitative Habitat Evaluation Index (QHEI) datasheets for streams identified in the environmental survey corridor.
- Appendix E contains representative photo documentation of wetlands, streams, ponds, and habitat.

SECTION 2

Background Information

This section describes the Project environmental survey corridor and methodology used during the wetland and waterbody delineation field surveys.

2.1 Project Area

The Project is located in Clark County, Ohio. The survey corridor begins north of Northridge, Ohio at the existing Broadview substation and continues west to the existing Clark-Urbana 138 kV line located east of Tremont City, Ohio (Figure 1). The environmental survey corridor is 2 miles long and 260 feet wide.

The Project is located within the Mad River Interbolate Plain region of the Central Lowlands physiographic province (Ohio Division of Geological Survey, 1998). The Mad River Interlobate region is characterized by moderate relief and elevations between 800 and 1,350 feet above mean sea level (amsl). The underlying bedrock is loamy, high-lime Wisconsin-age till and sand and gravel outwash over Silurian-to Devonian-age carbonate rocks and Ohio Shale (Ohio Division of Geological Survey, 1998).

Review of the USGS 7.5-minute topographic map of the Project area indicates that Moore Run is the main stream draining the Project area. The Project area between the existing Clark-Urbana 138 kV line and Urbana Road is relatively flat with elevations ranging between 950 and 965 feet amsl. There is greater topographic relief in the section of the Project area east of Urbana Road with elevations increasing to 1,135 feet amsl.

Land use within the environmental survey corridor includes agricultural fields, industrial areas, a wildlife habitat area, and existing maintained and fallow utility/railroad ROW. Habitat types throughout the environmental survey corridor include agricultural fields, maintained and fallow utility/railroad ROW, fallow field, pasture/open land, upland forest, riparian areas, palustrine emergent (PEM) and palustrine scrub-shrub (PSS) wetlands, in addition to the identified waterbodies, were also observed within the Project area.

2.2 Annual Precipitation

Monthly rainfall data for Tremont City, Ohio and Northridge, Ohio were unavailable from the USDA NRCS National Water Climate Center; therefore, rainfall data for Springfield, Ohio were reviewed. While precipitation for May and June was more than 1.5 inches below average, it was 2.5 inches greater than the average in August (Exhibit 2-1; USDA, 1981-2010, 2016).

Exhibit 2-1. Precipitation in Springfield, Ohio
Broadview to Clark-Urbana 138 kV Transmission Line Project

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2016												
Springfield Monthly Sum ^{1,3}	1.61	3.61	3.81	2.85	2.75	2.45	4.31	5.75	4.34	-	-	-
Historic												
Springfield Monthly Precip. Avg ^{2,3}	2.39	1.83	2.43	3.38	4.68	4.25	4.54	3.17	3.08	2.78	2.98	2.71

¹ USDA Field Office Climate Data 2016 (Springfield New Water Works, Springfield, OH)

² USDA WETS Station Climate Data 1981-2010 (Springfield New Water Works, Springfield, OH)

³ Displayed in inches

2.3 Drainage Basins

The environmental survey corridor is within the Moore Run subwatershed (Hydrologic Unit Code [HUC] 050800011801) of the Upper Great Miami Watershed (HUC 05080001) (USGS, 2013).

2.4 Traditional Navigable Waters

The U.S. Environmental Protection Agency (USEPA) and USACE assert jurisdiction over “all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce including all waters which are subject to the ebb and flow of the tide” (USACE and USEPA, 2008). These waters are identified as traditional navigable waters (TNW). The TNW downstream of the Project area is the Great Miami River (USACE, n.d.). Moore Run is a tributary to the Great Miami River, located approximately 28 miles southwest of the Project area, via the Mad River.

Wetlands and streams that have a significant nexus to TNWs are regulated under Sections 401 and 404 of the Clean Water Act (CWA) (USEPA and USACE, 2008, 2015). A significant nexus must meet criteria that indicate the stream or wetland provides biological, physical, or chemical benefits to the TNW. A significant nexus includes consideration of both hydrologic and ecologic factors.

Wetland and Waterbody Delineation

3.1 Desktop Review

Before conducting the field investigations, CH2M reviewed the following resources to identify the potential for wetlands within the environmental survey corridor:

- Aerial photography (Ohio Statewide Imagery Program, 2011)
- USGS topographic maps (Esri, 2011; USGS, 1975)
- USDA NRCS Web Soil Survey (NRCS, 2015)
- NWI maps (U.S. Fish and Wildlife Service [USFWS], 2014)
- National Hydrography Dataset (USGS, 2013)

The environmental survey corridor includes one named stream, Moore Run, according to the USGS topographic maps (Figure 1).

According to the NRCS soil survey of Clark County (NRCS, 2015), 12 soil map units are located within the environmental survey corridor. None of the soil map units is listed as hydric; one of the soil map units is listed as predominately hydric, and the remaining soil map units are considered predominately non-hydric or non-hydric (Figure 2; Table 2-1). Predominately hydric soils comprise approximately 2.1 acres, which is approximately 3.5 percent of the environmental survey corridor. Approximately 56.5 acres, or 97 percent of the environmental survey corridor, is comprised of predominately non-hydric or non-hydric soils.

Generally, hydric soils are those soils that indicate through their color and structure that they have experienced dominantly reducing (that is, oxygen-poor) conditions. Oxygen-poor conditions result from inundation and/or saturation by water. Predominantly non-hydric soils have major components that are non-hydric as well as some hydric minor soil components identified in the mapped soil unit. Predominantly hydric soils have major components that are hydric as well as some non-hydric minor soil components present in the mapped soil unit. Soils that are considered “not hydric” have all major and minor components that are non-hydric.

The NWI data (USFWS, 2014) identify the type of wetland or open water present at a location using the USFWS classification system (Cowardin et al., 1979). The NWI data indicate that one palustrine unconsolidated bottom (PUB) feature is within the environmental survey corridor (Figure 3; USFWS, 2014). No other NWI mapped features are located within the environmental survey corridor. NWI maps are not reliable for identifying regulated wetlands as the information is obtained largely from aerial interpretation, may be dated, and are only sporadically field checked. The presence of an NWI feature is not a definitive indicator that a wetland or waterbody is present, nor does the absence of an NWI feature indicate a regulated wetland is not present.

3.2 Field Survey Methodology

Wetland boundaries were field delineated according to Section 404 of the CWA and the routine onsite methodology described in the *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1 and subsequent guidance documents (Environmental Laboratory, 1987) and according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE, 2010). Wetland delineation data were recorded on the USACE Regional Supplement wetland determination datasheets (Appendix A). Representative upland data points were recorded to determine the presence/absence of wetlands and/or document upland conditions adjacent to each wetland within

the Project area. These data points were determined not to be within wetlands because they did not have positive indicators of one or more of the three wetland criteria: hydrophytic vegetation, wetland hydrology, and hydric soils.

Jurisdictional streams were identified as those waters that possessed a defined “bed and bank” or ordinary high water mark (OHWM) indicators and lacked a dominance of upland vegetation in the channel. Channels that parallel the roadway or railroad were identified as upland drainage features and were not considered to be jurisdictional unless they had an identifiable OHWM, were identified on the USGS topographic map, or represented a presumed relocation of a natural stream channel.

The outer boundaries of each wetland and waterbody within the Project area were delineated and recorded using handheld global positioning system units. For waterbodies identified within the Project area, the OHWM was used as the jurisdictional boundary. As wetland and waterbody features were collected, they were each assigned a unique feature identifier of DIINNN, as outlined below:

- D = Data Type (W for Wetland, S for Stream, P for Pond, and DP for Data Point)
- II = Initials of Field Survey Lead
- NNN = Feature Number

Wetlands that are adjacent to or have a significant nexus to TNWs are regulated under Sections 401 and 404 of the CWA (USEPA and USACE, 2008, 2015). A significant nexus must meet criteria that indicate the wetland provides biological, physical, or chemical benefits to the TNW. A significant nexus includes consideration of both hydrologic and ecologic factors. The TNW downstream of the Project area is the Great Miami River (USACE, n.d.). Moore Run is a tributary to the Great Miami River, located approximately 28 miles southwest of the Project area, via the Mad River.

OEPA also requires classification of streams and wetlands, if present, according to OEPA methods to establish the “quality” of these waterbodies in accordance with the Ohio water quality standards (Ohio Administrative Code [OAC] Section 3745) (OAC, 2003). The standards dictate the level of permitting and mitigation required for impacts to the wetlands or streams.

Accordingly, each identified wetland was evaluated using ORAM developed by OEPA (Mack, 2001). Categorization was conducted in accordance with the latest quantitative score calibration (OEPA, 2000).

Streams within the Project area with drainage areas smaller than 1 square mile were evaluated using the OEPA HHEI (OEPA, 2012). The HHEI was used to categorize four streams along the environmental survey corridor. The HHEI classifies streams based on habitat characteristics. Using the HHEI scores and professional judgment, the headwater streams were classified into one of three categories:

- Ephemeral (primary headwater habitat [PHWH] Class I)
- Intermittent (PHWH Class II/III)
- Perennial (PHWH Class III)

The QHEI, which is used to characterize streams with drainage areas greater than 1 square mile, was used to categorize two streams within the environmental survey corridor. This included Moore Run and an unnamed tributary to this stream. The QHEI scores are divided into qualitative categories, depending on the stream drainage area. The QHEI is one measure that OEPA uses, in association with biotic sampling, to determine a stream’s aquatic life use designation in accordance with the Ohio water quality standards (OEPA, 2006). Only Moore Run has been assigned an aquatic life use designation in the water quality standards.

Field Survey Results

4.1 Wetland and Waterbody Summary

Seven wetlands and six streams were delineated within the environmental survey corridor. These features are displayed and identified on Figures 3A and 3B and summarized in Tables 3-1 and 3-2. Area (acres) of wetlands and length (feet) of streams in the tables represent the extent of the feature within the environmental survey corridor; however, these features or portions of these features may not be impacted by Project construction. CH2M has made preliminary determinations concerning the likely jurisdiction of these features; however, USACE and OEPA make the final determination of hydrologic connectivity.

4.1.1 Wetlands

Seven wetlands were delineated within the environmental survey corridor. Three wetlands were PEM and four were PSS wetlands. Using ORAM, two of the identified wetlands were rated as Category 1 wetlands, one as a Category 1 or 2 gray zone wetland, and four as Category 2 wetlands. No Modified 2, Category 2 or 3 gray zone, or Category 3 wetlands were identified. Table 3-1 provides additional information regarding wetlands identified within the environmental survey corridor, and Appendix B contains the ORAM datasheets. Six of the seven wetlands appear to be hydrologically connected to surface waters that are tributaries to the Great Miami River and therefore will likely be considered jurisdictional by USACE. One PEM wetland (WSM001) appears to be isolated.

4.1.2 Category 1 Wetlands

Two Category 1 wetlands were identified within the environmental survey corridor. These Category 1 wetlands were classified as PEM. These wetlands appeared to be seasonally or periodically inundated, and hydrology was often indicated by the presence of oxidized rhizospheres on living roots and drainage patterns. Vegetation within the PEM wetlands was dominated by pinkweed (*Persicaria pensylvanica*), large barnyard grass (*Echinochloa crus-galli*), common spike-rush (*Eleocharis palustris*), chufa (*Cyperus esculentus*), American cow parsnip (*Heracleum maximum*), and dark-green bulrush (*Scirpus atrovirens*).

These wetlands were classified as Category 1 wetlands based on the ORAM scores (ranging from 23.5 to 26.5). Generally, these wetlands scored low because of a variety of factors such as small size, intensity of surrounding land use, narrow buffer areas, disturbance to soils and hydrology, lack of second growth vegetation, and presence of invasive species.

4.1.3 Category 2 Wetlands

CH2M identified five Category 2 wetlands within the environmental survey corridor, including four PSS wetlands and one PEM wetland. Four of these wetlands were classified as Category 2 wetlands based on the ORAM scores (ranging from 46 to 58). One wetland scored in the Category 1 or 2 gray zone with a score of 31, which is assumed to be Category 2 per the OEPA directive (that is, wetlands identified in a gray zone are assigned the higher wetland category or are further investigated using intensive sampling methods to determine classification).

Overall, the Category 2 wetlands appeared seasonally or periodically inundated, and hydrology was indicated by the presence of surface water, high water table, saturation, hydrogen sulfide odor, oxidized rhizospheres on living roots, and drainage patterns. These wetlands were dominated by spotted touch-me-not (*Impatiens capensis*), rice cut grass (*Leersia oryzoides*), northern spicebush (*Lindera benzoin*),

coralberry (*Symphoricarpos orbiculatus*), amur honeysuckle (*Lonicera maackii*), Canadian clearweed (*Pilea pumila*), and green ash (*Fraxinus pennsylvanica*).

4.1.4 Waterbodies

Six streams were identified within the environmental survey corridor. Two streams were classified as perennial, one as intermittent, one as ephemeral/intermittent, and two as ephemeral. Flow regime determinations were interpreted based on the HHEI and QHEI scores, field observations, and USGS topographic maps (Table 3-2 and Figure 1). These streams appear to have significant nexus with a TNW and therefore are likely to be considered jurisdictional by USACE. It is noted that USACE and OEPA make the final determination of significant nexus with a TNW.

4.2 Habitat

Habitat types throughout the environmental survey corridor include agricultural fields, maintained and fallow utility/railroad ROW, fallow field, vacant/open land, upland forest, riparian forest, and wetlands. Information for each is provided below:

- **Agricultural Fields** – Dominant herbaceous vegetation consists of corn (*Zea mays*), soy bean (*Glycine max*), orchard grass (*Dactylis glomerata*), fescue (*Festuca* sp.), and timothy (*Phleum pratense*).
- **Maintained ROW** – Dominant herbaceous vegetation in these areas consists of ground ivy (*Glechoma hederacea*), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), fescue, English plantain (*Plantago lanceolata*), crownvetch (*Securigera varia*), and bird's-foot trefoil (*Lotus corniculatus*).
- **Fallow ROW** – This habitat type was common along railroad and overhead utility ROW. Dominant herbaceous vegetation consists of rambler rose (*Rosa multiflora*), tall ironweed (*Vernonia angustifolia*), Canadian goldenrod (*Solidago canadensis*), autumn olive (*Elaeagnus umbellata*), American cow parsnip, amur honeysuckle, wingstem (*Verbesina alternifolia*), eastern daisy fleabane (*Erigeron annuus*), bird's-foot trefoil, common milkweed (*Asclepias syriaca*), little bluestem (*Schizachyrium scoparium*), Fuller's teasel (*Dipsacus fullonum*), chicory (*Cichorium intybus*), and crownvetch.
- **Fallow Field** – Dominant vegetation in these areas consisted of Queen Anne's lace (*Daucus carota*), broom sedge (*Andropogon virginicus*), wingstem, smooth brome (*Bromus inermis*), Johnson grass (*Sorghum halepense*), orchard grass, timothy, and tall fescue (*Festuca arundinacea*).
- **Open Land/Pasture** – These areas are mostly associated with industrial/commercial areas along Urbana Road that are routinely mowed. Dominant herbaceous vegetation in these areas consists of fescue, common dandelion (*Taraxacum officinale*), ground ivy, English plantain, great plantain (*Plantago major*), white clover, and red clover.
- **Upland Forest** – Dominant tree species include sugar maple (*Acer saccharum*), black cherry (*Prunus serotina*), common hackberry (*Celtis occidentalis*), shagbark hickory (*Carya ovata*), northern red oak (*Quercus rubra*), white oak (*Quercus alba*), red maple (*Acer rubrum*), and black walnut (*Juglans nigra*). Most tracts of this habitat type had a thick shrub understory of rambler rose, coralberry, and amur honeysuckle. Dominant herbaceous species include wingstem, garlic-mustard (*Alliaria petiolata*), rambler rose, Canadian clearweed, and eastern poison ivy (*Toxicodendron radicans*).
- **Riparian Forest** – Dominant species consisted of black walnut, common hackberry, American cow parsnip, wingstem, ash-leaf maple (*Acer negundo*), eastern cottonwood (*Populus deltoides*), and amur honeysuckle.
- **Wetlands** – Wetlands in the corridor are described in Section 4.1.

SECTION 5

Conclusion

ATSI, a FirstEnergy Corporation company is proposing to construct a new 138 kV electric transmission line in Clark County, Ohio from the existing Broadview Station, west to the existing Clark-Urbana 138 kV line (Figure 1). Field surveys were conducted July 25 through October 12, 2016. Seven wetlands and six streams were delineated within the environmental survey corridor. Of the features identified, it is anticipated that USACE will assert jurisdiction over all but one of the wetlands and all six streams because of their connection or proximity to a nearby TNW, the Great Miami River. Further coordination with USACE and OEPA prior to completing any permit or construction activities is recommended.

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SECTION 6—REFERENCES

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Tables

TABLE 2-2

Hydric Soils Rating Summary*Clark-Urbana 138 kV Loop to Broadview Substation Project*

Soil Name	Hydric Classification	Acres within Survey Corridor	Percent of Survey Corridor
EmA-Eldean silt loam, 0 to 2 percent slopes	Predominantly not hydric	3.3	5.6
EmB-Eldean silt loam, 2 to 6 percent slopes	Predominantly not hydric	19.5	33.3
EmC2-Eldean silt loam, 6 to 12 percent slopes	Not hydric	0.0	0.0
EpD2-Eldean-Miamian complex, 12 to 18 percent slopes, eroded	Not hydric	0.6	1.1
Lp- Lippincott silty clay loam	Predominantly hydric	2.1	3.5
MhB-Miamian silt loam, 2 to 6 percent slopes	Predominantly not hydric	3.3	5.6
MhC-Miamian silt loam, 6 to 12 percent slopes	Predominantly not hydric	4.5	7.7
MkB2- Miamian silty clay loam, 2 to 6 percent slopes, eroded	Not hydric	5.8	9.8
MmC3- Miamian clay loam, shallow to dense till substratum 6 to 12 percent slopes, severely eroded	Predominantly not hydric	0.9	1.6
RgE-Rodman gravelly loam, 18 to 35 percent slopes	Not hydric	3.5	6.0
Ud- Udorthents, loamy	Not hydric	14.8	25.3
Ur- Urban land	Not hydric	0.3	0.6
		58.6	100

Source: Soil Survey Staff, NRCS, USDA. 2015. Soil Survey Geographic (SSURGO) Database for Ohio.

TABLE 3-1

Project Study Area Wetland Summary

Clark-Urbana 138 kV Loop to Broadview Substation Project, Clark County, Ohio

Feature ID	County	Figure Sheet Letter ¹	Cowardin Classification	Area Delineated within the Environmental Survey Corridor (acres) ^{2,3}	ORAM Score	OEPA Wetland Category ⁴	12-Digit HUC	Hydrologic Connection ⁵
WMB002	Clark	3B	PEM	0.03	31	1 or 2 gray zone	050800011801	Abutting SMB001
WRH003	Clark	3A	PSS	0.03	48	2	050800011801	Abutting SRH003
WRH004	Clark	3A	PSS	0.06	53	2	050800011801	Adjacent to SRH003
WRH005	Clark	3A	PSS	0.01	46	2	050800011801	Abutting SRH003
WRH006	Clark	3A	PSS	0.01	46	2	050800011801	Abutting SRH003
WSM001	Clark	3A	PEM	<0.01	26.5	1	050800011801	Isolated
WSM009	Clark	3B	PEM	0.15	23.5	1	050800011801	Adjacent to SSM003
TOTAL	-	-	-	0.29	-	-	-	-

Abbreviations:

HUC	hydrologic unit code
ID	identification
OEPA	Ohio Environmental Protection Agency
ORAM	Ohio Rapid Assessment Method
PEM	palustrine emergent marsh
PSS	palustrine scrub-shrub

Notes:

¹Corresponds to location in Figure 3 series.²The wetland may extend outside of the environmental survey corridor; this acreage corresponds to the size of the feature located within the environmental survey corridor.³All measurements listed as less than 0.01 were assumed to be 0.01 for calculations.⁴Wetland Category determined based on ORAM score, in accordance with OEPA 2000.⁵The determinations of hydrologic connection is based on the boundary delineations and have not been formally approved by the USACE and/or OEPA.

TABLE 3-2
Project Study Area Stream Summary
Clark-Urbana 138 kV Loop to Broadview Substation Project, Clark County, Ohio

Feature ID	Flow Sheet Letter ¹	Waterbody Name	Flow Regime ²	12-Digit HUC	Drainage Area (square miles)	Approximate Length Delineated within the Environmental Survey Corridor (feet)	RPW or Non-RPW ³	QHEI Score ⁴	QHEI Narrative Rating ⁵	OEPA Aquatic Life Use Designation ⁶	HHEI Score ⁶	Preliminary OEPA Stream Designation ⁶	TNW Connection
STREAMS													
SMB001	3B	UNT to Moore Run	Intermittent	050800011801	<0.01	52	RPW	N/A	N/A	N/A	25	Modified Class 1	Great Miami River
SRH003	3A	UNT to Moore Run	Ephemeral/Intermittent	050800011801	0.22	1483	RPW	N/A	N/A	N/A	44	Modified Class 2	Great Miami River
SRH005	3A	UNT to Moore Run	Ephemeral	050800011801	0.04	195	Non-RPW	N/A	N/A	N/A	24	Modified Class 1	Great Miami River
SRH006	3A	UNT to Moore Run	Ephemeral	050800011801	0.03	133	Non-RPW	N/A	N/A	N/A	13	Modified Class 1	Great Miami River
SSM003	3B	Moore Run	Perennial	050800011801	8	262	RPW	54.5	Fair	WWH	N/A	N/A	Great Miami River
SSM004	3B	UNT to Moore Run	Perennial	050800011801	1.6	2249	RPW	46.5	Fair	N/A	N/A	N/A	Great Miami River
Total						4,374							

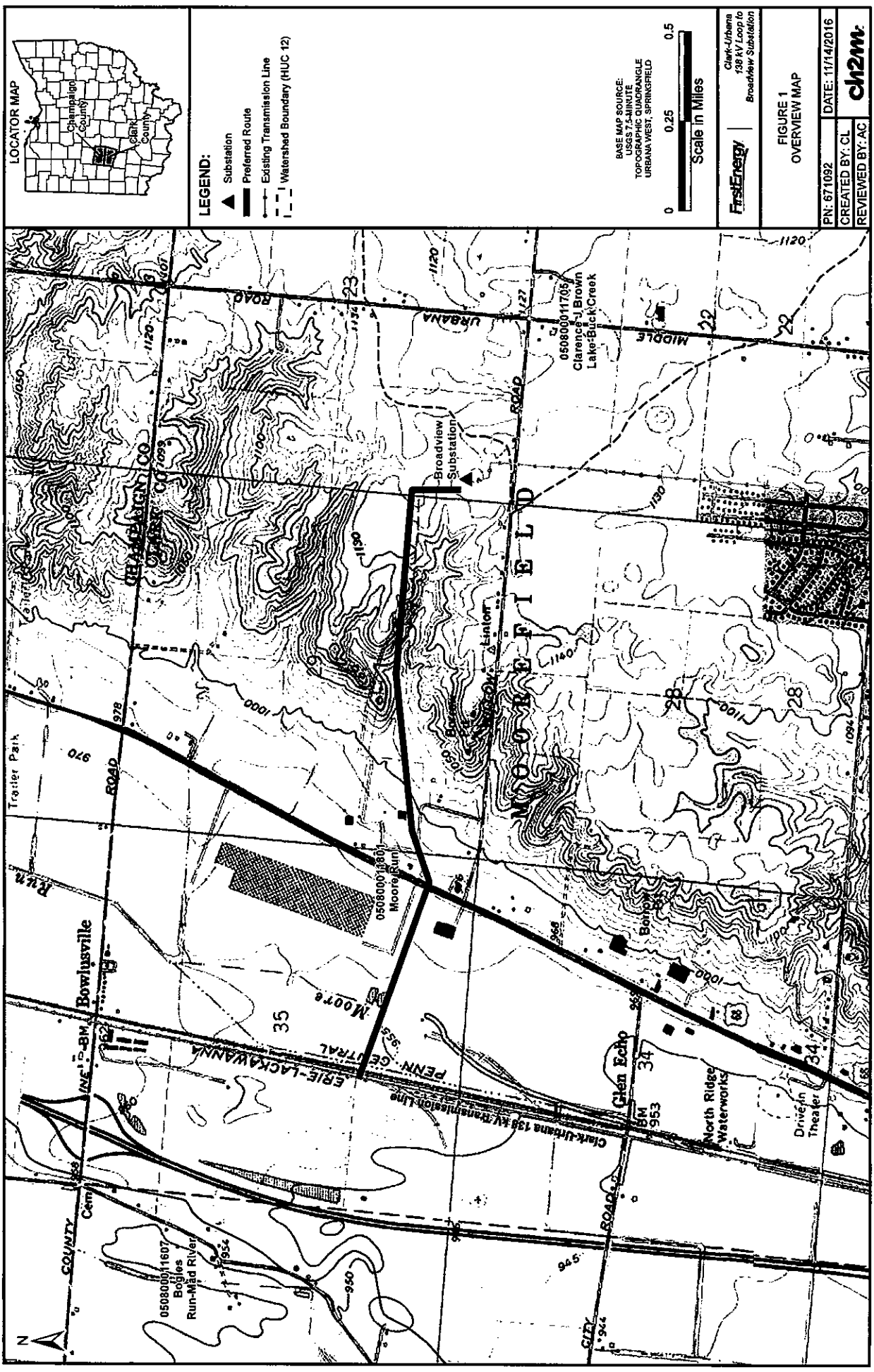
Abbreviations:

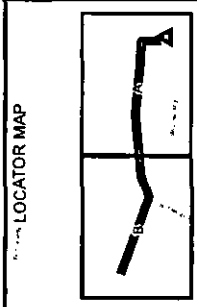
WWH	warmwater habitat	Non-RPW	non-relatively permanent water
HHEI	headwater habitat evaluation index	OEPA	Ohio Environmental Protection Agency
HUC	hydrologic unit code	PHWH	primary headwater habitat
ID	identification	QHEI	qualitative habitat evaluation index
N/A	not applicable	RPW	relatively permanent water
TNW	traditional navigable water		
UNT	unnamed tributary		

NOTES:

- ¹Corresponds to location in Figure 3 series.
- ²Flow regime is defined as perennial, intermittent, or ephemeral. This determination was interpreted using field observations, USGS topographic maps, and the OEPA HHEI, as appropriate.
- ³Intermittent and perennial streams were recorded as RPWs; ephemeral streams were recorded as non-RPWs.
- ⁴QHEI narrative rating based on OEPA 2006. The QHEI score was based on site observations and conditions during the wetland and stream delineation.
- ⁵OEPA Aquatic Life Use Designation based on OAC Chapter 3745-1 Water Quality Standards
- ⁶Primary headwater habitat (PHWH) class for streams with watersheds smaller than 1 square mile is defined based on HHEI scores according to OEPA 2002.

Figures





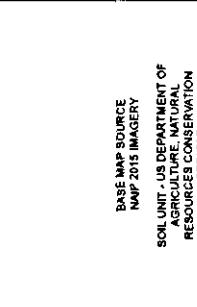
LEGEND:

- Substation
- Preferred Route
- Environmental Survey Corridor
- Existing Transmission Line
- Soil Unit
- Predominantly Hydric Soil

BASE MAP SOURCE
MAP 2015 IMAGERY

SOIL UNIT: US DEPARTMENT OF
AGRICULTURE, NATURAL
RESOURCES CONSERVATION
SERVICE

NO HYDRIC SOILS PRESENT WITHIN THE
ENVIRONMENTAL SURVEY CORRIDOR



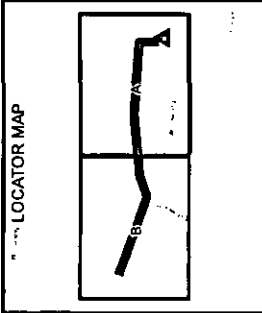
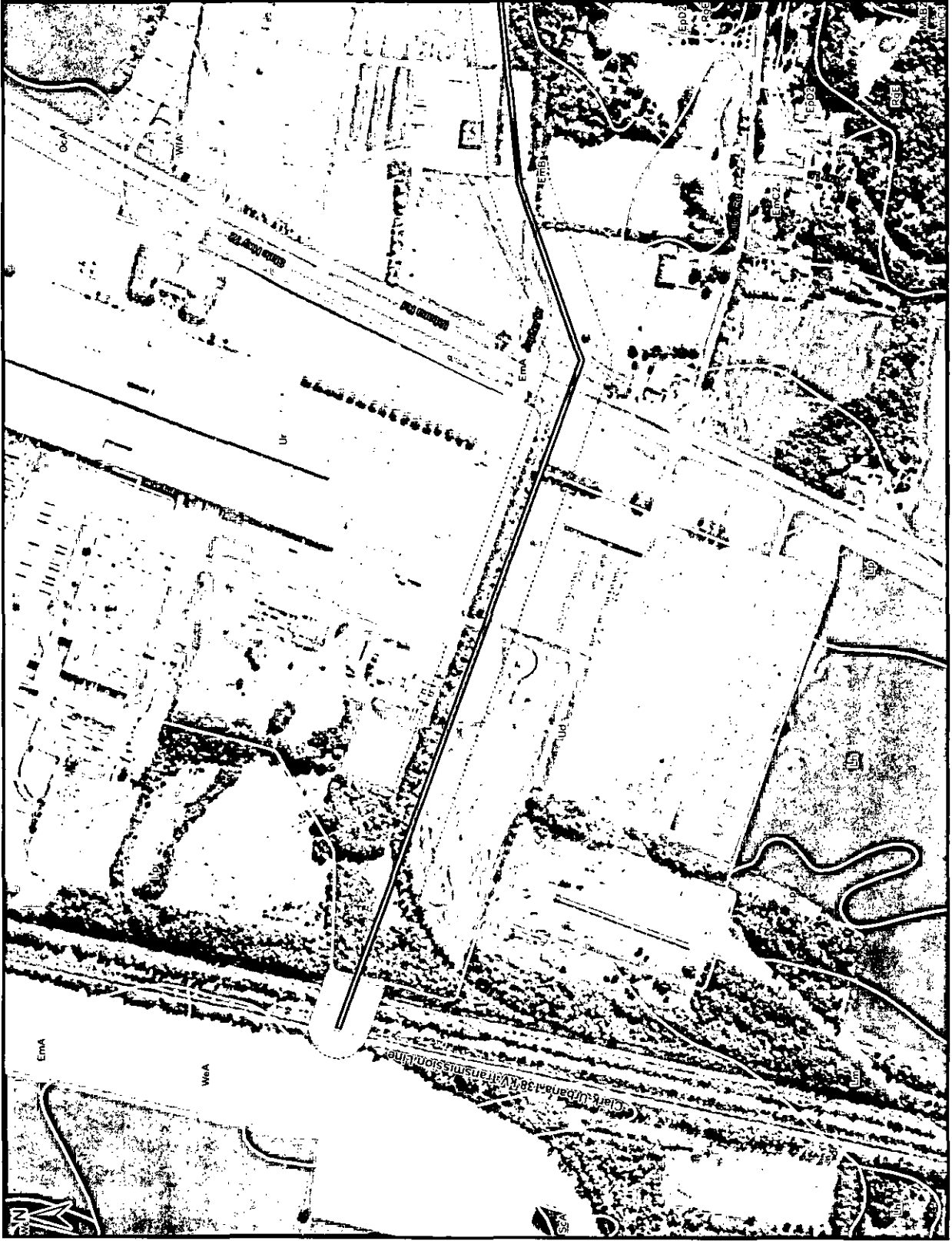
Scale in Feet

0 400 800

**FIGURE 2A
SOILS MAP**

PN: 671092 DATE: 11/14/2016
CREATED BY: CL
REVIEWED BY: AC

ch2m



LEGEND:

- ▲ Substation
- Preferred Route
- Environmental Survey Corridor
- Existing Transmission Line
- Soil Unit
- Predominantly Hydric Soil

BASE MAP SOURCE
NAP 2015 IMAGERY

SOIL UNIT: US DEPARTMENT OF
AGRICULTURE, NATURAL
RESOURCES CONSERVATION
SERVICE

NO HYDRIC SOILS PRESENT WITHIN THE
ENVIRONMENTAL SURVEY CORRIDOR

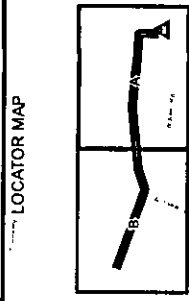
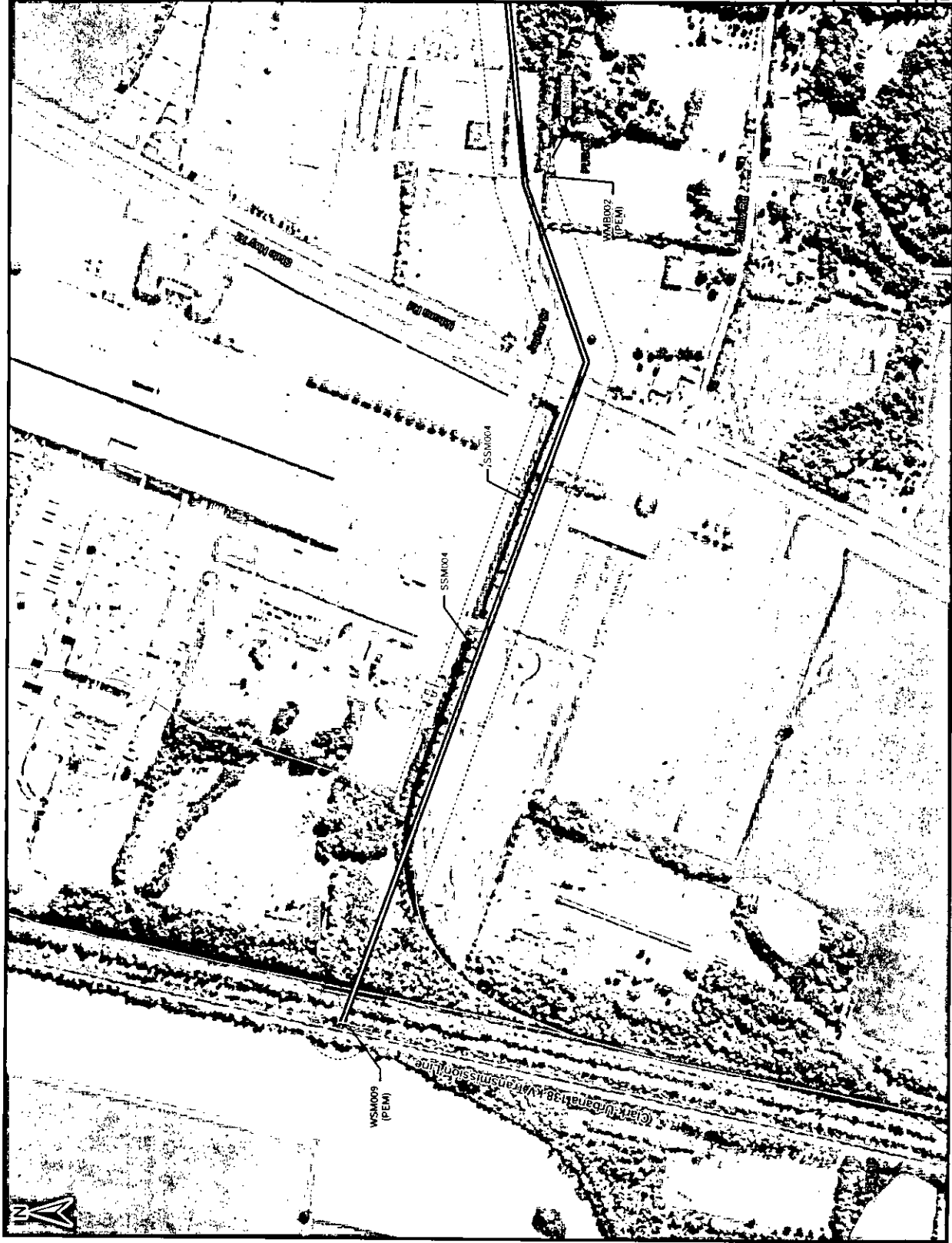
0 400 800
Scale in Feet

FirstEnergy | Client: Urbana
138 kV Loop to
Brookview Substation

FIGURE 2B
SOILS MAP

PN: 671092 | DATE: 11/14/2016
CREATED BY: CL | REVIEWED BY: AC

ch2m



LOCATOR MAP

LEGEND:

- ▲ Substation
- Existing Transmission Line
- Data Point
- Other
- Upland
- Wetland
- Delineated Wetland
- PEM
- PSS
- Preferred Route
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- Delineated Stream

BASE MAP SOURCE
NAP 2015 IMAGERY

SPIRIT DATA SOURCES:
STREAMS: NATIONAL HYDROGRAPHY DATASET
WETLANDS: US FISH AND WILDLIFE SERVICES

0 400 800

Scale in Feet

FirstEnergy

Clark-Urbana
138 kV Loop to
Broadview Substation

FIGURE 3B

NW AND DELINEATED WETLANDS
AND WATERBODIES MAP

PN: 671092

DATE: 11/14/2016

CREATED BY: CL

REVIEWED BY: AC

ch2m

Appendix A
USACE Wetland Determination
Field Datasheets

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Broadview-Clark Urbana City/County: Clark Sampling Date: 8-3-2016
 Applicant/Owner: First Energy State: Ohio Sampling Point: TP-MB004
 Investigator(s): M. Vuturo-Bosiljevac Section, Township, Range: S43 T5E R10N
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.01377193 Long: -83.78787563 Datum: WGS 84
 Soil Map Unit Name Eldean silt loam, 2 to 6 percent slopes NWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>WMB002</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	

Sapling/Shrub stratum	(Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	

Herb stratum	(Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Leersia oryzoides</u>	<u>90</u>	<u>Y</u>	<u>OBL</u>
2	<u>Impatiens capensis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
3	<u>Persicaria maculosa</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
4				
5				
6				
7				
8				
9				
10				
		<u>100</u>	= Total Cover	

Woody vine stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
		<u>0</u>	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across all Strata: 1 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:
 OBL species 90 x 1 = 90
 FACW species 10 x 2 = 20
 FAC species 0 x 3 = 0
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column totals 100 (A) 110 (B)
 Prevalence Index = B/A = 1.10

Hydrophytic Vegetation Indicators:

Rapid test for hydrophytic vegetation
X Dominance test is >50%
X Prevalence index is ≤3.0*

Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: TP-MB004

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	7.5 YR 3/1	100					silty clay	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Red Parent Material (F21) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: <u>None</u> Depth (inches): <u>N/A</u>	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Water-Stained Leaves (B9)			

Field Observations: Surface water present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2 to 3</u> Water table present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2 to 3</u> Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Stream SMB001 dissipates into wetland

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Broadview-Clark Urbana City/County: Clark Sampling Date: 8-3-2016
 Applicant/Owner: First Energy State: Ohio Sampling Point: TP-MB005
 Investigator(s): M. Vuturo-Bosiljevac Section, Township, Range: S43 T5E R10N
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.0137609 Long: -83.78790423 Datum: WGS 84
 Soil Map Unit Name EmB: Eldean silt loam, 2 to 6 percent slopes VWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

WMB002 upland point

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	

Sapling/Shrub stratum	(Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	

Herb stratum	(Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Daucus carota</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
2	<u>Solidago sp.</u>	<u>20</u>	<u>Y</u>	<u>0</u>
3	<u>Achillea millefolium</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
4	<u>Cirsium vulgare</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
5	<u>Festuca sp.</u>	<u>20</u>	<u>Y</u>	<u>0</u>
6				
7				
8				
9				
10				
		<u>100</u>	= Total Cover	

Woody vine stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
		<u>0</u>	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across all Strata: 5 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:
 OBL species 0 x 1 = 0
 FACW species 0 x 2 = 0
 FAC species 0 x 3 = 0
 FACU species 40 x 4 = 160
 UPL species 20 x 5 = 100
 Column totals 60 (A) 260 (B)
 Prevalence Index = B/A = 4.33

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
 ___ Dominance test is >50%
 ___ Prevalence index is ≤3.0*

___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: TP-MB005

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	7.5 YR 5/3	100					Silt	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Red Parent Material (F21) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: <u>None</u> Depth (inches): <u>N/A</u>	Hydric soil present? <u>N</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u>N</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Broadview/East Springfield Tangy City/County: Clark Co. Sampling Date: 8/4/2016
 Applicant/Owner: First Energy State: OH Sampling Point: WRH03
 Investigator(s): R. Hook Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none
 Slope (%): 30 Lat: 40.0147 Long: -83.77863 Datum: WGS 84
 Soil Map Unit Name: Eldean silt loam, 2-6% NWI Classification: PF01

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances"

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>WRH03</u>
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

Groundwater driven wetland along steep bank above stream.

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	
Sapling/Shrub stratum	(Plot size: <u>15'</u>)			
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	
Herb stratum	(Plot size: <u>5'</u>)			
1	<u>Impatiens capensis</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>
2	<u>Lonicera maackii</u>	<u>5</u>	<u>N</u>	<u>UPL</u>
3	<u>Parthenocissus quinquefolia</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
4	<u>Pilea pumila</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
5				
6				
7				
8				
9				
10				
		<u>75</u>	= Total Cover	
Woody vine stratum	(Plot size: <u>30'</u>)			
1				
2				
		<u>0</u>	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>65</u>	x 2 =	<u>130</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>5</u>	x 4 =	<u>20</u>
UPL species	<u>5</u>	x 5 =	<u>25</u>
Column totals	<u>75</u>	(A)	<u>175</u> (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

PF01 by virtue of surrounding canopy; no trees rooted in wetland.

SOIL

Sampling Point: WRH03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10 YR 4/2						sandy loam	subtle multicolor
4-9	5Y 4/2	80	black	20			silty clay with OM	
9+	10 YR 4/3						silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils:
<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Redox Depressions (F8)
	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
	<input type="checkbox"/> Red Parent Material (F21)
	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
	<input type="checkbox"/> Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:
Possible that loamy mucky mineral soil indicator also applies.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Water-Stained Leaves (B9)			

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>12</u> Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>12</u> Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)				Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Groundwater discharge at upslope edge of wetland saturates downslope areas, apparently perched over the silty clay layer.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Broadview/East Springfield Tangy City/County: Clark Co. Sampling Date: 8/4/2016
 Applicant/Owner: First Energy State: OH Sampling Point: URH03
 Investigator(s): R. Hook Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex
 Slope (%): 10 Lat: 40.014775 Long: -83.77865 Datum: WGS 84
 Soil Map Unit Name: Eldean silt loam, 2-6% VWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Juglans nigra</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>
2	<u>Celtis occidentalis</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>
3	<u>Acer saccharum</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>
4	_____	_____	_____	_____
5	_____	_____	_____	_____
		<u>100</u>	= Total Cover	
Sapling/Shrub stratum	(Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Lonicera maackii</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
		<u>50</u>	= Total Cover	
Herb stratum	(Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Lonicera maackii</u>	<u>15</u>	<u>Y</u>	<u>UPL</u>
2	<u>Alliaria petiolata</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>
3	<u>Pilea pumila</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>
4	<u>Sanicula canadensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
5	<u>Geum canadense</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
6	<u>Persicaria virginiana</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
7	<u>Carex projecta</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
8	_____	_____	_____	_____
9	_____	_____	_____	_____
10	_____	_____	_____	_____
		<u>55</u>	= Total Cover	
Woody vine stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	_____	_____	_____	_____
2	_____	_____	_____	_____
		<u>0</u>	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 42.86% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>15</u>	x 2 =	<u>30</u>
FAC species	<u>45</u>	x 3 =	<u>135</u>
FACU species	<u>80</u>	x 4 =	<u>320</u>
UPL species	<u>65</u>	x 5 =	<u>325</u>
Column totals	<u>205</u>	(A)	<u>810</u> (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

_____ Rapid test for hydrophytic vegetation

_____ Dominance test is >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: URH03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10 YR 3/2	100					silt loam	
8+	10 YR 4/4	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils:
<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Other (explain in remarks)
<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> N </u>
---	-----------------------------------

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Water-Stained Leaves (B9)			

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)				Indicators of wetland hydrology present? <u> N </u>
--	--	--	--	---

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____

Remarks: _____

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Broadview/East Springfield Tangy City/County: Clark Co. Sampling Date: 8/4/2016
 Applicant/Owner: First Energy State: OH Sampling Point: WRH04
 Investigator(s): R. Hook Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): 0 Lat: 40.0149 Long: -83.77957 Datum: WGS 84
 Soil Map Unit Name: Eldean silt loam, 2-6% NWI Classification: PF01
 Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>WRH04</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across all Strata: <u>5</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>60.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum (Plot size: <u>15'</u>)					
1	<u>Symphoricarpos orbiculatus</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2	<u>Lindera benzoin</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Lonicera maackii</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	
4					
5					
		<u>20</u>	= Total Cover		
Herb stratum (Plot size: <u>5'</u>)					
1	<u>Impatiens capensis</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Pilea pumila</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Panicum capillare</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
4					
5					
6					
7					
8					
9					
10					
		<u>60</u>	= Total Cover		
Woody vine stratum (Plot size: <u>30'</u>)					
1					
2					
		<u>0</u>	= Total Cover		

Hydrophytic Vegetation Indicators:

Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)
 PF01 by virtue of surrounding canopy; no trees rooted in wetland.

SOIL

Sampling Point: WRH04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10 YR 3/1	75	10 YR 3/6	25	C	M	silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ☐ Histisol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☒ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Red Parent Material (F21)
☐ Very Shallow Dark Surface (TF12)
☐ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? Y

Remarks:

Possible that loamy mucky mineral soil indicator also applies.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☒ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☒ FAC-Neutral Test (D5)

Field Observations:

Surface water present? Yes X No _____ Depth (inches): 1
 Water table present? Yes _____ No X Depth (inches): >12
 Saturation present? Yes X No _____ Depth (inches): 0
 (includes capillary fringe)

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Groundwater discharge at upslope (northeast) edge of wetland and saturates wetland, with small amounts of surface water in depressions; surface water appears perched. Water percolates downslope.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Broadview/East Springfield Tangy City/County: Clark Co. Sampling Date: 8/4/2016
 Applicant/Owner: First Energy State: OH Sampling Point: URH04
 Investigator(s): R. Hook Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.01485 Long: -83.77962 Datum: WGS 84
 Soil Map Unit Name: Eldean silt loam, 2-6% NWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances"

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet
1 <u>Acer saccharum</u>		50	Y	FACU	
2					Total Number of Dominant Species Across all Strata: <u>4</u> (B)
3					Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
4					
5					
		50	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet
1 <u>Lonicera maackii</u>		50	Y	UPL	
2					OBL species <u>0</u> x 1 = <u>0</u>
3					FACW species <u>0</u> x 2 = <u>0</u>
4					FAC species <u>0</u> x 3 = <u>0</u>
5					FACU species <u>65</u> x 4 = <u>260</u>
		50	= Total Cover		UPL species <u>70</u> x 5 = <u>350</u>
					Column totals <u>135</u> (A) <u>610</u> (B)
					Prevalence Index = B/A = <u>4.52</u>
Herb stratum	(Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:
1 <u>Lonicera maackii</u>		20	Y	UPL	
2 <u>Acer saccharum</u>		10	Y	FACU	Dominance test is >50%
3 <u>Parthenocissus quinquefolia</u>		5	N	FACU	Prevalence index is ≤3.0*
4					Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5					Problematic hydrophytic vegetation* (explain)
6					*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
7					
8					
9					
10					
		35	= Total Cover		
Woody vine stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic vegetation present? <u>N</u>
1					
2					
		0	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: URH04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10 YR 3/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils:
<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Redox Depressions (F8)
	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
	<input type="checkbox"/> Red Parent Material (F21)
	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
	<input type="checkbox"/> Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> N </u>
Remarks: _____	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Water-Stained Leaves (B9)			

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)				Indicators of wetland hydrology present? <u> N </u>
Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____				
Remarks: _____				

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Broadview/East Springfield Tangy City/County: Clark Co. Sampling Date: 8/4/2016
 Applicant/Owner: First Energy State: OH Sampling Point: WRH05
 Investigator(s): R. Hook Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): stream channel Local relief (concave, convex, none): concave
 Slope (%): 0 Lat: 40.014824 Long: -83.78017 Datum: WGS 84
 Soil Map Unit Name: Eldean silt loam, 2-6% NWI Classification: PF01

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances"

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>WRH04</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15'</u>)			
1				
2				
3				
4				
5				
		<u>0</u> = Total Cover		
Herb stratum	(Plot size: <u>5'</u>)			
1	<u>Impatiens capensis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>
2	<u>Fraxinus pennsylvanica</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>
3	<u>Pilea pumila</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
4	<u>Arisaema triphyllum</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
5				
6				
7				
8				
9				
10				
		<u>40</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30'</u>)			
1				
2				
		<u>0</u> = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>0</u> x 1 =	<u>0</u>
FACW species	<u>40</u> x 2 =	<u>80</u>
FAC species	<u>0</u> x 3 =	<u>0</u>
FACU species	<u>0</u> x 4 =	<u>0</u>
UPL species	<u>0</u> x 5 =	<u>0</u>
Column totals	<u>40</u> (A)	<u>80</u> (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

PF01 by virtue of surrounding canopy; no trees rooted in wetland.

SOIL

Sampling Point: WRH05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10 YR 3/1	90	10 YR 3/6	10	C	M	silt loam	
6+	10 YR 4/1	100					sandy loam	marl

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils:
<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Other (explain in remarks)
<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
---	--------------------------------------

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Water-Stained Leaves (B9)			

Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u>X</u> No <u> </u> Depth (inches): <u>9</u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>4</u> (includes capillary fringe)				Indicators of wetland hydrology present? <u>Y</u>
--	--	--	--	--

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____

Remarks: Wetland occurs along stream corridor. Water flowing in stream.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Broadview/East Springfield Tangy City/County: Clark Co. Sampling Date: 8/4/2016
 Applicant/Owner: First Energy State: OH Sampling Point: URH05
 Investigator(s): R. Hook Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): flat terrace Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.01478 Long: -83.78015 Datum: WGS 84
 Soil Map Unit Name Eldean silt loam, 2-6% NWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across all Strata: <u>5</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>60.00%</u> (A/B)
1	<u>Acer saccharum</u>	<u>75</u>	<u>Y</u>	<u>FACU</u>	
2					
3					
4					
5					
		<u>75</u>	<u>= Total Cover</u>		
Sapling/Shrub stratum	(Plot size: <u>15'</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>35</u> x 2 = <u>70</u> FAC species <u>70</u> x 3 = <u>210</u> FACU species <u>100</u> x 4 = <u>400</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>205</u> (A) <u>680</u> (B) Prevalence Index = B/A = <u>3.32</u>
1	<u>Euonymus atropurpureus</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
2	<u>Lindera benzoin</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3	<u>Fraxinus pennsylvanica</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
4					
5					
		<u>65</u>	<u>= Total Cover</u>		
Herb stratum	(Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic vegetation present? <u>Y</u>
1	<u>Fraxinus pennsylvanica</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Acer saccharum</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3	<u>Euonymus atropurpureus</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
4	<u>Cercis canadensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5					
6					
7					
8					
9					
10					
		<u>65</u>	<u>= Total Cover</u>		
Woody vine stratum	(Plot size: <u>30'</u>)				
1					
2					
		<u>0</u>	<u>= Total Cover</u>		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: URH05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10 YR 3/3	100					silt loam	
6+	10 YR 4/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Red Parent Material (F21) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____ Remarks: _____	Hydric soil present? <u> N </u>
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HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>				<u>Secondary Indicators (minimum of two required)</u>			
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)					

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> N </u>
---	---

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Broadview/East Springfield Tangy City/County: Clark Co. Sampling Date: 8/4/2016
 Applicant/Owner: First Energy State: OH Sampling Point: WRH06
 Investigator(s): R. Hook Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): stream channel Local relief (concave, convex, none): concave
 Slope (%): 0 Lat: 40.01477 Long: -83.78165 Datum: WGS 84
 Soil Map Unit Name: Eldean silt loam, 2-6% NWI Classification: PF01

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances"

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>WRH06</u>
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	
Sapling/Shrub stratum	(Plot size: <u>15'</u>)			
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	
Herb stratum	(Plot size: <u>5'</u>)			
1	<u>Impatiens capensis</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>
2	<u>Pilea pumila</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>
3				
4				
5				
6				
7				
8				
9				
10				
		<u>50</u>	= Total Cover	
Woody vine stratum	(Plot size: <u>30'</u>)			
1				
2				
		<u>0</u>	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>50</u>	x 2 =	<u>100</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>50</u>	(A)	<u>100</u> (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

PF01 by virtue of surrounding canopy; no trees rooted in wetland.

SOIL

Sampling Point: WRH06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10 YR 3/1	90	10 YR 3/6	10	C	PL/M	silt loam	
6+	10 YR 4/1	100					sandy loam	marl

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Saturation (A3) | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots |
| <input type="checkbox"/> Sediment Deposits (B2) | <input checked="" type="checkbox"/> (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland occurs along stream corridor. Water flowing in stream.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Broadview/East Springfield Tangy City/County: Clark Co. Sampling Date: 8/4/2016
 Applicant/Owner: First Energy State: OH Sampling Point: URH06
 Investigator(s): R. Hook Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none
 Slope (%): 10 Lat: 40.01483 Long: -83.78162 Datum: WGS 84
 Soil Map Unit Name: Eldean-Miamian complex, 12-18 % NWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1 <u>Acer saccharum</u>		<u>30</u>	<u>Y</u>	<u>FACU</u>
2 _____				
3 _____				
4 _____				
5 _____				
		<u>30</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1 <u>Lonicera maackii</u>		<u>50</u>	<u>Y</u>	<u>UPL</u>
2 _____				
3 _____				
4 _____				
5 _____				
		<u>50</u> = Total Cover		
Herb stratum	(Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1 <u>Lonicera maackii</u>		<u>20</u>	<u>Y</u>	<u>UPL</u>
2 <u>Euonymus atropurpureus</u>		<u>10</u>	<u>Y</u>	<u>FAC</u>
3 <u>Geum canadense</u>		<u>10</u>	<u>Y</u>	<u>FAC</u>
4 <u>Carex sp.</u>		<u>5</u>	<u>N</u>	<u>FACW</u>
5 <u>Circaea canadensis</u>		<u>5</u>	<u>N</u>	<u>FACU</u>
6 _____				
7 _____				
8 _____				
9 _____				
10 _____				
		<u>50</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1 _____				
2 _____				
		<u>0</u> = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 40.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>0</u> x 1 =	<u>0</u>
FACW species	<u>5</u> x 2 =	<u>10</u>
FAC species	<u>20</u> x 3 =	<u>60</u>
FACU species	<u>35</u> x 4 =	<u>140</u>
UPL species	<u>70</u> x 5 =	<u>350</u>
Column totals	<u>130</u> (A)	<u>560</u> (B)

Prevalence Index = B/A = 4.31

Hydrophytic Vegetation Indicators:

Rapid test for hydrophytic vegetation

Dominance test is >50% _____

Prevalence index is ≤3.0* _____

Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____

Problematic hydrophytic vegetation* (explain) _____

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: URH06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10 YR 3/2	100					silt loam	
6+	10 YR 4/3	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils:
<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Redox Depressions (F8)
	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
	<input type="checkbox"/> Red Parent Material (F21)
	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
	<input type="checkbox"/> Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____ Remarks: _____	Hydric soil present? <u> N </u>
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HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Water-Stained Leaves (B9)			

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> N </u>
--	---

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Clark-Urbana to Broadview Project City/County: Clark Sampling Date: 7/25/16
 Applicant/Owner: First Energy State: Ohio Sampling Point: DPSM001
 Investigator(s): S. Miloski, WPIT, Julie Freer Section, Township, Range: S23 T5E R10N
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): 0 Lat: 40.014244 Long: -83.770419 Datum: WGS 84
 Soil Map Unit Name MkB2- Miamian silty clay loam, 2 to 6 percent slopes, eroded NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed?

Are "normal circumstances"

Are vegetation , soil , or hydrology naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>Y</u> if yes, optional wetland site ID: <u>WSM001</u>
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

WSM001 is a depressional PEM wetland located in an existing ROW

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	
Sapling/Shrub stratum	(Plot size: <u>15'</u>)			
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	
Herb stratum	(Plot size: <u>5'</u>)			
1	<u>Eleocharis palustris</u>	<u>40</u>	<u>Y</u>	<u>OBL</u>
2	<u>Echinochloa crus-galli</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>
3	<u>Persicaria pensylvanica</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>
4				
5				
6				
7				
8				
9				
10				
		<u>100</u>	= Total Cover	
Woody vine stratum	(Plot size: <u>30'</u>)			
1				
2				
		<u>0</u>	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>40</u>	x 1 =	<u>40</u>
FACW species	<u>60</u>	x 2 =	<u>120</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>100</u>	(A)	<u>160</u> (B)

Prevalence Index = B/A = 1.60

Hydrophytic Vegetation Indicators:

☒ Rapid test for hydrophytic vegetation

☒ Dominance test is >50%

☒ Prevalence index is ≤3.0*

Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: DP5M001

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	10YR 4/2	80	10YR 5/6	20	C	PL/M	Silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils:
<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Other (explain in remarks)
<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: <u>None</u> Depth (inches): <u>N/A</u>	Hydric soil present? <u>Y</u>
--	-------------------------------

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Clark-Urbana to Broadview Project City/County: Clark Sampling Date: 7/25/16
 Applicant/Owner: First Energy State: Ohio Sampling Point: DPSM002
 Investigator(s): S. Miloski, WPIT, Julie Freer Section, Township, Range: S23 T5E R10N
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): 0 Lat: 40.014191 Long: -83.770414 Datum: WGS 84
 Soil Map Unit Name: MkB2- Miamian silty clay loam, 2 to 6 percent slopes, eroded NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed?

Are "normal circumstances"

Are vegetation , soil , or hydrology naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u>UPL FOR WSM001-002</u>
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

upland pit for WSM001 and WSM002

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15'</u>)			
1				
2				
3				
4				
5				
		<u>0</u> = Total Cover		
Herb stratum	(Plot size: <u>5'</u>)			
1	<u>Dactylis glomerata</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>
2	<u>Daucus carota</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>
3	<u>Solidago canadensis</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>
4	<u>Trifolium pratense</u>	<u>10</u>	<u>N</u>	<u>FACU</u>
5				
6				
7				
8				
9				
10				
		<u>100</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30'</u>)			
1				
2				
		<u>0</u> = Total Cover		

Dominance Test Worksheet	
Number of Dominant Species that are OBL, FACW, or FAC:	<u>0</u> (A)
Total Number of Dominant Species Across all Strata:	<u>3</u> (B)
Percent of Dominant Species that are OBL, FACW, or FAC:	<u>0.00%</u> (A/B)

Prevalence Index Worksheet	
Total % Cover of:	
OBL species	<u>0</u> x 1 = <u>0</u>
FACW species	<u>0</u> x 2 = <u>0</u>
FAC species	<u>0</u> x 3 = <u>0</u>
FACU species	<u>70</u> x 4 = <u>280</u>
UPL species	<u>30</u> x 5 = <u>150</u>
Column totals	<u>100</u> (A) <u>430</u> (B)
Prevalence Index = B/A = <u>4.30</u>	

Hydrophytic Vegetation Indicators:	
Rapid test for hydrophytic vegetation	
Dominance test is >50%	
Prevalence index is ≤3.0*	
Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
Problematic hydrophytic vegetation* (explain)	
*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	

Hydrophytic vegetation present?	
<u>N</u>	

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: DPSM002

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	10YR 4/4	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ☐ Histisol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Red Parent Material (F21)
☐ Very Shallow Dark Surface (TF12)
☐ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: None
 Depth (inches): N/A

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water-Stained Leaves (B9)

Secondary Indicators (minimum of two required)

- ☐ Aquatic Fauna (B13)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)
- ☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present? Yes ☐ No ☒ Depth (inches):
 Water table present? Yes ☐ No ☒ Depth (inches):
 Saturation present? Yes ☐ No ☒ Depth (inches):
 (includes capillary fringe)

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Clark-Urbana to Broadview Project City/County: Clark Sampling Date: 7/29/16
 Applicant/Owner: First Energy State: Ohio Sampling Point: DPSM017
 Investigator(s): S. Miloski, WPIT, Julie Freer Section, Township, Range: S35 T5E R10N
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): 0 Lat: 40.01620798 Long: -83.80116045 Datum: WGS 84
 Soil Map Unit Name Lp- Lippincott silty clay loam NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation X, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances"

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>Y</u> if yes, optional wetland site ID: <u>WSM009</u>
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

WSM009 is a PEM wetland in a ROW

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	

Sapling/Shrub stratum	(Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	

Herb stratum	(Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Scirpus atrovirens</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>
2	<u>Heracleum maximum</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>
3	<u>Phalaris arundinacea</u>	<u>15</u>	<u>N</u>	<u>FACW</u>
4	<u>Dichanthelium clandestinum</u>	<u>15</u>	<u>N</u>	<u>FACW</u>
5	<u>Rumex crispus</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
6				
7				
8				
9				
10				
		<u>100</u>	= Total Cover	

Woody vine stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
		<u>0</u>	= Total Cover	

Dominance Test Worksheet	
Number of Dominant Species that are OBL, FACW, or FAC:	<u>2</u> (A)
Total Number of Dominant Species Across all Strata:	<u>2</u> (B)
Percent of Dominant Species that are OBL, FACW, or FAC:	<u>100.00%</u> (A/B)

Prevalence Index Worksheet	
Total % Cover of:	
OBL species	<u>30</u> x 1 = <u>30</u>
FACW species	<u>60</u> x 2 = <u>120</u>
FAC species	<u>10</u> x 3 = <u>30</u>
FACU species	<u>0</u> x 4 = <u>0</u>
UPL species	<u>0</u> x 5 = <u>0</u>
Column totals	<u>100</u> (A) <u>180</u> (B)
Prevalence Index = B/A =	<u>1.80</u>

Hydrophytic Vegetation Indicators:	
<u>X</u>	Rapid test for hydrophytic vegetation
<u>X</u>	Dominance test is >50%
<u>X</u>	Prevalence index is ≤3.0*
Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
Problematic hydrophytic vegetation* (explain)	
*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	

Hydrophytic vegetation present?	
	<u>Y</u>

Remarks: (Include photo numbers here or on a separate sheet)

herbicide killed much of vegetation- identified using living/remnants

SOIL

Sampling Point: DPSM017

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)		
Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)			Indicators of wetland hydrology present? <input checked="" type="checkbox"/> Y
Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Clark-Urbana to Broadview Project City/County: Clark Sampling Date: 7/29/16
 Applicant/Owner: First Energy State: Ohio Sampling Point: DPSM018
 Investigator(s): S. Miloski, WPIT, Julie Freer Section, Township, Range: S35 T5E R10N
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex
 Slope (%): 5 Lat: 40.01615862 Long: -83.80109079 Datum: WGS 84
 Soil Map Unit Name Lp-Lippincott silty clay loam VWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed?

Are "normal circumstances"

Are vegetation , soil , or hydrology naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u>UPL FOR WSM009</u>
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

upland pit for WSM009

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet
1					
2					Total Number of Dominant Species Across all Strata: <u>4</u> (B)
3					Percent of Dominant Species that are OBL, FACW, or FAC: <u>25.00%</u> (A/B)
4					
5					
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15'</u>)				Prevalence Index Worksheet
1	<u>Lonicera maackii</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
2	<u>Elaeagnus umbellata</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	OBL species <u>0</u> x 1 = <u>0</u>
3					FACW species <u>50</u> x 2 = <u>100</u>
4					FAC species <u>0</u> x 3 = <u>0</u>
5					FACU species <u>90</u> x 4 = <u>360</u>
		<u>60</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>
					Column totals <u>140</u> (A) <u>460</u> (B)
Herb stratum	(Plot size: <u>5'</u>)				Prevalence Index = B/A = <u>3.29</u>
1	<u>Heracleum maximum</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u> </u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) <u> </u> *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
2	<u>Cichorium intybus</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
3					
4					
5					
6					
7					
8					
9					
10					
		<u>80</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30'</u>)				Hydrophytic vegetation present? <u>N</u>
1					
2					
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: DPSP018

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 3/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Red Parent Material (F21) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: <u>Rock</u> Depth (inches): <u>10</u>	Hydric soil present? <u>N</u>
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Remarks:
disturbed area

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)		<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)		<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)		<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)			<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Water-Stained Leaves (B9)							

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u>N</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix B

OEPA ORAM Datasheets

Site: WMB002	Rater(s): M. Vuturo-Bosiljevac	Date: 8/3/2016
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0	0	Metric 1. Wetland Area (size).
max 6 pts.	subtotal	

- 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 pt)
 - ☒ <0.1 acres (0.04ha) (0 pts)

2	2	Metric 2. Upland buffers and surrounding land use.
max 14 pts.	subtotal	

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
 - ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
 - ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
 - ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
 - ☐ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
 - ☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
 - ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

13	15	Metric 3. Hydrology.
max 30 pts.	subtotal	

- 3a. Sources of Water. Score all that apply.
- ☐ High pH groundwater (5)
 - ☐ Other groundwater (3)
 - ☒ Precipitation (1)
 - ☒ Seasonal/Intermittent surface water (3)
 - ☐ Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- ☐ 100 year floodplain (1)
 - ☐ Between stream/lake and other human use (1)
 - ☐ Part of wetland/upland (e.g. forest), complex (1)
 - ☒ Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- ☐ >0.7 (27.6in) (3)
 - ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
 - ☒ <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- ☐ Semi- to permanently inundated/saturated (4)
 - ☐ Regularly inundated/saturated (3)
 - ☒ Seasonally inundated (2)
 - ☐ Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- None or none apparent (12)

 - ☒ Recovered (7)
 - ☒ Recovering (3)
 - ☐ Recent or no recovery (1)

Check all disturbances observed

<ul style="list-style-type: none"> <input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input 	<ul style="list-style-type: none"> <input type="checkbox"/> point source (nonstormwater) <input checked="" type="checkbox"/> filling/grading <input checked="" type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____
--	--

14	29	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	

- 4a. Substrate disturbance. Score one or double check and average.
- ☒ None or none apparent (4)
 - ☐ Recovered (3)
 - ☐ Recovering (2)
 - ☐ Recent or no recovery (1)
- 4b. Habitat development. Select only one 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 double check and average.
- ☒ None or none apparent (9)
 - ☐ Recovered (6)
 - ☐ Recovering (3)
 - ☐ Recent or no recovery (1)

- Check all disturbances observed

<ul style="list-style-type: none"> <input type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants 	<ul style="list-style-type: none"> <input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment
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29
subtotal this page

Site: WMB002	Rater(s): M. Vuturo-Bosiljevac	Date: 8/3/2016
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29

subtotal first page

0

29

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2

31

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ 1 Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ X None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☒ X Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussocks
- ☐ Coarse woody debris >15cm (6in)
- ☐ Standing dead >25cm (10in) dbh
- ☐ Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

31

End of Quantitative Rating. Complete Categorization Worksheets.

Site: Broadview/Springfield WRH03	Rater(s): R HOOK	Date: 8/4/2016
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0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

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 pt)
- ☒ <0.1 acres (0.04ha) (0 pts)

11	11
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☒ **WIDE.** Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ **MEDIUM.** Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ **NARROW.** Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ **VERY NARROW.** Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ **VERY LOW.** 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ **LOW.** Old field (>10 years), shrubland, young second growth forest. (5)
- ☒ **MODERATELY HIGH.** Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ **HIGH.** Urban, industrial, open pasture, row cropping, mining, construction. (1)

22	33
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >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 hydrologic regime. Score one or double check and average.

- ☒ None or none apparent (12)
- ☐ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other

12	45
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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 one 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 double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing <input type="checkbox"/> grazing <input checked="" type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

45
subtotal this page

Site: Broadview/Springfield WRH03	Rater(s): R HOOK	Date: 8/4/2016
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45	
subtotal first page	
0	45
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3	
max 20 pts.	
48	
max 20 pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ 1 Emergent
- ☒ 1 Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ X None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☒ X Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussucks
- ☐ Coarse woody debris >15cm (6in)
- ☐ Standing dead >25cm (10in) dbh
- ☐ Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

48	GRAND TOTAL (max 100 pts)
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Site: Broadview/Springfield WRH04**Rater(s):** R HOOK**Date:** 8/4/2016

0	0
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max 6 pts.

subtotal

Metric 1. Wetland Area (size).

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 pt)
☒ <0.1 acres (0.04ha) (0 pts)

14	14
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max 14 pts.

subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

22	36
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max 30 pts.

subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
☒ Other groundwater (3)
☒ Precipitation (1)
☐ Seasonal/Intermittent surface water (3)
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >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 hydrologic regime. Score one or double check and average.

- ☒ None or none apparent (12)
☐ Recovered (7)
☐ Recovering (3)
☐ Recent or no recovery (1)

Check all disturbances observed

- ☐ ditch
☐ tile
☐ dike
☐ weir
☐ stormwater input

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
☐ Between stream/lake and other human use (1)
☐ Part of wetland/upland (e.g. forest), complex (1)
☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☒ Semi- to permanently inundated/saturated (4)
☐ Regularly inundated/saturated (3)
☐ Seasonally inundated (2)
☐ Seasonally saturated in upper 30cm (12in) (1)

13	49
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max 20 pts.

subtotal

Metric 4. Habitat Alteration and Development.

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 one 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 double check and average.

- ☐ None or none apparent (9)
☒ Recovered (6)
☐ Recovering (3)
☐ Recent or no recovery (1)

Check all disturbances observed

- ☐ mowing
☐ grazing
☒ clearcutting
☐ selective cutting
☐ woody debris removal
☐ toxic pollutants

- ☐ shrub/sapling removal
☐ herbaceous/aquatic bed removal
☒ sedimentation
☐ dredging
☐ farming
☐ nutrient enrichment

49

subtotal this page

Site: Broadview/Springfield WRH04	Rater(s): R HOOK	Date: 8/4/2016
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49	
subtotal first page	
0	49
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4	53
max 20 pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ 2 Emergent
- ☒ 1 Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussocks
- ☐ Coarse woody debris >15cm (6in)
- ☐ Standing dead >25cm (10in) dbh
- ☐ Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

53	GRAND TOTAL (max 100 pts)
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Site: Broadview/Springfield WRH05	Rater(s): R HOOK	Date: 8/4/2016
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0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

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 pt)
- ☒ <0.1 acres (0.04ha) (0 pts)

14	14
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

22	36
max 14 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >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 hydrologic regime. Score one or double check and average.

- ☒ None or none apparent (12)
- ☐ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

8	44
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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 one 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 double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input checked="" type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

44
subtotal this page

Site: Broadview/Springfield WRH05

Rater(s): R HOOK

Date: 8/4/2016

44

subtotal first page

0

44

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
☐ Fen (10)
☐ Old growth forest (10)
☐ Mature forested wetland (5)
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
☐ Lake Plain Sand Prairies (Oak Openings) (10)
☐ Relict Wet Prairies (10)
☐ Known occurrence state/federal threatened or endangered species (10)
☐ Significant migratory songbird/water fowl habitat or usage (10)
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2

46

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.**6a. Wetland Vegetation Communities.**

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
☒ 1 Emergent
☐ Shrub
☐ Forest
☐ Mudflats
☐ Open water
☐ Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
☐ Moderately high (4)
☐ Moderate (3)
☐ Moderately low (2)
☐ Low (1)
☒ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
☐ Moderate 25-75% cover (-3)
☐ Sparse 5-25% cover (-1)
☐ Nearly absent <5% cover (0)
☒ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussocks
☐ Coarse woody debris >15cm (6in)
☐ Standing dead >25cm (10in) dbh
☐ Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

46

GRAND TOTAL (max 100 pts)

Site: Broadview/Springfield WRH06

Rater(s): R HOOK

Date: 8/4/2016

0

0

max 6 pts.

subtotal

Metric 1. Wetland Area (size).

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 pt)
☒ <0.1 acres (0.04ha) (0 pts)

14

14

max 14 pts.

subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

22

36

max 30 pts.

subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
☐ Other groundwater (3)
☒ Precipitation (1)
☒ Seasonal/Intermittent surface water (3)
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >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 hydrologic regime. Score one or double check and average.

- ☒ None or none apparent (12)
☐ Recovered (7)
☐ Recovering (3)
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
☐ Between stream/lake and other human use (1)
☐ Part of wetland/upland (e.g. forest), complex (1)
☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☒ Semi- to permanently inundated/saturated (4)
☐ Regularly inundated/saturated (3)
☐ Seasonally inundated (2)
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

- ☐ ditch
☐ tile
☐ dike
☐ weir
☐ stormwater input

- ☐ point source (nonstormwater)
☐ filling/grading
☐ road bed/RR track
☐ dredging
☐ other

8

44

max 20 pts.

subtotal

Metric 4. Habitat Alteration and Development.

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 one 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 double check and average.

- ☐ None or none apparent (9)
☐ Recovered (6)
☒ Recovering (3)
☐ Recent or no recovery (1)

Check all disturbances observed

- ☐ mowing
☐ grazing
☐ clearcutting
☐ selective cutting
☐ woody debris removal
☐ toxic pollutants

- ☐ shrub/sapling removal
☐ herbaceous/aquatic bed removal
☒ sedimentation
☐ dredging
☐ farming
☐ nutrient enrichment

44

subtotal this page

Site: Broadview/Springfield WRH06	Rater(s): R HOOK	Date: 8/4/2016
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44

subtotal first page

0

max 10 pts.

44

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2

max 20 pts.

46

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ 1 Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussocks
- ☐ Coarse woody debris >15cm (6in)
- ☐ Standing dead >25cm (10in) dbh
- ☐ Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

46

GRAND TOTAL (max 100 pts)

Site: WSM001	Rater(s): S. Miloski	Date: 7/25/2016
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0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

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 pt)
- ☒ <0.1 acres (0.04ha) (0 pts)

3	3
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9	12
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >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 hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

7.5	19.5
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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 one 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 double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input checked="" type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input checked="" type="checkbox"/> nutrient enrichment

19.5
subtotal this page

Site: WSM001	Rater(s): S. Miloski	Date: 7/25/2016
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19.5

subtotal first page

0

19.5

max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

7

26.5

max 20 pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 2 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other _____

6b. horizontal (plan view) interspersions.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ X None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☒ X Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ 2 Vegetated hummocks/tussocks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☒ 2 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

26.5

End of Quantitative Rating. Complete Categorization Worksheets.

Site: WSM009

Rater(s): S. Miloski

Date: 7/29/2016

2

2

Metric 1. Wetland Area (size).

max 6 pts.

subtotal

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 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

2

4

Metric 2. Upland buffers and surrounding land use.

max 14 pts.

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- ☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

10

14

Metric 3. Hydrology.

max 30 pts.

subtotal

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >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 hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☒ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

- ☐ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

- ☐ point source (nonstormwater)
- ☒ filling/grading
- ☒ road bed/RR track
- ☐ dredging
- ☐ other

5.5

19.5

Metric 4. Habitat Alteration and Development.

max 20 pts.

subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one 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 double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☒ Recent or no recovery (1)

Check all disturbances observed

- ☐ mowing
- ☐ grazing
- ☐ clearcutting
- ☐ selective cutting
- ☐ woody debris removal
- ☐ toxic pollutants

- ☒ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☐ dredging
- ☐ farming
- ☐ nutrient enrichment

19.5

subtotal this page

Site: WSM009	Rater(s): S. Miloski	Date: 7/29/2016
---------------------	-----------------------------	------------------------

19.5

subtotal first page

0

19.5

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4

23.5

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ X None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☒ X Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 2 Vegetated hummocks/tussocks
- ☐ 1 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 1 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
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Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

23.5

End of Quantitative Rating. Complete Categorization Worksheets.

Appendix C

OEPA HHEI Datasheets



Primary Headwater Habitat Evaluation Form

25

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

SITE NAME/LOCATION **First Energy SMB001**SITE NUMBER **SMB001**RIVER BASIN **Donnels Creek-Mad River**DRAINAGE AREA (mi²) **<0.01**LENGTH OF STREAM REACH (ft) _____ LAT. **40.01344** LONG. **-83.78727** RIVER CODE _____ RIVER MILE _____DATE **08/03/16** SCORER **M. Vuturo-Boalje** COMMENTS _____**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions****STREAM CHANNEL MODIFICATIONS:**☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

Flows from pond outfall/overflow

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check **ONLY** two predominant substrate **TYPE** boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> SILT [3 pt]	80%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%**

(A)

100%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12**TOTAL NUMBER OF SUBSTRATE TYPES: **3**

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):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): **5**

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check **ONLY** one box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters): **0.60****HHEI Metric Points**Substrate
Max = 40**15**

A + B

Pool Depth
Max = 30**5**Bankfull
Width
Max=30**5****This information must also be completed****RIPARIAN ZONE AND FLOODPLAIN QUALITY**

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS _____

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check **ONLY** one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Only a few inches of water flowing****SINUOSITY** (Number of bends per 61 m (200 ft) of channel) (Check **ONLY** one box):

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input checked="" type="checkbox"/> >3

STREAM GRADIENT ESTIMATE☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

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

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Moore Run Distance from Evaluated Stream: 5,780.00 ft
☐ CWH Name: _____ Distance from Evaluated Stream: _____
☐ EWH Name: _____ Distance from Evaluated Stream: _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Urbana West NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Clark Township / City: Moorefield Twp.

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 07/29/16 Quantity: 0.13

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C): _____ Dissolved Oxygen (mg/l): _____ pH (S.U.): _____ Conductivity (µmhos/cm): _____

Is the sampling reach representative of the stream (Y/N): N If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

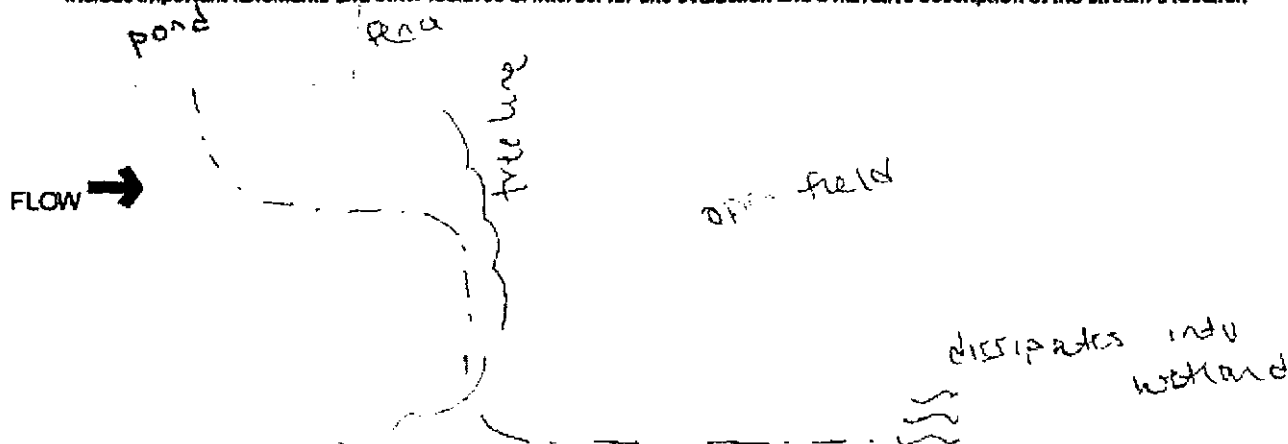
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Primary Headwater Habitat Evaluation Form

44

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

SITE NAME/LOCATION **SRH03**

SITE NUMBER

RIVER BASIN **05080001-18-01**DRAINAGE AREA (mi²) **0.22**LENGTH OF STREAM REACH (ft) **300**LAT. **40.01470**LONG. **-83.77980**

RIVER CODE

RIVER MILE

DATE **08/04/16**SCORER **R. Hook**

COMMENTS

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL
MODIFICATIONS:☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

- 1.
- SUBSTRATE**
- (Estimate percent of every type of substrate present. Check
- ONLY two
- predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> SILT [3 pt]	<input checked="" type="checkbox"/> 25%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 10%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 20%	<input type="checkbox"/> MUCK [0 pts]	<input checked="" type="checkbox"/> 25%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock **10.00%**

(A)

100%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

3

TOTAL NUMBER OF SUBSTRATE TYPES:

6

- 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):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Excludes pools above/below culvert**

MAXIMUM POOL DEPTH (centimeters):

8

- 3.
- BANK FULL WIDTH**
- (Measured as the average of 3-4 measurements) (Check
- ONLY one
- box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.80HHEI
Metric
PointsSubstrate
Max = 40**9**

A + B

Pool Depth
Max = 30**15**Bankfull
Width
Max=30**20**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide >10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Upper reach is ephemeral, flowing at wetland WRH03 from gr. water discharge**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

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

QHEI PERFORMED? ☐ Yes ☐ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Moore Run Distance from Evaluated Stream: 1.25
☐ CWH Name: _____ Distance from Evaluated Stream: _____
☐ EWH Name: _____ Distance from Evaluated Stream: _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Urbana West NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Clark Township / City: Moorefield TWP

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 07/30/16 Quantity: 0.12

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 5%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C): _____ Dissolved Oxygen (mg/l): _____ pH (S.U.): _____ Conductivity (µmhos/cm): _____

Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

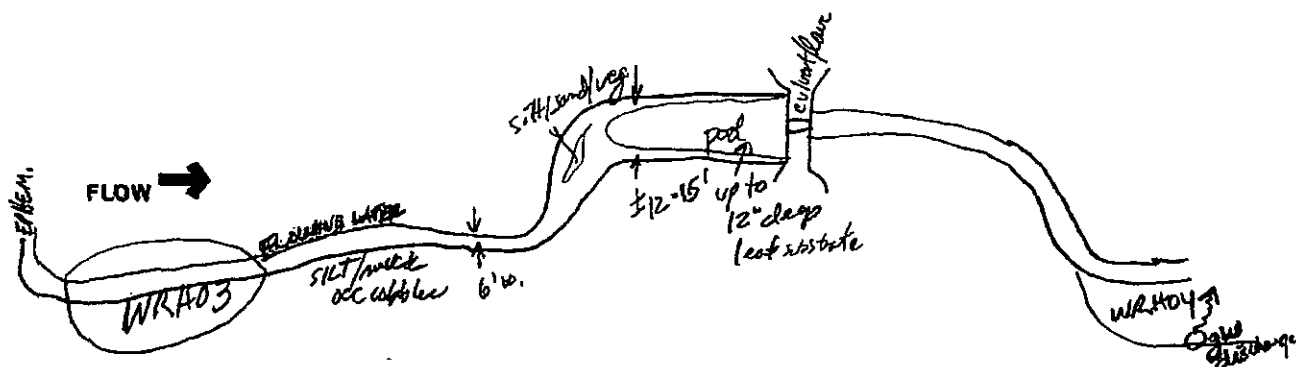
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Primary Headwater Habitat Evaluation Form

24

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

SITE NAME/LOCATION **SRH05**

SITE NUMBER

RIVER BASIN **05080001-18-01**DRAINAGE AREA (mi²) **0.04**LENGTH OF STREAM REACH (ft) **85**LAT. **40.01488**LONG. **-83.78030**

RIVER CODE

RIVER MILE

DATE **08/04/16**SCORER **R. Hook**

COMMENTS

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL☐ RECOVERED☒ RECOVERING☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> SILT [3 pt]	50%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	45%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **5.00%**

(A)

100%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **6**TOTAL NUMBER OF SUBSTRATE TYPES: **3**

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):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.20

HHEI Metric Points

Substrate Max = 40

9

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide >10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS:

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS:

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft)☐ Flat to Moderate☐ Moderate (2 ft/100 ft)☒ Moderate to Severe☐ Severe (10 ft/100 ft)

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

QHEI PERFORMED? ☐ Yes ☐ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Moore Run Distance from Evaluated Stream: 1.25
☐ CWH Name: _____ Distance from Evaluated Stream: _____
☐ EWH Name: _____ Distance from Evaluated Stream: _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Urbana West NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Clark Township / City: Moorefield TWP

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 07/30/16 Quantity: 0.12

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 5%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

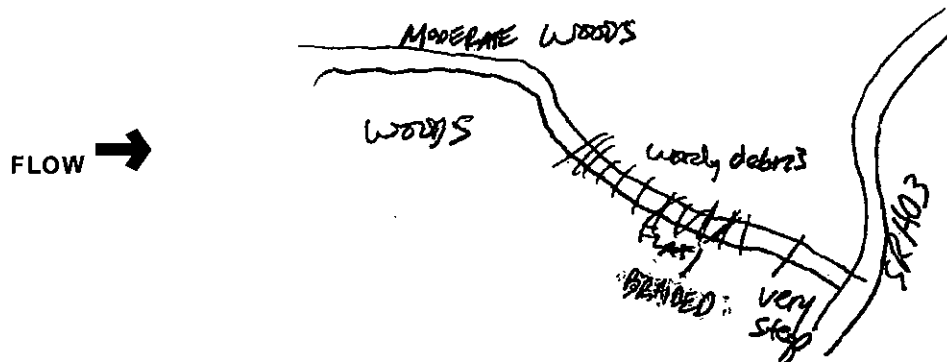
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Primary Headwater Habitat Evaluation Form

13

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

SITE NAME/LOCATION **SRH06**

SITE NUMBER

RIVER BASIN **05080001-18-01**DRAINAGE AREA (mi²) **0.03**LENGTH OF STREAM REACH (ft) **200** LAT. **40.01472** LONG. **-83.78038** RIVER CODE: RIVER MILEDATE **08/04/16** SCORER **R. Hook** COMMENTS

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL
MODIFICATIONS:☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check **ONLY two** predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	95%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock

5.00%

(A)

100%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **6**TOTAL NUMBER OF SUBSTRATE TYPES: **2**

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):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters): **0**

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check **ONLY one** box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters): **0.90**HHEI
Metric
PointsSubstrate
Max = 40**8**

A + B

Pool Depth
Max = 30**0**Bankfull
Width
Max=30**5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide >10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS:

FLOW REGIME (At Time of Evaluation) (Check **ONLY one** box):

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS:

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

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

QHEI PERFORMED? ☐ Yes ☐ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Moore Run Distance from Evaluated Stream: 1.25
☐ CWH Name: _____ Distance from Evaluated Stream: _____
☐ EWH Name: _____ Distance from Evaluated Stream: _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Urbana West NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Clark Township / City: Moorefield TWP

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 07/30/16 Quantity: 0.12

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 5%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

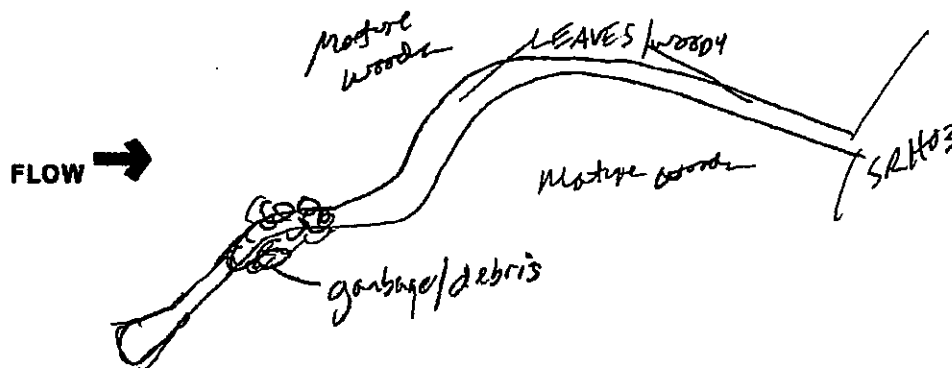
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): _____

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



Appendix D

OEPA QHEI Datasheets



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 54.5

Stream & Location: First Energy - SSM003 Moore Run - Red route

RM: Date: 07 / 26 / 16

Scorers Full Name & Affiliation: CH2M HILL, S. Miloski

River Code: 14 - 117 - 000 **STORET #:** **Lat./ Long.:** 40 . 015773 / 83 . 800649 **Office verified location** ☒

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY	
<input type="checkbox"/> BLDR / SLABS [10]				<input type="checkbox"/> HARDPAN [4]				<input checked="" type="checkbox"/> LIMESTONE [1]		<input type="checkbox"/> HEAVY [-2]	Substrate 7 Maximum 20
<input type="checkbox"/> BOULDER [9]				<input type="checkbox"/> DETRITUS [3]				<input type="checkbox"/> TILLS [1]		<input checked="" type="checkbox"/> MODERATE [-1]	
<input type="checkbox"/> COBBLE [8]	X	X		<input checked="" type="checkbox"/> MUCK [2]	X	X		<input type="checkbox"/> WETLANDS [0]		<input type="checkbox"/> NORMAL [0]	
<input type="checkbox"/> GRAVEL [7]	X	X		<input type="checkbox"/> SILT [2]	X	X		<input type="checkbox"/> HARDPAN [0]		<input type="checkbox"/> FREE [1]	
<input checked="" type="checkbox"/> SAND [6]	X	X		<input type="checkbox"/> ARTIFICIAL [0]	X	X		<input type="checkbox"/> SANDSTONE [0]		<input checked="" type="checkbox"/> EXTENSIVE [-2]	
<input type="checkbox"/> BEDROCK [5]								<input type="checkbox"/> RIP/RAP [0]		<input checked="" type="checkbox"/> MODERATE [-1]	
(Score natural substrates; ignore sludge from point-sources)								<input type="checkbox"/> LACUSTURINE [0]		<input type="checkbox"/> NORMAL [0]	
NUMBER OF BEST TYPES: <input type="checkbox"/> 4 or more [2] <input checked="" type="checkbox"/> 3 or less [0]								<input type="checkbox"/> SHALE [-1]		<input type="checkbox"/> NONE [1]	
Comments								<input type="checkbox"/> COAL FINES [-2]			

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

			AMOUNT		
			Check ONE (Or 2 & average)		
2 UNDERCUT BANKS [1]	2 POOLS > 70cm [2]	0 OXBOWS, BACKWATERS [1]	<input checked="" type="checkbox"/> EXTENSIVE >75% [11]		
2 OVERHANGING VEGETATION [1]	2 ROOTWADS [1]	1 AQUATIC MACROPHYTES [1]	<input checked="" type="checkbox"/> MODERATE 25-75% [7]		
0 SHALLOWS (IN SLOW WATER) [1]	1 BOULDERS [1]	2 LOGS OR WOODY DEBRIS [1]	<input type="checkbox"/> SPARSE 5-<25% [3]		
0 ROOTMATS [1]			<input type="checkbox"/> NEARLY ABSENT <5% [1]		
Comments			Channel Maximum 20 15		

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input checked="" type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]
<input type="checkbox"/> LOW [2]	<input checked="" type="checkbox"/> FAIR [3]	<input checked="" type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input checked="" type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	
Comments			
Channel Maximum 20 9.5			

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
<input checked="" type="checkbox"/> NONE / LITTLE [3]	<input checked="" type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]		
<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input checked="" type="checkbox"/> URBAN OR INDUSTRIAL [0]		
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> MINING / CONSTRUCTION [0]		
	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]			
	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]			
Comments					
Riparian Maximum 10 6.5					

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY!)		Check ONE (Or 2 & average)		Check ALL that apply		
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	<input type="checkbox"/> SLOW [1]			
<input checked="" type="checkbox"/> 0.7-<1m [4]	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]			
<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input checked="" type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]			
<input type="checkbox"/> 0.2-<0.4m [1]		<input type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]			
<input type="checkbox"/> < 0.2m [0]		Indicate for reach - pools and riffles.				
Comments				Pool / Current Maximum 12 6		

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFPLE DEPTH		RUN DEPTH		RIFPLE / RUN SUBSTRATE		RIFPLE / RUN EMBEDDEDNESS	
Check ONE (Or 2 & average)		Check ONE (Or 2 & average)		Check ONE (Or 2 & average)		Check ONE (Or 2 & average)	
<input checked="" type="checkbox"/> BEST AREAS > 10cm [2]	<input checked="" type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]				
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]				
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input checked="" type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]				
Comments				<input type="checkbox"/> EXTENSIVE [-1]	Riffle / Run Maximum 8 4.5		

6] GRADIENT		DRAINAGE AREA		% POOL		% GLIDE		% RUN		% RIFFLE		Gradient Maximum 10 6
(10 ft/mi)	(8 m ²)	<input type="checkbox"/> VERY LOW - LOW [2-4]	<input checked="" type="checkbox"/> MODERATE [6-10]	<input type="checkbox"/> HIGH - VERY HIGH [10-6]	30	50	10	10				

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st sample pass-- 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ L. LINE ☐ NORMAL ☐
- ☐ OTHER ☐ LOW ☐
- ☐ DRY ☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

CLARITY

- 1st --sample pass-- 2nd
- ☐ < 20 cm ☐
- ☐ 20-40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm/ CTB ☐
- ☐ SECCHI DEPTH ☐

meters

CANOPY

- ☐ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

CJ RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

BJ AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- \bar{x} width 40'
- \bar{x} depth
- max. depth 3'
- \bar{x} bankfull width 40'
- bankfull \bar{x} depth 6'
- W/D ratio
- bankfull max. depth
- floodprone \bar{x}^2 width
- entrench. ratio
- Legacy Tree:

Stream Drawing:

W.R. track

Shrubs / woods

←

←

←

outfall

Shrubs / Woods

Woods

Celtis



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 46.5

Stream & Location: First Energy - SSM004 UNT to Moore Run

RM: _____ **Date:** 07 / 26 / 16

Scorers Full Name & Affiliation: CH2M HILL, S. Miloski
River Code: _____ **STORET #:** _____ **Lat./ Long.:** 40 . 015287 / 83 . 798635 **Office verified location** ☒

1) SUBSTRATE Check **ONLY TWO** substrate **TYPE BOXES**; estimate % or note every type present

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
POOL RIFFLE	POOL RIFFLE	POOL RIFFLE	POOL RIFFLE	Check ONE (Or 2 & average)		Check ONE (Or 2 & average)	
<input type="checkbox"/> BLDR / SLABS [10]	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> HEAVY [-2]	<div style="display: flex; align-items: center; justify-content: center;"><div style="text-align: center;">SILT EMBEDDEDNESS</div><div style="margin: 0 10px;">Substrate 7 Maximum 20</div></div>			
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/> DETRITUS [3]	<input checked="" type="checkbox"/> TILLS [1]	<input checked="" type="checkbox"/> MODERATE [-1]				
<input type="checkbox"/> COBBLE [8]	<input checked="" type="checkbox"/> MUCK [2]	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/> NORMAL [0]				
<input type="checkbox"/> GRAVEL [7]	<input type="checkbox"/> SILT [2]	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> FREE [1]				
<input checked="" type="checkbox"/> SAND [6]	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/> SANDSTONE [0]	<input checked="" type="checkbox"/> EXTENSIVE [-2]				
<input type="checkbox"/> BEDROCK [5]		<input type="checkbox"/> RIP/RAP [0]	<input checked="" type="checkbox"/> MODERATE [-1]				
NUMBER OF BEST TYPES: <input type="checkbox"/> 4 or more [2] <input checked="" type="checkbox"/> 3 or less [0]		(Score natural substrates; ignore sludge from point-sources)		<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/> NORMAL [0]		
Comments				<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/> NONE [1]		
Concrete lined, eroded - silt/sand muck				<input type="checkbox"/> COAL FINES [-2]			

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT		
Check ONE (Or 2 & average)		
<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> POOLS > 70cm [2]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]
<input checked="" type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input type="checkbox"/> AQUATIC MACROPHYTES [1]
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]
<input type="checkbox"/> ROOTMATS [1]		
Comments		
Channel Maximum 20 9		

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]
<input checked="" type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input checked="" type="checkbox"/> RECOVERING [3]	<input checked="" type="checkbox"/> LOW [1]
<input type="checkbox"/> NONE [1]	<input checked="" type="checkbox"/> POOR [1]	<input checked="" type="checkbox"/> RECENT OR NO RECOVERY [1]	
Comments			
Channel Maximum 20 6.5			

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for **EACH BANK** (Or 2 per bank & average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE [1]	
L	R	L	R	L	R	L	R
<input checked="" type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]				
<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input checked="" type="checkbox"/> URBAN OR INDUSTRIAL [0]				
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> MINING / CONSTRUCTION [0]				
	<input checked="" type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]					
	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]					
Comments				Indicate predominant land use(s) past 100m riparian. Riparian Maximum 10 4			

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		<div style="border: 1px solid black; padding: 5px; text-align: center;">Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)</div>
Check ONE (ONLY!)		Check ONE (Or 2 & average)		Check ALL that apply		
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	<input type="checkbox"/> SLOW [1]	<div style="display: flex; align-items: center; justify-content: center;"><div style="text-align: center;">Pool / Current Maximum 12</div><div style="margin: 0 10px;">Pool / Current Maximum 12 6</div></div>		
<input checked="" type="checkbox"/> 0.7-1m [4]	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]			
<input type="checkbox"/> 0.4-0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input checked="" type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]			
<input type="checkbox"/> 0.2-0.4m [1]		<input type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]			
<input type="checkbox"/> < 0.2m [0]		Indicate for reach - pools and riffles.				
Comments						

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average).

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input checked="" type="checkbox"/> BEST AREAS > 10cm [2]	<input checked="" type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input checked="" type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]
Comments			<input type="checkbox"/> EXTENSIVE [-1]
			Riffle / Run Maximum 8 4

6) GRADIENT (20.8 ft/mi)		%POOL: 50		%GLIDE: 20		Gradient Maximum 10 10
DRAINAGE AREA (1.6 mi ²)		%RUN: 20		%RIFFLE: 10		

AJ SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
☐ WADE
☐ L. LINE
☒ OTHER

STAGE

- 1st sample pass-- 2nd
☐ HIGH
☐ UP
☒ NORMAL
☐ LOW
☐ DRY

DISTANCE

- ☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☐ OTHER

CLARITY

- 1st pass-- 2nd
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm / CTB
☐ SECCHI DEPTH

meters

CANOPY

- ☒ > 85% - OPEN
☐ 55% - 85%
☐ 30% - 55%
☐ 10% - 30%
☐ < 10% - CLOSED

CJ RECREATION

POOL: ☐ > 100ft² ☐ > 3ft

Stream Drawing:

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

Reach Industrial

Concrete lined sand embedded

Outfalls along creek

BJ AESTHETICS		DJ MAINTENANCE		EJ ISSUES	FJ MEASUREMENTS
Circle some & COMMENT		Private / Industry, NPDES			
<input type="checkbox"/> NUISANCE ALGAE	<input type="checkbox"/> PUBLIC / PRIVATE / BOTH / NA	<input type="checkbox"/> Private / Industry, NPDES	WWTP / CSO / NPDES / INDUSTRY	\bar{x} width	15'
<input type="checkbox"/> INVASIVE MACROPHYTES	<input type="checkbox"/> ACTIVE / HISTORIC / BOTH / NA	Urban	HARDENED / URBAN / DIRT&GRIME	\bar{x} depth	1'
<input type="checkbox"/> EXCESS TURBIDITY	<input type="checkbox"/> YOUNG-SUCCESSION-OLD	Modified	CONTAMINATED / LANDFILL	max. depth	3'
<input type="checkbox"/> DISCOLORATION	<input type="checkbox"/> SPRAY / SNAG / REMOVED		BMPs-CONSTRUCTION-SEDIMENT	\bar{x} bankfull width	15'
<input type="checkbox"/> FOAM / SCUM	<input type="checkbox"/> MODIFIED / DIPPED OUT / NA		LOGGING / IRRIGATION / COOLING	bankfull \bar{x} depth	4'
<input type="checkbox"/> OIL SHEEN	<input type="checkbox"/> LEVEED / ONE SIDED		BANK / EROSION / SURFACE	W/D ratio	
<input type="checkbox"/> TRASH / LITTER	<input type="checkbox"/> RELOCATED / CUTOFFS		FALSE BANK / MANURE / LAGOON	bankfull max. depth	
<input type="checkbox"/> NUISANCE ODOR	<input type="checkbox"/> MOVING-BEDLOAD-STABLE		WASH H ₂ O / TILE / H ₂ O TABLE	floodprone x^2 width	
<input type="checkbox"/> SLUDGE DEPOSITS	<input type="checkbox"/> ARMOURD / SLUMPS		ACID / MINE / QUARRY / FLOW	entrench. ratio	
<input type="checkbox"/> CSOs/SSOs/OUTFALLS	<input type="checkbox"/> ISLANDS / SCOURD		NATURAL / WETLAND / STAGNANT	Legacy Tree:	
<input type="checkbox"/> CATION	<input type="checkbox"/> IMPOUNDED / DESICCATED		PARK / GOLF / LAWN / HOME		
<input type="checkbox"/> AREA	<input type="checkbox"/> FLOOD CONTROL / DRAINAGE		ATMOSPHERE / DATA PAUCITY		
<input type="checkbox"/> DEPTH					
<input type="checkbox"/> >100#2					
<input type="checkbox"/> >3#					

Appendix E
Wetlands, Streams, Ponds, and
Habitat Photo Documentation

PEM Wetlands



Feature Name	Photograph Direction	Photograph Date
WMB002	North	8/3/2016

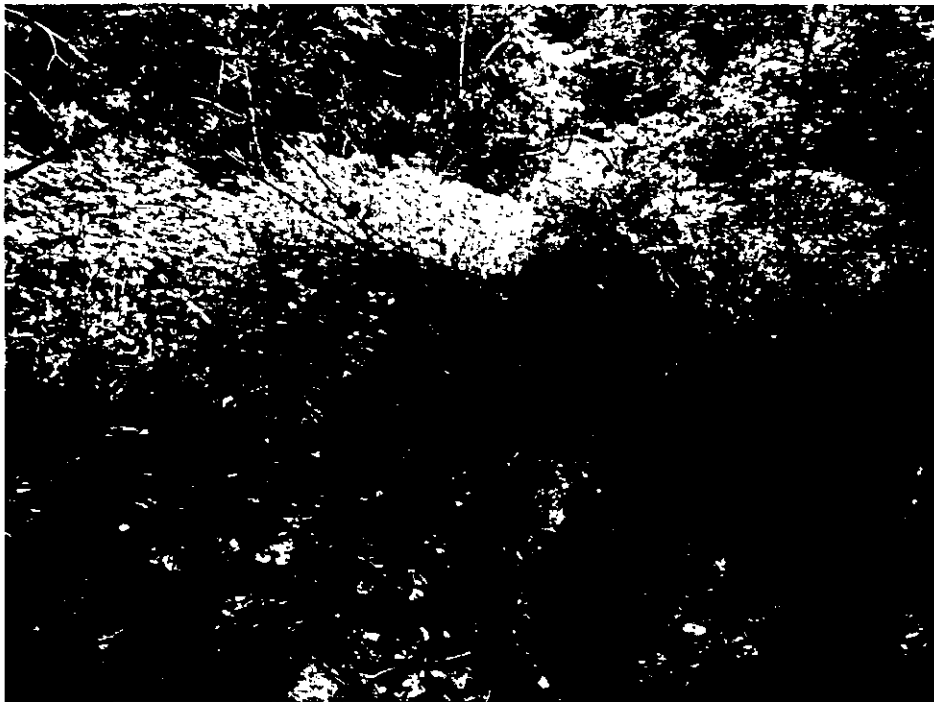


Feature Name	Photograph Direction	Photograph Date
WSM001	Northwest	7/25/2016



Feature Name	Photograph Direction	Photograph Date
WSM009	North	7/29/2016

PSS Wetlands



Feature Name	Photograph Direction	Photograph Date
WRH003	Northeast	8/4/2016



Feature Name	Photograph Direction	Photograph Date
WRH004	South	8/4/2016



Feature Name	Photograph Direction	Photograph Date
WRH005	East	8/4/2016



Feature Name	Photograph Direction	Photograph Date
WRH006	Southeast	8/4/2016

Perennial Streams



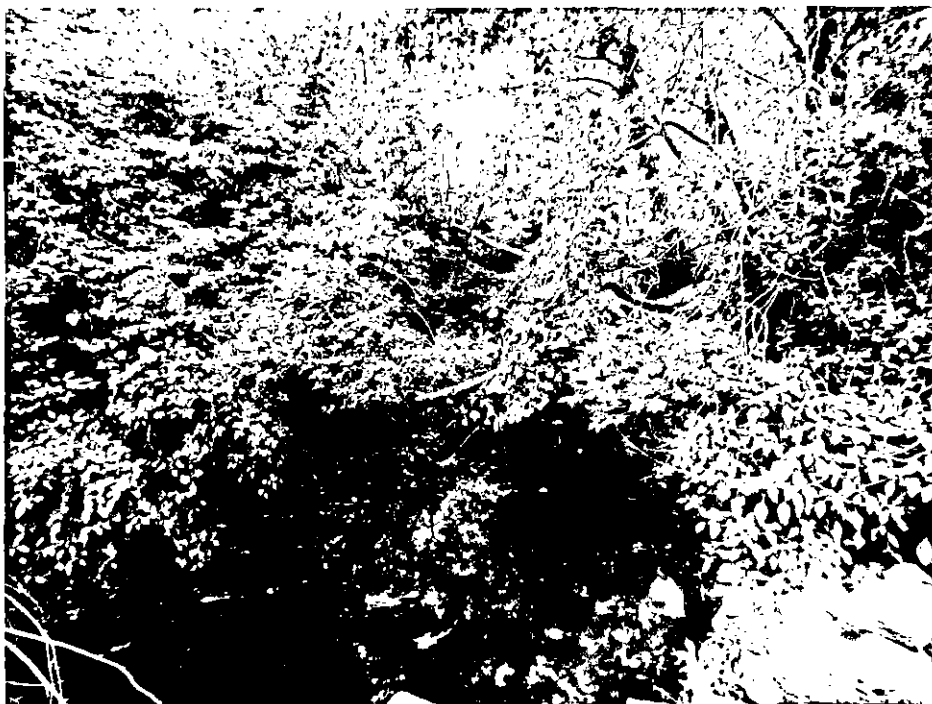
Feature Name	Photograph Direction	Photograph Date
SSM003- Moore Run	Upstream	7/26/2016



Feature Name	Photograph Direction	Photograph Date
SSM003- Moore Run	Downstream	7/26/2016



Feature Name	Photograph Direction	Photograph Date
SSM004	Upstream	7/26/2016



<i>Feature Name</i>	<i>Photograph Direction</i>	<i>Photograph Date</i>
SSM004	Downstream	7/26/2016

Intermittent Streams



<i>Feature Name</i>	<i>Photograph Direction</i>	<i>Photograph Date</i>
SMB001	Downstream	8/3/2016



Feature Name	Photograph Direction	Photograph Date
SMB001	Upstream	8/3/2016



Feature Name	Photograph Direction	Photograph Date
SRH003- Intermittent portion	Downstream	8/4/2016



Feature Name	Photograph Direction	Photograph Date
SRH003- Intermittent portion	Upstream	8/4/2016

Ephemeral Streams

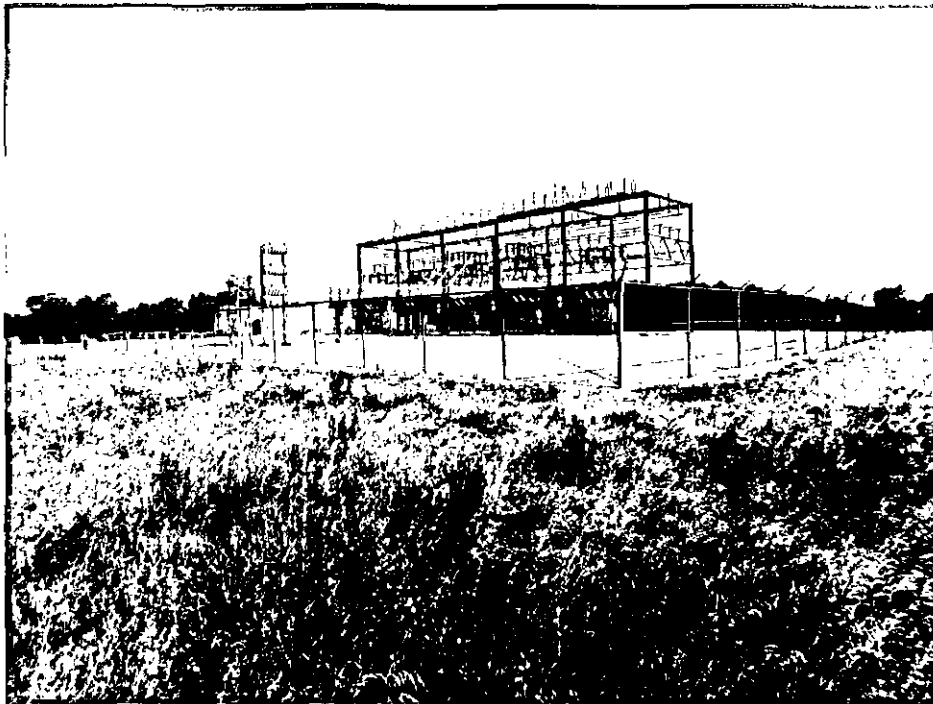


Feature Name	Photograph Direction	Photograph Date
SRH003- Ephemeral portion	Upstream	8/4/2016



Feature Name	Photograph Direction	Photograph Date
SRH005	Upstream	8/4/2016

Land Uses/Habitat



Description	Photograph Direction	Photograph Date
Existing Broadview Substation	Northwest	7/25/2016



Description	Photograph Direction	Photograph Date
Upland Forest	North	8/4/2016



Description	Photograph Direction	Photograph Date
Agricultural field- row crop	North	9/13/2016



Description	Photograph Direction	Photograph Date
Maintained ROW on trail	North	7/29/16



Description	Photograph Direction	Photograph Date
Fallow ROW	North	7/25/16



Description	Photograph Direction	Photograph Date
Maintained ROW	South	7/29/16



Description	Photograph Direction	Photograph Date
Vacant/Open Land	Southwest	7/27/16