



Ross County Solar

Exhibit S

Ecological Assessment

Case No. 20-1380-EL-BGN

Ecological Assessment

Ross County Solar, LLC

October 2020



Document Information

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Acronyms

AC	Alternating Current
AWS	Agricultural Water Supplies
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best Management Practices
BW	Bathing Waters
CECPN	Certificate of Environmental Compatibility and Public Need
CFR	Code of Federal Regulations
CGP	Construction General Permit
CWA	Clean Water Act
CHW	Cold Water Habitat
DC	Direct Current
DOW	Division of Wildlife
ESA	Endangered Species Act
EWH	Possible Exceptional Warm Water Habitat
FSA	Farm Service Agency
FWS	U.S. Fish and Wildlife Service
GIS	Geographic Information Systems
GPS	Global Positioning System
HDD	Horizontal Directional Drilling
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
IBA	Important Bird Areas
IPaC	Information for Planning and Conservation
IWS	Industrial Water Supplies
JD	Jurisdictional Determination
kV	kilovolt
lf	linear feet
Lf	Lenawee Series
LRW	Limited Resource Water
MBTA	Migratory Bird Treaty Act
Mf	Mermill Loam
Mo	Millgrove Loam
MRLC	Multi-Resolution Land Characteristics Consortium
MW	Megawatt
MWH	Modified Warm Water Habitat

NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NLCD	National Land Cover Database
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWP	Nationwide Permit
OAC	Ohio Administrative Code
ODNR	Ohio Division of Natural Resources
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High Water Mark
ONHD	Ohio Natural Heritage Database
OPSB	Ohio Power Siting Board
ORAM	Ohio Rapid Assessment Methodology
ORC	Ohio Revised Code
OSHPD	Ohio State Historic Preservation Office
OWI	Ohio Wetland Inventory
PCR	Primary Contract Recreation
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
PHWH	Primary Headwater Habitat Stream
Project	Ross County Solar Energy Project
PV	Photovoltaic
PWS	Public Water Supply
QHEI	Qualitative Habitat Evaluation Index
RTE	Rare, Threatened or Endangered species
s.f.	Square Foot
SCR	Secondary Contact Recreation
SESC	Soil erosion and sediment control
SMS	Solar meteorological station
SRW	State Resource Water
SSH	Seasonal Salmonid Habitat
SWPPP	Storm Water Pollution Prevention Plan
TNW	Traditional Navigable Water
UNT	Unnamed Tributary
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency

USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WOTUS	Waters of the United States
WQC	Water Quality Certificate
WWH	Warm Water Habitat

Executive Summary

Ross County Solar, LLC (Ross County Solar) is proposing to construct the Ross County Solar Energy Project (Project) in Ross County, Ohio, located approximately 0.6 miles southeast of Greenfield, Ohio. The proposed photovoltaic (PV) solar energy facility will have a generation capacity up to 120 megawatts (MW). The Project is proposed to be constructed within an area of approximately 1,440 acres of land (Project Area). Proposed Project infrastructure will consist of the fence-line, photovoltaic (PV) panel arrays, below-ground and overhead hybrid electrical collection lines, inverters, access roads, a substation, an operations and maintenance (O&M) building, weather stations, and laydown yards. The Project is anticipated to temporarily impact 687.37 acres during construction and permanently impact 27.28 acres during operation. Temporary impacts will result from approximately 662.42 acres from arrays and 24.95 from associated infrastructure. Permanent impacts will result from approximately 1.38 acres associated with solar piles, 25.00 acres of access roads, 2.81 acres to accommodate the substation, approximately 2.38 acres to accommodate inverters, and approximately 1.38 acres for an O&M building. Temporary impacts are associated with workspaces to accommodate the installation of Project infrastructure in addition to laydown yards that will be utilized to stage equipment and materials during construction.

As part of the Ecological assessment, a desktop review of environmental resources was completed for the Project Area. This included a review of land cover, bedrock geology, glacial drift, wetlands, water quality/floodplain, and major species habitat.

Cardno also conducted field studies within the approximately 1,440-acre Project Area. A habitat assessment was completed for the Project Area, in addition to a visual habitat assessment on a ¼-mile buffer surrounding the Project Area. Cardno also conducted a wetland delineation field survey to identify wetland or potential waterbodies of the United States, in accordance with Sections 401/404 of the Clean Water Act (CWA). Cardno's field efforts focused on accessible parcels across a broad area of leased parcels and easements

Based on preliminary survey data and habitat evaluations, the Project will be constructed primarily on land that is agricultural with some scattered woodlots. Upon construction of the proposed Project, most of the Project Area land will no longer be available for agricultural use, resulting in a conversion to vegetated open land in the form a commercial solar field. The construction of the Project infrastructure may require tree clearing of smaller woodlots and woodlot edges to reduce shading and provide contiguous acreage for the Project. All of the proposed tree clearing is located in upland areas; no forested wetlands will be cleared. Habitat evaluations also found that the proposed Project is unlikely to have a significant impact on local or migratory bird populations, due to limited habitat provided by agricultural fields. The Project will observe seasonal restrictions on tree clearing to protect listed bat species (e.g., cutting trees only between October and March), or as conditions specify. Additionally, Ross County Solar has incorporated guidance provided via consultation with the Fish and Wildlife Service and Ohio DNR. It was determined that the Project is not likely to have a significant or adverse impacts to wildlife or sensitive species utilizing the Project Area.

Energy projects commonly include pre-construction and post-construction monitoring of the Project Area. Surveys include (but are not limited to) researching the biological resources within the Project Area (wetlands, waterbodies, etc.), migration patterns of birds/bats passing through the Project Area, and the protective status of migratory and nesting/resident species in an area where Project infrastructure is being considered. At this time, no species-specific surveys have been conducted for the Project, and due to the low probability of impact to sensitive species, none are recommended.

As part of the assessment, Cardno conducted a wetland delineation field survey to identify wetlands and potential waterbodies (Waters of the United States [WOTUS]), in accordance with Section 401/404 of the CWA. Potentially jurisdictional WOTUS, including Traditional Navigable Waters (TNW), their tributaries, and non-isolated wetlands, which are regulated under the jurisdiction of the State of Ohio and the U.S. Army Corps of Engineers (USACE) in accordance with Sections 401/404 of the CWA, were identified. In addition, isolated waterbodies and wetlands that do not have a significant nexus to TNW, which are considered waters of Ohio (as defined under Ohio Administrative Code [OAC] Rule 3745-1-02 (b)(77)¹) and are regulated by the Ohio Environmental Protection Agency (OEPA)'s Isolated Wetlands Permitting Program, were also identified. Cardno's wetland delineation efforts surveyed approximately 1,440 acres.

Based on the field survey, thirty-eight wetlands and one pond were identified. 6.80 acres of wetlands were identified. Based on the preliminary Facility layout provided by Ross County Solar, less than 0.03 acres of wetland will be impacted during construction, and less than 0.01 acres of wetland will be permanently impacted during operation.

Sixty waterbodies (streams, ponds, and ditches) were delineated within the Project Area, totaling 47,863 linear feet (lf) of waterway. The waterbodies observed were mostly National Hydrography Dataset (NHD) stream features (i.e., unnamed tributaries of Scioto River). Impacts to these features are associated with a proposed maintenance crossing of less than .021 acres, and underground collection line crossing. Due to the modification and disturbance present in the surrounding land cover, and lack of flowing water, the waterbodies identified in the Project Area are unlikely to support significant aquatic communities.

¹ OEPA 2017.

1 Introduction

Ross County Solar, LLC (Ross County Solar), is proposing to construct an up to 120-megawatt (MW) photovoltaic (PV) solar project (Project) in Ross County, Ohio. The Project is located within an area of approximately 1,440 acres of private lands (Project Area). Figures 1.1 and 1.2 show an overview of the proposed Project Area.

In coordination with Ross County Solar, Cardno prepared this ecological assessment for the Project. Cardno reviewed environmental features and conducted a habitat assessment within the 1,440-acre Project Area in addition to a ¼ mile visual habitat assessment surrounding the Project Area. Cardno also conducted a wetland delineation field survey to identify wetlands and waterbodies in accordance with Sections 401/404 of the Clean Water Act (CWA). Cardno's field efforts focused on accessible parcels across a broad area of leased parcels and easements (Project Area).

This ecological assessment included a desktop review of the Project Area plus a ¼-mile buffer for:

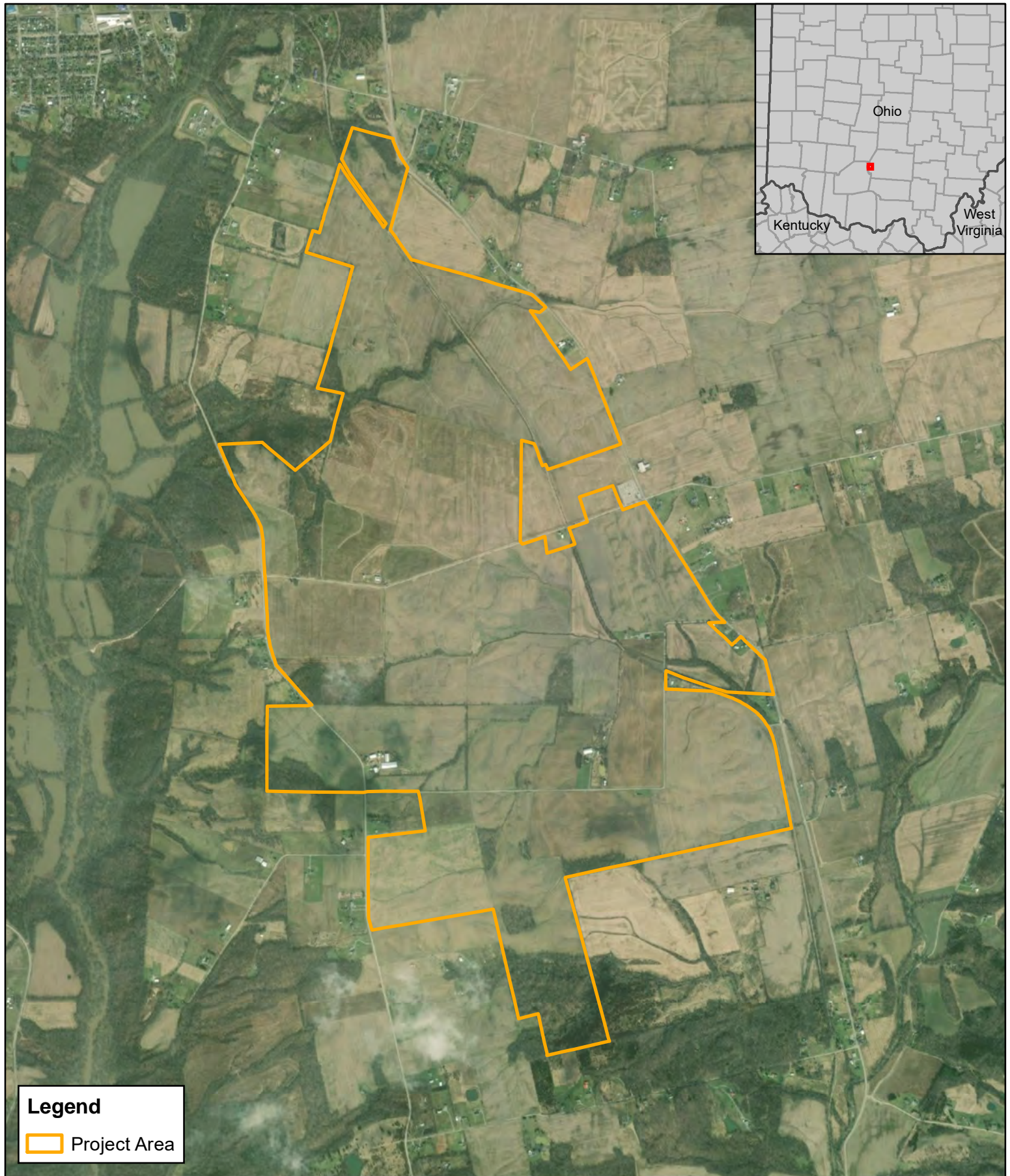
- > Land Cover – categories to classify the predominant land cover (e.g., agriculture, recreational, water), including vegetative communities;
- > Bedrock Geology – underlying formation and morphology;
- > Glacial Drift – thickness of sediment material over bedrock formations;
- > Wetlands – areas with hydric soils that support hydrology and hydrophytic vegetation;
- > Water Quality/Floodplain – Ohio stream classifications and designations;
- > Habitat characterization; and
- > Major species, including Federal and State-listed threatened and endangered species.

Field studies were conducted for the Project Area during spring of 2020, and included:

- > Wetland and surface water delineations; and
- > Habitat observations and sensitive species assessment in the Project Area and visually within ¼ mile of the Project Area.

Appendix A includes the following Project Area Figures:

- > Land Cover Map Overview
- > Bedrock Geology
- > Glacial Drift
- > Regional Wildlife Areas
- > Field-Delineated Surface Waters
- > Watersheds
- > 401 Water Quality Certification Map



Legend

 Project Area

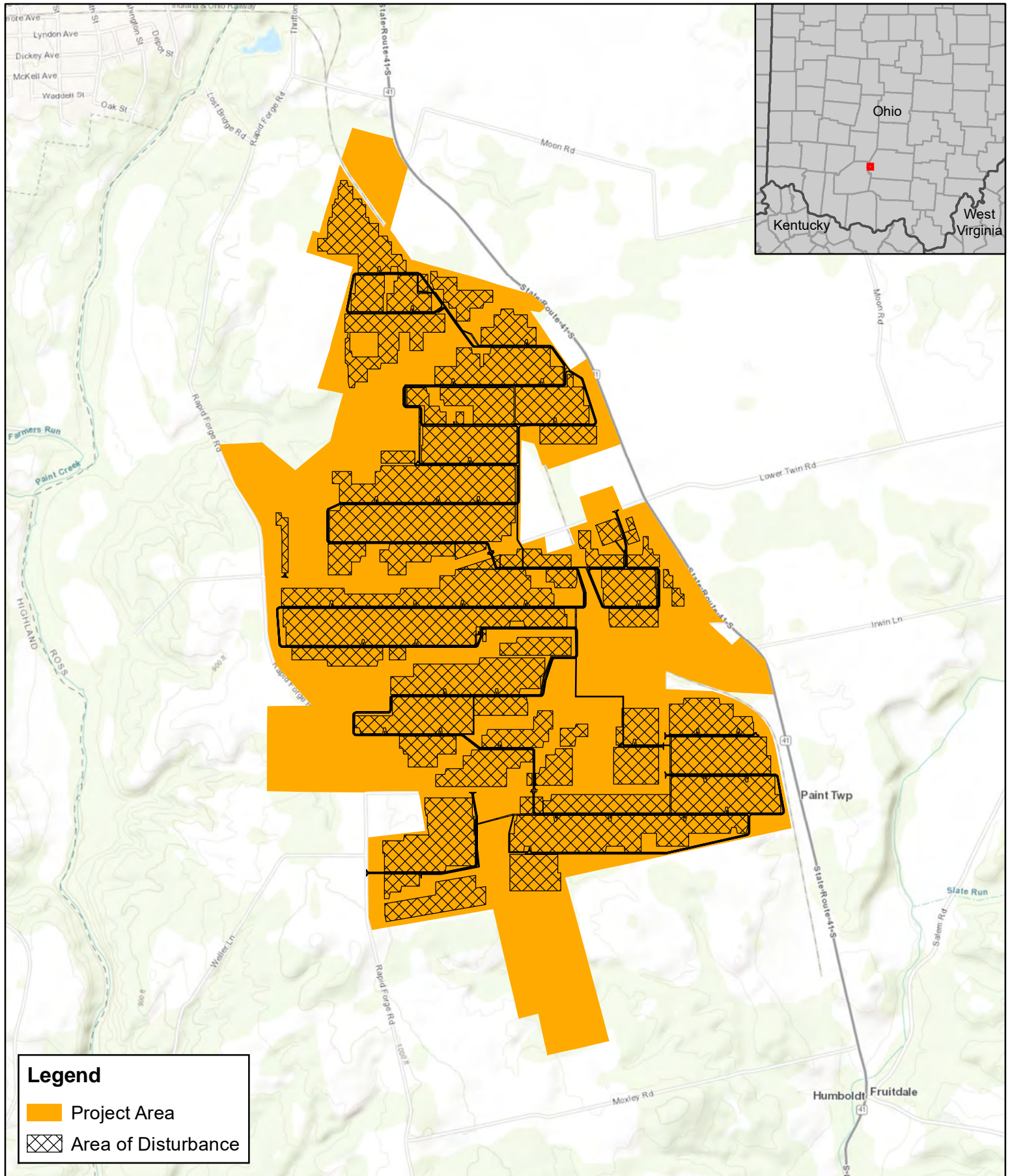
Figure 1.1 - Aerial Overview
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1.1 Project Description

Assumptions for the ecological assessment are as follows. These assumptions are based on the preliminary Facility layout developed by Ross County Solar. These components are further described in Ross County Solar's application for a Certificate of Environmental Compatibility and Public Need (Certificate Application), and the preliminary Facility layout is provided as attachment A of the Certificate Application.

1.1.1 Site Preparation

The primary steps for Project construction include the following: (1) installation of storm-water, erosion control, and vegetation protection measures, (2) securing the perimeter of the construction area, (3) vegetation clearing, (4) minor earthwork and grading as necessary, (5) construction of access roads, and (6) installation of equipment such as pilings, racking, panels, inverters, weather stations, the substation, and fencing to secure the site. For a full list of facility components installed on the site, and anticipated impacts associated with those components, refer to Section 1.1.2 below.

For additional details regarding site preparation, refer to sections 4906-4-03 and 4906-4-07, and 4906-4-08 of the Certificate Application.

1.1.2 Solar Project Infrastructure

The Project will contain the following components. Standard overland construction techniques are anticipated for the installation of these components. For a more thorough description of these Project components, refer to section 4906-4-03 of the Certificate Application.

> Solar Panels:

- Up to 365,000 solar PV modules will be utilized.
- PV panel modules will be approximately 6.5 feet wide by 3.5 feet long. The panels will be secured on a single-axis tracker racking system, with up to two modules stacked end-to-end, centered on the horizontal crossbar of the tracker, for a total width of approximately 13 feet.
- Piles to support panels and racking will permanently impact less than 1 sf. each and are anticipated to be driven 8 to 15 feet below ground surface. Approximately 60,300 piles are anticipated.
- Temporary impacts from construction of solar panels are anticipated to be 662.42 acres, permanent impacts are anticipated to be 1.38 acres.

> Inverters:

- Inverter pads are anticipated to be placed on 2800 sf. permanent gravel pads (up to 37 inverter pads total). The inverter, measuring approximately 40 ft by 11 ft will be placed on top of the gravel pad on a skid or foundation posts.
- Impacts associated with weather stations are anticipated to be contained within the inverter pads
- Temporary impacts from the inverter construction is included with the overall temporary impacts from panel construction, above. Permanent impacts are anticipated to be 2.38 acres.

> Substation:

- The substation will consist of an approximately 2.81 acre substation gravel footprint- subject to ongoing discussions with AEP.
- The substation will be enclosed by security fencing and access gates

> Underground or Hybrid Collection Lines:

- Underground or hybrid collection lines will consist of approximately 9.28 linear miles of buried cable. Installation will require an up-to 15-foot wide temporary work area.
- Cables will be buried at least 36 inches below grade (outside fence lines)
- Temporary impacts from underground or hybrid collection lines are anticipated to be 11.69 acres. No permanent impacts are anticipated.
- A gen-tie line will extend approximately 475 feet from the Project substation to the existing Buckskin substation.
- > Access Roads:
 - Up to 12.40 miles of access roads
 - Access roads will have a temporary impact width of up to 25 feet during construction (13.365 acres). Permanent impacts from access roads will consist of a maintained 16 feet wide access roads post-construction (25.00 acres)
- > O&M Building:
 - 100 ft by 50 ft (up to 5,000ft²) O&M building permanent footprint.
 - Adjacent parking and staging, to-be-determined and subject to additional design steps to be located in adjacent upland area. Anticipated to be approximately 40,000 ft²
 - Temporary impacts associated with installation of the O&M building are anticipated to be approximately 0.26 acre. Permanent impacts associated with the O&M building and parking are anticipated to be approximately 1.28 acre.
- > Laydown Areas:
 - Laydown yards will temporarily impact approximately 6.25 acres. No permanent impacts from laydown yards are anticipated.
- > Fence
 - The total fenced area contains 924.97 acres and approximately 20.5 miles of fence line.

Total temporary impacts from the Project are anticipated to be 693.95 acres. The piles, access roads, substation and inverter pads will permanently convert approximately 30.61 acres of land from current land cover within the 924.97 acre fenced area. These permanent impacts may be converted to pre-construction uses following decommissioning.

1.1.3 Operations and Maintenance

Operations and maintenance activities for the Project are identified in further detail in sections 4906-4-03, 4906-4-07, and 4906-4-08 of the Certificate Application.

2 Regulatory Overview

The Ross County Solar Energy Project is seeking a Certificate Application from the Ohio Power Siting Board (OPSB). The OPSB certificate process includes a rigorous review from agencies including the OPSB, Ohio State Historic Preservation Office (OSHP), U.S. Fish and Wildlife Service (FWS), and Ohio Department of Natural Resources (ODNR), among other agencies. Additional information regarding FWS and OSHP coordination is provided in Section 3.

Table 2-1 provides further detail of the primary agencies and their regulatory authorities that may apply to the proposed Project.

Table 2-1 Potential Permit Requirements for the Project

Lead Agency/ Address	Agency Permit/Approval	Key Permit/Approval Thresholds
Federal Approvals		
U.S. Army Corps of Engineers (USACE) Huntington District	Clean Water Act (CWA) Section 404	Discharge of dredged and fill materials into waters of the United States (WOTUS), including wetlands with a significant nexus to navigable waterways. Section 10 of the Rivers and Harbors Act (which applies to dredge and fill activities in navigable waters) is not applicable, as there are no navigable waterways in the Project Area.
U.S. Fish and Wildlife Service (FWS) Ohio Field Office	50 Code of Federal Regulations (CFR) 402; Section 7(a)(2) Clearance; Threatened and Endangered Species	The Endangered Species Act of 1973 (ESA) under Section 7(a)(2) directs all Federal agencies to ensure that any action they authorize, fund, or carry-out does not jeopardize the continued existence of an endangered or threatened species or designated or proposed critical habitat (collectively referred to as protected resources).
State Approvals		
Ohio Power Siting Board (OPSB)	Certificate of Environmental Compatibility and Public Need <i>(OAC Chapter 4906-4)</i>	The OPSB has the authority to approve solar electric generation facilities that will generate 50 or more MW.
Ohio Department of Natural Resources (ODNR)	State Rare, Threatened and Endangered Species. Ohio Code 1531.25	The chief of the division of wildlife, with the approval of the wildlife council, shall adopt and may modify and repeal rules, in accordance with Chapter 119 of the Revised Code, restricting the taking or possession of native wildlife, or any eggs or offspring thereof, that he or she finds to be threatened with statewide extinction.
Ohio Historic Preservation Office (OSHP) Ohio Historical Society	Section 106 compliance (36 CFR 800.11) Ohio Revised Code (ORC) Sections 149:51 through 149:54	Section 106 of the National Historic Preservation Act (NHPA) applies to certain projects that involve construction, demolition, or earthmoving activities, as mandated by Section 106 of the NHPA and 36 CFR 800.
Ohio Environmental Protection Agency (OEPA)	CWA Section 401 Water Quality Certification <i>(ORC Chapter 6111)</i>	Discharge of dredge and fill materials into WOTUS, including wetlands with a significant nexus to navigable waterways.

Table 2-1 Potential Permit Requirements for the Project

Lead Agency/ Address	Agency Permit/Approval	Key Permit/Approval Thresholds
Ohio Environmental Protection Agency	Isolated Wetlands Permit (ORC Chapter 6111.02-.029)	Construction activities that disturb isolated wetlands.
Ohio Environmental Protection Agency Division of Surface Water	National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP) OEPA Permit No.: OHC000005	The NPDES CGP renewal authorizes NPDES permit coverage for those construction activities involving one or more acres of land disturbance.

2.1 Federal

In accordance with Section 404 of the CWA, the Project is located within the jurisdiction of the United States Army Corps of Engineers (USACE) Huntington District in Ross County, Ohio. The USACE holds jurisdiction over “Waters of the U.S.” (WOTUS) within the Project Area. A USACE permit may be needed dependent on final Project layout. For additional details on wetland and waterbody impacts, refer to section 7. The preliminary Project layout is below the threshold requiring a Pre-Construction Notification (PCN), and the project meets the state of Ohio regional conditions. Self-certification is anticipated under Nation Wide Permit #12 (NWP 12), or another applicable NWP. Refer to section 2.3.1 for additional details.

The FWS requires the protection of species that are listed as threatened or endangered under the Endangered Species Act (ESA). Projects that have the potential to result in “take” of individuals or impact Designated Critical Habitat for these species, require permit authorization from the FWS. In addition, the Bald and Golden Eagle Protection Act (BGEPA or Eagle Protection Act) and Migratory Bird Treaty Act (MBTA) establish provisions for the protection of eagles and migratory birds that are not necessarily threatened or endangered. The FWS will typically review project information and provide technical assistance in an effort to avoid or minimize risk of any potential take of a species.

2.2 Section 404 / Clean Water Act

Surface waters are regulated under the CWA, under jurisdiction of either the state or federal government. Cardno identified potentially jurisdictional WOTUS, including Traditionally Navigable Waters (TNW), their tributaries, and non-isolated wetlands, which are regulated under the jurisdiction of the State of Ohio and the USACE in accordance with Section 401/404 of the CWA. Cardno also identified isolated wetlands that do not have a significant nexus to a TNW, which are considered waters of Ohio (as defined under Ohio Administrative Code [OAC] Rule 3745-1-02(b)(77)²) and are regulated by the Ohio Environmental Protection Agency (OEPA’s) Isolated Wetlands Permitting Program. It is anticipated that minor wetland impacts to waters of Ohio will occur based on the preliminary Facility layout. It is anticipated that the self-certification process can be followed for the minor impacts that are anticipated. For additional details on wetland impacts, refer to section 7.

2.3 Section 401 / Clean Water Act / Water Quality Certification

In Ohio, the Section 401 Water Quality Certification (WQC), and Isolated Wetland Permitting Section of the OEPA reviews applications for projects that propose the placement of fill or dredged material into

² OEPA 2017

WOTUS, as well as isolated waterbodies and wetlands that do not have a significant nexus to TNW, which are considered waters of Ohio (as defined under OAC Rule 3745-1-02 (b)(77)³).

On March 17, 2017, OEPA finalized the *401 WQC and Response to Comments for the 2017 Nationwide Permits* published by the USACE. Based on those 2017 Nationwide Permit (NWP) requirements, projects seeking a NWP (including #12), may review the OEPA's Stream Eligibility Map⁴ to help determine if an individual WQC is required or not. This map identifies areas where projects are 'Eligible', 'Ineligible', or 'Possibly Eligible' to use a NWP for 401 coverage. Based on the preliminary Facility layout, it is not anticipated that an individual WQC is required for the Project.

2.3.1 2017 Nationwide Permit 12 Ohio 401 Certification Special Limitations and Conditions

It is anticipated that the Project cannot fully avoid WOTUS. The Project may use USACE NWP 12, or another applicable NWP, to authorize impacts from certain access roads and collection lines. Under NWP 12 the individual crossings would be single and complete, provided the activity does not result in the loss of greater than ½-acre of WOTUS. The following lists the 2017 NWP 12 Ohio Special Limitations and Conditions:

1. Ohio state certification general limitations and conditions apply to this NWP.
2. Except for maintenance activities authorized under this NWP, individual 401 WQC is required for use of this NWP when temporary or permanent impacts are proposed on or in any of the following waters:
 - a. Category 1 or 2 wetlands when impacts exceed 0.50 acre;
 - b. Streams located in '*Ineligible*' areas determined through the NWP Stream Eligibility guidance
 - c. Streams located in '*Possibly Eligible*' areas determined to be high quality through one of the NWP eligibility flowcharts;
 - d. State wild and scenic rivers;
 - e. National wild and scenic rivers; and
 - f. General high quality water bodies, which harbor Federal and State-listed threatened or endangered aquatic species.
3. Temporary or permanent impacts to Category 3 wetlands are limited to less than 0.10 acre for activities involving the repair, maintenance, replacement, or safety upgrades to existing infrastructure that meets the definition of public need. OEPA will make the determination if a project meets public need during the ODNR Ohio's Rapid Assessment Methodology (ORAM) verification process.
4. Temporary or permanent impacts, as a result of stream crossings, shall not exceed a total of three per stream mile per stream.
5. For an individual stream, while the repair or replacement of an existing culvert of any length is not limited by this certification, any culvert extension shall not exceed 300 linear feet (lf).
6. All hydric soils up to 12 inches in depth within wetlands shall be stockpiled and replaced as the topmost backfill layer. BMPs, such as silt fencing and soil stabilization, shall be implemented to reduce erosion and sediment runoff into adjacent wetlands.
7. Buried utility lines shall be installed at a 90-degree angle to the stream bank to the maximum extent practicable. When a 90-degree angle is not possible, the length of any buried utility line

³ [OAC 3745-1-02](#)

⁴ <https://oeпа.maps.arcgis.com/apps/webappviewer/index.html?id=e6b46d29a38f46229c1eb47deefe49b6>

within any single water body shall not exceed twice the width of that water body at the location of the crossing.

8. The total width of any excavation, grading or mechanized clearing of vegetation and soil shall not exceed a maximum of 50 feet.

As noted above, a USACE permit may be needed to accommodate the access road and collection line crossing of a jurisdictional feature. Current design is below the threshold requiring a PCN, and the project meets the regional conditions therefore it is anticipated that, if necessary, the Project may self-certify under NWP 12. Ross County Solar will assess NWP 12 and other applicable NWPs to ensure compliance for construction of the Project.

The Project will require a National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP) based on the assessment that one or more acres of land disturbance will occur. A storm water pollution prevention plan (SWPPP) will also be prepared for the Project that will use sound engineering and/or conservation practices and implementation of standard SESC and storm water management practices addressing all phases of construction.

2.4 Jurisdictional Determination

Cardno made a recommendation on the potential jurisdictional status of each identified surface water feature based on USACE/U.S. Environmental Protection Agency (USEPA) guidance material. Guidance used for these determinations includes documentation from the USEPA "Current Implementation of Waters of the United States"⁵, which refers to the original 1986/1988 promulgation and subsequent Supreme Court cases which further defined the term. The guidance document developed after the rulings from USEPA and USACE identified several key points regarding jurisdiction and when it would be exercised.

Critical to the guidance was the definition of a *significant nexus*, which would be determined by assessing the flow characteristics of a tributary and functions performed by any adjacent wetlands. The function of a wetland or waterbody was the potential ability to alter the chemical, physical, or biological integrity of a down-stream TNW.

The Code of Federal Regulations (40 CFR 230.3), defines WOTUS as:

1. 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;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
 - a. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - c. Which are used or could be used for industrial purposes by industries in interstate commerce;
4. All impoundments of waters otherwise defined as WOTUS under this definition;
5. Tributaries of waters identified in paragraph (o)(3)(iii) of this section;

⁵ 40 CFR 230.3

6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not WOTUS.

Final verification of WOTUS boundaries for regulatory purposes will be completed through a Jurisdictional Determination (JD) review by the USACE or its duly appointed representative. This determination will be utilized to inform the necessary state and federal permitting associated with wetlands and waterbodies.

3 Agency Consultation

3.1 U.S. Fish and Wildlife Service

Ross County Solar submitted an Environmental Review request to the FWS on July 13, 2020. The FWS responded on August 10, 2020. See Appendix B for the response letter from the FWS. The FWS stated that there are no federal wildlife areas, wildlife refuges or critical species habitats located in the Project. FWS also mentions that throughout the entirety of Ohio, there is potential for the presence of the federally endangered Indiana Bat (*Myotis sodalis*) and the federally threatened Northern Long-eared Bat (*Myotis septentrionalis*). They recommend minimizing water quality impacts and tree clearing, and state that unavoidable tree clearing should occur between October 1 and March 31 to avoid impacts to these species.

Due to the project type, size and location, USFWS does not expect that additional surveys will be necessary. No other adverse effects to federally endangered, threatened, or sensitive species are anticipated by FWS. Ross County Solar is committed to minimizing the tree clearing where practicable, and adhering to seasonal restrictions on tree clearing to protect sensitive bat species or as conditions specify.

A desktop review of the FWS Information for Planning and Conservation (IPaC) database is discussed in Section 4.4.3.

3.2 Ohio Department of Natural Resources

Ross County Solar submitted an Environmental Review request to the ODNR on July 13, 2020 and ODNR provided a response dated August 26, 2020. See Appendix B for the response letter from the ODNR. ODNR's response was based on an inter-disciplinary review, including input from the Ohio Natural Heritage Database (ONHD), Division of Fish and Wildlife (DOW), and the Division of Water Resources.

ONHD records provided the following records at or within a 1-mile radius of the Project Area: Fen indian-plantain (*Arnoglossum plantagineum*), Yellow sedge (*Carex flava*), and Pale umbrella-sedge (*Cyperus acuminatus*), three state potentially threatened species, Western creek chubsucker (*Erimyzon claviformis*) and Least darter (*Etheostoma microperca*), two state species of concern, and Tippecanoe darter (*Etheostoma tippecanoe*), a state threatened species.

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

The DOW along with the Ohio Pollinator Habitat Initiative also recommend the areas between and around the solar panels be planted with legumes and wildflowers that are beneficial to pollinators and other wildlife in the area. They provided a list of these suggested plants (included in Appendix B, Agency Correspondence) and noted that they are all low growing, will not cast shadows on the panels and only require minimal maintenance. In areas where vegetation does not need to be low growing, they suggest a more diverse array of flowering plants and perennial vegetation to promote foraging habitat to songbirds. Some of these plants have been adopted by Ross County Solar and incorporated in the Vegetation Management Plan for the Project (Exhibit D of Certificate Application).

The DOW also commented that the Project is within range of the Indiana bat (*Myotis sodalis*). The DOW recommends that if suitable habitat is located in the Project Area, that Indiana bat roosting 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 tree removal is to occur during the summer months, the DOW recommends mist net surveys be conducted prior to cutting. The Project will adhere to the tree clearing dates recommended and will limit tree clearing per the Tree and Shrub Clearing Plan provided with the Certificate Application.

The Project is within the range of the following mussel species:

- The snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel,
- The sheepnose (*Plethobasus cyphus*), a state endangered and federally endangered mussel,
- The clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel,
- The fanshell (*Cyprogenia stegaria*), a state endangered and federally endangered mussel,
- The northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel,
- The rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel,
- The rabbitsfoot (*Quadrula cylindrica cylindrica*), a state endangered and federally threatened mussel,
- The long-solid (*Fusconaia maculata maculata*), a state endangered mussel,
- The sharp-ridged pocketbook (*Lampsilis ovata*), a state endangered mussel,
- The little spectaclecase (*Villosa lienosa*), a state endangered mussel,
- The black sandshell (*Ligumia recta*), a state threatened mussel,
- The fawnsfoot (*Truncilla donaciformis*), a state threatened mussel,
- The threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel.

Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size for mussel species, the DOW states that this project is not likely to impact these species.

The Project is within the range of the following fish species:

- The goldeye (*Hiodon alosoides*), a state endangered fish,
- The shortnose gar (*Lepisosteus platostomus*), a state endangered fish,
- The northern brook lamprey (*Ichthyomyzon fossor*), a state endangered fish,
- The northern madtom (*Noturus stigmosus*), a state endangered fish,
- The shovelnose sturgeon (*Scaphirhynchus platyrhynchus*), a state endangered fish,
- The spotted darter (*Etheostoma maculatum*), a state endangered fish and a federal species of concern,
- The American eel (*Anguilla rostrata*), a state threatened fish,
- The blue sucker (*Cycleptus elongatus*), a state threatened fish,
- The channel darter (*Percina copelandi*), a state threatened fish,
- The Tippecanoe darter (*Etheostoma Tippecanoe*), a state threatened fish,
- The paddlefish (*Polyodon spathula*), a state threatened fish,
- The river darter (*Percina shumardi*), a state threatened fish,
- The Tippecanoe darter (*Etheostoma Tippecanoe*), a state threatened fish,

The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, the DOW states that this project is not likely to impact these or other aquatic species. There is no in-water work proposed in perennial streams of sufficient size for mussel species for the Project.

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

The Project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species, utilizing dry slopes and rocky outcrops. In addition to using wooded areas, the timber rattlesnake utilizes sunlit gaps in

the canopy for basking and deep rock crevices for overwintering. Due to the location, and the lack of habitat within the Project Area, the DOW states that this project is not likely to impact this species.

The Project is within the range of the spotted turtle (*Clemmys guttata*), a state threatened species. This species prefers fens, bogs and marshes, but also is known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches. Due to the location, and the lack of habitat within the Project Area, the DOW states that this project is not likely to impact this species.

The Project is within the range of the midland mud salamander (*Pseudotriton montanus*), a state threatened species. Due to the location, and the habitat within the Project Area, the DOW states that this project is not likely to impact this species.

The Project is within the range of the northern harrier (*Circus hudsonis*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to impacted, this project is not likely to impact this species.

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). Due to the lack of this habitat, this project is not likely to impact this species.

The Division of Water Resources recommended contacting the local floodplain administrator concerning the possible need for any floodplain permits or approvals for this Project. As the Project does not impact floodplains, no permits or approvals relating to flooding are anticipated.

3.3 Ohio State Historic Preservation Office

Ross County Solar is coordinating with OSHPO on the Project; additional information is provided in separate documentation.

4 Desktop Ecological Assessment

Cardno performed a desktop habitat survey using GIS to screen for and classify potential environmental resources. Reference material includes, but is not limited to, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey for Ross County, historic aerial photographs or farmed wetland maps from the USDA Farm Service Agency (FSA), National Wetland Inventory (NWI) maps, Ohio Wetland Inventory (OWI) maps, U.S. Geological Survey (USGS) topographic maps, the USGS National Hydrography Dataset (NHD), and recent aerial photographs. If GIS data that did not contain data within the Project Area, or applicable buffer area, the layers were not studied further.

4.1 Land Cover

The land cover types within the Project Area are identified based on data provided by the ODNR using ODNR's GIS land cover database (ODNR 2020a). The land cover categories within the Project Area are classified according to the predominant land cover, as follows:

- > **Agricultural/Open Urban** – areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton. Also includes areas such as pastures, parks, golf courses, lawns, and similar grassy, open areas lacking a presence of trees.
- > **Urban** – areas consisting of open, impervious surfaces such as roads, buildings, parking lots, and similar infrastructure that is not obstructed from view by trees.
- > **Shrub/Scrub** – Young, sparse, woody vegetation. Typically consisting of young tree saplings.
- > **Wooded** – areas dominated by deciduous and coniferous trees.
- > **Non-Forested Wetlands** – wetlands identified using wetland delineation and US Fish and Wildlife Service (USFWS) NWI mapping.
- > **Forested Wetlands** – areas where forest or shrub land vegetation accounts for most of the vegetative cover and the soil or substrate is periodically saturated with or covered with water.

Based on a review of available aerial imagery, the Project Area is dominated by cultivated crop areas, with scattered, isolated wood lots or buffer strips present between agricultural areas. There are no population centers in the Project Area (Figure 1). The village of Greenfield, Ohio (population 4,600) is located about 0.25 mile northwest of the Project Area. South Salem, a small town with a population less than 200, and Lyndon, a smaller unincorporated community, are both within 2 miles of the Project Area.

The ODNR land cover database shows agricultural (cultivated crops) land cover accounted for approximately 90 percent of the total Project Area acreage (Table 1; Figure 2). The second most predominant land cover was wooded areas, accounting for approximately 7 percent of the total Project Area acreage. Shrub/scrub makes up approximately 2 percent of the total Project Area acreage. All other land cover categories accounted for 1 percent or less of the total acreage in the Project Area.

Land Cover of the Project Area is illustrated in Figure A-1 of Appendix A, Project Area Figures.

Table 4-1 Land Cover within the Project Area

Type	Project Area (acres)	Project Area (%)
Agricultural	1,295.79	90%
Wooded	99.19	7%
Shrub/Scrub	32.72	2%
Urban	2.75	<1%
Non-Forested Wetlands	2.78	< 1%
Total	1433.23*	100%

*The total acreage used in these calculations differs slightly from the project area due to minor differences inherent to the level of precision of the National Land Cover Database.

4.1.1 Agricultural Conversion Considerations

As described above, the Project Area primarily exists as active agricultural lands (90%). Upon construction of the proposed Project, most of the Project Area land will be converted to solar panels and will no longer be available for agricultural use.

With respect to converting an agricultural field to solar panels, such a conversion is expected to have a negligible environmental impact. Agriculture fields provide minimal habitat for floral and faunal communities, and are disturbed on a seasonal and/or annual basis by farming activities such as plowing, planting, and harvesting. The Project would no longer be intensely disturbed by tilling and other agricultural activities on a regular basis. A conversion of land cover could create different species mix within the Project Area. The solar panel array area will be planted with native species, some identified as beneficial to pollinators via consultation with the ODNR. Faunal species tolerant of an agricultural field could likely be tolerant of a solar field, as both are managed land. Significant loss of vegetation is not anticipated as the solar fields will consist of low growing vegetation throughout. Generally, ground surface under the solar panels is managed to be create stable, maintained ground cover. This is anticipated to reduce runoff and sedimentation to local waterbodies in comparison to agricultural land cover. Solar fields are also managed to stabilize the surrounding area to reduce soiling of the solar PV panels, which can come from dust, snow, and other particles that can settle on the array.

4.2 Geology

The Project is located within the Central Lowland Till Plains of Ohio, and in particular, the Southern Ohio Loamy Till Plain. The Southern Ohio Loamy Till Plain is composed mostly of loamy, high-lime Wisconsinan-age till, outwash, and loess over Lower Paleozoic-age carbonate rocks and, in the east, shales. Elevations range from 530 to 1,150 feet above sea level, with moderate relief (ODGS 1998).

The Project Area is underlain by the Peebles Dolomite, Lilley and Bisher Formations, Undivided, consisting of dolomite and shale.

Bedrock geology of the Project Area is illustrated in Figure A-7 of Appendix A, Project Area Figures.

4.2.1 Glacial Drift

Glacial drift depths can impact engineering considerations for infrastructure foundations. Areas of shallow soils may create additional foundation installation challenges. Glacial drift depth is defined as the thickness of glacially derived sediments (drift) and post-glacial stream sediments overlying the buried bedrock surface. Generally, the Project Area is located within an area of glacial drift deposits of mostly

100 to 150 feet thick, with a small portion in the middle of the Project Area that is approximately 175 feet thick (ODGS 1998).

4.2.2 Karst Terrain

Karst is a type of landform that develops as a result of limestone, dolomite, or gypsum dissolution. Karst terrain is characterized by the presence of features such as sinkholes, caverns, and caves. Karst landforms host some of Ohio's rare fauna; however, they also can be a significant geologic hazard. Sudden collapse of an underground cavern or opening of a sinkhole can cause surface subsidence that can severely damage or destroy any overlying structure such as a building, bridge, or highway.

The Project Area does not contain any known or suspected karst areas. The northern portion of the Project Area is located mostly on Silurian/Devonian-age carbonate bedrock overlain by more than 20 feet of glacial drift or alluvium. This type of bedrock may contain karst features. The southern portion of the Project Area is located mostly on non-karst geology. An area directly southwest of the Project Area boundary has been identified as a probable karst area (Figure 7). The mapping scale for karst features is not precise enough to provide conclusive data regarding the presence of karst features within the Project Area, and the proximity of known karst features indicates potential presence of those features inside the Project Area. Ross County Solar will use detailed geotechnical analysis to guide siting and design of facilities to avoid high risk karst areas and sinkholes.

4.3 Soils

Project soil information was obtained from the Web Soil Survey (NRCS 2020b). Soils covering greater than 1 percent of the Project Area acreage are outlined in Table 2 below. The dominant soil types are Miamian silt loam, Crosby silt loam, Kokomo silty clay loam, and Celina silt loam. The remaining soil types accounted for 5 percent of the Project Area combined. In general, the soils were considered prime farmland if drained properly, though poor to moderate drainage and permeability limits the use of subsurface drainage features (such as tiles). A discussion of specific soil series is provided below for the soils comprising 95.89% of the Project Area:

The Miamian silt loam series, 39.26 percent of the total Project Area, consists of very deep, well-drained soils that are moderately deep to dense till. These soils formed in as much as 46 centimeters (cm; 18 inches) of loess and the underlying loamy till on till plains and moraines. Slopes range from 0 to 50 percent. Most areas are used to cultivate crops such as corn, soybeans, wheat, oats, and meadow and legume-grass mixture. Some areas are in trees. Native vegetation is deciduous forest.

The Crosby silt loam series, 23.54 percent of the total Project Area, consists of very deep, somewhat poorly drained soils that are moderately deep to dense till. Crosby soils formed in as much as 56 cm (22 inches) of loess or other silty material and in the underlying loamy till. They are on till plains. Slopes range from 0 to 6 percent. These areas are used for general cultivation of crops, including corn, soybeans, small grain, and hay. Native vegetation is deciduous forest.

The Kokomo silty clay loam series, 19.38 percent of the total Project Area, are very deep, very poorly drained soils that formed in loamy materials overlying till. Kokomo soils are found in depressions on till plains. Slopes range from 0 to 2 percent. Kokomo silty clay loam soils are used to grow corn, soybeans, oats, wheat, and hay. Some areas are in permanent pasture or woodland. Native vegetation is deciduous hardwood forest of elm, maple, and ash.

The Celina silt loam series, 13.71 percent of the total Project Area, consist of very deep, moderately well-drained soils that are moderately deep to dense till. They formed in as much as 46 cm (18 inches) of loess and the underlying loamy till of high-lime content. They are found on till plains and moraines. Slopes range from 0 to 12 percent. These areas are largely under cultivation. Principal crops are corn, soybeans, wheat, oats, and meadows of legumes or legume-grass mixtures. Local areas are used for growing

vegetables. A relatively small part is in permanent bluegrass pasture or in woodland. Native vegetation is deciduous forest, principally oaks, maple, elm, hickory, and ash.

Table 4-2 Soils within the Project Area

Type	Map Unit Description	Hydric Rating	Acreage	Project Area (%)
CgB	Celina silt loam, 2 to 6 percent slopes	10	193.19	13.48%
CgB2	Celina silt loam, 2 to 6 percent slopes, eroded	4	3.31	<1%
CvA	Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	5	249.24	17.39%
CvB	Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	5	88.11	6.15%
Gf	Gessie silt loam, frequently flooded	5	0.69	<1%
KeD2	Kendallville-Eldean complex, 12 to 20 percent slopes, eroded	0	3.88	<1%
KeE2	Kendallville-Eldean complex, 20 to 35 percent slopes, eroded	0	3.88	<1%
Kn	Kinn silt loam, occasionally flooded	15	6.48	<1%
Kp	Kokomo silty clay loam, 0 to 2 percent slopes	90	277.69	19.38%
MhB	Miamian silt loam, 2 to 6 percent slopes	5	79.70	5.56%
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded	5	226.46	15.80%
MhC2	Miamian silt loam, 6 to 12 percent slopes, eroded	0	208.96	14.58%
MhD2	Miamian silt loam, 12 to 18 percent slopes, eroded	0	45.56	3.18%
MhE	Miamian silt loam, 20 to 35 percent slopes	0	2.01	<1%
Pc	Patton silty clay loam, sandy substratum	90	10.60	<1%
ThC3	Thriftton clay loam, 6 to 12 percent slopes, severely eroded	0	33.00	2.30%
ThD3	Thriftton clay loam, 12 to 20 percent slopes, severely eroded	0	0.44	<1%
Total			1433.21*	100%

*The total acreage used in these calculations differs slightly from the project area due to minor differences inherent to the level of precision

4.3.1 Highly Erodible Soils / Steep Slopes

Based on a review of the NRCS Web Soil Survey (NRCS 2020b), the Thriftton clay loam soils within the Project Area are classified as highly erodible soils, with slopes ranging from 6 percent to 20 percent. Thriftton soils are the only highly erodible soils in the Project Area. Dominant soils are not considered

highly erodible and have Wind Erodibility Group ratings between 4 and 6 (with 1 being highly erodible and 8 being least erodible).

4.3.2 Hydric Soils

The poor draining qualities of hydric soils combined with local flat or bowl-shaped topography make these areas more likely to contain wetland areas. However, hydric soils alone do not indicate a wetland area, and large portions of areas with hydric soils are not considered wetland. Approximately 45 percent of the Project Area is considered hydric soils (Table 4-2). Hydric soils in the Project Area include: Miamian silt loam, Crosby silt loam, Kokomo silty clay loam, Celina silt loam, Kendallville-Eldean complex, Kinn silt loam, Patton silty clay loam, Gessie silt loam, and Eldean loam.

4.4 Biological/Conservation

Information on the existing wildlife in the Project Area was obtained from a variety of sources, including publicly available data from Federal and State agencies. Wildlife within the Project Area could potentially use the area for foraging, migratory stopover, breeding and/or shelter. Based on the current land cover, species present in the vicinity of the Project Area are primarily associated with agricultural fields, isolated wooded lots, and potential wetland areas. Major species, as defined by OAC Chapter 4906-4, are those species with recreational or commercial value, or are listed as Federal- or State-listed threatened or endangered species. A discussion of potential Rare, Threatened or Endangered (RTE) species is found below in Section 4.3. Common game species⁶ in central Ohio include American woodcock (*Scolopax minor*), chukar (*Alectoris chukar*), gray partridge (*Perdix perdix*), northern bobwhite (*Colinus virginianus*), ring-necked pheasant (*Phasianus colchicus*), ruffed grouse (*Bonasa umbellus*), wild turkey (*Meleagris gallopavo*), mallard (*Anas platyrhynchos*) and other ducks, mourning dove (*Zenaidura macroura*), eastern cottontail rabbit (*Sylvilagus floridanus*), eastern gray (*Sciurus carolinensis*) and fox (*Sciurus niger*) squirrels, and white-tailed deer (*Odocoileus virginianus*). Other than the agricultural crops in the area, no commercially valuable species are anticipated to be present in the Project Area.

4.4.1 Vegetative Community

Vegetative communities within the Project Area were evaluated based on interpretation of aerial photography. Agricultural land is the dominant community type in the Project Area (90 percent), with some isolated woodlots or windrows acting as buffer strips between agricultural fields (7 percent). Successional communities (e.g., old fields and shrubland) do not occur to any large extent. Brief descriptions are provided below for each of the ecological communities in the Project Area.

4.4.1.1 Agricultural Land

Much of the acreage within the Project Area is used for agricultural production. The dominant crops produced on agricultural lands in the Project Area include corn, soybeans, small grains, and hay. During the winter months, fields may be planted in a cover crop, such as winter wheat, to control erosion and restore soil nutrients. The Project Area consists of agricultural fields that are currently active or recently fallowed. Pasture/hay areas consist of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle.

4.4.1.2 Forestland

Two types of forestland were observed within the Project Area: isolated woodlots and wooded buffers between agricultural areas. Isolated woodlots within the Project Area are less than 0.5 mile across and surrounded by tilled agricultural areas. Wooded buffers are scattered throughout the Project Area and consist of narrow forested strips between agricultural fields; these likely served as property boundaries

⁶ http://www.dnr.state.oh.us/Home/wild_resourcehomepage/ResearchandSurveys/WildlifePopulationStatusLandingPage/tabid/19230/Default.aspx

historically. The wooded buffers range in width from a 100-foot-wide strip of forest with a developed understory to 10-foot-wide rows consisting of a single row of trees of similar age.

4.4.1.3 Disturbed/Developed

Disturbed/developed lands appear in low densities throughout the Project Area. These areas are typically residences or farmsteads with lawns or landscaped areas, driveways, and unpaved roads.

4.4.2 Wildlife Resources

Wildlife resources such as, birds, bats, terrestrial, and aquatic organisms have the potential of being impacted during the construction and operation of the Project. Project construction activities such as earthmoving, vehicular movements, and construction equipment are likely to displace wildlife using the habitat for foraging, breeding, and nesting. However, the Project is located within a primarily active agricultural area, likely to have limited use by wildlife species. Discussions on birds, raptors, bald eagles, bats, and any other sensitive or listed species potentially existing in the Project Area are provided below.

4.4.2.1 Birds

The Audubon Society designates Important Bird Areas (IBAs) around the globe as sites that provide essential habitat for one or more species of bird. IBAs include sites for breeding, wintering, and/or migrating birds' passageways. IBAs range from a few acres to thousands of acres in size, but usually they are discrete sites that stand out from the surrounding landscape. There are no recognized IBA's in the vicinity of the Project Area and the surrounding 20-mile radius. The nearest IBA is the Scioto Trail, located approximately 60 miles northwest of the Project Area. This IBA encompasses the 9,390-acre Scioto State Forest, the 250-acre Scioto Trail State Park, and surrounding habitat. This area is characterized by mixed oak woodland habitat, consisting of a mix of ridge habitat and bottomlands along tributaries of the Scioto River. Much of the savannah-like mid-story forest provides important habitat.

Cardno also reviewed eBird (<http://ebird.org>), which provides a real-time online checklist program that aggregates basic bird abundance and distribution data made by recreational and professional bird watchers. The program was launched in 2002 by the Cornell Lab of Ornithology and National Audubon Society. There are three e-bird hotspots within 20 miles of the Project Area (Figure A.4). Paint Creek Lake Wildlife Area is located adjacent to the Project Area to the west and has a total of five hotspots within it: Ross County, Highland County, Cope Road, Centerfield Road, and Burgess Road.

Based on a review of publicly available data, the Project Area and ¼-mile buffer are not known to provide significant habitat for sensitive bird species. Due to this lack of adequate habitat in the immediate Project Area, it is likely many of the individuals would opt for higher quality habitat nearby such as the wildlife areas described above for roosting, foraging, and breeding.

4.4.2.2 Bald Eagles and Raptors

The bald eagle (*Haliaeetus leucocephalus*) is no longer listed as a federal or state-threatened species, however, it is still protected under the BGEPA. This Act was passed in 1940 to prevent the extinction of the bald eagle and was amended in 1962 to include protection of golden eagles. In addition, the MBTA establishes provisions for the protection of migratory birds that are not necessarily threatened or endangered.

No public records were identified with known bald eagle or sensitive raptor nests in the Project Area or ¼-mile buffer.

4.4.2.3 Bats

Cardno conducted a desktop evaluation for potential available bat habitat and reviewed habitat-based variables including the amount of suitable foraging and roosting habitat, number of natural areas, number of perennial streams, and number of human developments. Although there are several wooded areas

within the Project Area most are narrow buffer areas between crop fields (e.g., woodlots, windrows). This type of forest is unlikely to provide permanent, suitable habitat for sensitive bat species, such as Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*). Individuals will likely opt for higher quality wooded areas outside of the Project Area, such as the IBAs and hotspots discussed above.

There is also no publicly available record of known hibernacula in the Project Area or ¼-mile buffer.

4.4.3 Rare, Threatened and Endangered Species

Cardno conducted the following activities to determine the federal and state listed species of interest that could occur within the Project Area including utilization of the FWS IPaC, and reviewing the ODNR DOW's correspondence. Table 4-3 provides the federally and state listed species with the potential to occur within Project Area, and the likelihood of occurring within the Project Area. A complete listing of protected species, including those of special concern described by FWS and ODNR is provided as Appendix C (RTE Species Information).

Table 4-3 Federally and State Listed Species with the Potential to Occur in the Project Area.

Common Name	Scientific Name	Listing Status		Habitat	Critical Habitat in Project Area	Occurrence in Project Area
		Federal	State			
Birds						
Henslow's Sparrow	<i>Ammodramus henslowii</i>	BCC	SC	Habitat includes weedy hayfields or pastures, wet meadows, and in winter, salt marshes	No	Potential to occur during breeding season in July
Northern Harrier	<i>Circus hudsonis</i>	--	SE	Habitat includes large marshes and grasslands	No	Not likely to occur as habitat is not available in the Project Area
Upland Sandpiper	<i>Bartarmia longicauda</i>	--	SE	Habitat includes native grasslands, seeded grasslands, grazed, and ungrazed, pasture, hayfields, and grasslands established through the Conservation Reserve Program	No	Not likely to occur as habitat is not available in the Project Area
Wood Thrush	<i>Hylocichla mustelina</i>	BCC	--	Habitat includes deciduous and mixed forest with large trees, shade and abundant leaf litter for foraging	No	Not likely to occur as habitat is not available in the Project Area
Fish						
American Eel	<i>Anguilla rostrate</i>	--	ST	Habitat includes streams, rivers, and muddy or silt-bottomed lakes during their freshwater stage	No	Not likely to occur as habitat is not available in the Project Area
Blue Sucker	<i>Cycleptus elongatus</i>	--	SE	Habitat consists of main channels of medium to larger rivers over bedrock, sand, and gravel	No	Not likely to occur, as stream reaches are slow, meandering, and do not provide appropriate habitat
Channel Darter	<i>Percina coelandi</i>	--	ST	Habitat consists of lakes and small to medium rivers in riffles over sand, gravel, or rock bottoms	No	In-water work only proposed in streams that do not provide habitat for this species. P
Goldeye	<i>Hiodon alosoides</i>	--	SE	Habitat consists of turbid slow-moving waters of lakes and rivers	No	Not likely to occur as habitat is not available in the Project Area
Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>	--	SE	Habitat consist of clean headwater areas of creeks and small rivers with coarse gravel to rock bottoms	No	Potential to occur in streams within Project Area, but due to location and lack of in-water work proposed in a perennial stream of size, not likely to impact species

Common Name	Scientific Name	Listing Status		Habitat	Critical Habitat in Project Area	Occurrence in Project Area
		Federal	State			
Northern Madtom	<i>Noturus stigmosus</i>	--	SE	Habitat consists of relatively swift currents along with sand, silt, or rocky substrates	No	Not likely to occur, as stream reaches are slow, meandering, and do not provide appropriate habitat
Paddlefish	<i>Polyodon spathula</i>	--	ST	Habitat consists of large, slow flowing, freshwater rivers and their tributaries	No	Not likely to occur as habitat is not available in the Project Area
River Darter	<i>Percina shumardi</i>	--	ST	Habitat consists of deep riffles and chutes of medium to large rivers, in areas of moderate current and coarse gravel substrates	No	Not likely to occur as habitat is not available in the Project Area
Shortnose Gar	<i>Lepisosteus platostomus</i>	--	SE	Habitat includes slow silty or clear water rivers, large lakes, quiet creek pools, and river backwaters	No	Not likely to occur as habitat is not available in the Project Area
Shovelnose Sturgeon	<i>Scaphirhynchus platyrhynchus</i>	--	SE	Habitat includes open channel or main channel areas of large rivers	No	Not likely to occur as habitat is not available in the Project Area
Spotted Darter	<i>Etheostoma maculatum</i>	--	SE	Habitat includes fast-flowing rocky riffles of medium-sized and smaller rivers	No	Not likely to occur, as stream reaches are slow, meandering, and do not provide appropriate habitat
Tippecanoe Darter	<i>Etheostoma Tippecanoe</i>	--	ST	Habitat includes shallow gravel riffles of medium sized rivers	No	Not likely to occur as habitat is not available in the Project Area
Mammals						
Indiana Bat	<i>Myotis sodalis</i>	E	FE	Hibernates in caves and mines; Maternity and foraging habitat includes small stream corridors with well-developed riparian woods; upland forests	No	Not likely to occur, as well developed riparian and upland forests are not present
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	T	FT	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During late spring and summer roosts and forages in upland forests.	No	Not likely to occur, as developed upland forests are not present
Mollusk						
Black Sandshell	<i>Ligumia recta</i>	--	ST	Habitat consists of rivers with strong currents and lakes with firm substrate	No	Not likely to occur as habitat is not available in the Project Area
Clubshell	<i>Pleurobema clava</i>	E	FE	Habitat consists of coarse sand and gravel areas within streams and small rivers		Potential to occur in streams within Project Area, but due to location and lack of in-water

Common Name	Scientific Name	Listing Status		Habitat	Critical Habitat in Project Area	Occurrence in Project Area
		Federal	State			
						work proposed in a perennial stream of size, not likely to impact species
Fanshell	<i>Cyprogenia stegaria</i>	E	FE	Habitat consists of medium to large rivers in sand or gravel	No	Not likely to occur as habitat is not available in the Project Area
Fawnsfoot	<i>Truncilla donaciformis</i>	--	ST	Habitat consists of small to large river and lakes in firm gravel or sand substrates	No	Potential to occur in streams within Project Area, but due to location and lack of in-water work proposed in a perennial stream of size, not likely to impact species
Little Spectaclecase	<i>Villosa lienosa</i>	--	SE	Habitat consists of large rivers where they are sheltered from river current	No	Not likely to occur as habitat is not available in the Project Area
Long-solid	<i>Fusconia maculata</i>	--	SE	Habitat consists of large rivers with a strong current in gravel	No	Not likely to occur as habitat is not available in the Project Area
Northern Riffleshell	<i>Epioblasma torulosa rangiana</i>	E	FE	Habitat consists of a variety of streams in firmly packed sand or gravel	No	Potential to occur in streams within Project Area, but due to location and lack of in-water work proposed in a perennial stream of size, not likely to impact species
Rabbitsfoot	<i>Quadrula cylindrica</i>	T	SE	Habitat consists of rivers found in the central US	No	Potential to occur in streams within Project Area, but due to location and lack of in-water work proposed in a perennial stream of size, not likely to impact species
Rayed Bean	<i>Villosa fabalis</i>	E	FE	Habitat consists of small, headwater creeks and occasionally larger rivers	No	Potential to occur in streams within Project Area, but due to location and lack of in-water work proposed in a perennial stream of size, not likely to impact species
Sharp-ridged Pocketbook	<i>Lampsilis ovata</i>	--	SE	Habitat consists of inland rivers and wetlands	No	Potential to occur in streams within Project Area, but due to location and lack of in-water work proposed in a perennial stream of size, not likely to impact species
Sheepnose	<i>Plethobasus cyphus</i>	E	FE	Habitat consists of larger rivers and streams found in shallow areas with moderate to swift currents flowing over coarse sand and gravel	No	Not likely to occur as habitat is not available in the Project Area
Snuffbox	<i>Epioblasma triquetra</i>	E	FE	Habitat consists of small to medium sized creeks, inhabiting areas with a swift current. They bury deep in sand, gravel, or cobble substrates	No	Potential to occur in streams within Project Area, but due to location and lack of in-water work proposed in a perennial stream of size, not likely to impact species
Threehorn wartyback	<i>Obliquaria reflexa</i>	--	ST	Habitat consists of medium to large water in swift currents		Not likely to occur as habitat is not available in the Project Area
Reptiles/Amphibians						
Eastern Hellbender	<i>Cryptobranchus alleganiensis</i>	--	SE	Nocturnal series amphibian that can be found crawling around the bottoms of clear, silt-free mountain streams	No	Potential to occur in streams within Project Area, but due to location and lack of in-water work proposed in a perennial stream of size, not likely to impact species.

Common Name	Scientific Name	Listing Status		Habitat	Critical Habitat in Project Area	Occurrence in Project Area
		Federal	State			
Midland Mud Salamander	<i>Pseudotriton montanus diastictus</i>	--	ST	It is found in streams, seeps and swamps and underneath logs, rocks and leaves.	No	Unlikely, due to location, and habitat within the Project Area
Spotted Turtle	<i>Clemmys guttata</i>	--	ST	This species prefers fens, bogs, and marshes, but it is also known to inhabit wet prairies, meadows, pond edges, wet woods, and sluggish waters of small streams	No	Unlikely, due to location, and habitat within the Project Area
Timber Rattlesnake	<i>Crotalus horridus horridus</i>	--	SE	This woodland species utilizes dry slopes and rocky outcrops as well as sunlit gaps in canopy and deep rock crevices for winter	No	Unlikely, due to location, and habitat within the Project Area
Plants						
Running Buffalo Clover	<i>Trifolium stoloniferum</i>	E	FE	Habitats include bottomland meadows; disturbed sites that have shade during part of the day.	No	Potential to occur in disturbed agricultural sites that have shade.
<p>(BCC) Birds of Conservation Concern, (F) Federally Endangered, (T) Federally Threatened, (SE) State Endangered, (ST) State Threatened. Endangered: The classification provided to an animal or plant in danger of extinction within the foreseeable future through all or a significant portion of its range. Threatened: Any species which is likely to become an endangered species within the foreseeable future through all or a significant portion of its range.</p>						

4.4.3.1 Federally Listed Species

The Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) are afforded protections under the ESA and have been listed by the FWS as federally endangered and federally threatened, respectively. Neither species of bat is expected to occur within the Project Area, as forested areas used for roosting are minimal, and the Project Area does not contain caves for hibernation.

Running buffalo clover (*Trifolium stoloniferum*) is afforded protection under the ESA and has been as listed by the FWS as federally endangered. Running buffalo clover is a species of perennial plant found in disturbed bottomland meadows that have shade during part of the day. Running buffalo clover is thought to have depended on bison to periodically disturb areas to create habitat and disperse seeds (USFWS 2019). As of August 26, 2019, USFWS proposed for the removal of ESA protections for the species. A preliminary survey of the streams within the Project Area did not result in the identification of running buffalo clover. Survey information for this species is further discussed in Section 6, Pre-Construction Surveys.

4.4.3.2 State Listed Species

In addition to the Federally listed species, state listed endangered animal species that have the possibility of occurring in the Project Area include the rabbitsfoot mussel, long-solid mussel, sharp-ridged pocketbook mussel, little spectaclecase mussel, shovelnose sturgeon, blue sucker, goldeye, spotted darter, shortnose gar, northern brook lamprey, northern madtom, eastern hellbender, and timber rattlesnake. State listed threatened species that have the possibility of occurring in the Project Area include the black sandshell mussel, fawnsfoot mussel, threeshorn wartyback mussel, Tippecanoe darter, channel darter, American eel, river darter, spotted turtle and mud salamander. State listed species are not expected to occur within the Project Area, as preferred habitat is not present.

State listed species of concern with ranges that include the Project Area, include three amphibian species, twelve fish species, two mammal species, thirteen mollusk species, and one reptile species. Correspondence with the ODNR for species that may occur in the Project Area is provided in Appendix B.

An ODNR State Listed Plant species by County is provided in Appendix C. However, the ODNR consultation did not identify any concerns relating to state listed plant species within the Project Area and thus adverse impacts are not anticipated.

Given the majority of the Project Area is located within active agricultural lands, significant populations of these species are unlikely to occur in the Project Area.

The Project will aim to minimize any potential impacts to the habitats that may support significant wildlife by avoiding the majority of woodlots, and all high quality streams. Where possible, micro-siting of the Project infrastructure will further reduce or avoid potential impacts.

4.5 Wetlands/Waters/Floodplains

Prior to field surveys, Cardno conducted a desktop review of the Project Area using publically available GIS data to identify and classify potential environmental resources and create field maps for use during survey. Reference material included, but was not limited to: the National Land Cover Database (NLCD); the U.S. Department of Agriculture (USDA) NRCS Soil Survey for Ross County; historic aerial photographs; FWS NWI maps; U.S. Geologic Service (USGS) topographic maps; the USGS NHD; and the OWI.

4.5.1 Navigable Waters

The Project Area is located within the Farmers Run-Paint Creek watershed in the northern and the western portions, and the Bucksin Creek watershed in the south (NRCS 2020a). Two named waterbodies, Farmers Run-Paint Creek and Bucksin Creek, are located within the Project Area. No traditionally navigable waterways (TNWs) are located within the Project Area (Figure 5).

During field surveys, Cardno performed a Headwater Habitat Evaluation Index (HHEI) or a Qualitative Habitat Evaluation Index (QHEI) assessment for all field-verified streams to record and score a variety of aspects about the waterbody including substrates, pool depths, and ecological value or condition. The QHEI form is used to describe similar aspects of waterbodies, but is focused on larger (often higher quality) waterbodies. While delineating the waterbodies for the Project, Cardno evaluated the features for suitability as habitat for RTE species. A Watershed Map of the Project Area is included in Figure 5 of Appendix A, Project Area Figures.

4.5.2 Water Quality

On March 17, 2017, OEPA finalized the 401 WQC and Response to Comments for the 2017 Nationwide Permits (NWP) published by the U.S. Army Corps of Engineers. Based on those 2017 NWP requirements, projects seeking a NWP, may review the OEPA's Stream Eligibility Map⁷ to help determine if an Individual WQC is required or not. This map identifies areas where projects are 'Eligible', 'Ineligible', or 'Possibly Eligible' to use a NWP for 401 coverage.

Using GIS, the Project Area was overlaid with the Stream Eligibility map (Figure 6) in Appendix A, Project Area Figures):

- d. Eligible Areas: As long as a project meets the Ohio 401 Certification Special Limitation and Conditions, and stream impacts are within the eligible area, then no Individual WQC is needed, and impacts are covered under the 401 WQC for the Nationwide Permits.

No portion of the Project Area falls within the 'eligible' area.

- e. Possibly Eligible Areas: If any stream proposed for impact within a project falls within a Possibly Eligible area, the applicant shall take pH values, when applicable, and perform a QHEI or HHEI assessment for the stream. Using the flow charts provided in the Review of 2017 NWP for Ohio, the applicant shall determine if impacts to that stream are eligible for coverage under the 401 WQC for the Nationwide Permits or if an individual 401 WQC is required.

Southwestern and central portions of the Project Area falls within the area designated as 'Possibly Eligible'; however none of the streams in this area met criteria for an individual 401 WQC.

- f. Ineligible Areas: If any stream proposed for impact within a project falls within this ineligible area, impacts to that stream are not eligible for coverage under the 401 WQC for the NWP, and the applicant shall apply for an individual 401 WQC.

Southeastern and Northwestern portions of the Project Area falls within the 'ineligible' area.

4.5.3 Floodplains

Based on review of the Federal Emergency Management Agency Flood Insurance Maps, no 100-year floodplains are located within the Project Area. The 100-year floodplains are identified on Figure 5 of Appendix A, Project Area Figures.

⁷ <https://oeпа.maps.arcgis.com/apps/webappviewer/index.html?id=e6b46d29a38f46229c1eb47deefe49b6>

5 Other Studies

Ross County Solar also is evaluating the Project with respect to a variety of other subjects. Refer to the Certificate Application for an overview of the various studies completed for the Project.

6 Pre-Construction Surveys

The following is a discussion of the results of field surveys of the Project Area conducted in June 2020 Habitat Assessment.

A habitat assessment was completed for the approximately 1440 acre Project Area. A ¼-mile visual investigation was also conducted around the Project Area for sensitive habitats. The results of the field study were found to be generally consistent with the initial desktop review, as detailed below.

6.1.1 Vegetative Communities

Vegetative communities within the Project Area were evaluated based on desktop interpretation of aerial photography then verified during field surveys. Agricultural land dominated the total acreage of the vegetative community in the Project Area, with small areas of forestland in isolated woodlots or windrows. As identified in Table 4-1, the predominant land cover in the Project Area was agricultural (crops), followed by forestland.

Brief descriptions are provided below for each of the ecological communities in the Project Area. All of the major plant communities found within the area are common to Ohio. Vegetative communities within the Project Area were dominated by agricultural monocultures, including soy beans, corn, small grains and hay. Limited amounts of forestland remain as isolated woodlots and wooded buffers. Appendix D, Wetland and Stream Delineation Report and Forms also includes documentation of the vegetative communities associated with the surface water features that were delineated.

6.1.1.1 *Agricultural Land*

Much of the acreage within the study area is used for agricultural production. The dominant crops produced on agricultural lands in the study area include corn, soybeans, small grains, and hay. During the winter months, fields may be planted in a cover crop, such as winter wheat, to control erosion and restore soil nutrients. The study area consists of agricultural fields that are currently active or recently fallowed. Pasture/hay areas consist of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle.

6.1.1.2 *Forestland*

Two types of forestland were observed within the study area: isolated woodlots and wooded buffers between agricultural areas. Isolated woodlots within the study area are less than 0.5 mile across and surrounded by tilled agricultural areas. Wooded buffers are scattered throughout the study area and consist of narrow forested strips between agricultural fields; these likely served as property boundaries historically. The wooded buffers range in width from a 100-foot-wide strip of forest with a developed understory to 10-foot-wide rows consisting of a single row of trees of similar age.

6.1.1.3 *Developed/Disturbed*

Developed/disturbed lands are found in low densities throughout the Project Area, and are by a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses.

6.2 Surface Water Delineations

6.2.1 Wetland Delineation Criteria and Methods

Cardno conducted surface water delineation surveys in the Project Area during June 2020 to determine the extent and jurisdiction of surface waters within the Project Area. An overview of NWI waters and wetlands is included as Figure 4 of Appendix A, Project Area Figures.

6.2.1.1 *Wetland Delineation Methods*

Wetland delineations were conducted according to the 1987 USACE *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the applicable regional supplements; *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE 2010). Together, these documents are referred to as “The Manual.” The methodology outlined in the Manual requires that three wetland criteria be met in order for a wetland to be determined to be present; that is, the area being evaluated must have a dominance of hydrophytic vegetation, hydric soils, and sufficient hydrology to be identified as a wetland.

Dominant vegetation is assessed for hydrophytic preference. The hydrophytic vegetation criterion is met when more than 50 percent of the dominant plant community is hydrophytic, as determined by species dominance and the assigned species-specific indicator status of the identified species.

The hydric soils criterion is met when the soils identified are officially listed as hydric soils or the soils demonstrate characteristics representative of soils in reducing (hydric) conditions. The latter is determined in the field when the soils fall within the hydric ranges on the Munsell Color Chart, examining soil profiles for other evidence of reducing conditions, and/or observing other indicators of anaerobic activity per the Manual.

The hydrology criterion is met when sufficient hydrologic indicators are present. The indicators must be representative of sufficient saturation or inundation occurring over the growing season sufficient to support a hydrophytic plant-dominated vegetative community. Such indicators may include evidence of standing water, saturated soils, geomorphic position within the landscape, drainage patterns, water-stained leaves, and morphologic adaptation of vegetation.

Appendix D, Wetland and Stream Delineation Report and Forms provides a discussion of the wetland delineation methodologies in greater detail.

6.2.1.2 *Ohio Rapid Assessment Method for Wetland Assessment*

Field delineated wetlands were scored using the OEPA’s ORAM. The ORAM wetland functional assessment was developed to determine the ecological “quality” and level of function of a particular wetland in order to meet requirements under Section 401 of the CWA. Wetlands were scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into sub-categories under ORAM v5.0 resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into “Category 1,” 30 to 59.9 are “Category 2,” and 60 to 100 are “Category 3”. Transitional zones exist between “Categories 1 and 2” from 30 to 34.9 and between “Categories 2 and 3” from 60 to 64.9. However, wetland scores that fall into the transitional range should be assigned to the higher Category unless scientific data has been collected that suggests the wetland should be placed in the lower category. Category 1 are wetlands that are often isolated emergent marshes dominated by cattails with little or no upland buffers located in active agricultural fields. Category 2 are wetlands that do not have RTE species or the habitat for such species. Category 2 wetlands constitute the broad middle category of “good” quality wetlands. A “Modified Category 2” wetland appears to have some signs of degradation but also has the potential to restore some of the lost functionality. Category 3 wetlands are typified by high levels of diversity, a high

proportion of native species, and/or high functional values. Category 3 wetlands include wetlands which contain or provide potential habitat for RTE species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide.

Appendix D, Wetland and Stream Delineation Report and Forms discusses wetland assessment methodologies in greater detail.

6.2.1.3 Wetland Survey Results

Thirty-eight wetlands and one pond were delineated during field surveys, for a total of 6.80 acres of wetland within the Project Area. Fifteen wetlands were classified as palustrine forested wetlands (PFO) and 23 were classified as palustrine emergent (PEM). The majority of the wetlands in the Project Area were classified as Category I (17 wetlands, 44.74%) or Category II (20 wetlands, 52.63%). One wetland was classified as Category III (w009). Wetland w009 is located in the western portion of the Project Area and will be at least 1,000 feet from the closest proposed disturbance.

Final verification of their boundaries for regulatory purposes can only be completed through a JD review by the USACE or its duly appointed representative. Table 6-1 provides a list of the delineated wetlands and associated characteristics. Wetland acreages reported in the summaries below are representative only of the portion of the wetland located within the Project Area.

Additional detail on each feature can be found in Appendix D, Wetland and Stream Delineation Report and Forms.

Table 6-1. Wetlands identified within Ross County Solar Energy Project Area

Feature Name	USGS/	Feature Class	Regulatory	ORAM	Category	Acreage
w001	Yes	PEM	WOTUS	30	Category II	0.83
w002	Yes	PFO	WOTUS	39	Category II	0.07
w003	Yes	PFO	WOTUS	46	Category II	0.45
w004	Yes	PFO	WOTUS	39	Category II	0.09
w005	No	PFO	WOTUS	44	Category II	0.05
w006	No	PFO	Non-WOTUS	35	Category II	0.1
w007	No	PEM	Non-WOTUS	22	Category I	0.31
w008	Yes	PEM	Non-WOTUS	41	Category II	0.05
w009	No	PEM	WOTUS	75	Category III	0.66
w010	No	PFO	WOTUS	56	Category II	0.02
w011	No	PFO	WOTUS	55	Category II	0.03
w101	No	PFO	Non-WOTUS	28	Category I	0.13
w102	No	PEM	Non-WOTUS	22	Category I	0.01
w103	No	PEM	Non-WOTUS	17	Category I	0.01
w104	Yes	PEM	WOTUS	30	Category II	0.06
w105	No	PEM	WOTUS	26	Category I	0
w106	Yes	PEM	WOTUS	26	Category I	0
w107	No	PEM	Non-WOTUS	26	Category I	0.03
w108	No	PEM	Non-WOTUS	20	Category I	0.01
w109	Yes	PFO	WOTUS	43	Category II	0.06

Feature Name	USGS/	Feature Class	Regulatory	ORAM	Category	Acreage
w110	Yes	PFO	WOTUS	43	Category II	0.07
w201	No	PFO	Non-WOTUS	49	Category II	0.06
w202	No	PFO	Non-WOTUS	48	Category II	0.06
w203	No	PEM	Non-WOTUS	11	Category I	0.01
w204	Yes	PEM	Non-WOTUS	37	Category II	0.12
w205	Yes	PEM	Non-WOTUS	36	Category II	0.07
w206	Yes	PEM	Non-WOTUS	36	Category II	0.03
w207	Yes	PFO	Non-WOTUS	21	Category I	0.09
w208	Yes	PEM	WOTUS	18	Category I	0.11
w209	Yes	PEM	WOTUS	29	Category I	0.76
w210	Yes	PEM	WOTUS	37	Category II	0.33
w211	Yes	PEM	WOTUS	30	Category II	0.17
w212	Yes	PEM	Non-WOTUS	26	Category I	1.42
w213	Yes	PFO	WOTUS	23	Category I	0.14
w214	No	PFO	WOTUS	32	Category II	0.02
w215	No	PEM	WOTUS	22	Category I	0.15
w216	No	PEM	WOTUS	23	Category I	0.07
w217	No	PEM	WOTUS	7	Category I	0.13
p001	Yes	PUB	Non-WOTUS	NA	NA	0.33
Total Acreage						6.80

6.2.2 Waterbody

6.2.2.1 *Waterbody Delineation Criteria and Methods*

Linear waterbodies, such as ditches and streams, were surveyed by locating the path (typically the centerline if water depth was shallow, or the top-of-bank if the centerline was not accessible) and documenting widths (both as Ordinary High Water Mark (OHWM) to OHWM and top-of-bank to top-of-bank) at each survey point. Physical flagging was hung along the waterbody features to identify their general course. Observational notes about the characteristics of each waterbody, such as flow regime and substrate, were recorded by the field team to enable the categorization of the types of waterbodies encountered. In order to be identified as a waterbody, each feature must have a defined bed and bank with indications of a channel flow – either perennial, intermittent, or ephemeral. Grassy swales were not identified as waterbodies.

Appendix D, Wetland and Stream Delineation Report and Forms provides a discussion of the wetland delineation methodologies in greater detail. Waterbody Qualitative Assessment Methods

All flowing waterbodies (streams and ditches, but not ponds) delineated in the Project Area were assessed using the HHEI. The HHEI allows for uniform scoring of various waterbodies using a standard methodology that identifies pertinent information about the waterbody including substrates, pool depths, and ecological value or condition. HHEI forms typically are completed for waterbodies with a drainage area of less than one square mile. A summary of the HHEI Scoring is provided in Table 6-2 below.

Table 6-2 Headwater Habitat Evaluation Index (HHEI) Scoring

Final HHEI Score	Definition
<30	Class I PHWH (ephemeral streams, normally dry channel, little to no aquatic life)
30 - 50	Class II PHWH (intermittent flow, summery-dry, warm water streams)
>50	Class II or III PHWH (depending on conditions)
>75	Class III (perennial flow, cool-cold water streams)

Notes:

PHWH – Primary Headwater Habitat Stream

Larger features are evaluated using the QHEI. The QHEI form is used to describe similar aspects of waterbodies, but is focused on larger (often higher quality) waterbodies. Typically, QHEI forms are completed for those perennial features with drainage areas greater than one square mile and pools deeper than 40 centimeters (approximately 15 inches). In cases where a feature scored highly on the HHEI forms but failed to meet either of QHEI criteria, they were still evaluated with the QHEI to better record the conditions present. Table 6-3 provides an overview of the typical score ranges and waterbody classification under QHEI.

Table 6-3 Qualitative Habitat Evaluation Index (QHEI) Scoring

Final HHEI Score	Definition
<32	Limited Resource Water (LRW)
32 - 60	Modified Warm Water Habitat (MWH)
60 - 75	Warm Water Habitat (WWH)
>75	Possible Exceptional Warm Water Habitat (EWH)

6.2.2.2 Waterbody Survey Results

Sixty streams were delineated during field surveys within the Project Area. The waterbody delineation results are summarized in Table 6-4. Using the QHEI scoring, one of the waterbodies was designated as Modified Warm Water Habitat (MWH) and two waterbodies designated as Warm Water Habitat (WWH). Using the HHEI scoring, six waterbodies were designated as Class I Primary Headwater Habitat Stream (PHWH), Forty-seven waterbodies were designated as Class II PHWH due to its score and substrate conditions, and four waterbodies were designated as Class III PHWH.

Ditches were identified as man-made or modified channels, which were manipulated by landowners or communities to improve drainage among farm fields. Modification to channels could include the mowing of bank vegetation, altering of channel morphology, or removal of debris to maintain flow conditions. Many ditches have ephemeral or intermittent flows and heavily vegetated channels. No ditches were identified during the waterbody survey.

Streams were more often considered natural channels that had indications of significant recovery since any historic modification had occurred. All streams were flowing at the time of the survey, with slightly elevated turbidity, which was attributed to runoff from nearby ditches and cultivated areas during recent rains. Streams were more likely to have vegetated riparian buffers along the banks and pools of water, which might support wildlife.

The OEPA HHEI forms were completed for three streams and serve to record and score a variety of aspects about the feature. The HHEI forms score the types and percent composition of substrates, maximum pool depth, and average bank full width. Additional descriptive information is recorded in the forms regarding flow regime, riparian width and quality, morphology, and modification. Stream channel modification is referenced in many of the descriptions below, as either 'naturalized' or 'modified'. Naturalized features are those that have either never been modified or have historic signs of modification but appear to have recovered to a natural state. Modified features are those that appear to have recently been modified (such as through dredging or armoring of the banks) and may have little to no evidence of recovery. Scores are tallied for each feature, and result in a HHEI Category of Class I, II, or III as described in Section 6.2.2.2 above.

While delineating the waterbodies in the Project Area, Cardno evaluated the features for suitability as habitat for RTE species. A waterbody may be able to provide physical habitat, but lack suitable water chemistry due to intensive land cover in the upland areas. Due to the modification and disturbance present in the surrounding area, none of the streams were identified as highly likely to serve as habitat for any RTE species.

Table 6-4 Waterbodies Delineated in the Project Parcels

Stream ID	Type	Linear Feet in Project Area	HHEI Score	QHEI Score	Class Designation	Flow Regime	Drainage Basin	Stream Name	Regulatory Status	Potential RTE Habitat
s001	Stream	1009	64.5	NA	WWH (Class II)	PER	Scioto River	GRAVEL/SAND	WOTUS	Low
s002	Stream	52	NA	66	Class II PHWH	EPH	Scioto River	SAND/SILT	Non-WOTUS	Low
s003	Stream	519	NA	35	Class II PHWH	EPH	Scioto River	SILT/SILT	Non-WOTUS	Low
s004	Stream	1528	NA	71	Class II PHWH	INT	Scioto River	SILT/SAND	WOTUS	Low
s005	Stream	186	NA	51	Class II PHWH	INT	Scioto River	SILT/SAND	WOTUS	Low
s006	Stream	4011	56.5	NA	MWH (Class I)	PER	Scioto River	SILT/SAND	WOTUS	Low
s007	Stream	705	NA	61	Class II PHWH	INT	Scioto River	SILT/SAND	WOTUS	Low
s008	Stream	1896	NA	55	Class II PHWH	INT	Scioto River	SILT/CLAY	WOTUS	Low
s009	Stream	799	NA	45	Class II PHWH	EPH	Scioto River	SILT/CLAY	Non-WOTUS	Low
s010	Stream	248	NA	57	Class II PHWH	INT	Scioto River	SAND/GRAVEL	WOTUS	Low
s011	Stream	492	NA	57	Class II PHWH	INT	Scioto River	GRAVEL/SAND	WOTUS	Low
s012	Stream	66	NA	44	Class II PHWH	EPH	Scioto River	ARTIFICIAL/GRAVEL	Non-WOTUS	Low
s013	Stream	127	NA	44	Class II PHWH	EPH	Scioto River	ARTIFICIAL/GRAVEL	Non-WOTUS	Low
s014	Stream	71	NA	31	Class II PHWH	EPH	Scioto River	SILT/SAND	Non-WOTUS	Low
s015	Stream	638	NA	69	Class II PHWH	INT	Scioto River	SILT/GRAVEL	WOTUS	Low
s016	Stream	85	NA	54	Class II PHWH	EPH	Scioto River	GRAVEL/GRAVEL	Non-WOTUS	Low
s017	Stream	462	NA	64	Class II PHWH	INT	Scioto River	GRAVEL/GRAVEL	WOTUS	Low
s018	Stream	318	NA	51	Class II PHWH	INT	Scioto River	SAND/SILT	WOTUS	Low
s019	Stream	2036	NA	75	Class III PHWH	PER	Scioto River	SAND/COBBLE	WOTUS	Low
s020	Stream	230	NA	63	Class II PHWH	EPH	Scioto River	GRAVEL/COBBLE	Non-WOTUS	Low
s021	Stream	51	NA	25	Class I PHWH	EPH	Scioto River	CLAY/SILT	Non-WOTUS	Low
s022	Stream	189	NA	55	Class II PHWH	INT	Scioto River	CLAY/SILT	WOTUS	Low
s023	Stream	539	NA	45	Class II PHWH	EPH	Scioto River	CLAY/SILT	Non-WOTUS	Low
s024	Stream	70	NA	35	Class II PHWH	EPH	Scioto River	CLAY/SILT	Non-WOTUS	Low
s025	Stream	1655	NA	66	Class II PHWH	PER	Scioto River	SAND/SILT	WOTUS	Low
s026	Stream	532	NA	45	Class II PHWH	EPH	Scioto River	SILT/CLAY	Non-WOTUS	Low
s027	Stream	119	NA	31	Class II PHWH	EPH	Scioto River	SILT/SAND	Non-WOTUS	Low
s028	Stream	220	NA	51	Class II PHWH	EPH	Scioto River	SILT/SAND	Non-WOTUS	Low

Table 6-4 Waterbodies Delineated in the Project Parcels

Stream ID	Type	Linear Feet in Project Area	HHEI Score	QHEI Score	Class Designation	Flow Regime	Drainage Basin	Stream Name	Regulatory Status	Potential RTE Habitat
s029	Stream	666	NA	35	Class II PHWH	EPH	Scioto River	SILT/CLAY	Non-WOTUS	Low
s030	Stream	436	NA	35	Class II PHWH	EPH	Scioto River	SILT/CLAY	Non-WOTUS	Low
s031	Stream	2054	NA	35	Class II PHWH	INT	Scioto River	SILT/SILT	WOTUS	Low
s101	Stream	177	NA	25	Class I PHWH	EPH	Scioto River	CLAY/SILT	Non-WOTUS	Low
s102	Stream	44	NA	51	Class II PHWH	EPH	Scioto River	SILT/SAND	Non-WOTUS	Low
s103	Stream	270	NA	55	Class II PHWH	INT	Scioto River	CLAY/SILT	WOTUS	Low
s104	Stream	1283	NA	45	Class II PHWH	PER	Scioto River	SILT/CLAY	WOTUS	Low
s105	Stream	1454	NA	83	Class III PHWH	PER	Scioto River	COBBLE/GRAVEL	WOTUS	Low
s106	Stream	360	NA	35	Class II PHWH	INT	Scioto River	CLAY/SILT	WOTUS	Low
s107	Stream	460	NA	55	Class II PHWH	INT	Scioto River	CLAY/GRAVEL	WOTUS	Low
s108	Stream	97	NA	25	Class I PHWH	EPH	Scioto River	CLAY/LEAF PACK	Non-WOTUS	Low
s109	Stream	42	NA	25	Class I PHWH	EPH	Scioto River	CLAY/LEAF PACK	Non-WOTUS	Low
s110	Stream	130	NA	25	Class I PHWH	EPH	Scioto River	CLAY/LEAF PACK	Non-WOTUS	Low
s111	Stream	21	NA	34	Class II PHWH	EPH	Scioto River	SILT/GRAVEL	Non-WOTUS	Low
s112	Stream	61	NA	44	Class II PHWH	EPH	Scioto River	SILT/GRAVEL	Non-WOTUS	Low
s113	Stream	58	NA	34	Class II PHWH	EPH	Scioto River	GRAVEL/GRAVEL	Non-WOTUS	Low
s201	Stream	2351	66.5	NA	WWH (Class II)	PER	Scioto River	GRAVEL/SAND	WOTUS	Low
s202	Stream	514	NA	54	Class II PHWH	EPH	Scioto River	GRAVEL/GRAVEL	Non-WOTUS	Low
s203	Stream	339	NA	57	Class II PHWH	EPH	Scioto River	GRAVEL/SAND	Non-WOTUS	Low
s204	Stream	195	NA	28	Class I PHWH	EPH	Scioto River	SILT/BLDR SLABS	Non-WOTUS	Low
s205	Stream	2188	NA	59	Class II PHWH	PER	Scioto River	GRAVEL/SILT	WOTUS	Low
s206	Stream	825	NA	78	Class III PHWH	PER	Scioto River	GRAVEL/COBBLE	WOTUS	Low
s207	Stream	755	NA	57	Class II PHWH	INT	Scioto River	GRAVEL/SAND	WOTUS	Low
s208	Stream	1816	NA	46	Class II PHWH	PER	Scioto River	GRAVEL/GRAVEL	WOTUS	Low
s209	Stream	101	NA	48	Class II PHWH	EPH	Scioto River	SILT/BLDR SLABS	Non-WOTUS	Low
s210	Stream	423	NA	44	Class II PHWH	EPH	Scioto River	SILT/GRAVEL	Non-WOTUS	Low
s211	Stream	1118	NA	77	Class III PHWH	PER	Scioto River	BEDROCK/GRAVEL	WOTUS	Low
s212	Stream	84	NA	54	Class II PHWH	EPH	Scioto River	SILT/GRAVEL	Non-WOTUS	Low

Table 6-4 Waterbodies Delineated in the Project Parcels

Stream ID	Type	Linear Feet in Project Area	HHEI Score	QHEI Score	Class Designation	Flow Regime	Drainage Basin	Stream Name	Regulatory Status	Potential RTE Habitat
s213	Stream	4684	NA	58	Class II PHWH	INT	Scioto River	CLAY/GRAVEL	WOTUS	Low
s214	Stream	1629	NA	41	Class II PHWH	EPH	Scioto River	SILT/SAND	Non-WOTUS	Low
s215	Stream	1073	NA	54	Class II PHWH	INT	Scioto River	GRAVEL/SILT	WOTUS	Low
s216	Stream	3302	NA	45	Class II PHWH	EPH	Scioto River	CLAY/SILT	Non-WOTUS	Low
Total Linear Feet		47863								

Notes:
HHEI – Headwater Habitat Evaluation Index
PHWH – Primary Headwater Habitat Stream
QHEI – Qualitative Habitat Evaluation Index
RTE – rare, threatened or endangered species

QHEI – Scoring

< 32: Limited Resource Water (LRW)
32 to 60: Modified Warmwater Habitat (MWH)
60 to 75: Warmwater Habitat (VWH)
> 75: Possible Exceptional Warmwater Habitat (EWH)

HHEI – Scoring

< 30: Class I PHWH (typically ephemeral streams)
30 to 50 Class II PHWH (intermittent warm water streams)
> 50: Class II or III PHWH (depending on conditions)
> 75: Class III PHWH (perennial cool water streams)

Notes:

- PHWH – Primary Headwater Habitat Stream
- NA – Not Applicable
- WOTUS – Waters of The United States
- WWH – Warm Water Habitat
- EWH – Exceptional Warm Water Habitat
- MWH – Modified Warm Water Habitat
- SSH – Seasonal Salmonid Habitat
- SRW - State Resource Water
- CWH – Cold Water Habitat
- LRW – Limited Resource Water

No water quality samples were taken during Cardno's field surveys, though field observations indicate several significant stressors present in and around many of the streams. Streams located between agricultural fields lack any significant sources of shade since the stream banks are regularly mowed. The lack of cover will lead to higher temperatures in the summer, which is further compounded by the relative lack of depth in many of the streams. The surrounding land cover also results in significant nutrient loading from fertilizer run off in the overland flow during rain events. The implementation of field tiling may also increase the sediment loading onto streams.

Appendix D, Wetland and Stream Delineation Report and Forms has additional descriptive information delineated waterbodies.

6.3 Ohio Mussel Survey

All native mussels in the State of Ohio are protected per Ohio Revised Code Section 1533.324, as are the 10 federally protected species, which may occur in the state. In order to protect these species, the ODNR DOW and FWS developed a series of survey protocols to identify the presence or absence of mussels in a waterbody.

The protocols identify five types of streams based on their size and potential for federally listed species, as shown in Table 6-5.

Table 6-5 Stream Classifications according to Mussel Survey Protocol, per ODNR and FWS

Group	Definition
Unlisted	Streams not listed in the Survey Protocol, having a watershed larger than 10 square miles with the potential for mussels, but no federally listed species are expected
Group 1	Small to mid-sized streams, federally listed species not expected
Group 2	Small to mid-sized streams, federally listed species expected
Group 3	Large rivers, federally listed species not expected
Group 4	Large rivers, federally listed species expected

During the field surveys, the Cardno team recorded the presence or absence of freshwater mussels within the field-delineated streams. The survey teams also designated the field-delineated streams for their potential for rare, threatened, or endangered (RTE) habitat (i.e., Low, Moderate, High). None of the waterbodies delineated were identified as potentially providing habitat. Additionally, the agricultural drainage systems often exhibit maintained stream banks that are unlikely to provide suitable habitat for rare fish and freshwater mussels. Mussels prefer streams with well-developed banks and forested buffer areas that provide locations for the mussels to adhere to. No mussel populations were observed in the streams identified by Cardno.

7 Estimated Project Impacts

Compared to the environmental impact of traditional energy sources (i.e., fossil fuel and nuclear), the production of solar power does not affect air quality, groundwater or surface water through air emissions or water discharges. In order to build solar project infrastructure, materials must be mined, manufactured, processed, and transported as with all conventional power plants.

7.1 Overall Project Summary

Temporary and permanent impact assumptions for Project components and infrastructure are identified in section 1.1.2. As previously noted, it is anticipated that 693.95 acres of land will be temporarily disturbed from construction and 31.88 acres of land will be permanently converted for operation of the Facility.

Table 7-1 provides a summary of the reviewed and proposed Project infrastructure based on the preliminary Facility layout submitted as part of the Certificate Application.

Features	Maximum Values
Project Generation Capacity	274 MW
Project Area	1,433.21 acres
Potential Tree Clearing (access/shading)	0.95 acres
Solar Arrays	662.42 acres
Solar Array Piles	365,000
Project Substation	2.81 acres
Supporting Facilities (Weather Stations, Inverter Pads)	2.38 acres
O&M Building	1.38 acres
Collection Lines (buried)	0 acre (all buried temporary) (9.28 miles)
Permanent Access Roads (gravel-covered)	12.40 miles

7.2 Natural Resource Impacts Summary

Overall, the Ross County Solar Energy Project is expected to have limited environmental impacts. The Project would aim to minimize any potential impacts to the habitats that may support significant wildlife by avoiding the majority of woodlots. There is one potential crossing of a Class III PHWH quality stream in the Project Area. This crossing will be a buried underground electrical line and conducted via horizontal directional drilling (HDD) and will not disturb the stream. The Project is proposed to be primarily built on land that has already been disturbed seasonally/annually for agriculture with limited identified habitat of significant value to RTE species and other wildlife. The Project's most significant impact will come from the conversion of agricultural land to land to be used for the solar panel arrays and associated infrastructure for the life of the Project. The majority of this area will remain vegetated and wildlife within the Project Area could potentially use the area for foraging, migratory stopover, breeding and/or shelter. The Project would be designed to avoid and minimize impacts to wetlands, waterbodies, woodlots, and aquatic and terrestrial wildlife species where possible. If the proposed Project were decommissioned, the landscape could be returned to its previous condition.

A summary of potential impacts to existing environmental features within the Project Area are presented in Tables 7-2 and 7-3. This design layout has minimized impacts to resources, wetlands, and waterbodies within the Project Area. Tree clearing has been minimized to the extent practicable.

Table 7-2 Summary of Proposed Ross County Solar Energy Project Temporary Impacts

Impact Type	Upland Soil (acres)	Forested Uplands (Tree Clearing) (acres)	Wetland (acres)	Streams (acres)	Streams (linear feet)	Ditches (acres)	Ditches (linear feet)	Ponds (acres)
Access Roads	13.32	0.03	0.01	0.004	48	0	0	0
Collection Line	11.41	0.03	0.02	0.01	73	0	0	0
Equipment Laydown Area	6.08	0	0	0	0	0	0	0
Substation	0	0	0	0	0	0	0	0
O&M Building	0.26	0	0	0	0	0	0	0
Array Pilings/Panels	662.42	0	0	0	0	0	0	0
Gen-Tie Line	0.46	0	0	0	0	0	0	0
Inverter Pads	0	0	0	0	0	0	0	0
Pyranometer	0	0	0	0	0	0	0	0
Totals	693.95	0.06	0.03	0.015	121	0	0	0

Table 7-3 Summary of Proposed Ross County Solar Energy Project Permanent Impacts

Impact Type	Upland Soil (acres)	Forested Uplands (Tree Clearing) (acres)	Wetland (acres)	Streams (acres)	Streams (linear feet)	Ditches (acres)	Ditches (linear feet)	Ponds (acres)
Access Roads	24.03	0.05	0.01	0.01	73	0	0	0
Collection Line	0	0	0	0	0	0	0	0
Equipment Laydown Area	0	0	0	0	0	0	0	0
Substation	2.81	0	0	0	0	0	0	0
O&M Building	1.28	0	0	0	0	0	0	0
Array Pilings/Panels	1.38	0.90	0	0	0	0	0	0
Gen-Tie Line	0	0	0	0	0	0	0	0
Inverter Pads	2.38	0	0	0	0	0	0	0
Pyranometer	0.0004	0	0	0	0	0	0	0
Totals	31.88	0.95	0.01	0.01	73	0	0	0

7.2.1 Land Cover

The Project Area currently is primarily used as active agricultural lands (90%). The wooded areas of the Project Area occurred as deciduous forest (7%). The most significant impact will come from the conversion

of agricultural land to accommodate solar panels. The conversion from agricultural lands to solar project is expected to have a negligible environmental impact because agriculture fields provide minimal habitat for floral and faunal communities. Additionally, the proposed row spacing, elevation of the solar panels above the ground, and low-impact pilings will allow for managed vegetation beneath the array for erosion control, simultaneously providing a habitat from the planting of native species throughout the Project.

7.2.2 Uplands

Solar projects require significant areas of land for the solar panel arrays and associated infrastructure. This Project will locate as much of the infrastructure as possible on uplands, minimizing impacts to surface waters. Impacts to upland soils and tree clearing are discussed below.

7.2.2.1 Soil

The majority of impacts to the Project Area will occur as a result of upland soil disturbance for construction of access roads and solar array install, both temporary (693.95 acres) and permanent (31.88 acres).

Solar panels are supported by permanent pilings in the ground. Each support will be directly driven 10 to 15 feet below the ground, with a footprint of less than 1 sf. each. Approximately 60,300 pilings will total 1.38 acres, spread across the 662.42 acres of panel arrays.

7.2.2.2 Forested Uplands/Tree Clearing

Forested areas within the Project Area will be preserved where possible, however, Ross County Solar anticipates the need to clear select windrows and edges of woodlots in order to construct and operate the Project. Refer to the Tree and Shrub Clearing Plan provided as part of the Certificate Application for additional details. Approximately 0.95 acres of windrows are anticipated to be cleared for tree clearing. The windrows within the Project Area provide minimal habitat and were used as historical property boundaries.

Per guidance from the FWS and ODNR, tree clearing restrictions designed to protect Indiana bat and Northern long-eared bat (e.g., cutting trees only between October and March) will be followed for the minimal tree clearing necessary for the Project.

7.2.3 Wetlands and Waterbodies

Cardno delineated thirty-eight wetlands and one pond during field surveys, for a total of 6.80 acres of wetland within the Project Area. The majority of wetlands were identified as emergent and scored as lower quality wetlands on the ORAM. The Class III Wetland (w009) is located in the western portion of the Project Area and will be at least 1,000 feet from the closest proposed disturbance.

Sixty streams were delineated within the Project Area. Based on desktop analysis, the waterbodies identified were not expected to be highly impacted by the surrounding land cover. Although the waterbodies may provide low quality habitat, the low water quality conditions are not expected to support any sensitive species. The potential crossing of a Class III PWH quality stream will be conducted via HDD and will not disturb the stream.

Through careful design and avoidance measures, the Project will have little impact on delineated wetlands or waterbodies within the Project Area. No withdrawal of water from wetlands or surface waters is anticipated. 0.04 acres of temporary impacts to wetlands and waterbodies are anticipated, and 0.02 acres of permanent wetland and waterbody impacts are anticipated. Wetland impacts are only anticipated from the installation of access roads or underground collection lines via open trench methods. No other wetland impacts are anticipated for the Project. Installation of the substation are subject to AEP

specifications. Detailed tables of anticipated wetland and waterbody impacts, and proposed construction methods are provided in Appendix E, Wetland and Waterbody Impact Tables.

Per Section 2, state and federal permits will be obtained for wetland impacts, as necessary. All conditions and requirements of these permits will be followed. As noted in the Certificate Application, a Stormwater Pollution Prevent Plan and BMPs will be implemented per NPDES requirements to further protect wetland and waterbody resources.

7.2.4 Aquatic and Wildlife Resources

The Project would not significantly impact wildlife or wildlife habitat. Information on the existing wildlife in the Project Area was obtained from a variety of sources, including observations during site surveys, consultations with agencies, and publicly available data from Federal and State agencies. Wildlife within the Project Area could potentially utilize the Project's habitat for foraging, migratory stopover, breeding, and/or shelter. Based on the current land cover, species present in the Project vicinity are primarily associated with agricultural fields, pasture grasslands, isolated wooded lots, and wetland areas. Typical wildlife species observed during the field delineations included evidence of white-tailed deer, migratory shorebirds, waterfowl, and songbirds.

Typical construction-related impacts to wildlife include incidental injury and mortality of juvenile and/or slow moving animals (e.g., salamanders, turtles, etc.) due to construction activity and vehicular movement; construction-related silt and sedimentation impacts on aquatic organisms; habitat disturbance/loss associated with clearing and earthmoving activities; and displacement of wildlife due to increased noise and human activities.

The Project has been sited to avoid and/or minimize impacts to wildlife. The Project has been designed locate the majority of infrastructure within active agricultural land, which provides habitat to a limited number of wildlife species. The few birds and mammals that may forage within these fields are anticipated to vacate areas disturbed by construction. On a landscape scale, there is abundant availability of similar agricultural fields within the Project Area and beyond.

Since impacts to wildlife are anticipated to be negligible or limited, no post-construction monitoring is proposed.

7.2.5 Threatened and Endangered Species

The Project Area and ¼-mile buffer are not known to provide permanent habitat for sensitive bird, bat, or freshwater mussel species.

The Project will adhere to tree clearing dates from consultations with the ODNR and FWS. This will limit adverse impacts to threatened and endangered species. Additionally, due to the lack of adequate habitat in the immediate Project Area, it is likely threatened and endangered species would opt for higher quality habitat nearby such as Wildlife Areas or State Parks for roosting, foraging and breeding. The Project has prioritized avoidance measures for sensitive habitats, such as minimizing habitat fragmentation, siting infrastructure in uplands rather than wetlands, and minimizing perennial stream crossings. Based on current Project designs, significant impacts to these habitats are not anticipated; therefore, no post-construction wildlife monitoring is proposed at this time.

8 References

- Cowardin, L.M., Carter, V., Golet, F.C., and LaRoe, E.T. 1979. Classification of Wetland and Deepwater Habitats of the United States. FWS/OBS-79/31. U.S. Department of the Interior, U.S. Fish and Wildlife Service. Washington, D.C.
- Homer C., J. Dewitz, L. Yang, S. Jin, P. Danielson, G. Xian, J. Coulston, N. Herold, J. Wickham and K. Megown. 2015. Completion of the 2011 National Land Cover Database for the Conterminous United States – Representing a Decade of Land Cover Change Information.
- MRLC (Multi-Resolution Land Characteristics Consortium). 2018. National Land Cover Database 2011 (NLCD 2011). Multi-Resolution Land Characteristics Consortium (MRLC). <https://data.nal.usda.gov/dataset/national-land-cover-database-2011-nlcd-2011>. Accessed May 2020.
- NAS (National Audubon Society). 2019. Important Bird Areas. Available at: <http://www.audubon.org/important-bird-areas/>. Accessed June 2020.
- Natural Resources Conservation Service (NRCS). 2019. Watershed Boundary Dataset for Ross County, Ohio. Accessed June 2020. Available at: <http://datagateway.nrcs.usda.gov>.
- Ohio Department of Natural Resources (ODNR). 2020. Ohio's Listed Species Report. Division of Wildlife (DOW).updated September 2019). Available at: <https://wildlife.ohiodnr.gov/portals/wildlife/pdfs/publications/information/pub356.pdf>
- ODNR's Geographic Information Systems. (ODNR, 2019). Accessed June 2020. Available at: <https://geospatial.ohiodnr.gov/data-metadata/search-by-category>.
- ODGS (Ohio Division of Geological Survey). 1998. Physiographic Regions of Ohio: Ohio Department of Natural Resources, Division of Geological Survey, page-size map with text, 2 p., scale 1:2,100,00. Available at: http://geosurvey.ohiodnr.gov/portals/geosurvey/PDFs/Misc_State_Maps&Pubs/physio.pdf.
- ODGS. 2007. Bedrock Geologic Map of Ohio: Ohio Department of Natural Resources, Division of Geological Survey Map BG-1, generalized page-size version with text, 2 p., scale 1:2,000,000. Available at: http://geosurvey.ohiodnr.gov/portals/geosurvey/PDFs/BedrockGeology/BG-1_8.5x11.pdf
- OEPA (Ohio Environmental Protection Agency). 2007. Water Quality Standards: Chapter 3745-1-12. Available at: <http://epa.ohio.gov/Portals/35/rules/01-17.pdf>.
- . 2017. Water Quality Standards: Chapter 3745-1-02. Available at: <http://www.epa.ohio.gov/portals/35/rules/01-02.pdf>.
- USACE (United States Army Corps of Engineers). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- . 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- U.S. Fish and Wildlife Service (USFWS). 2012. Rayed Bean (freshwater mussel) *Villosa fabalis* Fact Sheet. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

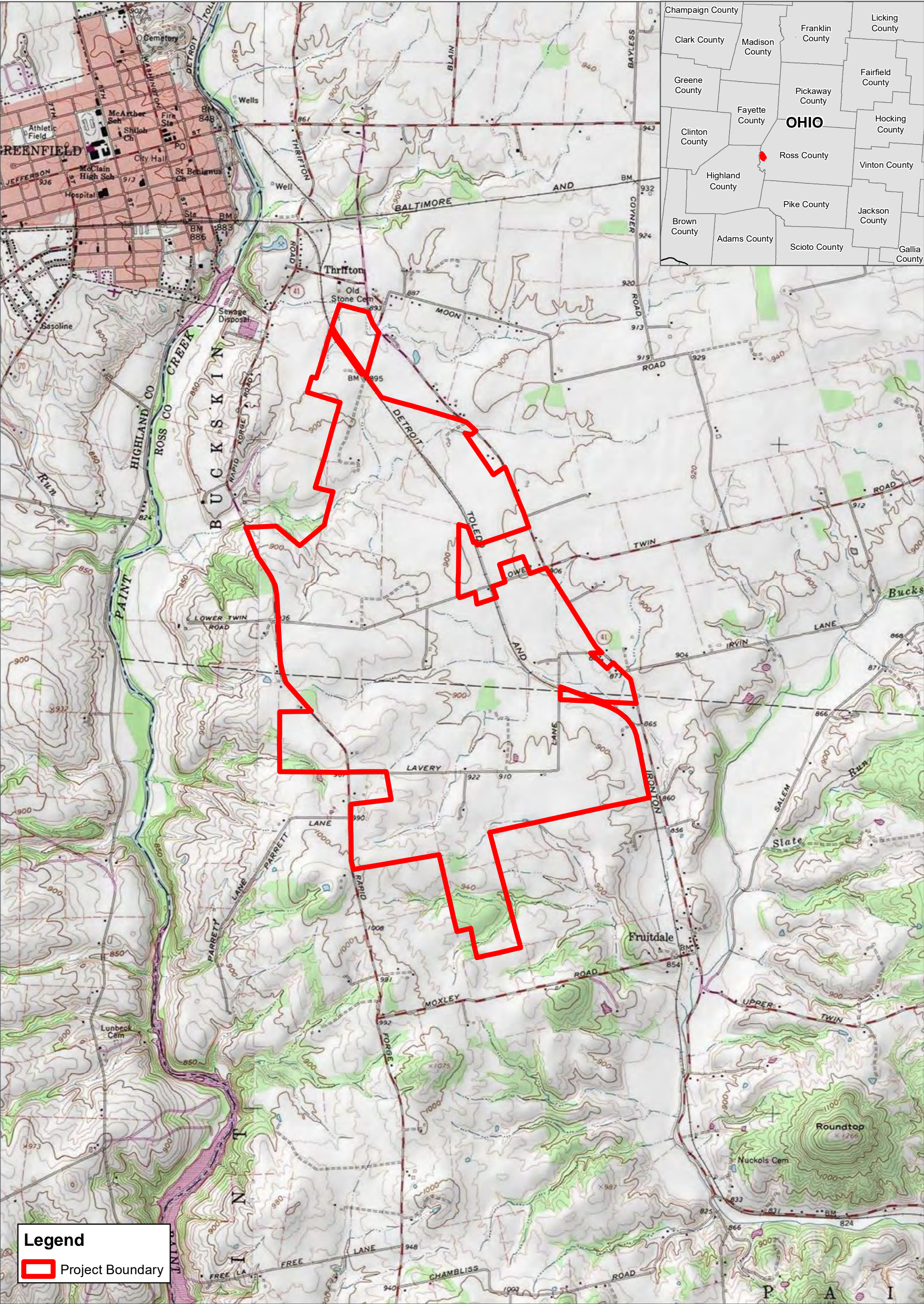
- USFWS. 2019. Running Buffalo Clover *Trifolium stoloniferum* Fact Sheet. U.S Department of Interior, Fish and Wildlife Service, Washington, D.C.
- USFWS. 1997. Scioto Madtom *Noturus trautmani* Fact Sheet. U.S Department of Interior, Fish and Wildlife Service, Washington, D.C.
- .2017. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available at: <http://www.fws.gov/wetlands>.

Ross County Solar Energy Project

APPENDIX

A

PROJECT AREA FIGURES



Legend

 Project Boundary



Data Source:

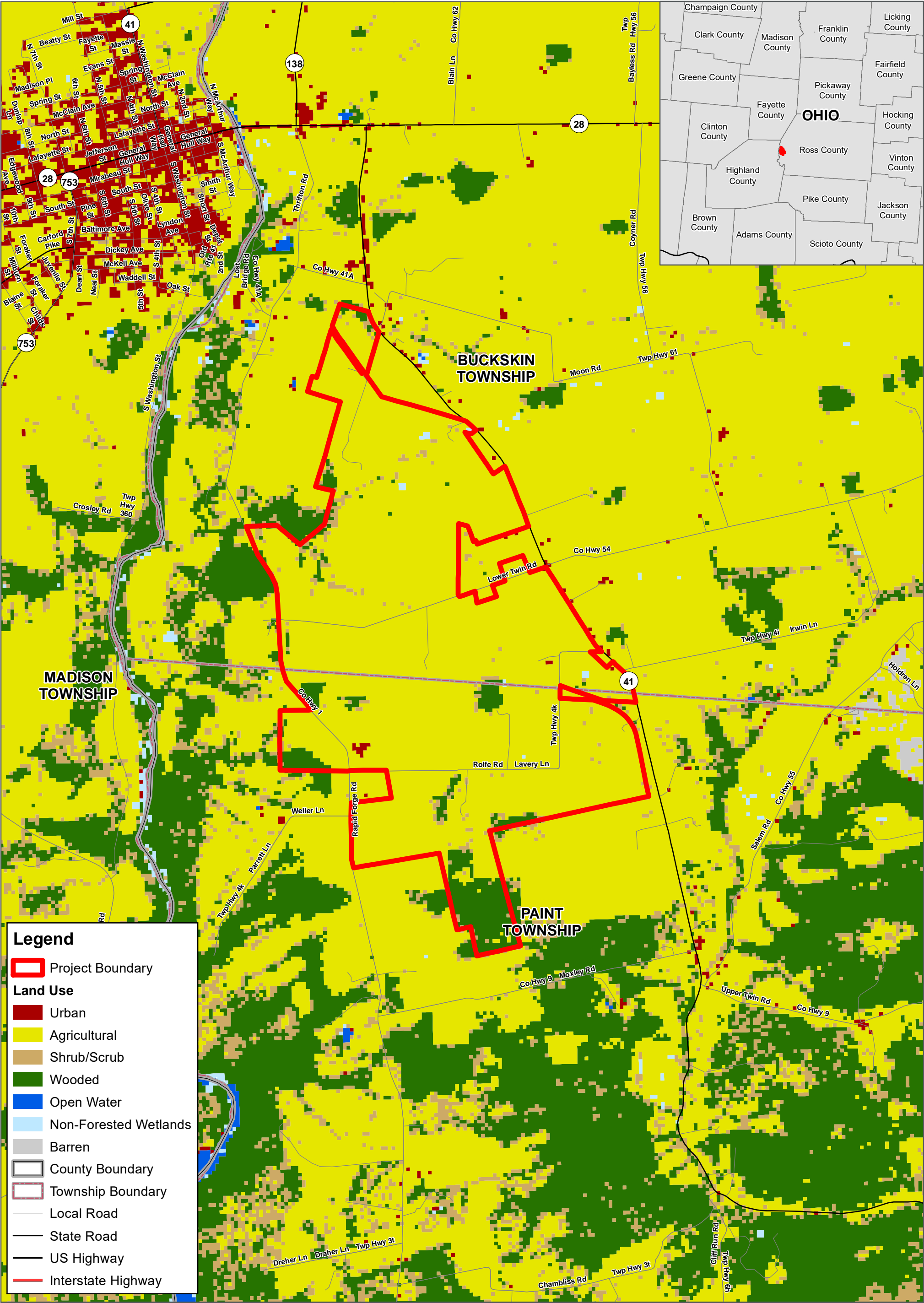
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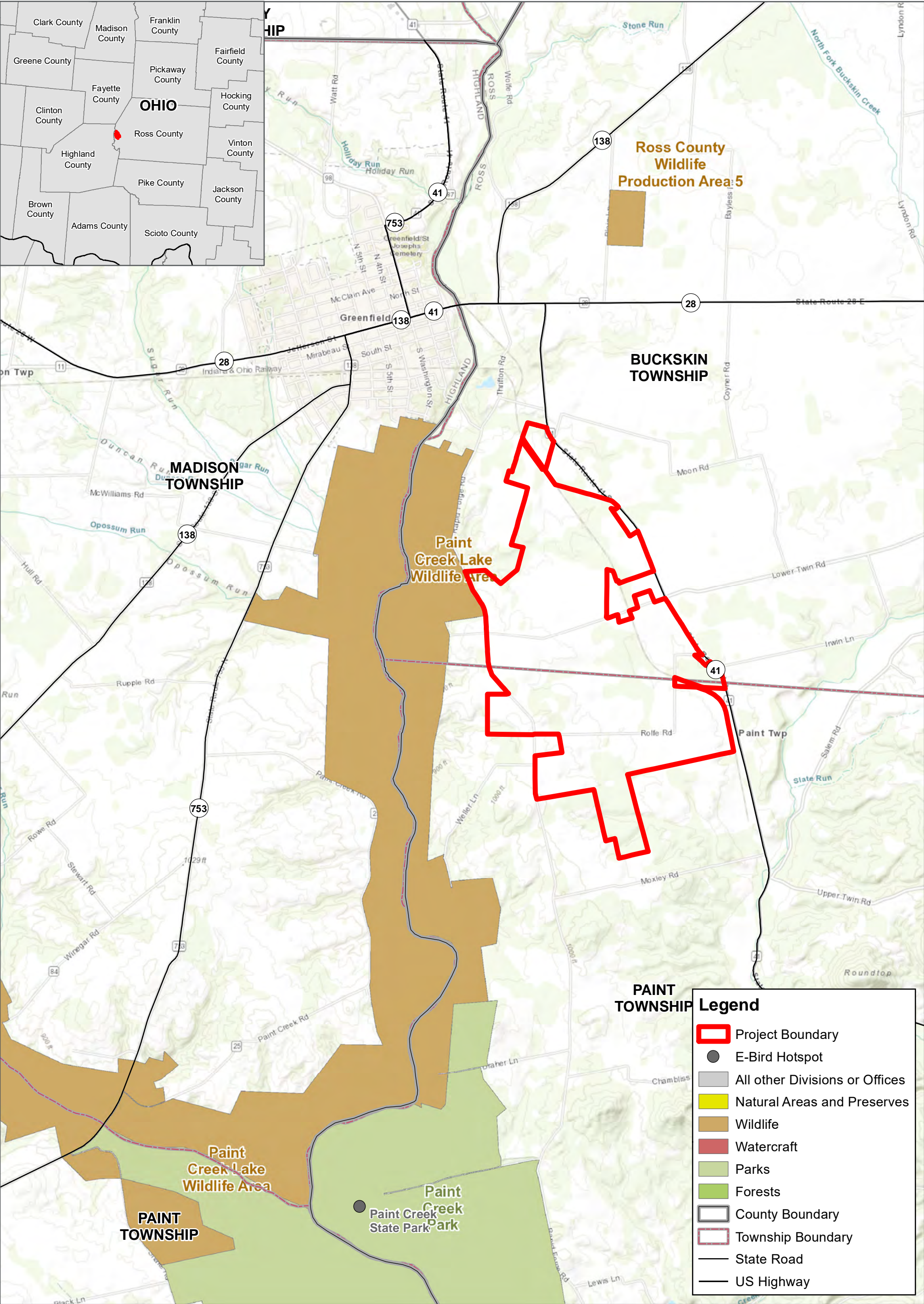
Figure 1 - Study Area

**Ross County Solar Project
Ross County, Ohio**



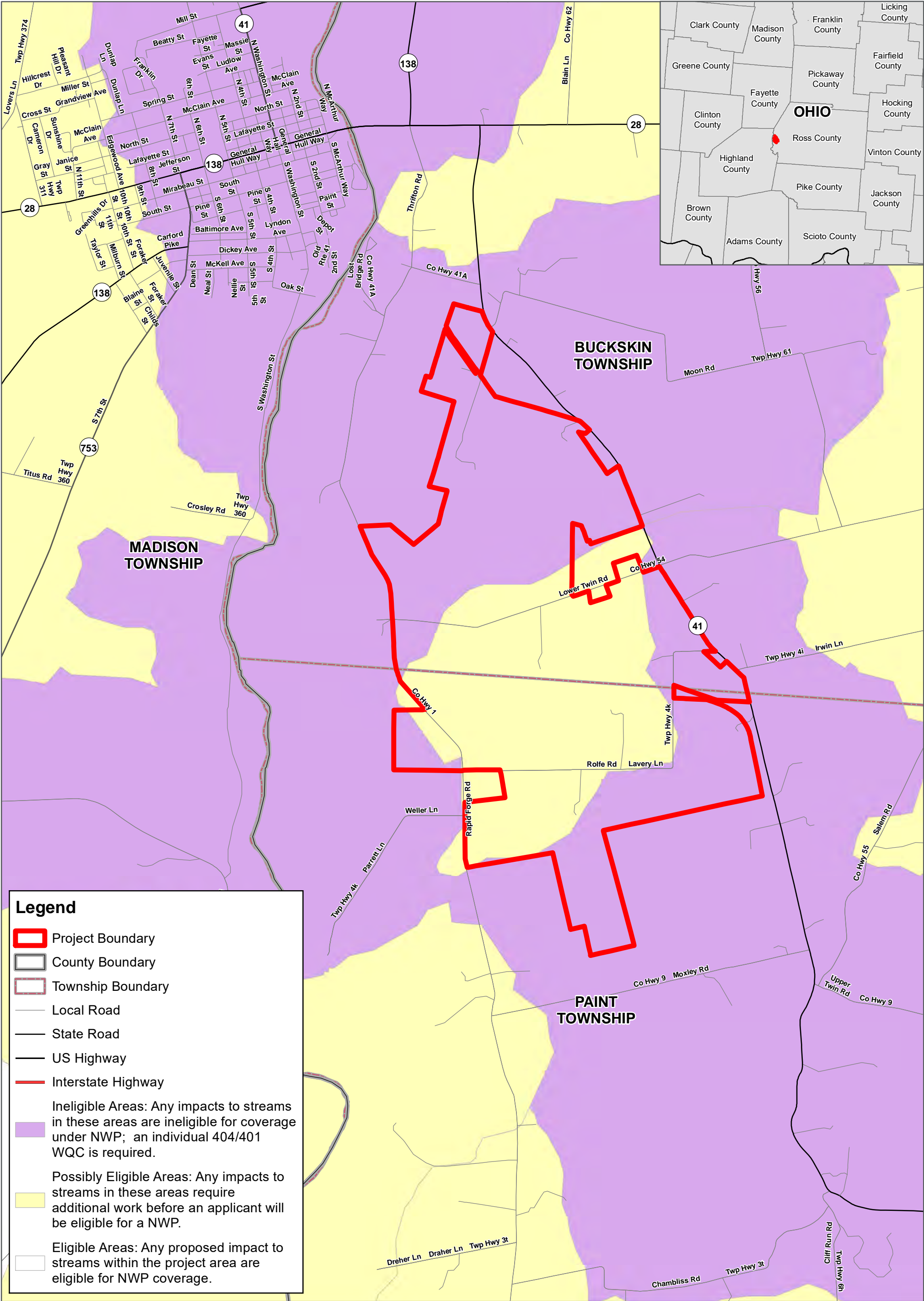
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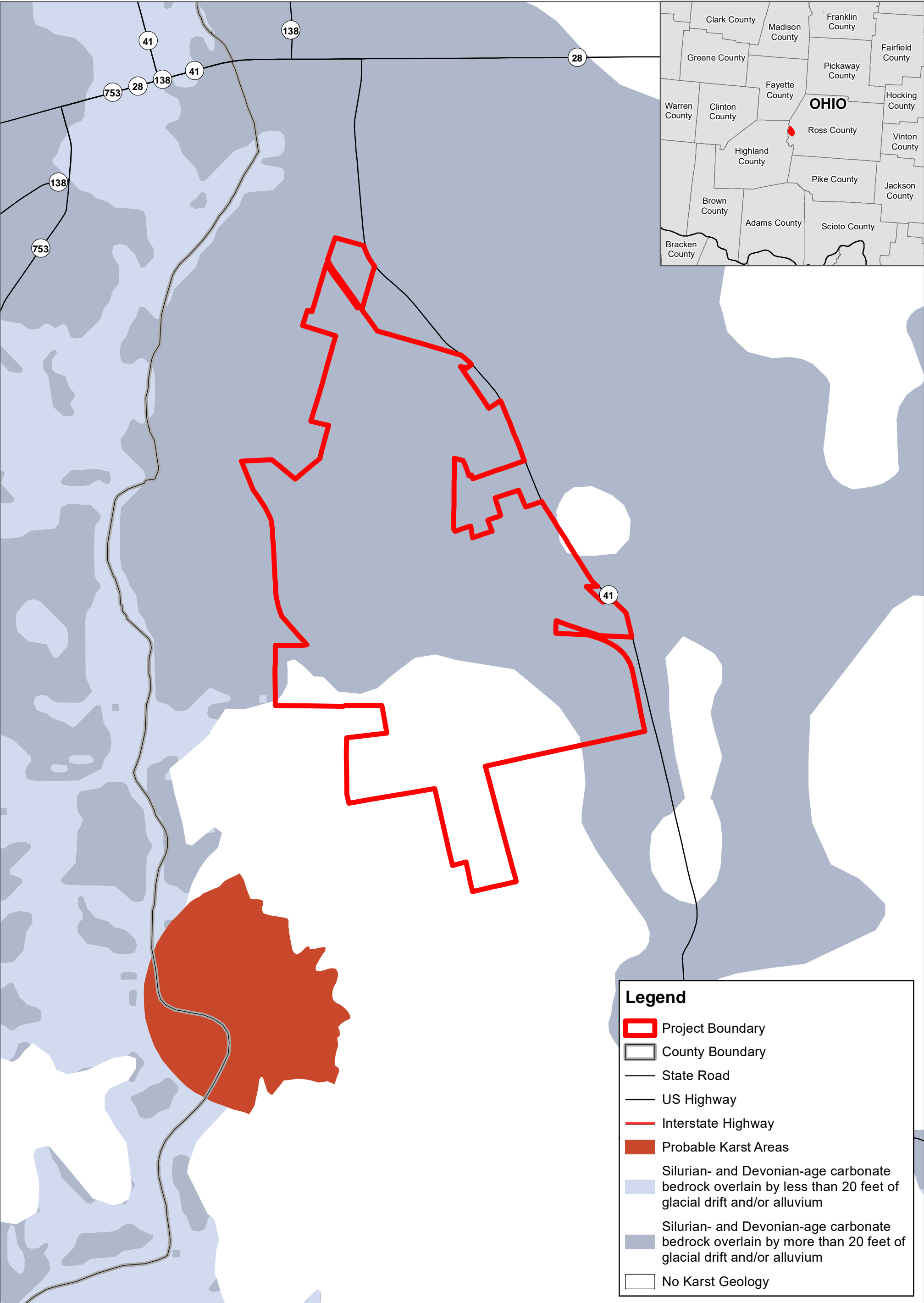




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Ross County Solar Energy Project

APPENDIX

B

AGENCY CORRESPONDENCE

From: [William Risse](#)
To: [Bruce Moreira](#)
Cc: [Tim Burgener](#)
Subject: FW: [External] Solar Project, Greenfield, Ross Co.
Date: Monday, August 10, 2020 8:19:48 AM
Attachments: [pastedImagebase640.png](#)
[pastedImagebase641.png](#)
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[2020WMEBWLogo_907890a9-7779-40c7-bc63-bb5aef86a5fd.png](#)

FYI- response received from FWS.

-William



William Risse

Permitting Specialist

E: wrisse@geronimoenergy.com

P: 952-300-9476



8400 Normandale Lake Boulevard
Suite 1200.
Bloomington, MN 55437
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From: Ohio, FW3 <ohio@fws.gov>
Sent: Monday, August 10, 2020 10:16 AM
To: William Risse <wrisse@geronimoenergy.com>
Cc: Finfera, Jennifer <jennifer_finfera@fws.gov>
Subject: [External] Solar Project, Greenfield, Ross Co.



TAILS# 03E15000-2020-TA-1848

Dear Mr. Risse,

We have received your recent correspondence regarding potential impacts to federally listed species in the vicinity of the above referenced project. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. We recommend that proposed activities minimize water quality impacts, including fill in streams

and wetlands. Best management practices should be utilized to minimize erosion and sedimentation.

FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES COMMENTS: Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees =3 inches diameter at breast height between October 1 and March 31) to avoid impacts to the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*), we do not anticipate adverse effects to any 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 U.S. Fish and Wildlife Service (Service) should be initiated to assess any potential impacts.

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 Endangered Species Act (ESA), between the Service and the federal action agency, is completed. We recommend that the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence.

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.), 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 Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.state.oh.us.

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



Patrice M. Ashfield
Field Office Supervisor



Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate

John Kessler, Chief

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August 26, 2020

William Risse
Geronimo Energy
8400 Normandale Lake Boulevard
Bloomington, Minnesota 55437

Re: 20-719; Ross County Solar Project

Project: The proposed project involves the installation of a 120-megawatt photovoltaic solar farm.

Location: The proposed project is located near Greenfield, Ross 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:

Mountain-rice (*Piptatherum racemosum*), State potentially threatened
Cave or cavern
Paint Creek Wildlife Area – ODNR Division of Wildlife

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.

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 Division of Wildlife is working closely with our partners at Ohio Pollinator Habitat Initiative (OPHI) to create and enhance pollinator habitat at solar power installations. Attached for your use is the Ohio Solar Site Pollinator Habitat Planning and Assessment Form. This form was developed by the OPHI Solar Pollinator Program Advisory Team. We recommend that the areas between and around the solar panels be planted with legumes and wildflowers (i.e. forbs) that are beneficial to pollinators and other wildlife and reduce use of non-native grass and gravel. The recommended legumes and forbs listed below are low-growing so as not to cast shadows on the solar panels and would only require one to two mowings a year for maintenance, which should minimize maintenance costs. For other areas of the installation where vegetation does not have to be low-growing, alternative pollinator mixes are available with a more diverse array of flowering plants. This perennial vegetation will provide beneficial foraging habitat to songbirds and pollinators while reducing storm water runoff, standing water, and erosion. Please contact the Ohio Pollinator Habitat Initiative <http://www.ophi.info/>, and specifically Mike Retterer mretterer@pheasantsforever.org for further information on solar power facility pollinator plantings.

Recommended low-growing grasses and forbs may include:

Little Bluestem	<i>Schizachyrium scoparium</i>
Sideoats Grama	<i>Bouteloua curtipendula</i>
Alfalfa	<i>Medicago spp.</i>
Alsike Clover	<i>Trifolium hybridum</i>
Brown-eyed Susan	<i>Rudbeckia triloba</i>
Butterfly Milkweed	<i>Asclepias tuberosa</i>
Lanceleaf Coreopsis	<i>Coreopsis lanceolata</i>
Partridge Pea	<i>Chamaecrista fasciculata</i>
Timothy	<i>Phleum pratense</i>
Orchardgrass	<i>Dactylis glomerata</i>
Crimson Clover	<i>Trifolium incarnatum</i>
Ladino or White Clover	<i>Trifolium repens</i>

The entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these species of bats predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. If trees are present within the project area, and trees must be cut, the DOW recommends cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH ≥ 20 if possible. If trees are present within the project area, and trees must be cut during the summer months, the DOW recommends a mist

net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting. Mist net and acoustic surveys should be conducted in accordance with the most recent version of the “OHIO DIVISION OF WILDLIFE GUIDANCE FOR BAT SURVEYS AND TREE CLEARING”. If state listed bats are documented, DOW recommends cutting only occur from October 1 through March 31, however, limited summer tree cutting may be acceptable after consultation with DOW (contact Sarah Stankavich, sarah.stankavich@dnr.state.oh.us).

The DOW also recommends that a desktop or field-based habitat assessment is conducted to determine if there are potential hibernaculum(a) present within the project area. Habitat assessments should be conducted in accordance with the current USFWS “Range-wide Indiana Bat Survey Guidelines” and submitted to Sarah Stankavich, sarah.stankavich@dnr.state.oh.us if potential hibernacula are present within .25 miles of the project area. If a potential hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species.

Federally Endangered

clubshell (*Pleurobema clava*)
fanshell (*Cyprogenia stegaria*)
northern riffleshell (*Epioblasma torulosa rangiana*)
rayed bean (*Villosa fabalis*)
sheepnose (*Plethobasus cyphus*)
snuffbox (*Epioblasma triquetra*)

Federally Threatened

rabbitsfoot (*Quadrula cylindrica cylindrica*)

State Endangered

little spectaclecase (*Villosa lienosa*)
long-solid (*Fusconaia maculata maculata*)
sharp-ridged pocketbook (*Lampsilis ovata*)

State Threatened

black sandshell (*Ligumia recta*)
fawnsfoot (*Truncilla donaciformis*)
threehorn wartyback (*Obliquaria reflexa*)

Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the following listed fish species.

State Endangered

goldeye (*Hiodon alosoides*)
northern brook lamprey (*Ichthyomyzon fossor*)
northern madtom (*Noturus stigmosus*)
shortnose gar (*Lepisosteus platostomus*)
shovelnose sturgeon (*Scaphirhynchus platyrhynchus*)
spotted darter (*Etheostoma maculatum*)

State Threatened

American eel (*Anguilla rostrata*)

blue sucker (*Cycleptus elongatus*)

channel darter (*Percina copelandi*)

paddlefish (*Polyodon spathula*)

river darter (*Percina shumardi*)

Tippecanoe darter (*Etheostoma Tippecanoe*)

The DOW recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

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

The project is within the range of the timber rattlesnake (*Crotalus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species, utilizing dry slopes and rocky outcrops. In addition to using wooded areas, the timber rattlesnake utilizes sunlit gaps in the canopy for basking and deep rock crevices for overwintering. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the spotted turtle (*Clemmys guttata*), a state threatened species. This species prefers fens, bogs and marshes, but also is known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the midland mud salamander (*Pseudotriton montanus diastictus*), a state threatened species. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus hudsonis*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.

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.

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/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

Geological Survey: The Division of Geological Survey has the following comment.

Physiographic Region

The proposed project area is in Buckskin and Paint townships, Ross County. This area is in the Southern Ohio Loamy Till Plain physiographic region. This region is characterized by both end and recessional moraines. The surface consists of a high-lime loamy till and boulder belts are common in this area. Ground moraines are present and are relatively flat, but steep valleys are cut through the terrain by large streams. These valleys are filled with outwash and alternate between broad floodplains and narrows. Buried valleys are common. Carbonate rocks and shale underly the glacial features (Ohio Department of Natural Resources, Division of Geological Survey, 1998).

Surficial/Glacial Geology

The project area lies within the glaciated margin of the state and includes several Wisconsinan-aged glacial features. The project area is covered by Late Wisconsinan ground moraine made up of Early Woodfordian ice deposits. Terrain is flat to gently undulating and consists of a loam till and thin loess cover (Pavey et al, 1999). Glacial drift throughout most of the study area is between 0 and 175 feet thick. Drift is thinnest in the southern portion of the project area and thickest towards the center (Powers and Swinford, 2004).

Bedrock Geology

The uppermost bedrock unit in the project area is the Ohio and Olentangy Shales Undivided. This unit is Devonian-aged and consists of greenish gray to gray shale. The unit is clayey and often contains disseminated pyrite. Locally this unit may contain lenses or nodules of limestone as well as thin beds of brownish-black shale in the upper portion. This unit makes up the southern portion of the project area in Paint township. Underlying the Ohio and Olentangy Shales Undivided is the Silurian-aged Greenfield Dolomite. This unit is characterized by olive gray to yellowish brown dolomite. There is an absence of shale laminae compared to overlying units. It may contain sedimentary breccia zones. This unit can be found bordering the Ohio and Olentangy Shales Undivided to the north. Underlying the Greenfield Dolomite is the Silurian-aged Peebles Dolomite, Lilley Formation, Bisher Formation Undivided. This unit is characterized by dolomite, shale, limestone and sandstone. The Peebles Dolomite is bluish gray and vuggy with thick to massive bedding. The Lilley Formation is fossiliferous, contains thin to thick beds of gray dolomite and is interbedded with limestone and shale. The Bisher Formation contains thin to thick beds of argillaceous gray dolomite and sparse shale beds. This unit makes up the remainder of the project area in Buckskin and Paint townships. Bedrock may be exposed in outcrops and roadcuts within the boundary of the project area (Slucher et al, 2006).

Oil, Gas and Mining

ODNR has record of no oil and gas wells within one mile of the proposed project area. The nearest oil and gas well on record to the project area is approximately 1.8 miles west of the site. It

is listed as dry and plugged (Ohio Department of Natural Resources, Division of Oil and Gas, Ohio Oil and Gas Wells Locator).

ODNR does not have record of any mining operations within the project area. The nearest mine to the project area is the Blue Rock limestone quarry operated by American Aggregates Corporation. It is located approximately 3.1 miles from the project area in Fayette County (Ohio Department of Natural Resources, Division of Mineral Resources, Mines of Ohio).

Seismic Activity

Several small earthquakes have historically been recorded near the site. The three events closest to the site are listed in the chart below (Ohio Department of Natural Resources, Division of Geological Survey, Ohio Earthquake Epicenters):

Date	Magnitude	Distance to Site Boundary	County	Township
February 19, 1995	3.6	14.0 miles	Highland	Marshall
July 9, 1994	2.5	18.0 miles	Pike	Sunfish
January 11, 1854	3.5	18.0 miles	Clinton	Green

Karst

Karst features usually form in areas that are covered by thin or no glacial drift and the bedrock is limestone or dolomite. ODNR does not have record of any sinkholes within the boundary of the project area, however the underlying Greenfield Dolomite and Peebles Dolomite, Lilley Formation, Bisher Formation Undivided are composed of carbonate bedrock which can be prone to the development of karst features. However, there are 12 field verified or suspected sinkholes beyond the site boundary but within one mile of the project area (Ohio Department of Natural Resources, Division of Geological Survey, Ohio Karst).

Soils

According to the USDA Web Soil Survey, the project area consists primarily of soils derived from glacial till, loess and glaciofluvial deposits. Miamian, Crosby, Kokomo and Celina are the most common soil series found within the boundaries of the project area. Together these soils cover over 95% of the project area and make up a mixture of silt loam and clay loam soil textures (USDA Web Soil Survey).

There is a low risk of shrink-swell potential in these soils. Slope remains relatively flat, with slope seldom exceeding a 12% grade (USDA Web Soil Survey).

Groundwater

Groundwater resources vary throughout the project area. Wells developed in bedrock are likely to yield up to 5 gallons per minute. Groundwater yields are low in both the Devonian and Silurian bedrock units underlying the project area (Schmidt, 1980 and Ohio Department of Natural Resources, Division of Water, Bedrock Aquifer Map, 2000). Wells developed in glacial material are likely to yield up to 25 gallons per minute. The Chillicothe Complex Aquifer makes up the northern portion of the project area and typically yields between 5 and 25 gallons per minute. The Chillicothe Thin Upland Aquifer makes up the remainder of the project area and typically yields less than 5 gallons per minute (Ohio Department of Natural Resources, Division of Water, Statewide Unconsolidated Aquifer Map, 2000). The Groundwater Resources of Ross County map indicates this area should expect yields of 3 to 10 gallons per minute (Schmidt, 1980).

ODNR has record of 93 water wells drilled within one mile of the project area. These wells range in depth from 22 to 228 feet deep, with an average depth of 105.9 feet. The most common aquifer listed is limestone. Seven wells list sand and gravel as the aquifer type and four wells list shale.

The remaining wells list limestone, rock or bedrock as the aquifer type. A sustainable yield of 3 to 30 gallons per minute is expected from wells drilled in this area based on well log records. The average sustainable yield from these records within one mile was 10.9 gallons per minute. This is based on records from 31 wells within one mile of the project area that contain sustainable yield data (Ohio Department of Natural Resources, Division of Water, Ohio Water Wells).

ODNR appreciates the opportunity to provide these comments. Please contact Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or Sarah.Tebbe@dnr.state.oh.us if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator (Acting)

References

- Ohio Department of Natural Resources, Division of Geological Survey, *Ohio Earthquake Epicenters*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=earthquakes>
- Ohio Department of Natural Resources, Division of Geological Survey, *Ohio Karst*, online interactive map, https://gis.ohiodnr.gov/website/dgs/karst_interactivemap/
- Ohio Department of Natural Resources, Division of Geological Survey, (1998). *Physiographic Regions of Ohio*. Ohio Department of Natural Resources, Ohio Department of Natural Resources, Division of Geological Survey, map with text, 2 p., scale 1:2,100,000.
- Ohio Department of Natural Resources, Division of Geological Survey, (In progress). *Statewide Surficial Geology Map*. GIS coverage.
- Ohio Department of Natural Resources, Division of Oil and Gas, *Ohio Oil and Gas Wells Locator*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=oilgaswells>.
- Ohio Department of Natural Resources, Division of Water, *Ohio Water Wells*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=waterwells>.
- Ohio Department of Natural Resources, Division of Water, (2000). *Statewide Bedrock Aquifer Map*, GIS coverage.
- Ohio Department of Natural Resources, Division of Water, (2000). *Statewide Unconsolidated Aquifer Map*, GIS coverage.
- Pavey, R., Goldthwait, R., Brockman, C.S. Hull, D., Swinford, E.M., and Van Horn, R. (1999). *Quaternary Geology of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:500,000.
- Powers, D.M., and Swinford, E.M. (2004). *Shaded drift-thickness map of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:500,000
- Slucher, E., Swinford, E., Larsen, G., Schumacher, G., Shrake, D., Rice, C., Caudill, M., Rea, R. and Powers, D. (2006). *Bedrock Geologic Map of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:500,000.
- USDA Web Soil Survey, (Last modified 2019). *Web Soil Survey Interactive Map*, United States Department of Agriculture, National Resources Conservation Service, online interactive map, <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.

Ross County Solar Energy Project

APPENDIX

C

RTE SPECIES INFORMATION



Ross County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
<i>Arnoglossum plantagineum</i>	Fen Indian-plantain	2002-10-14	P	
<i>Astragalus canadensis</i>	Canada Milk-vetch	2004-08-08	T	
<i>Calamintha arkansana</i>	Limestone Savory	1972-08-27	T	
<i>Carex bushii</i>	Bush's Sedge	1977-06-09	T	
<i>Carex flava</i>	Yellow Sedge	1991-05	P	
<i>Centunculus minimus</i>	Chaffweed	2012-06-03	E	
<i>Corallorhiza wisteriana</i>	Spring Coral-root	1974-05-19	P	
<i>Cyperus acuminatus</i>	Pale Umbrella-sedge	2011-08-07	P	
<i>Cyperus lancastricensis</i>	Many-flowered Umbrella-sedge	1962-08-12	E	
<i>Delphinium exaltatum</i>	Tall Larkspur	1971-08-25	P	
<i>Deschampsia cespitosa</i>	Tufted Hair Grass	2000-08-21	P	
<i>Descurainia pinnata</i>	Tansy Mustard	2011-04-30	T	
<i>Echinodorus berteroi</i>	Burhead	2008-07-27	P	
<i>Eleocharis quinqueflora</i>	Few-flowered Spike-rush	2003-06-12	T	
<i>Eupatorium godfreyanum</i>	Godfrey's Thoroughwort	2012-08-04	T	
<i>Euphorbia serpens</i>	Round-leaved Spurge	1964-10-16	E	
<i>Gentianopsis procera</i>	Small Fringed Gentian	2002-10-08	P	
<i>Gratiola viscidula</i>	Short's Hedge-hyssop	2012-07-30	P	
<i>Iris brevicaulis</i>	Leafy Blue Flag	2008-08-08	T	
<i>Juncus secundus</i>	One-sided Rush	2003-08-08	P	
<i>Lechea pulchella</i>	Leggett's Pinweed	1976-09-19	T	
<i>Lechea tenuifolia</i>	Narrow-leaved Pinweed	2003-08-08	P	
<i>Luzula bulbosa</i>	Southern Woodrush	2003-04-20	P	
<i>Malaxis unifolia</i>	Green Adder's-mouth	2011-07	P	
<i>Opuntia humifusa</i>	Common Prickly Pear	2002-09-01	P	
<i>Orbexilum pedunculatum</i>	False Scurf-pea	2011-07-09	P	
<i>Piptatherum racemosum</i>	Mountain-rice	2005-11-09	P	
<i>Plagiothecium latebricola</i>	Lurking Leskea	1996-09-15	T	
<i>Quercus marilandica</i>	Blackjack Oak	1964-08-02	P	
<i>Rhododendron calendulaceum</i>	Flame Azalea	1992-05-26	E	
<i>Rhynchospora alba</i>	White Beak-rush	2000-08-21	P	



Ross County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
<i>Spiranthes lucida</i>	Shining Ladies'-tresses	2003-06-12	P	
<i>Thuja occidentalis</i>	Arbor Vitae	2008-04-09	P	
<i>Trifolium stoloniferum</i>	Running Buffalo Clover	2013-05-25	E	FE
<i>Triglochin palustris</i>	Marsh Arrow-grass	1999-08-15	P	
<i>Viola walteri</i>	Walter's Violet	2006-04-15	T	



Ohio Division of Wildlife

Ohio Natural Heritage Database

Date Accessed: March 6, 2015

Status based on 2014-15 Rare Plant List.

Status:

X = Extirpated

E = Endangered

T = Threatened

P = Potentially Threatened

List Created: July 2016

Ross County Solar Energy Project

APPENDIX

D

WETLAND AND STREAM DELINEATION REPORT AND FORMS



Regulated Waters Delineation Report

Ross County Solar, Ross County,
Ohio

June 2020



Document Information

Prepared for	Ross County Solar LLC
Client Contact	William Risse
Project Name	Regulated Waters Delineation Report Ross County Solar, Ross County, Ohio
Project Number	E320201300
Cardno Contact	Bruce Moreira
Date	June 2020

Prepared for:

Ross County Solar LLC
8400 Normandale Lake Boulevard, Suite 1200, Bloomington, MN 55437

Prepared by:



Cardno, Inc.
3901 Industrial Boulevard, Indianapolis, Indiana 46254

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Acronym

APA	Administrative Procedure Act
BF	Bank Full
CFR	Code of Federal Regulations
CWA	Clean Water Act
DBH	Diameter at Breast Height
DP	Data Point
EPA	U.S. Environmental Protection Agency
ETR	Endangered, Threatened, and Rare
FAC	Facultative Plant
FACU	Facultative Upland Plant
FACW	Facultative Wetland Plant
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GIS	Geographical Information System
MS4	Municipal Separate Storm Water Sewer Systems
NHD	National Hydrography Dataset
NPDES	National Pollutant Discharge Elimination System
NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
NWP	Nationwide Permit

Acronyms (continued)

NWPL	National Wetland Plant List
OBL	Obligate Wetland Plant
OEPA	Ohio Environmental Protection Agency
ODNR	Ohio Department of Natural Resources
OHWM	Ordinary High Water Mark
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
PLSS	Public Land Survey Section
PSS	Palustrine Shrub Scrub Wetland
RGP	Regional General Permit
SNE	Significant Nexus
SWANCC	Solid Waste Agency of Northern Cook County
TNW	Traditional Navigable Water
TOB	Top of Bank
UPL	Upland Plant
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WOTUS	Waters of the United States
WQC	Water Quality Certification

1 Introduction

Cardno was contracted to perform a regulated waters delineation, including wetlands and streams, which are located at the Ross County Solar Study Area in Ross County, Ohio (Figure 1, Appendix A). Field work was performed on June 2 through June 4, 2020. The total size of the Study Area was approximately 11.7 acres. The Study Area was primarily agricultural with some tree plantations, riparian corridor, and pasture. Thirty-eight wetlands, 60 streams, and one pond were identified.

This report identifies the jurisdictional status of the Study Area based on Cardno's best professional understanding and interpretation of the Corps of Engineers' Wetland Delineation Manual (Environmental Laboratory, 1987) and U.S. Army Corps of Engineers' (USACE) guidance documents and regulations. Jurisdictional determinations for other "waters of the U.S." were made based on definitions and guidance found in 33 CFR 328.3, USACE Regulatory Guidance Letters, and the wetland delineation manual. The USACE administers Section 404 of the Clean Water Act (CWA), which regulates the discharge of fill or dredged material into all "waters of the U.S.," and is the regulatory authority that must make the final determination as to the jurisdictional status of the Study Area.

2 Regulatory Definitions

2.1 Waters of the United States

“Waters of the U.S.” are within the jurisdiction of the USACE under the CWA. “Waters of the U.S.” is a broad term, which includes waters that are used or could be used for interstate commerce. This includes wetlands, ponds, lakes, territorial seas, rivers, tributary streams including any definable intermittent waterways, and some ditches below the ordinary high water mark (OHWM). Also included are manmade water bodies such as quarries and ponds, which are no longer actively being mined or constructed and are connected to other “waters”. Wetlands, mudflats, vegetated shallows, riffle and pool complexes, coral reefs, sanctuaries, and refuges are all considered special aquatic sites which involve more rigorous regulatory permitting requirements. A specific, detailed definition of “waters of the U.S.” can be found in the Federal Register (33 CFR 328.3).

On January 9, 2001, the U.S. Supreme Court issued a decision, *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers* (No. 99-1178). The decision reduced the regulation of isolated wetlands under Section 404 of the CWA, which assigned the USACE authority to issue permits for the discharge of dredge or fill material into “waters of the U.S.”. Prior to the SWANCC decision, the USACE had adopted a regulatory definition of “waters of the U.S.” that afforded federal protection for almost all of the nation’s wetlands. The Supreme Court decision interpreted that the USACE’s jurisdiction was restricted to navigable waters, their tributaries, and wetlands that are adjacent to these navigable waterways and tributaries. The decision leaves the majority of “isolated” wetlands unregulated by the CWA. Therefore, most wetlands that are not adjacent to, or contiguous with, any other “waters of the U.S.” via a surface drain such as a swale, ditch, or stream are considered isolated and thus no longer jurisdictional by the USACE.

On June 19, 2006, the U.S. Supreme Court issued decisions in regards to *John A. Rapanos v. United States* (No. 04-1034) and *June Carabell v. United States* (04-1384), et al. The plurality decision created two ‘tests’ for determining CWA jurisdiction: the permanent flow of water test (set out by Justice Scalia) and the “significant nexus” test (set out by Justice Kennedy). On June 5, 2007 the USACE and U.S. Environmental Protection Agency (EPA) issued joint guidance on how to interpret and apply the Court’s ruling. According to this guidance, the USACE will assert jurisdiction over traditionally navigable waters, adjacent wetlands, and non-navigable tributaries of traditionally navigable waters that have “relatively permanent” flow, and wetlands that border these waters, regardless of whether or not they are separated by roads, berms, and similar barriers. In addition, the USACE will use a case-by-case “significant nexus” analysis to determine whether waters and their adjacent wetlands are jurisdictional. A “significant nexus” can be found where waters, including adjacent wetlands, alter the physical, biological, or chemical integrity of the traditionally navigable water based on consideration of several factors.

On June 29, 2015 a new Clean Water Rule was entered into the Federal Register (40 CFR Parts 110, 112, 116, et al. Clean Water Rule: Definition of “waters of the United States”; Final Rule). This report will refer to this Rule as “June 29, 2015 WOTUS Rule”. This Rule included exact distances as it relates to jurisdictional adjacent waters, including the following: waters within 100 ft. of jurisdictional waters; waters within the 100-year floodplain to a maximum of 1,500 feet from

the OHWM; waters within the 100-year floodplain with a significant nexus (SNE) to a traditionally navigable water (TNW); and waters with a SNE within 4,000 ft. of jurisdictional waters.

The June 29, 2015 WOTUS Rule was partially stayed on October 9, 2015, and this resulted in a patchwork of states which used the June 29, 2015 rule and some states that returned to the previous jurisdictional interpretations (post-Rappanos).

On October 22, 2019 the EPA and the USACE published a rule to formally rescind the June 29, 2015 WOTUS Rule (40 CFR Parts 110, et.al. Definition of “Waters of the United States” – Recodification of Pre-Existing Rules). This action restored the regulatory environment which was in place prior to 2015.

On April 21, 2020, the EPA and USACE published the Navigable Waters Protection Rule to define “waters of the United States” (WOTUS) in the Federal Register. This rule became effective on June 22, 2020. The rule limits the federal regulatory authority to wetlands adjacent to or directly abutting a jurisdictional stream, and to only streams considered perennial or intermittent. No federal guidance is yet published on this rule, and prior guidance will be used until the rule becomes effective.

2.2 Waters of the State

“Waters of the State” are within the jurisdiction of the Ohio Environmental Protection Agency (OEPA). They are generally defined as surface and underground water bodies, which extend through or exist wholly in the State of Ohio, which includes, but is not limited to, streams and both isolated and non-isolated wetlands. Private ponds, or any pond, reservoir, or facility built for reduction of pollutants prior to discharge are not included in this definition. In addition to “waters of the U.S.”, OEPA also regulates and issues permits for isolated wetland impacts.

OEPA relies on the USACE decision regarding wetland determinations and delineations including whether or not a wetland is isolated or non-isolated.

2.3 Wetlands

Wetlands are a category of “waters of the U.S.” for which a specific identification methodology has been developed. As described in detail in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), wetland boundaries are delineated using three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. In addition to the criteria defined in the 1987 Manual, the procedures described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Environmental Laboratory, 2010) were used to evaluate the Study Area for the presence of wetlands.

2.3.1 Hydrophytic Vegetation

On June 1, 2012, the National Wetland Plant List (NWPL), formerly called the National List of Plant Species that Occur in Wetlands (Reed 1988), went into effect after being released by the U.S. Army Corps of Engineers (USACE) as part of an interagency effort with the U.S. Fish and Wildlife Service (USFWS), the U.S. EPA, and the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (Lichvar and Kartesz, 2009). This list is periodically updated, with the most recently published list dated 2018. The NWPL, along with the information implied by its wetland plant species status ratings, provides general botanical information about wetland plants and is used extensively in wetland delineation, restoration, and mitigation efforts.

The NWPL consists of a comprehensive list of wetland plant species that occur within the United States along with their respective wetland indicator statuses by region. An indicator status reflects the likelihood that a particular plant species occurs in a wetland or upland (Lichvar et al. 2012). Definitions of the five indicator categories are presented below.

OBL (Obligate Wetland Plants): almost always occur in wetlands. With few exceptions, these plants (herbaceous or woody) are found in standing water or seasonally saturated soils (14 or more consecutive days) near the surface. These plants are of four types: submerged, floating, floating-leaved, and emergent.

FACW (Facultative Wetland Plants): usually occur in wetlands, but may occur in non-wetlands. These plants predominately occur with hydric soils, often in geomorphic settings where water saturates the soils or floods the soil surface at least seasonally.

FAC (Facultative Plants): occur in wetlands and non-wetlands. These plants can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil pH, and elevation, and they have a wide tolerance of soil moisture conditions.

FACU (Facultative Upland Plants): usually occur in non-wetlands, but may occur in wetlands. These plants predominately occur on drier or more mesic sites in geomorphic settings where water rarely saturates the soils or floods the soil surface seasonally.

UPL (Upland Plants): almost never occur in wetlands. These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.

According to the USACE's Midwest Regional Supplement, plants that are rated as FAC, FACW, or OBL are classified as wetland plant species. The percentage of dominant wetland species in each of the four vegetation strata (tree, shrub/sapling, herbaceous, and woody vine) in the sample area determines the hydrophytic (wetland) status of the plant community. Dominant species are chosen independently from each stratum of the community. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total.

For the purposes of determining dominant plant species, the four vegetation strata are defined. Trees consist of woody species 3 inches or greater in diameter at breast height (DBH). Shrubs and saplings are woody species that are over 1 meter in height and less than 3 inches DBH. Herbaceous species consist of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants less than 1 meter tall. Woody vines consist of vine species greater than 1 meter in height, such as wild grapes.

2.3.2 **Hydric Soils**

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. In general, hydric soils are flooded, ponded, or saturated for a week or more during the growing season when soil temperatures are above 32 degrees Fahrenheit. The anaerobic conditions created by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry, which are used to differentiate hydric from non-hydric soils.

In this report, soil colors are described using the Munsell notation system. This method of describing soil color consists of separate notations for hue, value, and chroma that are combined in that order to form the color designation. The hue notation of a color indicates its relation to red, yellow, green, blue, and purple; the value notation indicates its lightness, and the chroma notation indicates its strength or departure from a neutral of the same lightness.

The symbol for hue consists of a number from 1 to 10, followed by the letter abbreviation of the color. Within each letter range, the hue becomes more yellow and less red as the numbers increase. The notation for value consists of numbers from 0 for absolute black, to 10 for absolute white. The notation for chroma consists of numbers beginning with /0 for neutral grays and increasing at equal intervals. A soil described as 10YR 3/1 soil is more gray than a soil designated 10YR 3/6.

2.3.3 **Wetland Hydrology**

Wetland hydrology is defined as the presence of water for a significant period of time at or near the surface (within the root zone) during the growing season. Wetland hydrology is present only seasonally in many cases, and is often inferred by indirect evidence. Hydrology is controlled by such factors as seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage. Primary indicators of hydrology are inundation, soil saturation in the upper 12 inches of the soil, watermarks, sediment deposits, and drainage patterns. Secondary indicators such as oxidized root channels in the upper 12 inches of the soil, water-stained leaves, local soil survey data, and the FAC-neutral vegetation test are sometimes used to identify hydrology. A primary indicator or two or more secondary indicators are required to establish a positive indication of hydrology.

2.3.4 **Wetland Definition Summary**

In general, an area must meet all three criteria to be classified as a wetland. In certain problem areas such as seasonal wetlands, which are not wet at all times, or in recently disturbed (atypical) situations, areas may be considered a wetland if only two criteria are met. In special situations, an area that meets the wetland definition may not be within the USACE's jurisdiction due to a specific regulatory exemption.

2.4 Streams, Rivers, Watercourses & Jurisdictional Ditches

With non-tidal waters, in the absence of adjacent wetlands, the extent of the USACE's jurisdiction is defined by the OHWM. USACE regulations define the term "ordinary high water mark" for purposes of the CWA lateral jurisdiction at 33 CFR 328.3(e), which states:

The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Streams, rivers, watercourse, and ditches within the Study Area were evaluated using the above definition and documented. Waterways that did exhibit an OHWM were recorded and evaluated using the Ohio EPA's Primary Headwater Habitat Evaluation Index (HHEI) methodology for streams with a drainage area less than a square mile or the Qualitative Habitat Evaluation Index (QHEI) methodology for streams with a drainage area greater than a square mile. The .stream scores can be found in Table 6.1 and forms can be found in Appendix D.

3 Background Information

3.1 Existing Maps

Several sources of information were consulted to identify potential wetlands and wetland soil units on the site. These include the USFWS's *National Wetland Inventory* (NWI), the USGS's *National Hydrography Dataset* (NHD), and the NRCS *Soil Survey* for this county. These maps identify potential wetlands and wetland soil units on the site. The NHD maps are used to identify low-lying areas, historical waterways, drainage patterns, and potential surface waters. The NHD maps are not field verified, and do not always account for human alteration such as ditching and tiling. The NWI maps were prepared from high altitude photography and in most cases were not field checked. Because of this, wetlands are sometimes erroneously identified, missed, or misidentified. Additionally, the criteria used in identifying these wetlands were different from those currently used by the USACE. The county soil maps, on the other hand, were developed from actual field investigations. However, they address only one of the three required wetland criteria and may reflect historical conditions rather than current site conditions. The resolution of the soil maps limits their accuracy as well. The mapping units are often generalized based on topography and many mapping units contain inclusions of other soil types for up to 15 percent of the area of the unit. The USACE does not accept the use of either of these maps to make wetland determinations.

3.1.1 National Wetland Inventory

The NWI map of the area (Figure 2) identified 18 wetland complexes within the study area. Four were classified as Freshwater Emergent Wetlands (PEM1A and PEM1C), three were classified as Freshwater Forested/Shrub Wetlands (PFO1A and PFO1C), one was classified as a freshwater pond (PUBGh), and ten were classified as Riverine (R4SBC and R5UBH).

3.1.2 National Flood Hazard Layer

The FEMA floodplain digital mapping of the area (Figure 3) identified no areas of flood hazard within the study area.

3.1.3 Stream Stats Basin Analysis

Three streams (s001, s006, and s201) had a stream basin greater than a square mile within the study area (Figure 3).

3.1.4 National Hydrography Dataset

The NHD map of the area (Figure 4) identified 24 surface waters on site.

3.1.5 **Soil Survey**

The NRCS Soil Survey of Ross County identified sixteen soil series on the site (Figure 4). The following table identifies the soil unit symbol, soil unit name, and whether or not the soil type contains components that meet the hydric soil criteria.

Table 3-2 Soil Types Within the Ross County Solar Study Area

Symbol	Description	Hydric
CgB	Celina silt loam, 2 to 6 percent slopes	No
CgB2	Celina silt loam, 2 to 6 percent slopes, eroded	No
CvA	Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	No
CvB	Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	No
Gf	Gessie silt loam, frequently flooded	No
KeD2	Kendallville-Eldean complex, 12 to 20 percent slopes, eroded	No
Kn	Kinn silt loam, occasionally flooded	No
Kp	Kokomo silty clay loam, 0 to 2 percent slopes	Yes
MhB	Miamian silt loam, 2 to 6 percent slopes	No
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded	No
MhC2	Miamian silt loam, 6 to 12 percent slopes, eroded	No
MnD2	Miamian silt loam, 12 to 18 percent slopes	No
MhE	Miamian silt loam, 20 to 35 percent slopes	No
Pc	Patton silty clay loam, sandy substratum	Yes
ThC3	Thrifton clay loam, 6 to 12 percent slopes, severely eroded	No
ThD3	Thrifton clay loam, 12 to 20 percent slopes, severely eroded	No

4 Methodology and Description

4.1 Regulated Waters Investigation

The delineation of regulated waters within the Study Area was based on the methodology described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Environmental Laboratory, 2010) as required by current USACE policy.

Prior to the field work, the background information was reviewed to establish the probability and potential location of wetlands and regulated waters on the site. Next, a general reconnaissance of the Study Area was conducted to determine site conditions. The site was then walked with the specific intent of determining wetland and jurisdictional stream boundaries. Data stations were established at locations within and near the wetland areas to document soil characteristics, evidence of hydrology and dominant vegetation. Note that no attempt was made to examine a full soil profile to confirm any soil series designations. However, when possible, soils were examined to a depth of at least 16 inches to assess soil characteristics and site hydrology. Complete descriptions of typical soil series can be found in the soil survey for this county.

4.1.1 Site Photographs

Photographs of the site are located in Appendix B. These photographs are the visual documentation of site conditions at the time of inspection. The photographs are intended to provide representative visual samples of any wetlands or other special features found on the site.

4.1.2 Delineation Data Sheets

Where stations represent a wetland boundary point they are typically presented as paired data points, one each documenting the wetland and upland sides of the wetland boundary. The routine wetland delineation data sheets used in the jurisdictional delineation process are located in Appendix C. These forms are the written documentation of how representative sample stations met or did not meet each of the wetland criteria. For plant species included on the National Wetlands Plant List, nomenclature will follow their lead. For all other plants not listed in the NWPL, nomenclature will follow the USDA's Plants Database. Data point locations are shown on Figure 5.

4.2 Technical Descriptions

Complete field data sheets from the site investigation are located in Appendix D. The site is located in Ross County, Ohio, west of SR41 and east of Rapid Forge Road near Greenfield, Ohio (Figure 1). The area investigated was approximately 1427.7 acres. The Study Area was primarily agricultural with some tree plantations, riparian corridor, and pasture.

4.2.1 Data Point and Wetland Descriptions

Upland Data Point

Data Point 001 (dp001)

Dominant vegetation in the vicinity of dp001 included Eastern Cottonwood (*Populus deltoides*, FAC), Ash-Leaf Maple (*Acer negundo*, FAC) in multiple strata, Amur honeysuckle (*Lonicera*

maackii, UPL), and Clustered Black-Snakeroot (*Sanicula odorata*, FAC). In addition, non-dominant vegetation observed included Honey-Locust (*Gleditsia triacanthos*, FACU), Green Ash (*Fraxinus pennsylvanica*, FACW), White Mulberry (*Morus alba*, FAC), border privet (*Ligustrum obtusifolium*, UPL), Canadian Honewort (*Cryptotaenia canadensis*, FAC), Kentucky Blue Grass (*Poa pratensis*, FAC), black raspberry (*Rubus occidentalis*, UPL), Garlic-Mustard (*Alliaria petiolata*, FAC), Hooded Blue Violet (*Viola sororia*, FAC), Sticky-Willy (*Galium aparine*, FACU), and Mother-of-the-Evening (*Hesperis matronalis*, FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/2 with a texture of Silty clay. The soil at the data point was mapped as Kinn silt loam, occasionally flooded (Kn), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 001 (0.83 acre)

This wetland was an emergent wetland located along an intermittent stream within an agricultural field. This wetland appeared to be recovered from past habitat disturbance. This wetland was adjoining an intermittent stream (S004 and S005). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.3.

Wetland Data Point

Data Point 002 (dp002)

Dominant vegetation in the vicinity of dp002 included Broad-Leaf Cat-Tail (*Typha latifolia*, OBL), Hairy-Fruit Sedge (*Carex trichocarpa*, OBL), and Reed Canary Grass (*Phalaris arundinacea*, FACW). In addition, non-dominant vegetation observed included Single-Vein Sweetflag (*Acorus calamus*, OBL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/2 with concentrations in the matrix at 10 percent, and a texture of Silt Loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Saturation (A3), Drift Deposits (B3), and secondary indicators of hydrology observed included Drainage Patterns (B10), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Wetland 002 (0.07 acre)

This wetland was a forested wetland located along a perennial stream. No evidence of habitat disturbance was observed. This wetland was adjoining a perennial stream (S006). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figures 5.2 and 5.5.

Upland Data Point

Data Point 003 (dp003)

Dominant vegetation in the vicinity of dp003 included Common Hackberry (*Celtis occidentalis*, FAC), Ash-Leaf Maple (FAC), Amur honeysuckle (UPL), and Davis' Sedge (*Carex davisii*, FAC).

In addition, non-dominant vegetation observed included Osage-Orange (*Maclura pomifera*, FACU), Common Hackberry (FAC), Black Cherry (*Prunus serotina*, FACU), Rambler Rose (*Rosa multiflora*, FACU), American Germander (*Teucrium canadense*, FACW), Clustered Black-Snakeroot (FAC), Canadian Honewort (FAC), Eastern Narrow-Leaf Sedge (*Carex amphibola*, FAC), Tall Goldenrod (*Solidago altissima*, FACU), and Eastern Daisy Fleabane (*Erigeron annuus*, FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 5/2 with a texture of Silt Loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland Data Point

Data Point 004 (dp004)

Dominant vegetation in the vicinity of dp004 included Common Hackberry (FAC), Black Walnut (*Juglans nigra*, FACU), and Fowl Manna Grass (*Glyceria striata*, OBL). In addition, non-dominant vegetation observed included Stalk-Grain Sedge (*Carex stipata*, OBL), Short's Sedge (*Carex shortiana*, FACW), Kentucky Blue Grass (FAC), Cress-Leaf Groundsel (*Packera glabella*, FACW), and Rice Cut Grass (*Leersia oryzoides*, OBL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/2 with concentrations in the matrix at 10 percent, and a texture of Silty Clay. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Depleted Matrix (F3), and Redox Depressions (F8) hydric soil criteria. Secondary indicators of hydrology observed included Drainage Patterns (B10), and Geomorphic Position (D2). This data point qualified as a wetland.

Wetland 003 (0.45 acre)

This wetland was a forested wetland located along a perennial stream. This wetland appeared to be recovered from past habitat disturbance. This wetland was adjoining a perennial stream (S006). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.5.

Wetland Data Point

Data Point 005 (dp005)

Dominant vegetation in the vicinity of dp005 included Ash-Leaf Maple (FAC), Black Willow (*Salix nigra*, OBL), Single-Vein Sweetflag (OBL), and Kentucky Blue Grass (FAC). In addition, non-dominant vegetation observed included Fowl Manna Grass (OBL), Rice Cut Grass (OBL), and American Water-Plantain (*Alisma subcordatum*, OBL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 5/1 with concentrations in the matrix at 5 percent, and a texture of Silt Loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Saturation (A3). This data point qualified as a wetland.

Upland Data Point

Data Point 006 (dp006)

Dominant vegetation in the vicinity of dp006 included Osage-Orange (FACU), Common Hackberry (FAC), Green Ash (FACW), Amur honeysuckle (UPL), Canadian Honewort (FAC), and Clustered Black-Snakeroot (FAC). In addition, non-dominant vegetation observed included Ash-Leaf Maple (FAC), Black Walnut (FACU), Thicket-Creeper (*Parthenocissus inserta*, FACU), Hooded Blue Violet (FAC), Virginia Wild Rye (*Elymus virginicus*, FACW), Giant Ironweed (*Vernonia gigantea*, FAC), Spotted Touch-Me-Not (*Impatiens capensis*, FACW), and Kentucky Blue Grass (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a mixed matrix of 10yr 3/2 at 60 percent and 10yr 5/3 at 40 percent with a soil texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 2 to 6 percent slopes (MhB), and did not meet any hydric soil criteria. Primary indicators of hydrology included Drift Deposits (B3). This data point did not meet wetland criteria.

Wetland 004 (0.09 acre)

This wetland was a forested wetland located along a perennial stream. This wetland appeared to have recovered from past habitat disturbance. This wetland was adjoining a perennial stream (S006). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.5.

Wetland Data Point

Data Point 007 (dp007)

Dominant vegetation in the vicinity of dp007 included Black Walnut (FACU), Ash-Leaf Maple (FAC), Single-Vein Sweetflag (OBL), Kentucky Blue Grass (FAC), and Beaked Cornsalad (*Valerianella radiata*, FAC). In addition, non-dominant vegetation observed included Virginia Wild Rye (FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/1 with concentrations in the matrix at 5 percent, and a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 2 to 6 percent slopes (MhB), and met the Depleted Matrix (F3), and Redox Depressions (F8) hydric soil criteria. The primary indicator of hydrology observed was Saturation (A3), and the secondary indicator of hydrology, Geomorphic Position (D2). This data point qualified as a wetland.

Upland Data Point

Data Point 008 (dp008)

Dominant vegetation in the vicinity of dp008 included Black Walnut (FACU) in multiple strata, Kentucky Blue Grass (FAC), Great Ragweed (*Ambrosia trifida*, FAC), Virginia Wild Rye (FACW), Clustered Black-Snakeroot (FAC), and Giant Ironweed (FAC). In addition, non-dominant vegetation observed included Amur honeysuckle (UPL), Canadian Honewort (FAC), Narrow-Leaf Blue-Eyed-Grass (*Sisyrinchium angustifolium*, FAC), and Wingstem (*Verbesina alternifolia*, FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/3 with a texture of Silt Loam. The soil at the data point was

mapped as Miamian silt loam, 2 to 6 percent slopes (MhB), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 005 (0.05 acre)

This wetland was a forested wetland located along a perennial stream. No evidence of habitat disturbance was observed. This wetland was adjoining a perennial stream (S006). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.3.

Wetland Data Point

Data Point 009 (dp009)

Dominant vegetation in the vicinity of dp009 included Black Walnut (FACU), Ash-Leaf Maple (FAC), Single-Vein Sweetflag (OBL), and Kentucky Blue Grass (FAC). In addition, non-dominant vegetation observed included Fowl Manna Grass (OBL), Cut-Leaf Water-Horehound (*Lycopus americanus*, OBL), Eastern Poison Ivy (*Toxicodendron radicans*, FAC), and Dark-Green Bulrush (*Scirpus atrovirens*, OBL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/1 with concentrations in the matrix at 5 percent, and a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 2 to 6 percent slopes (MhB), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Saturation (A3). This data point qualified as a wetland.

Upland Data Point

Data Point 010 (dp010)

Dominant vegetation in the vicinity of dp010 included Black Walnut (FACU) in multiple strata, Green Ash (FACW), Canadian Honewort (FAC), and Beaked Cornsalad (FAC). In addition, non-dominant vegetation observed included Amur honeysuckle (UPL), Honey-Locust (FACU), Kentucky Blue Grass (FAC), Narrow-Leaf Blue-Eyed-Grass (FAC), Virginia Wild Rye (FACW), Giant Ironweed (FAC), Clustered Black-Snakeroot (FAC), Wingstem (FACW), and Farewell-Summer (*Symphytotrichum lateriflorum*, FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/2 with a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 2 to 6 percent slopes (MhB), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 011 (dp011)

Dominant vegetation in the vicinity of dp011 included Ash-Leaf Maple (FAC), Honey-Locust (FACU), Black Walnut (FACU), Amur honeysuckle (UPL), White Mulberry (FAC), and Canadian Honewort (FAC). In addition, non-dominant vegetation observed included Black Walnut (FACU), Common Hackberry (FAC) in multiple strata, Kentucky Blue Grass (FAC), Hooded Blue Violet (FAC), Garlic-Mustard (FAC), Virginia Wild Rye (FACW), Gray's Sedge (*Carex grayi*, FACW), and

Wingstem (FACW). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/2 with a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 006 (0.10 acre)

This wetland was a scrub/scrub wetland located in a depression along the edge of an agricultural field. This wetland appeared to have recovered from past habitat disturbance. No surface water connection with any “waters of the United States” was observed. This wetland should be considered a “waters of the state”. See Figure 5.2.

Wetland Data Point

Data Point 012 (dp012)

Dominant vegetation in the vicinity of dp012 included American Sycamore (*Platanus occidentalis*, FACW), Ash-Leaf Maple (FAC), Black Willow (OBL), Stalk-Grain Sedge (OBL), and Melic Manna Grass (*Glyceria melicaria*, OBL). In addition, non-dominant vegetation observed included Green Ash (FACW), and Farewell-Summer (FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/1 with concentrations in the matrix at 5 percent, and a texture of Silt Loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Depleted Matrix (F3), and Redox Depressions (F8) hydric soil criteria. The primary indicators of hydrology observed were Saturation (A3), Algal Mat or Crust (B4), and the secondary indicator of hydrology was Geomorphic Position (D2). This data point qualified as a wetland.

Wetland 007 (0.31 acre)

This wetland was an emergent wetland located within an agricultural drainage feature. This wetland appeared to be recovering from past habitat disturbance. This wetland eventually flows into s201. Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figures 5.8 and 5.9.

Upland Data Point

Data Point 013 (dp013)

Dominant vegetation in the vicinity of dp013 included Reed Canary Grass (FACW). In addition, non-dominant vegetation observed included Indian-Hemp (*Apocynum cannabinum*, FAC), Hedge False Bindweed (*Calystegia sepium*, FAC), and Common Milkweed (*Asclepias syriaca*, FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 3/2 with a texture of Silty Clay. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland Data Point

Data Point 014 (dp014)

Dominant vegetation in the vicinity of dp014 included Reed Canary Grass (FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/1 with concentrations in the matrix at 10 percent, and a texture of Silt Loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA), and met the Depleted Matrix (F3) hydric soil criteria. The primary indicators of hydrology observed were High Water Table (A2), Saturation (A3), and the secondary indicator of hydrology was Drainage Patterns (B10). This data point qualified as a wetland.

Wetland 008 (0.05 acre)

This wetland was an emergent wetland located along an ephemeral stream. No evidence of habitat disturbance was observed. This wetland was adjoining an ephemeral stream (S009). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.8.

Wetland Data Point

Data Point 015 (dp015)

Dominant vegetation in the vicinity of dp015 included Black Elder (*Sambucus nigra*, FAC), and Dark-Green Bulrush (OBL)). In addition, non-dominant vegetation observed included Reed Canary Grass (FACW), Fowl Manna Grass (OBL), and White Panicked American-Aster (*Symphotrichum lanceolatum*, FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/2 with concentrations in the matrix at 10 percent, and a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 2 to 6 percent slopes, eroded (MhB2), and met the Depleted Matrix (F3) hydric soil criteria. The primary indicators of hydrology observed were High Water Table (A2), Saturation (A3), and the secondary indicator of hydrology was Drainage Patterns (B10). This data point qualified as a wetland.

Upland Data Point

Data Point 016 (dp016)

Dominant vegetation in the vicinity of dp016 included Ash-Leaf Maple (FAC), Sweet-Gum (*Liquidambar styraciflua*, FACW), Virginia-Creeper (*Parthenocissus quinquefolia*, FACU), and Tall Goldenrod (FACU). In addition, non-dominant vegetation observed included Black Cherry (FACU), Amur honeysuckle (UPL), Sticky-Willy (FACU), and Limestone-Meadow Sedge (*Carex granularis*, FACW). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/4 with a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 2 to 6 percent slopes, eroded (MhB2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 009 (0.66 acres)

This wetland was an emergent wetland located at the headwaters of two intermittent streams. No evidence of habitat disturbance was observed. This wetland was adjoining two intermittent stream (S010 and S011). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.4.

Wetland Data Point

Data Point 017 (dp017)

Dominant vegetation in the vicinity of dp017 included Dark-Green Bulrush (OBL), and Dudley's Rush (*Juncus dudleyi*, FACW). In addition, non-dominant vegetation observed included Field Horsetail (*Equisetum arvense*, FAC), Tall False Rye Grass (*Schedonorus arundinaceus*, FACU), and Common Fox Sedge (*Carex vulpinoidea*, FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 5/1 with concentrations in the matrix at 10 percent, and a texture of Silty Clay. The soil at the data point was mapped as Kendallville-Eldean complex, 12 to 20 percent slopes, eroded (KeD2), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included High Water Table (A2), and Saturation (A3). This data point qualified as a wetland.

Wetland 010 (0.02 acre)

This wetland was an emergent wetland located along an intermittent stream. No evidence of habitat disturbance was observed. This wetland was adjoining an intermittent stream (S011). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.4.

Upland Data Point

Data Point 018 (dp018)

Dominant vegetation in the vicinity of dp018 included Dark-Green Bulrush (OBL), and Dudley's Rush (FACW). In addition, non-dominant vegetation observed included Field Horsetail (FAC), Tall False Rye Grass (FACU), and Common Fox Sedge (FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/3 with a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 12 to 18 percent slopes, eroded (MhD2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland Data Point

Data Point 019 (dp019)

Dominant vegetation in the vicinity of dp019 included Rice Cut Grass (OBL), Spotted Touch-Me-Not (FACW), and Canadian Clearweed (*Pilea pumila*, FACW). In addition, non-dominant vegetation observed included Kentucky Blue Grass (FAC), Beaked Cornsalad (FAC), Field Horsetail (FAC), Purple-Stem American-Aster (*Symphotrichum puniceum*, OBL), Great Blue Lobelia (*Lobelia siphilitica*, OBL), White Panicked American-Aster (FAC), and Canadian Honewort

(FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/1 with concentrations in the matrix at 10 percent, and a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 12 to 18 percent slopes, eroded (MhD2), and met the Depleted Matrix (F3) hydric soil criteria. The primary indicators of hydrology observed were Saturation (A3), Drift Deposits (B3), and the secondary indicator of hydrology was Drainage Patterns (B10). This data point qualified as a wetland.

Upland Data Point

Data Point 020 (dp020)

Dominant vegetation in the vicinity of dp020 included Tall Goldenrod (FACU), and Japanese Honeysuckle (*Lonicera japonica*, FACU). In addition, non-dominant vegetation observed included Giant Ironweed (FAC), Pennsylvania Blackberry (*Rubus pensilvanicus*, UPL), autumn olive (*Elaeagnus umbellata*, UPL), Twinsisters (*Lonicera tatarica*, FACU), New England American-Aster (*Symphotrichum novae-angliae*, FACW), Common Yarrow (*Achillea millefolium*, FACU), and Smooth Brome (*Bromus inermis*, FACU). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 5/2 with concentrations in the matrix at 10 percent, and a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 12 to 18 percent slopes, eroded (MhD2), and met the Depleted Matrix (F3) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 021 (dp021)

Dominant vegetation in the vicinity of dp021 included Stalk-Grain Sedge (OBL), and Frank's Sedge (*Carex frankii*, OBL). In addition, non-dominant vegetation observed included Limestone-Meadow Sedge (FACW), Bristly Lady's-Thumb (*Persicaria longiseta*, FAC), Devil's-Pitchfork (*Bidens frondosa*, FACW), and Kentucky Blue Grass (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 5/2 with concentrations in the matrix at 10 percent, and a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 12 to 18 percent slopes, eroded (MhD2), and met the Depleted Matrix (F3) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 011 (0.03 acre)

This wetland was an emergent wetland adjacent to a perennial stream. No evidence of habitat disturbance was observed. This wetland appeared to be recovering/have recovered from past habitat disturbance.) This wetland adjoined a perennial stream (S025). Due to this connection, this wetland should be considered a "waters of the U.S.". See Figure 5.17.

Wetland Data Point

Data Point 022 (dp022)

Dominant vegetation in the vicinity of dp022 included Field Horsetail (FAC), and Spotted Touch-Me-Not (FACW). In addition, non-dominant vegetation observed included Cress-Leaf Groundsel (FACW), Fowl Manna Grass (OBL), and Canadian Honewort (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 3/2 with concentrations in the matrix at 10 percent, and a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 12 to 18 percent slopes, eroded (MhD2), and met the Redox Dark Surface (F6) hydric soil criteria. Primary indicators of hydrology included High Water Table (A2), and Saturation (A3). This data point qualified as a wetland.

Upland Data Point

Data Point 023 (dp023)

Dominant vegetation in the vicinity of dp023 included Black Walnut (FACU), Amur honeysuckle (UPL), and Broad-Leaf Enchanter's-Nightshade (*Circaea canadensis*, FACU). In addition, non-dominant vegetation observed included Common Hackberry (FAC), Slippery Elm (*Ulmus rubra*, FAC), Rambler Rose (FACU), Silver Maple (*Acer saccharinum*, FACW), Inflated Narrow-Leaf Sedge (*Carex grisea*, FAC), Sticky-Willy (FACU), White Avena (*Geum canadense*, FAC), Hairy Wild Rye (*Elymus villosus*, FACU), Orchard Grass (*Dactylis glomerata*, FACU), and Eastern Star Sedge (*Carex radiata*, FAC). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 4/3 with a texture of Silty Clay. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 024 (dp024)

Dominant vegetation in the vicinity of dp024 included Black Walnut (FACU), Sugar Maple (*Acer saccharum*, FACU), Amur honeysuckle (UPL), Pennsylvania Blackberry (UPL), May-Apple (*Podophyllum peltatum*, FACU), and Nodding Fescue (*Festuca subverticillata*, FACU). In addition, non-dominant vegetation observed included Common Pawpaw (*Asimina triloba*, FAC), Tall Goldenrod (FACU), and Garlic-Mustard (FAC). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 20 inches had a matrix soil color of 10yr 5/3 with a texture of Silty Clay. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 101 (0.13 acre)

This wetland was an emergent wetland located within an agricultural drainage swale. This wetland appeared to be recovering from past habitat disturbance. This wetland is part of the

regional drainage. Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.11.

Wetland Data Point

Data Point 101 (dp101)

Dominant vegetation in the vicinity of dp101 included Virginia Wild Rye (FACW). In addition, non-dominant vegetation observed included Common Fox Sedge (FACW), Common Boneset (*Eupatorium perfoliatum*, OBL), Dark-Green Bulrush (OBL), Cursed Buttercup (*Ranunculus sceleratus*, OBL), and Kentucky Blue Grass (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 3 inches had a matrix soil color of 10YR 3/2 with concentrations in the matrix at 3 percent, and a texture of silty clay loam. The soil from 3 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 5 percent, and a texture of silty clay loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Depleted Below Dark Surface (A11), and Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Surface Water (A1), and secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 102 (dp102)

Dominant vegetation in the vicinity of dp102 included common wheat (*Triticum aestivum*, UPL), and Kentucky Blue Grass (FAC). In addition, non-dominant vegetation observed included Eastern Daisy Fleabane (FACU), Shepherd's-Purse (*Capsella bursa-pastoris*, FACU), Yellow Sweet-Clover (*Melilotus officinalis*, FACU), Canadian Goldenrod (*Solidago canadensis*, FACU), Canadian Horseweed (*Erigeron canadensis*, FACU), Queen Anne's-Lace (*Daucus carota*, UPL), Prairie Fleabane (*Erigeron strigosus*, FACU), and Indian-Hemp (FAC). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 3 inches had a matrix soil color of 10YR 3/2 with concentrations in the matrix at 7 percent, and concentrations in the matrix at 3 percent, and a texture of silty clay loam. The soil from 3 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 5 percent, and a texture of silty clay loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Depleted Matrix (F3) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 103 (dp103)

Dominant vegetation in the vicinity of dp103 included common wheat (UPL). In addition, non-dominant vegetation observed included Annual Ragweed (*Ambrosia artemisiifolia*, FACU), and Creeping-Jenny (*Lysimachia nummularia*, FACW). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 2 inches had a matrix soil color of 10YR 3/2 with a texture of Loam. The soil from 2 to 12 inches had a matrix soil color of 10YR 4/2 with

concentrations in the matrix at 3 percent, and a texture of clay loam. The soil at the data point was mapped as Patton silty clay loam, sandy substratum (Pc), and met the Depleted Below Dark Surface (A11), and Depleted Matrix (F3) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 102 (0.01 acre)

This wetland was an emergent wetland located within an agricultural drainage swale. This wetland appeared to be recovering from past habitat disturbance. This wetland drains into an intermittent stream (S103). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.15.

Wetland Data Point

Data Point 104 (dp104)

Dominant vegetation in the vicinity of dp104 included Rice Cut Grass (OBL). In addition, non-dominant vegetation observed included Dark-Green Bulrush (OBL), and Canadian Thistle (*Cirsium arvense*, FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 3 inches had a matrix soil color of 10YR 4/3 with a texture of Loam. The soil from 3 to 16 inches had a matrix soil color of 10YR 5/2 with concentrations in the matrix at 3 percent, and concentrations in the matrix at 2 percent, and a texture of clay loam. The soil at the data point was mapped as Kendallville-Eldean complex, 20 to 35 percent slopes, eroded (KeE2), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Oxidized Rhizospheres on Living Roots (C3), and secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 105 (dp105)

Dominant vegetation in the vicinity of dp105 included Canadian Goldenrod (FACU), and Kentucky Blue Grass (FAC). In addition, non-dominant vegetation observed included Canadian Thistle (FACU). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 4 inches had a matrix soil color of 10YR 3/3 with a texture of clay loam. The soil from 4 to 16 inches had a matrix soil color of 10YR 4/3 with concentrations in the matrix at 5 percent, and a texture of clay loam. The soil at the data point was mapped as Kendallville-Eldean complex, 20 to 35 percent slopes, eroded (KeE2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 103 (0.01 acre)

This wetland was an emergent wetland located within a depression in agricultural field. This wetland appeared to have recent or no recovery from past habitat disturbance. No surface water connection with any “waters of the United States” was observed. This wetland should be considered a “waters of the state”. See Figure 5.15.

Wetland Data Point

Data Point 106 (dp106)

Dominant vegetation in the vicinity of dp106 included Common Spike-Rush (*Eleocharis palustris*, OBL). In addition, non-dominant vegetation observed included Large Barnyard Grass (*Echinochloa crus-galli*, FACW), Tufted Meadow-Foxtail (*Alopecurus carolinianus*, FACW), Curly Dock (*Rumex crispus*, FAC), and Kentucky Blue Grass (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 2 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 5 percent, and a texture of clay loam. The soil from 2 to 18 inches had a matrix soil color of 10YR 5/2 with concentrations in the matrix at 7 percent, and concentrations in the matrix at 3 percent, and a texture of clay loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Algal Mat or Crust (B4), Sparsely Vegetated Concave Surface (B8), and secondary indicators of hydrology observed included Surface Soil Cracks (B6), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 107 (dp107)

Dominant vegetation in the vicinity of dp107 included common wheat (UPL). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 2 inches had a matrix soil color of 10YR 3/2 with a texture of loam. The soil from 2 to 18 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 3 percent, and a texture of clay loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB), and met the Depleted Below Dark Surface (A11), and Depleted Matrix (F3) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 104 (0.06 acre)

This wetland was an emergent wetland located along a perennial stream. This wetland appeared to be recovering from past habitat disturbance. This wetland adjoined a perennial stream (S1-5). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figures 5.13 and 5.14.

Wetland Data Point

Data Point 108 (dp108)

Dominant vegetation in the vicinity of dp108 included Rice Cut Grass (OBL). In addition, non-dominant vegetation observed included Field Horsetail (FAC), Spotted Touch-Me-Not (FACW), Devil's-Pitchfork (FACW), and Kentucky Blue Grass (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 18 inches had a matrix soil color of 10YR 5/2 with concentrations in the matrix at 2 percent, and a texture of Silt Loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and met the Depleted Matrix (F3) hydric soil criteria. The primary indicators of hydrology observed were High Water

Table (A2), Saturation (A3), and the secondary indicator of hydrology was the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 109 (dp109)

Dominant vegetation in the vicinity of dp109 included White Clover (*Trifolium repens*, FACU), Kentucky Blue Grass (FAC), Frank's Sedge (OBL), Red Clover (*Trifolium pratense*, FACU), and Great Plantain (*Plantago major*, FAC). In addition, non-dominant vegetation observed included Eastern Daisy Fleabane (FACU), and Common Dandelion (*Taraxacum officinale*, FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 2 inches had a matrix soil color of 10YR 3/3 with a texture of loam. The soil from 2 to 18 inches had a matrix soil color of 10YR 4/1 with concentrations in the matrix at 30 percent, and a texture of loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and met the Depleted Matrix (F3) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 105 (0.005 acre)

This wetland was an emergent wetland located along a perennial stream. This wetland appeared to be recovering from past habitat disturbance. This wetland adjoined a perennial stream (S105). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.13.

Wetland Data Point

Data Point 110 (dp110)

Dominant vegetation in the vicinity of dp110 included Rice Cut Grass (OBL), Field Horsetail (FAC), and Kentucky Blue Grass (FAC). In addition, non-dominant vegetation observed included Common Boneset (OBL), Common Fox Sedge (FACW), Lamp Rush (*Juncus effusus*, OBL), and Curly Dock (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 2 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 5 percent, and a texture of loam. The soil from 2 to 18 inches had a matrix soil color of 10YR 4/1 with concentrations in the matrix at 1 percent, and a texture of loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included the FAC-Neutral Test (D5). This data point qualified as a wetland.

Wetland 106 (0.01 acre)

This wetland was an emergent wetland located along a perennial stream. This wetland appeared to be recovering from past habitat disturbance. This wetland adjoined a perennial stream (S105). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.13.

Wetland Data Point

Data Point 111 (dp111)

Dominant vegetation in the vicinity of dp111 included Field Horsetail (FAC), Kentucky Blue Grass (FAC), Dark-Green Bulrush (OBL), and White Panicked American-Aster (FAC). In addition, non-dominant vegetation observed included Common Boneset (OBL), Spotted Touch-Me-Not (FACW), Common Fox Sedge (FACW), and Short's Sedge (FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 1 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 5 percent, and a texture of silt loam. The soil from 1 to 18 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 3 percent, and a texture of Sandy Loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 112 (dp112)

Dominant vegetation in the vicinity of dp112 included Red Clover (FACU), Poison-Hemlock (*Conium maculatum*, FACW), and Kentucky Blue Grass (FAC). In addition, non-dominant vegetation observed included Black-Seed Plantain (*Plantago rugelii*, FAC), Bull Thistle (*Cirsium vulgare*, FACU), Canadian Thistle (FACU), Common Dandelion (FACU), Curly Dock (FAC), Field Brome (*Bromus arvensis*, FACU), Common Timothy (*Phleum pratense*, FACU), English Plantain (*Plantago lanceolata*, FACU), and Queen Anne's-Lace (UPL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 6 inches had a matrix soil color of 10YR 3/3 with a texture of loam. The soil from 6 to 18 inches had a matrix soil color of 10YR 3/3 with concentrations in the matrix at 2 percent, and a texture of clay loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 107 (0.03 acre)

This wetland was an emergent wetland located along an ephemeral stream. This wetland appeared to be recovering from past habitat disturbance. This wetland adjoined an ephemeral stream (S106). Due to this connection, this wetland should be considered a "waters of the U.S.". See Figure 5.13.

Wetland Data Point

Data Point 113 (dp113)

Dominant vegetation in the vicinity of dp113 included Rice Cut Grass (OBL). In addition, non-dominant vegetation observed included Dark-Green Bulrush (OBL), Chufa (*Cyperus esculentus*, FACW), Kentucky Blue Grass (FAC), and Cursed Buttercup (OBL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 4 inches had a matrix soil color of 10YR

5/2 with concentrations in the matrix at 3 percent, and a texture of silt loam. The soil from 4 to 18 inches had a matrix soil color of 10YR 5/2 with concentrations in the matrix at 5 percent, and a texture of clay loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Surface Water (A1), Saturation (A3), and secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 114 (dp114)

Dominant vegetation in the vicinity of dp114 included Red Clover (FACU). In addition, non-dominant vegetation observed included Frank's Sedge (OBL), Kentucky Blue Grass (FAC), English Plantain (FACU), Philadelphia Fleabane (*Erigeron philadelphicus*, FACW), and Great Plantain (FAC). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 4 inches had a matrix soil color of 10YR 3/3 with concentrations in the matrix at 10 percent, and a texture of silt loam. The soil from 4 to 18 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 5 percent, and a texture of silt loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and met the Depleted Matrix (F3) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 115 (dp115)

Dominant vegetation in the vicinity of dp115 included Red Clover (FACU). In addition, non-dominant vegetation observed included Frank's Sedge (OBL), Kentucky Blue Grass (FAC), English Plantain (FACU), Philadelphia Fleabane (FACW), and Great Plantain (FAC). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 3 inches had a matrix soil color of 10YR 3/2 with a texture of loam. The soil from 3 to 18 inches had a matrix soil color of 10YR 4/3 with concentrations in the matrix at 3 percent, and a texture of clay loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 108 (0.01 acre)

This wetland was an emergent wetland located within a depression in agricultural field. This wetland appeared to have recent or no recovery from past habitat disturbance. No surface water connection with any "waters of the United States" was observed. This wetland should be considered a "waters of the state". See Figure 5.13.

Wetland Data Point

Data Point 116 (dp116)

Dominant vegetation in the vicinity of dp116 included Rice Cut Grass (OBL). In addition, non-dominant vegetation observed included Kentucky Blue Grass (FAC), Curly Dock (FAC), Red Clover (FACU), and Philadelphia Fleabane (FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 18 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 5 percent, and a texture of silty clay loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 117 (dp117)

Dominant vegetation in the vicinity of dp117 included Sugar Maple (FACU) in multiple strata, and Garlic-Mustard (FAC). In addition, non-dominant vegetation observed included Common Hackberry (FAC), White Ash (*Fraxinus americana*, FACU), Northern White Oak (*Quercus alba*, FACU), Great Ragweed (FAC), White Grass (*Leersia virginica*, FACW), Ohio Buckeye (*Aesculus glabra*, FAC), Allegheny Blackberry (*Rubus allegheniensis*, FACU), Poison-Hemlock (FACW), and James' sedge (*Carex jamesii*, UPL). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 4 inches had a matrix soil color of 10YR 3/3 with a texture of loam. The soil from 4 to 18 inches had a matrix soil color of 10YR 4/3 with concentrations in the matrix at 3 percent, and a texture of loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 118 (dp118)

Dominant vegetation in the vicinity of dp118 included Slippery Elm (FAC), Common Hackberry (FAC) in multiple strata, Rambler Rose (FACU), Common Pawpaw (FAC), Amur honeysuckle (UPL), Canadian Honewort (FAC), Maryland Black-Snakeroot (*Sanicula marilandica*, FACU), Spotted Touch-Me-Not (FACW), White Grass (FACW), and Tall Goldenrod (FACU). In addition, non-dominant vegetation observed included American Basswood (*Tilia americana*, FACU), Black Walnut (FACU), Common Pawpaw (FAC), Fowl Manna Grass (OBL), Great Ragweed (FAC), Kentucky Blue Grass (FAC), White Panicked American-Aster (FAC), and bitter lettuce (*Lactuca virosa*, UPL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 6 inches had a matrix soil color of 10YR 3/2 with a texture of loam. The soil from 6 to 18 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 10 percent, and a texture of loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and met the Depleted Below Dark Surface (A11), and Depleted Matrix (F3) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 119 (dp119)

Dominant vegetation in the vicinity of dp119 included Kentucky coffeetree (*Gymnocladus dioica*, UPL), Rambler Rose (FACU), Allegheny Blackberry (FACU), Eastern Star Sedge (FAC), and Canadian Honewort (FAC). In addition, non-dominant vegetation observed included Black Walnut (FACU), Black Locust (*Robinia pseudoacacia*, FACU), Slippery Elm (FAC), American Basswood (FACU), Amur honeysuckle (UPL) in multiple strata, Common Hackberry (FAC), Maryland Black-Snakeroot (FACU), Great Ragweed (FAC), Kentucky Blue Grass (FAC), Stalk-Grain Sedge (OBL), Hairy Wild Rye (FACU), Spring Avenas (*Geum vernum*, FACU), Sticky-Willy (FACU), Limestone-Meadow Sedge (FACW), and Short's Sedge (FACW). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 5 inches had a matrix soil color of 10YR 3/2 with concentrations in the matrix at 5 percent, and a texture of loam. The soil from 5 to 18 inches had a matrix soil color of 10YR 3/2 with concentrations in the matrix at 3 percent, and a texture of loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Redox Dark Surface (F6) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 120 (dp120)

Dominant vegetation in the vicinity of dp120 included Green Ash (FACW), Slippery Elm (FAC), Rambler Rose (FACU), Amur honeysuckle (UPL), Black Elder (FAC), Common Pawpaw (FAC), Kentucky Blue Grass (FAC), Spotted Touch-Me-Not (FACW), and Canadian Clearweed (FACW). In addition, non-dominant vegetation observed included Black Locust (FACU), Dark-Green Bulrush (OBL), Indian-Hemp (FAC), Canadian Goldenrod (FACU), Eastern Poison Ivy (FAC), Eastern Woodland Sedge (*Carex blanda*, FAC), Blunt Broom Sedge (*Carex tribuloides*, OBL), Frank's Sedge (OBL), and Black Walnut (FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 2 inches had a matrix soil color of 10YR 3/2 with a texture of loam. The soil from 2 to 18 inches had a matrix soil color of 10YR 4/4 with concentrations in the matrix at 5 percent, and a texture of loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB), and did not meet any hydric soil criteria. Secondary indicators of hydrology observed included the FAC-Neutral Test (D5). recent heavy rain the night before. This data point did not meet wetland criteria.

Wetland 109 (0.06 acre)

This wetland was a forested wetland located along a perennial stream. This wetland appeared to have recovered from past habitat disturbance. This wetland adjoined a perennial stream (S104). Due to this connection, this wetland should be considered a "waters of the U.S.". See Figure 5.14.

Wetland Data Point

Data Point 121 (dp121)

Dominant vegetation in the vicinity of dp121 included Ash-Leaf Maple (FAC), Spotted Touch-Me-Not (FACW), and Fowl Manna Grass (OBL). In addition, non-dominant vegetation observed included Blunt Broom Sedge (OBL), Limestone-Meadow Sedge (FACW), Kentucky Blue Grass (FAC), Virginia Wild Rye (FACW), Short's Sedge (FACW), and Late Goldenrod (*Solidago gigantea*, FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 18 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 10 percent, and a texture of silty clay loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Surface Water (A1), Saturation (A3), and secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 122 (dp122)

Dominant vegetation in the vicinity of dp122 included American Elm (*Ulmus americana*, FACW), White Mulberry (FAC), Rambler Rose (FACU), Amur honeysuckle (UPL), and Virginia Wild Rye (FACW). In addition, non-dominant vegetation observed included White Ash (FACU), Great Ragweed (FAC), black raspberry (UPL), Canadian Honewort (FAC), Annual Blue Grass (*Poa annua*, FACU), Short's Sedge (FACW), White Mulberry (FAC), Inflated Narrow-Leaf Sedge (FAC), and Sticky-Willy (FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 4 inches had a matrix soil color of 10YR 3/2 with a texture of loam. The soil from 4 to 18 inches had a mixed matrix of 10YR 3/3 at 60 percent and 10YR 4/4 at 40 percent with a soil texture of clay loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 110 (0.07 acre)

This wetland was an emergent wetland located along a perennial stream. This wetland appeared to have recovered from past habitat disturbance. This wetland adjoined a perennial stream (S104). Due to this connection, this wetland should be considered a "waters of the U.S.". See Figure 5.14.

Wetland Data Point

Data Point 123 (dp123)

Dominant vegetation in the vicinity of dp123 included Slippery Elm (FAC), Spotted Touch-Me-Not (FACW), and Rice Cut Grass (OBL). In addition, non-dominant vegetation observed included Great Ragweed (FAC), Fowl Manna Grass (OBL), and Kentucky Blue Grass (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 4 inches had a matrix soil color of 10YR 4/4 with concentrations in the matrix at 40 percent, and a texture of loam. The soil

from 4 to 18 inches had a matrix soil color of 10YR 5/2 with concentrations in the matrix at 5 percent, and a texture of loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Saturation (A3), and secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 124 (dp124)

Dominant vegetation in the vicinity of dp124 included Shepherd's-Purse (FACU). In addition, non-dominant vegetation observed included common wheat (UPL). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 5 inches had a matrix soil color of 10YR 3/2 with a texture of clay loam. The soil from 5 to 18 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 2 percent, and a texture of clay loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Depleted Below Dark Surface (A11), and Depleted Matrix (F3) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 201 (0.06 acre)

This wetland was a forested wetland located within an isolated woodlot. No evidence of habitat disturbance was observed. No surface water connection with any "waters of the United States" was observed. This wetland should be considered a "waters of the state". See Figure 5.8.

Wetland Data Point

Data Point 201 (dp201)

Dominant vegetation in the vicinity of dp201 included American Elm (FACW), Common Hackberry (FAC), Soft Fox Sedge (*Carex conjuncta*, FACW), and Eastern Star Sedge (FAC). In addition, non-dominant vegetation observed included Bitter-Nut Hickory (*Carya cordiformis*, FACU), American Elm (FACW), Cress-Leaf Groundsel (FACW), Inflated Narrow-Leaf Sedge (FAC), Woodland Blue Grass (*Poa sylvestris*, FAC), White Grass (FACW), Jumpseed (*Persicaria virginiana*, FAC), and Eastern Poison Ivy (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/1 with concentrations in the matrix at 10 percent, and a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA), and met the Redox Dark Surface (F6), and Redox Depressions (F8) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 202 (dp202)

Dominant vegetation in the vicinity of dp202 included Common Hackberry (FAC) in multiple strata, Black Walnut (FACU), Green Ash (FACW), Amur honeysuckle (UPL), Nodding Fescue (FACU), and Virginia-Creeper (FACU). In addition, non-dominant vegetation observed included White Avens (FAC), Jumpseed (FAC), Amur honeysuckle (UPL), Rambler Rose (FACU), fuzzy wuzzy sedge (*Carex hirsutella*, UPL), and Garlic-Mustard (FAC). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/2 with a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland Data Point

Data Point 203 (dp203)

Dominant vegetation in the vicinity of dp203 included Green Ash (FACW), American Elm (FACW), Common Pawpaw (FAC), Inflated Narrow-Leaf Sedge (FAC), and White Grass (FACW). In addition, non-dominant vegetation observed included Amur honeysuckle (UPL), Soft Fox Sedge (FACW), Virginia-Creeper (FACU), White Avens (FAC), and Cress-Leaf Groundsel (FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/1 with concentrations in the matrix at 10 percent, and a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA), and met the Redox Dark Surface (F6), and Redox Depressions (F8) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 204 (dp204)

Dominant vegetation in the vicinity of dp204 included Black Cherry (FACU), Bitter-Nut Hickory (FACU) in multiple strata, American Elm (FACW), Green Ash (FACW), Jumpseed (FAC), Japanese Honeysuckle (FACU), Inflated Narrow-Leaf Sedge (FAC), Farewell-Summer (FACW), and Virginia-Creeper (FACU). In addition, non-dominant vegetation observed included Maryland Black-Snakeroot (FACU), Woodland Blue Grass (FAC), and Jack-in-the-Pulpit (*Arisaema triphyllum*, FACW). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/3 with concentrations in the matrix at 5 percent, and a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 205 (dp205)

Dominant vegetation in the vicinity of dp205 included Allegheny Blackberry (FACU), Common Hackberry (FAC), Short's Sedge (FACW), and Tall Goldenrod (FACU). In addition, non-dominant vegetation observed included Cress-Leaf Groundsel (FACW), Curly Dock (FAC), Great Ragweed (FAC), Narrow-Leaf Blue-Eyed-Grass (FAC), and Eastern Daisy Fleabane (FACU). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/1 with a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 206 (dp206)

Dominant vegetation in the vicinity of dp206 included Sandbar Willow (FACW), Late Goldenrod (FACW), and Kentucky Blue Grass (FAC). In addition, non-dominant vegetation observed included Hooded Blue Violet (FAC), Poison-Hemlock (FACW), American Hog-Peanut (FAC), Hedge False Bindweed (FAC), and Eastern Daisy Fleabane (FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and did not meet any hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point did not meet wetland criteria.

Wetland 202 (0.01 acre)

This wetland was an emergent wetland located within a depression in agricultural field. No evidence of habitat disturbance was observed. No surface water connection with any "waters of the United States" was observed. This wetland should be considered a "waters of the state". See Figure 5.8.

Wetland Data Point

Data Point 207 (dp207)

Dominant vegetation in the vicinity of dp207 included Sandbar Willow (*Salix interior*, FACW), Dark-Green Bulrush (OBL), and Dudley's Rush (FACW). In addition, non-dominant vegetation observed included Kentucky Blue Grass (FAC), Late Goldenrod (FACW), hybrid cattail (*Typha X glauca*, OBL), and Eastern Poison Ivy (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 10 percent, and a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 208 (dp208)

Dominant vegetation in the vicinity of dp208 included Tall Goldenrod (FACU). In addition, non-dominant vegetation observed included Tall False Rye Grass (FACU), Eastern Poison Ivy (FAC), and Red Clover (FACU). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a mixed matrix of 10YR 4/2 at 40 percent and 10YR 4/4 at 60 percent with a soil texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 203 (0.01 acre)

This wetland was an emergent wetland located along an ephemeral stream. This wetland appeared to have recovered from past habitat disturbance. This wetland adjoined an ephemeral stream (S201). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.9.

Wetland Data Point

Data Point 209 (dp209)

Dominant vegetation in the vicinity of dp209 included hybrid cattail (OBL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 10 percent, and a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 210 (dp210)

Dominant vegetation in the vicinity of dp210 included Amur honeysuckle (UPL), Tall Goldenrod (FACU), Navel Corsalad (*Valerianella umbilicata*, FACW), Poison-Hemlock (FACW), and River-Bank Grape (*Vitis riparia*, FACW). In addition, non-dominant vegetation observed included American Hog-Peanut (FAC), Hedge False Bindweed (FAC), and Kentucky Blue Grass (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/3 with a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and did not meet any hydric soil criteria. Only the secondary indicator the FAC-Neutral Test (D5) was observed. This data point did not meet wetland criteria.

Wetland 204 (0.12 acre)

This wetland was an emergent wetland located along an ephemeral stream. No evidence of habitat disturbance was observed. This wetland adjoined an ephemeral stream (S201). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.9.

Wetland Data Point

Data Point 211 (dp211)

Dominant vegetation in the vicinity of dp211 included Short's Sedge (FACW), and Common Fox Sedge (FACW). In addition, non-dominant vegetation observed included Dark-Green Bulrush (OBL), Tall False Rye Grass (FACU), Reed Canary Grass (FACW), Hedge False Bindweed (FAC), and Red Clover (FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 10 percent, and a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Wetland 205 (0.07 acre)

This wetland was an emergent wetland located along an ephemeral stream. No evidence of habitat disturbance was observed. This wetland adjoined an ephemeral stream (S201). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.10.

Wetland Data Point

Data Point 212 (dp212)

Dominant vegetation in the vicinity of dp212 included Short's Sedge (FACW), and Common Fox Sedge (FACW). In addition, non-dominant vegetation observed included Dark-Green Bulrush (OBL), Tall False Rye Grass (FACU), Reed Canary Grass (FACW), Hedge False Bindweed (FAC), and Red Clover (FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 10 percent, and a texture of Sandy Loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 213 (dp213)

Dominant vegetation in the vicinity of dp213 included White Mulberry (FAC), Eastern Poison Ivy (FAC), and Poison-Hemlock (FACW). In addition, non-dominant vegetation observed included Johnson Grass (*Sorghum halepense*, FACU), Common Milkweed (FACU), and Common Morning-Glory (*Ipomoea purpurea*, FACU). The plants at this data point qualified as hydrophytic

vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/3 with a texture of silt Loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and did not meet any hydric soil criteria. Only the secondary indicator the FAC-Neutral Test (D5) was observed. This data point did not meet wetland criteria.

Wetland 206 (0.03 acre)

This wetland was an emergent wetland located along an ephemeral stream. No evidence of habitat disturbance was observed. This wetland adjoined an ephemeral stream (S201). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.10.

Wetland Data Point

Data Point 214 (dp214)

Dominant vegetation in the vicinity of dp214 included Sandbar Willow (FACW), Kentucky Blue Grass (FAC), Navel Cornsalad (FACW), Rice Cut Grass (OBL), Late Goldenrod (FACW), and Common Boneset (OBL). In addition, non-dominant vegetation observed included Dark-Green Bulrush (OBL), hybrid cattail (OBL), Hemlock Water-Parsnip (*Sium suave*, OBL), American Hog-Peanut (FAC), and Great Ragweed (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 10 percent, and a texture of Sandy Loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes, and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Wetland 207 (0.09 acre)

This wetland was a forested wetland located within a depression in an isolated woodlot. This wetland appeared to be recovering from past habitat disturbance. No surface water connection with any “waters of the United States” was observed. This wetland should be considered a “waters of the state”. See Figure 5.10.

Wetland Data Point

Data Point 215 (dp215)

Dominant vegetation in the vicinity of dp215 included Northern Spicebush (*Lindera benzoin*, FACW), Rambler Rose (FACU), Ash-Leaf Maple (FAC), Short's Sedge (FACW), and Soft Fox Sedge (FACW). In addition, non-dominant vegetation observed included Canadian Goldenrod (FACU), Fowl Manna Grass (OBL), Eastern Poison Ivy (FAC), and Davis' Sedge (FAC). This area had been clearcut within the last five years. The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/2 with concentrations in the matrix at 10 percent, and a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA), and met the Redox Dark Surface (F6), and Redox Depressions (F8) hydric soil criteria. Secondary

indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 216 (dp216)

Dominant vegetation in the vicinity of dp216 included Rambler Rose (FACU), Common Pawpaw (FAC), Virginia-Creeper (FACU), and Maryland Black-Snakeroot (FACU). In addition, non-dominant vegetation observed included Hooded Blue Violet (FAC), Davis' Sedge (FAC), Tall Goldenrod (FACU), Sticky-Willy (FACU), Great Ragweed (FAC), Bitter-Nut Hickory (FACU), Allegheny Blackberry (FACU), Eastern Poison Ivy (FAC), Red Maple (*Acer rubrum*, FAC), and Spring Avens (FACU). This area had been clearcut within the last five years. The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/2 with a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 217 (dp217)

Dominant vegetation in the vicinity of dp217 included Poison-Hemlock (FACW), and Sticky-Willy (FACU). In addition, non-dominant vegetation observed included Common Chickweed (*Stellaria media*, FACU), Tall Goldenrod (FACU), Groundivy (*Glechoma hederacea*, FACU), Canadian Thistle (FACU), Smooth Brome (FACU), and Common Timothy (FACU). Area filled with old hay bales. The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/2 with a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 208 (0.11 acre)

This wetland was an emergent wetland located adjacent to a perennial stream. This wetland appeared to be recovering from past habitat disturbance. This wetland drained into a perennial stream (S205). Due to this connection, this wetland should be considered a "waters of the U.S.". See Figure 5.14.

Wetland Data Point

Data Point 218 (dp218)

Dominant vegetation in the vicinity of dp218 included Curly Dock (FAC), and Reed Canary Grass (FACW). In addition, non-dominant vegetation observed included Frank's Sedge (OBL), Kentucky Blue Grass (FAC), and Great Ragweed (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/2 with

concentrations in the matrix at 5 percent, and a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Redox Dark Surface (F6) hydric soil criteria. Secondary indicators of hydrology observed included Surface Soil Cracks (B6), Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 219 (dp219)

Dominant vegetation in the vicinity of dp219 included Red Clover (FACU). In addition, non-dominant vegetation observed included Kentucky Blue Grass (FAC), Yellow Sweet-Clover (FACU), and wild parsnip (*Pastinaca sativa*, UPL). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/2 with a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 209 (0.76 acre)

This wetland was an emergent wetland located along both sides of a perennial stream. No evidence of habitat disturbance was observed. This wetland adjoined perennial stream (S205). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figures 5.10 and 5.14.

Wetland Data Point

Data Point 220 (dp220)

Dominant vegetation in the vicinity of dp220 included Reed Canary Grass (FACW), and Rice Cut Grass (OBL). In addition, non-dominant vegetation observed included Cursed Buttercup (OBL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 20 percent, and a texture of sandy loam. The soil at the data point was mapped as Miamian silt loam, 2 to 6 percent slopes, eroded (MhB2), and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 221 (dp221)

Dominant vegetation in the vicinity of dp221 included Smooth Brome (FACU). In addition, non-dominant vegetation observed included Red Clover (FACU), Canadian Thistle (FACU), Tall False Rye Grass (FACU), Queen Anne's-Lace (UPL), Common Timothy (FACU), Tall Goldenrod (FACU), Reed Canary Grass (FACW), and Canadian Horseweed (FACU). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color

of 10YR 3/2 with a texture of silt loam. The soil at the data point was mapped as kokomo silty clay loam, 2 to 6 percent slopes (Kp), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 210 (0.33 acre)

This wetland was an emergent wetland located along a perennial stream. This wetland appeared to have recovered from past habitat disturbance. This wetland adjoined an ephemeral stream (S205). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figures 5.10 and 5.11.

Upland Data Point

Data Point 222 (dp222)

Dominant vegetation in the vicinity of dp222 included Common Fox Sedge (FACW). In addition, non-dominant vegetation observed included Kentucky Blue Grass (FAC), Dark-Green Bulrush (OBL), Common Spike-Rush (OBL), Short's Sedge (FACW), and Curly Dock (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 50 percent, and a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvB), and did not meet any hydric soil criteria. Primary indicators of hydrology included Saturation (A3), and secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point did not meet wetland criteria.

Upland Data Point

Data Point 223 (dp223)

Dominant vegetation in the vicinity of dp223 included Kentucky Blue Grass (FAC), and White Clover (FACU). In addition, non-dominant vegetation observed included Common Dandelion (FACU), Smooth Brome (FACU), and English Plantain (FACU). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/3 with a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvB), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 211 (0.17 acre)

This wetland was an emergent wetland located within an agricultural drainage ditch. This wetland appeared to have recovered from past habitat disturbance. This wetland flowed into a perennial stream (S206). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.11.

Wetland Data Point

Data Point 224 (dp224)

Dominant vegetation in the vicinity of dp224 included Rice Cut Grass (OBL), Common Spike-Rush (OBL), and Short's Sedge (FACW). In addition, non-dominant vegetation observed included Dark-Green Bulrush (OBL), Tall False Rye Grass (FACU), Canadian Rush (*Juncus canadensis*, OBL), and Curly Dock (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/2 with concentrations in the matrix at 5 percent, and a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Redox Dark Surface (F6) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 225 (dp225)

Dominant vegetation in the vicinity of dp225 included Tall False Rye Grass (FACU). In addition, non-dominant vegetation observed included Hedge False Bindweed (FAC), and Queen Anne's-Lace (UPL). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/2 with a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and did not meet any hydric soil criteria. Only the secondary indicator Geomorphic Position (D2) was observed. This data point did not meet wetland criteria

Wetland 212 (0.02 acre)

This wetland was an emergent wetland located adjacent to a farm pond. No evidence of habitat disturbance was observed. No surface water connection with any "waters of the United States" was observed. This wetland should be considered a "waters of the state". See Figure 5.14.

Wetland Data Point

Data Point 226 (dp226)

Dominant vegetation in the vicinity of dp226 included Reed Canary Grass (FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 10 percent, and a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB), and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 227 (dp227)

Dominant vegetation in the vicinity of dp227 included Poison-Hemlock (FACW), and Tall Goldenrod (FACU). In addition, non-dominant vegetation observed included Smooth Brome (FACU), Kentucky Blue Grass (FAC), Curly Dock (FAC), Lesser Burdock (*Arctium minus*, FACU), Canadian Thistle (FACU), Great Ragweed (FAC), and purple deadnettle (*Lamium purpureum*, UPL). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 213 (0.14 acre)

This wetland was a shrub scrub wetland located along a perennial stream. This wetland appeared to be recovering from past habitat disturbance. This wetland adjoined a perennial stream (S206). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figures 5.13 and Figure 5.14.

Wetland Data Point

Data Point 228 (dp228)

Dominant vegetation in the vicinity of dp228 included Black Willow (OBL), Ash-Leaf Maple (FAC), Ohio Buckeye (FAC), Common Hackberry (FAC), Spotted Touch-Me-Not (FACW), and Field Horsetail (FAC). In addition, non-dominant vegetation observed included Late Goldenrod (FACW), Ash-Leaf Maple (FAC), Woodland Blue Grass (FAC), and Sticky-Willy (FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 10 percent, and a texture of sandy loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB), and met the Depleted Matrix (F3), and Redox Depressions (F8) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 229 (dp229)

Dominant vegetation in the vicinity of dp229 included Tall Goldenrod (FACU). In addition, non-dominant vegetation observed included Queen Anne's-Lace (UPL), Field Horsetail (FAC), Fuller's Teasel (*Dipsacus fullonum*, FACU), and Canadian Thistle (FACU). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/3 with a texture of sandy loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 214 (0.02 acre)

This wetland was a forested wetland located adjacent to a perennial stream. This wetland appeared to have recovered from past habitat disturbance. This wetland drained into a perennial stream (S205). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.11.

Wetland Data Point

Data Point 230 (dp230)

Dominant vegetation in the vicinity of dp230 included Rambler Rose (FACU), Greater Straw Sedge (*Carex normalis*, FACW), Davis' Sedge (FAC), and Common Boneset (OBL). In addition, non-dominant vegetation observed included Tall Goldenrod (FACU), and River-Bank Grape (FACW). This area had been clearcut within the last five years. The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 2 percent, and a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA), and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 231 (dp231)

Dominant vegetation in the vicinity of dp231 included Amur honeysuckle (UPL), Slippery Elm (FAC), and Tall Goldenrod (FACU). In addition, non-dominant vegetation observed included Common Pawpaw (FAC), Maryland Black-Snakeroot (FACU), Allegheny Blackberry (FACU), Short's Sedge (FACW), and Eastern Star Sedge (FAC). This area had been clearcut within the last five years. The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 2 percent, and a texture of silt loam. The soil at the data point was mapped as Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA), and met the Depleted Matrix (F3) hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 215 (0.15 acre)

This wetland was an emergent wetland located within an agricultural field, adjacent to a perennial stream. This wetland appeared have recovered from past habitat disturbance. This wetland drained into a perennial stream (S205). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.13.

Wetland Data Point

Data Point 232 (dp232)

Dominant vegetation in the vicinity of dp232 included Common Fox Sedge (FACW), and Dudley's Rush (FACW). In addition, non-dominant vegetation observed included Curly Dock (FAC), and White Panicked American-Aster (FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 5 percent, and a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 233 (dp233)

Dominant vegetation in the vicinity of dp233 included White Clover (FACU), and Queen Anne's-Lace (UPL). In addition, non-dominant vegetation observed included Dudley's Rush (FACW), Upright Yellow Wood-Sorrel (*Oxalis stricta*, FACU), and Curly Dock (FAC). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 1 percent, and a texture of silt loam. The soil at the data point was mapped as Kokomo silty clay loam, 0 to 2 percent slopes (Kp), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 216 (0.07 acre)

This wetland was an emergent wetland located along a perennial stream. This wetland appeared to have recovered from past habitat disturbance. This wetland adjoined a perennial stream (S206). Due to this connection, this wetland should be considered a "waters of the U.S.". See Figure 5.13.

Wetland Data Point

Data Point 234 (dp234)

Dominant vegetation in the vicinity of dp234 included Sandbar Willow (FACW), and Kentucky Blue Grass (FAC). In addition, non-dominant vegetation observed included Hybrid Cattail (OBL), Late Goldenrod (FACW), Great Ragweed (FAC), Curly Dock (FAC), and Canadian Thistle (FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 5 percent, and a texture of silt loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and met the Depleted Matrix (F3) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 235 (dp235)

Dominant vegetation in the vicinity of dp235 included Tall False Rye Grass (FACU). In addition, non-dominant vegetation observed included Poison-Hemlock (FACW), and Curly Dock (FAC). The plants at this data point did not qualify as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with a texture of silt loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 217 (0.13 acre)

This wetland was an emergent wetland located along a perennial stream. This wetland appeared to be recovering from past habitat disturbance. This wetland adjoined a perennial stream (S206). Due to this connection, this wetland should be considered a “waters of the U.S.”. See Figure 5.12.

Wetland Data Point

Data Point 236 (dp236)

Dominant vegetation in the vicinity of dp236 included hybrid cattail (OBL). In addition, non-dominant vegetation observed included Canadian Thistle (FACU), Kentucky Blue Grass (FAC), and Rice Cut Grass (OBL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with concentrations in the matrix at 10 percent, and a texture of silt loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and met the Depleted Matrix (F3), and Redox Depressions (F8) hydric soil criteria. Secondary indicators of hydrology observed included Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 237 (dp237)

Dominant vegetation in the vicinity of dp237 included White Mulberry (FAC), Tall Goldenrod (FACU), and Poison-Hemlock (FACW). In addition, non-dominant vegetation observed included Hedge False Bindweed (FAC), and Fuller's Teasel (FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/2 with a texture of silt loam. The soil at the data point was mapped as Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Upland Data Point

Data Point 238 (dp238)

Dominant vegetation in the vicinity of dp238 included Black Locust (FACU), Black Walnut (FACU), American Elm (FACW), Common Pawpaw (FAC), Green Ash (FACW), Spotted Touch-Me-Not (FACW), Garlic-Mustard (FAC), and Maryland Black-Snakeroot (FACU). In addition, non-dominant vegetation observed included Nodding Fescue (FACU), Rambler Rose (FACU), Hairy Sweet-Cicely (*Osmorhiza claytonii*, FACU), Sticky-Willy (FACU), and James' sedge (UPL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 4/3 with a texture of silt loam. The soil at the data point was mapped as Miamian silt loam, 12 to 18 percent slopes, eroded (MhD2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

4.2.2 **Stream Descriptions**

Stream 001 (Unnamed Tributary to Paint Creek) (1009 Linear Feet)

Unnamed Tributary to Paint Creek was a perennial stream that flowed northwest through the project study area. Stream 001 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and sand. Ordinary High Water Mark width was eight feet and depth was 0.8 foot. Bank Full width was twelve feet and depth was 1.5 feet. Top of Bank width was 30 feet and depth was four feet. The maximum pool depth observed was greater than twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.01.

Stream 002 (Unnamed Tributary to Paint Creek) (52 Linear Feet)

Unnamed Tributary to Paint Creek could be considered an ephemeral stream that flowed west through the project study area. Stream 002 was considered to have recent stream modifications; with no recovery from the impacts. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was three feet and depth was 0.5 foot. Bank Full width was six feet and depth was one foot. Top of Bank width was eight feet and depth was two feet. The maximum pool depth observed was between four and twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.01.

Stream 003 (Unnamed Tributary to Paint Creek) (519 Linear Feet)

Unnamed Tributary to Paint Creek could be considered an ephemeral stream that flowed northwest through the project study area. Stream 003 was considered to have recovered from past modifications. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was two feet and depth was 0.2 foot. Bank Full width was three feet and depth was 0.5 foot. Top of Bank width was five feet and depth was two feet. The maximum pool depth observed was between two and four inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional

Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.01.

Stream 004 (Unnamed Tributary to Paint Creek) (1528 Linear Feet)

Unnamed Tributary to Paint Creek was an intermittent stream that flowed southwest through the project study area. Stream 004 was considered to have recovered from past modifications. Neither bank had a riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had low sinuosity, with one S-curve observed within the two hundred foot survey reach. The stream had a flat gradient, with a drop of a half a foot or less every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was six feet and depth was 0.5 foot. Bank Full width was ten feet and depth was one foot. Top of Bank width was 30 feet and depth was two feet. The maximum pool depth observed was between four and twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.03.

Stream 005 (Unnamed Tributary to Paint Creek) (186 Linear Feet)

Unnamed Tributary to Paint Creek was an intermittent stream that flowed northwest through the project study area. Stream 005 was considered to be recovering from past modifications. Neither bank had a riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was two feet and depth was 0.2 foot. Bank Full width was four feet and depth was 0.5 foot. Top of Bank width was fifteen feet and depth was three feet. The maximum pool depth observed was between two and four inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.03.

Stream 006 (Unnamed Tributary to Paint Creek) (4011 Linear Feet)

Unnamed Tributary to Paint Creek was a perennial stream that flowed southwest through the project study area. Stream 006 was a natural channel; no modifications were observed within the survey reach. Both banks had a moderate width (between five and ten meters) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a flat gradient, with a drop of a half a foot or less every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was eight feet and depth was 0.5 foot. Bank Full width was ten feet and depth was one foot. Top of Bank width was fifteen feet and depth was two feet. The maximum pool depth observed was greater than twelve inches. This Unnamed Tributary to Paint Creek flows into the

Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figures 5.02, 5.03, and 5.05.

Stream 007 (Unnamed Tributary to Paint Creek) (705 Linear Feet)

Unnamed Tributary to Paint Creek was an intermittent stream that flowed south through the project study area. Stream 007 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was three feet and depth was 0.3 foot. Bank Full width was six feet and depth was 0.5 foot. Top of Bank width was eight feet and depth was one foot. The maximum pool depth observed was greater than twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figures 5.02, 5.04, and 5.05.

Stream 008 (Unnamed Tributary to Paint Creek) (1896 Linear Feet)

Unnamed Tributary to Paint Creek was an intermittent stream that flowed north through the project study area. Stream 008 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was two feet and depth was 0.3 foot. Bank Full width was four feet and depth was 0.5 foot. Top of Bank width was five feet and depth was one foot. The maximum pool depth observed was between four and twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figures 5.04 and 5.08.

Stream 009 (Unnamed Tributary to Paint Creek) (799 Linear Feet)

Unnamed Tributary to Paint Creek could be considered an ephemeral stream that flowed north through the project study area. Stream 009 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was one foot and depth was 0.2 foot. Bank Full width was two

feet and depth was 0.5 foot. Top of Bank width was four feet and depth was one foot. The maximum pool depth observed was between four and twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.08.

Stream 010 (Unnamed Tributary to Paint Creek) (248 Linear Feet)

Unnamed Tributary to Paint Creek was an intermittent stream that flowed north through the project study area. Stream 010 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and sand. Ordinary High Water Mark width was one foot and depth was 0.2 foot. Bank Full width was two feet and depth was 0.5 foot. Top of Bank width was ten feet and depth was three feet. The maximum pool depth observed was between four and twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.04.

Stream 011 (Unnamed Tributary to Paint Creek) (492 Linear Feet)

Unnamed Tributary to Paint Creek was an intermittent stream that flowed north through the project study area. Stream 011 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and sand. Ordinary High Water Mark width was two feet and depth was 0.2 foot. Bank Full width was three feet and depth was 0.5 foot. Top of Bank width was thirteen feet and depth was three feet. The maximum pool depth observed was between four and twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.04.

Stream 012 (Unnamed Tributary to Paint Creek) (66 Linear Feet)

Unnamed Tributary to Paint Creek could be considered an ephemeral stream that flowed north through the project study area. Stream 012 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time

of survey. The dominant substrates were gravel and artificial. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was three feet and depth was 0.5 foot. Top of Bank width was ten feet and depth was two feet. The maximum pool depth observed was between two and four inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.04.

Stream 013 (Unnamed Tributary to Paint Creek) (127 Linear Feet)

Unnamed Tributary to Paint Creek could be considered an ephemeral stream that flowed north through the project study area. Stream 013 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and artificial. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was three feet and depth was 0.5 foot. Top of Bank width was ten feet and depth was two feet. The maximum pool depth observed was between two and four inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.04.

Stream 014 (Unnamed Tributary to Paint Creek) (71 Linear Feet)

Unnamed Tributary to Paint Creek could be considered an ephemeral stream that flowed northeast through the project study area. Stream 014 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was two feet and depth was 0.5 foot. Top of Bank width was seven feet and depth was three feet. The maximum pool depth observed was less than two inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.04.

Stream 015 (Unnamed Tributary to Paint Creek) (638 Linear Feet)

Unnamed Tributary to Paint Creek was an intermittent stream that flowed north through the project study area. Stream 015 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate

gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and silt. Ordinary High Water Mark width was three feet and depth was 0.4 foot. Bank Full width was five feet and depth was 0.6 foot. Top of Bank width was twenty feet and depth was ten feet. The maximum pool depth observed was between four and twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.04.

Stream 016 (Unnamed Tributary to Paint Creek) (85 Linear Feet)

Unnamed Tributary to Paint Creek could be considered an ephemeral stream that flowed north through the project study area. Stream 016 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and silt. Ordinary High Water Mark width was one foot and depth was 0.3 foot. Bank Full width was three feet and depth was 0.5 foot. Top of Bank width was twelve feet and depth was ten feet. The maximum pool depth observed was between four and twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.05.

Stream 017 (Unnamed Tributary to Paint Creek) (462 Linear Feet)

Unnamed Tributary to Paint Creek was an intermittent stream that flowed north through the project study area. Stream 017 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and silt. Ordinary High Water Mark width was two feet and depth was 0.2 foot. Bank Full width was four feet and depth was 0.5 foot. Top of Bank width was twelve feet and depth was four feet. The maximum pool depth observed was between four and twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.05.

Stream 018 (Unnamed Tributary to Paint Creek) (318 Linear Feet)

Unnamed Tributary to Paint Creek was an intermittent stream that flowed west through the project study area. Stream 018 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was one foot and depth was 0.2 foot. Bank Full width was three feet and depth was 0.5 foot. Top of Bank width was fifteen feet and depth was seven feet. The maximum pool depth observed was between four and twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figures 5.04 and 5.05.

Stream 019 (Unnamed Tributary to Buckskin Creek) (2036 Linear Feet)

Unnamed Tributary to Buckskin Creek was a perennial stream that flowed east through the project study area. Stream 019 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were cobble and sand. Ordinary High Water Mark width was four feet and depth was 0.4 foot. Bank Full width was ten feet and depth was 0.6 foot. Top of Bank width was seventeen feet and depth was two feet. The maximum pool depth observed was greater than twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 020 (Unnamed Tributary to Buckskin Creek) (230 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed south through the project study area. Stream 020 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had low sinuosity, with one S-curve observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were cobble and gravel. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was two feet and depth was 0.2 foot. Top of Bank width was four feet and depth was 0.5 foot. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto

River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 021 (Unnamed Tributary to Buckskin Creek) (51 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed south through the project study area. Stream 021 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had low sinuosity, with one S-curve observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was two feet and depth was 0.2 foot. Top of Bank width was four feet and depth was one foot. The maximum pool depth observed was less than two inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 022 (Unnamed Tributary to Buckskin Creek) (189 Linear Feet)

Unnamed Tributary to Buckskin Creek was an intermittent stream that flowed north through the project study area. Stream 022 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate to severe gradient, with a drop between two feet and ten feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was two feet and depth was 0.2 foot. Bank Full width was four feet and depth was 0.6 foot. Top of Bank width was ten feet and depth was five feet. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 023 (Unnamed Tributary to Buckskin Creek) (539 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed north through the project study area. Stream 023 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate to severe gradient, with a drop between two feet and ten feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank

Full width was three feet and depth was 0.3 foot. Top of Bank width was five feet and depth was one foot. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 024 (Unnamed Tributary to Buckskin Creek) (70 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed north through the project study area. Stream 024 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a severe gradient, with a drop of ten feet or greater every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was three feet and depth was 0.3 foot. Top of Bank width was six feet and depth was two feet. The maximum pool depth observed was between two and four inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 025 (Unnamed Tributary to Buckskin Creek) (1655 Linear Feet)

Unnamed Tributary to Buckskin Creek was a perennial stream that flowed east through the project study area. Stream 025 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was four feet and depth was 0.4 foot. Bank Full width was ten feet and depth was 0.6 foot. Top of Bank width was seventeen feet and depth was two feet. The maximum pool depth observed was greater than twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 026 (Unnamed Tributary to Buckskin Creek) (532 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed north through the project study area. Stream 026 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate to severe gradient, with a drop between two feet and ten feet every

hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was three feet and depth was 0.3 foot. Top of Bank width was eight feet and depth was two feet. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 027 (Unnamed Tributary to Buckskin Creek) (119 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed north through the project study area. Stream 027 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate to severe gradient, with a drop between two feet and ten feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was three feet and depth was 0.3 foot. Top of Bank width was four feet and depth was one foot. The maximum pool depth observed was less than two inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 028 (Unnamed Tributary to Buckskin Creek) (220 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed north through the project study area. Stream 028 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate to severe gradient, with a drop between two feet and ten feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was three feet and depth was 0.3 foot. Top of Bank width was twenty feet and depth was five feet. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 029 (Unnamed Tributary to Buckskin Creek) (666 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed east through the project study area. Stream 029 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was three feet and depth was 0.3 foot. Top of Bank width was five feet and depth was 0.5 foot. The maximum pool depth observed was between two and four inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 030 (Unnamed Tributary to Buckskin Creek) (436 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed northeast through the project study area. Stream 030 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was three feet and depth was 0.3 foot. Top of Bank width was five feet and depth was 0.5 foot. The maximum pool depth observed was between two and four inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.17.

Stream 031 (Unnamed Tributary to Buckskin Creek) (2054 Linear Feet)

Unnamed Tributary to Buckskin Creek was an intermittent stream that flowed northeast through the project study area. Stream 031 was a natural channel; no modifications were observed within the survey reach. Neither bank had a riparian corridor, with the floodplain land use predominantly fenced pasture. The stream had moderate sinuosity, with two S-curves observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was one foot and depth was 0.2 foot. Bank Full width was two feet and depth was 0.5 foot. Top of Bank width was three feet and depth was two feet. The maximum pool depth observed was between two and four inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to

this connection, this stream should be considered a "waters of the United States". See Figures 5.13 and 5.16.

Stream 101 (Unnamed Tributary to Buckskin Creek) (177 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed east through the project study area. Stream 101 was considered to be recovering from past modifications. The left bank (facing downstream) had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly fenced pasture. The right bank had a no riparian corridor, with the floodplain land use predominantly fenced pasture. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was 1.5 feet and depth was 0.2 foot. Bank Full width was 2.5 feet and depth was 0.7 foot. Top of Bank width was 2.5 feet and depth was 0.7 foot. The maximum pool depth observed was less than two inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.11.

Stream 102 (Unnamed Tributary to Buckskin Creek) (44 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed northeast through the project study area. Stream 102 was considered to have recent stream modifications; with no recovery from the impacts. The left bank (facing downstream) had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The right bank had a no riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was one foot and depth was four feet. Bank Full width was 1.6 feet and depth was 0.8 foot. Top of Bank width was 2.5 feet and depth was three feet. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.11.

Stream 103 (Unnamed Tributary to Buckskin Creek) (270 Linear Feet)

Unnamed Tributary to Buckskin Creek was an intermittent stream that flowed east through the project study area. Stream 103 was considered to be recovering from past modifications. Neither bank had a riparian corridor, with the floodplain land use predominantly fenced pasture. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at

the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was three feet and depth was 0.5 foot. Bank Full width was four feet and depth was 1.2 feet. Top of Bank width was 4.4 feet and depth was 1.4 feet. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.15.

Stream 104 (Unnamed Tributary to Buckskin Creek) (1283 Linear Feet)

Unnamed Tributary to Buckskin Creek was a perennial stream that flowed east through the project study area. Stream 104 was a natural channel; no modifications were observed within the survey reach. The left bank (facing downstream) had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The right bank had a moderate width (between fifteen and thirty feet) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had low sinuosity, with one S-curve observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was two feet and depth was 0.4 foot. Bank Full width was 2.5 feet and depth was 0.5 foot. Top of Bank width was 2.5 feet and depth was 0.5 foot. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.14.

Stream 105 (Unnamed Tributary to Buckskin Creek) (1454 Linear Feet)

Unnamed Tributary to Buckskin Creek was a perennial stream that flowed north through the project study area. Stream 105 was considered to be recovering from past modifications. The left bank (facing downstream) had a moderate width (between fifteen and thirty feet) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The right bank had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had low sinuosity, with one S-curve observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were cobble and gravel. Ordinary High Water Mark width was three feet and depth was 0.4 foot. Bank Full width was five feet and depth was 0.5 foot. Top of Bank width was eight feet and depth was 4.5 feet. The maximum pool depth observed was between nine and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.13.

Stream 106 (Unnamed Tributary to Buckskin Creek) (360 Linear Feet)

Unnamed Tributary to Buckskin Creek was an intermittent stream that flowed east through the project study area. Stream 106 was considered to be recovering from past modifications. Neither bank had a riparian corridor, with the left bank floodplain land use predominantly conservation tillage; and the right bank floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was 0.8 foot and depth was 0.1 foot. Bank Full width was one foot and depth was 0.2 foot. Top of Bank width was one foot and depth was 0.2 foot. The maximum pool depth observed was between two and four inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.13.

Stream 107 (Unnamed Tributary to Buckskin Creek) (460 Linear Feet)

Unnamed Tributary to Buckskin Creek was an intermittent stream that flowed east through the project study area. Stream 107 was considered to be recovering from past modifications. The left bank (facing downstream) had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly conservation tillage. The right bank had a wide (greater than thirty feet) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was three feet and depth was 0.4 foot. Bank Full width was 3.5 feet and depth was 0.5 foot. Top of Bank width was ten feet and depth was two feet. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.13.

Stream 108 (Unnamed Tributary to Buckskin Creek) (97 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed east through the project study area. Stream 108 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were leaf pack / woody debris and clay or hardpan. Ordinary High Water Mark width was 1.5 feet and depth was 0.4 foot. Bank Full width was two feet and depth was 0.6 foot. Top of Bank width was two feet and depth was 0.6 foot. The maximum pool depth observed was less than two inches. Unnamed Tributary to Buckskin Creek flows into the

Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.13.

Stream 109 (Unnamed Tributary to Buckskin Creek) (42 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed east through the project study area. Stream 109 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat gradient, with a drop of a half a foot or less every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were leaf pack / woody debris and clay or hardpan. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was three feet and depth was 0.6 foot. Top of Bank width was 2.5 feet and depth was two feet. The maximum pool depth observed was less than two inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.13.

Stream 110 (Unnamed Tributary to Buckskin Creek) (130 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed east through the project study area. Stream 110 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were leaf pack / woody debris and clay or hardpan. Ordinary High Water Mark width was 0.8 foot and depth was 0.1 foot. Bank Full width was one foot and depth was 0.2 foot. Top of Bank width was two feet and depth was 0.3 foot. The maximum pool depth observed was less than two inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.13.

Stream 111 (Unnamed Tributary to Buckskin Creek) (21 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed east through the project study area. Stream 111 was considered to be recovering from past modifications. The left bank (facing downstream) had a moderate width (between fifteen and thirty feet) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The right bank had a wide (greater than thirty feet) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates

were gravel and silt. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was two feet and depth was 0.3 foot. Top of Bank width was four feet and depth was two feet. The maximum pool depth observed was less than two inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.14.

Stream 112 (Unnamed Tributary to Buckskin Creek) (61 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed west through the project study area. Stream 112 was considered to be recovering from past modifications. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat gradient, with a drop of a half a foot or less every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and silt. Ordinary High Water Mark width was two feet and depth was 0.2 foot. Bank Full width was three feet and depth was 0.3 foot. Top of Bank width was six feet and depth was four feet. The maximum pool depth observed was between two and four inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.13.

Stream 113 (Unnamed Tributary to Buckskin Creek) (58 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed east through the project study area. Stream 113 was considered to be recovering from past modifications. The left bank (facing downstream) had a moderate width (between fifteen and thirty feet) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The right bank had a wide (greater than thirty feet) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and silt. Ordinary High Water Mark width was one foot and depth was 0.1 foot. Bank Full width was three feet and depth was 0.4 foot. Top of Bank width was five feet and depth was two feet. The maximum pool depth observed was less than two inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.14.

Stream 201 (Unnamed Tributary to Buckskin Creek) (2351 Linear Feet)

Unnamed Tributary to Buckskin Creek was a perennial stream that flowed east through the project study area. Stream 201 was a natural channel; no modifications were observed within the survey reach. The left bank (facing downstream) had a moderate width (between fifteen and thirty feet) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The right bank had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and sand. Ordinary High Water Mark width was twelve feet and depth was one foot. Bank Full width was twelve feet and depth was one foot. Top of Bank width was eighteen feet and depth was six feet. The maximum pool depth observed was greater than twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figures 5.10 and 5.11.

Stream 202 (Unnamed Tributary to Buckskin Creek) (514 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed east through the project study area. Stream 202 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and silt. Ordinary High Water Mark width was 2.5 feet and depth was 0.5 foot. The maximum pool depth observed was between two and four inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.08.

Stream 203 (Unnamed Tributary to Buckskin Creek) (339 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed northeast through the project study area. Stream 203 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and sand. Ordinary High Water Mark width was three feet and depth was 0.33 foot. Top of Bank width was 3.5 feet and depth was one foot. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water.

Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.08.

Stream 204 (Unnamed Tributary to Buckskin Creek) (195 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed south through the project study area. Stream 204 was considered to have recovered from past modifications. Both banks had a narrow width (less than five meters) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrate was silt. Ordinary High Water Mark width was one foot and depth was 0.5 foot. Bank Full width was one foot and depth was 0.5 foot. The maximum pool depth observed was less than two inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figures 5.08 and 5.09.

Stream 205 (Unnamed Tributary to Buckskin Creek) (2188 Linear Feet)

Unnamed Tributary to Buckskin Creek was a perennial stream that flowed northeast through the project study area. Stream 205 was considered to have recovered from past modifications. The left bank (facing downstream) had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The right bank had a no riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and silt. Ordinary High Water Mark width was 4.5 feet and depth was 0.5 foot. Top of Bank width was five feet and depth was four feet. The maximum pool depth observed was greater than twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". Figures 5.10 and 5.14.

Stream 206 (Unnamed Tributary to Buckskin Creek) (825 Linear Feet)

Unnamed Tributary to Buckskin Creek was a perennial stream that flowed southeast through the project study area. Stream 206 was considered to have recovered from past modifications. Both banks had a narrow width (less than five meters) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were cobble and gravel. Ordinary High Water Mark width was eight feet and depth was two feet. Top of Bank width was twelve feet and depth was six feet. The maximum

pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.11.

Stream 207 (Unnamed Tributary to Buckskin Creek) (755 Linear Feet)

Unnamed Tributary to Buckskin Creek was an intermittent stream that flowed south through the project study area. Stream 207 was a natural channel; no modifications were observed within the survey reach. Both banks had a narrow width (less than five meters) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and sand. Ordinary High Water Mark width was three feet and depth was 0.5 foot. Top of Bank width was four feet and depth was two feet. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.11.

Stream 208 (Unnamed Tributary to Buckskin Creek) (1816 Linear Feet)

Unnamed Tributary to Buckskin Creek was a perennial stream that flowed northeast through the project study area. Stream 208 was a natural channel; no modifications were observed within the survey reach. Both banks had a narrow width (less than five meters) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and clay or hardpan. Ordinary High Water Mark width was three feet and depth was one foot. The maximum pool depth observed was greater than twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figures 5.13 and 5.14.

Stream 209 (Unnamed Tributary to Buckskin Creek) (101 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed north through the project study area. Stream 209 was a natural channel; no modifications were observed within the survey reach. The left bank (facing downstream) had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The right bank had a moderate width (between fifteen and thirty feet) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels

were not elevated at the time of survey. The dominant substrate was silt. Ordinary High Water Mark width was two feet and depth was 0.5 foot. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.13.

Stream 210 (Unnamed Tributary to Buckskin Creek) (423 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed northeast through the project study area. Stream 210 was a natural channel; no modifications were observed within the survey reach. Both banks had a narrow width (less than five meters) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and silt. Ordinary High Water Mark width was two feet and depth was 0.5 foot. The maximum pool depth observed was between two and four inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.13.

Stream 211 (Unnamed Tributary to Paint Creek) (1118 Linear Feet)

Unnamed Tributary to Paint Creek was a perennial stream that flowed west through the project study area. Stream 211 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were bedrock and gravel. Ordinary High Water Mark width was 6.5 feet and depth was one foot. Top of Bank width was 28 feet and depth was ten feet. The maximum pool depth observed was greater than twelve inches. This Unnamed Tributary to Paint Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.12.

Stream 212 (Unnamed Tributary to Buckskin Creek) (84 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed east through the project study area. Stream 212 was a natural channel; no modifications were observed within the survey reach. The left bank (facing downstream) had a wide (greater than thirty feet) riparian corridor, with the floodplain land use predominantly immature forest, shrub-scrub, or old field. The right bank had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a moderate gradient, with a drop of two feet every hundred feet. This stream was at base flow conditions at

the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and silt. Ordinary High Water Mark width was 2.5 feet and depth was 0 foot. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.10.

Stream 213 (Unnamed Tributary to Buckskin Creek) (4684 Linear Feet)

Unnamed Tributary to Buckskin Creek was an intermittent stream that flowed east through the project study area. Stream 213 was a natural channel; no modifications were observed within the survey reach. Both banks had a moderate width (between five and ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and clay or hardpan. Ordinary High Water Mark width was 4.5 feet and depth was 1.5 feet. Top of Bank width was six feet and depth was three feet. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figures 5.08, 5.09 and 5.10.

Stream 214 (Unnamed Tributary to Buckskin Creek) (1629 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed east through the project study area. Stream 214 was a natural channel; no modifications were observed within the survey reach. Both banks had a wide (greater than ten meters) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were sand and silt. Ordinary High Water Mark width was three feet and depth was 0.5 foot. Top of Bank width was four feet and depth was 1.5 feet. The maximum pool depth observed was between two and four inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figure 5.08.

Stream 215 (Unnamed Tributary to Buckskin Creek) (1073 Linear Feet)

Unnamed Tributary to Buckskin Creek was an intermittent stream that flowed northeast through the project study area. Stream 215 was considered to have recovered from past modifications. The left bank (facing downstream) had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly mature forest or wetland. The right bank had a no riparian corridor, with the floodplain land use predominantly open pasture or row crops. The

stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were gravel and silt. Ordinary High Water Mark width was three feet and depth was 0.33 foot. Top of Bank width was five feet and depth was four feet. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figures 5.10 and 5.14.

Stream 216 (Unnamed Tributary to Buckskin Creek) (3302 Linear Feet)

Unnamed Tributary to Buckskin Creek could be considered an ephemeral stream that flowed northeast through the project study area. Stream 216 was considered to have recovered from past modifications. The left bank (facing downstream) had no riparian corridor, with the floodplain land use predominantly mature forest or wetland. The right bank had a narrow width (less than fifteen feet) riparian corridor, with the floodplain land use predominantly open pasture or row crops. The stream had no sinuosity, with no bends observed within the two hundred foot survey reach. The stream had a flat to moderate gradient, with a drop between a half a foot and two feet every hundred feet. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt and clay or hardpan. Ordinary High Water Mark width was three feet and depth was 0.3 foot. The maximum pool depth observed was between four and twelve inches. Unnamed Tributary to Buckskin Creek flows into the Scioto River, a Traditional Navigable Water. Due to this connection, this stream should be considered a "waters of the United States". See Figures 5.12 and 5.13.

5 Jurisdictional Analysis

5.1 U.S. Army Corps of Engineers

The USACE has authority over the discharge of fill or dredged material into “waters of the U.S.”. This includes authority over any filling, mechanical land clearing, or construction activities that occur within the boundaries of any “waters of the U.S.”. A permit must be obtained from the USACE before any of these activities occur. Permits can be divided into two general categories: Individual Permits and Nationwide Permits.

Individual Permits are required for projects that do not fall into one of the specific Nationwide Permits or are deemed to have significant environmental impacts. These permits are much more difficult to obtain and receive a much higher level of regulatory agency and public scrutiny and may require several months to more than a year for processing.

Nationwide Permits have been developed for projects that meet specific criteria and are deemed to have minimal impact on the aquatic environment. There are currently 52 Nationwide Permits for qualifying activities with 31 Nationwide Permit General Conditions that must be satisfied in order to receive NWP consideration from the USACE.

5.2 Ohio Environmental Protection Agency

The OEPA is responsible for issuing Clean Water Act (CWA) Section 401 permits known as Water Quality Certifications (WQC) for all impacts to “waters of the State of Ohio.” This includes authority over any dredging, filling, mechanical land clearing, impoundments or construction activities that occur within the boundaries of any “waters of the State,” including those isolated waters not otherwise regulated by the USACE.

The OEPA issues Section 401 WQC in conjunction with the USACE’ Section 404 permits. A Section 401 Water Quality Certification must be received before the USACE can issue any Section 404 Department of the Army Permit. The OEPA must issue Individual Section 401 WQC for all Individual Section 404 Permits.

Water quality certification may be granted, without notification to the OEPA, if the project falls under the NWP limitations described above. In order to qualify for this granted certification, all prior-authorized and *de minimis* Ohio State Certification General Limitations and Conditions as published by the OEPA must be satisfied.

The OEPA also requires notification for all impacts to isolated wetlands, which includes a permit application and mitigation plan pursuant to Section 6111 of Ohio Revised Code (ORC).

6 Summary and Conclusion

6.1 Summary

Cardno inspected the Ross County Solar Study Area on June 2 through June 4, 2020. Delineated features are shown on Figure 5 and in Table 6-1.

6.1.1 **Wetlands and Waterways**

Thirty-eight wetlands, 60 streams, and one pond were identified.

Table 6-1 Streams Identified within the Ross County Solar Study Area

Feature Name	USGS Identified	Feature Class	Regulatory Status ¹	Dimensions (ft)		Substrate	QHEI/HHEI/ ORAM Score	Linear Footage (LF)	Acreage (AC)
				Width	Depth				
s001	Yes	PER	Jurisdictional	8.0	0.8	GRAVEL/SAND	64.5/72	1009	0.19
s002	No	EPH	Jurisdictional	3.0	0.5	SAND/SILT	66	52	0.00
s003	Yes	EPH	Jurisdictional	2.0	0.2	SILT/SILT	35	519	0.02
s004	Yes	INT	Jurisdictional	6.0	0.5	SILT/SAND	71	1528	0.21
s005	No	INT	Jurisdictional	2.0	0.2	SILT/SAND	51	186	0.01
s006	Yes	PER	Jurisdictional	8.0	0.5	SILT/SAND	56.5/66	4011	0.74
s007	No	INT	Jurisdictional	3.0	0.3	SILT/SAND	61	705	0.05
s008	Yes	INT	Jurisdictional	2.0	0.3	SILT/CLAY	55	1896	0.09
s009	Yes	EPH	Jurisdictional	1.0	0.2	SILT/CLAY	45	799	0.02
s010	No	INT	Jurisdictional	1.0	0.2	SAND/GRAVEL	57	248	0.01
s011	No	INT	Jurisdictional	2.0	0.2	GRAVEL/SAND	57	492	0.02
s012	No	EPH	Jurisdictional	1.0	0.1	ARTIFICIAL/GRAVEL	44	66	0.00
s013	No	EPH	Jurisdictional	1.0	0.1	ARTIFICIAL/GRAVEL	44	127	0.00
s014	No	EPH	Jurisdictional	1.0	0.1	SILT/SAND	31	71	0.00
s015	No	INT	Jurisdictional	3.0	0.4	SILT/GRAVEL	69	638	0.04
s016	No	EPH	Jurisdictional	1.0	0.3	GRAVEL/GRAVEL	54	85	0.00
s017	No	INT	Jurisdictional	2.0	0.2	GRAVEL/GRAVEL	64	462	0.02
s018	No	INT	Jurisdictional	1.0	0.2	SAND/SILT	51	318	0.01
s019	Yes	PER	Jurisdictional	4.0	0.4	SAND/COBBLE	75	2036	0.19
s020	No	EPH	Jurisdictional	1.0	0.1	GRAVEL/COBBLE	63	230	0.01
s021	No	EPH	Jurisdictional	1.0	0.1	CLAY/SILT	25	51	0.00
s022	No	INT	Jurisdictional	2.0	0.2	CLAY/SILT	55	189	0.01
s023	No	EPH	Jurisdictional	1.0	0.1	CLAY/SILT	45	539	0.01
s024	No	EPH	Jurisdictional	1.0	0.1	CLAY/SILT	35	70	0.00
s025	Yes	PER	Jurisdictional	4.0	0.4	SAND/SILT	66	1655	0.15
s026	No	EPH	Jurisdictional	1.0	0.1	SILT/CLAY	45	532	0.01
s027	No	EPH	Jurisdictional	1.0	0.1	SILT/SAND	31	119	0.00
s028	No	EPH	Jurisdictional	1.0	0.1	SILT/SAND	51	220	0.01
s029	Yes	EPH	Jurisdictional	1.0	0.1	SILT/CLAY	35	666	0.02
s030	No	EPH	Jurisdictional	1.0	0.1	SILT/CLAY	35	436	0.01
s031	Yes	INT	Jurisdictional	1.0	0.2	SILT/SILT	35	2054	0.05
s101	No	EPH	Jurisdictional	1.5	0.2	CLAY/SILT	25	177	0.01
s102	No	EPH	Jurisdictional	1.0	4.0	SILT/SAND	51	44	0.00
s103	No	INT	Jurisdictional	3.0	0.5	CLAY/SILT	55	270	0.02
s104	Yes	PER	Jurisdictional	2.0	0.4	SILT/CLAY	45	1283	0.06
s105	Yes	PER	Jurisdictional	3.0	0.4	COBBLE/GRAVEL	83	1454	0.10
s106	No	INT	Jurisdictional	0.8	0.1	CLAY/SILT	35	360	0.01

Table 6-1 Streams Identified within the Ross County Solar Study Area

Feature Name	USGS Identified	Feature Class	Regulatory Status ¹	Dimensions (ft)		Substrate	QHEI/HHEI/ ORAM Score	Linear Footage (LF)	Acreage (AC)
				Width	Depth				
s107	No	INT	Jurisdictional	3.0	0.4	CLAY/GRAVEL	55	460	0.03
s108	No	EPH	Jurisdictional	1.5	0.4	CLAY/LEAF PACK	25	97	0.00
s109	No	EPH	Jurisdictional	1.0	0.1	CLAY/LEAF PACK	25	42	0.00
s110	No	EPH	Jurisdictional	0.8	0.1	CLAY/LEAF PACK	25	130	0.00
s111	No	EPH	Jurisdictional	1.0	0.1	SILT/GRAVEL	34	21	0.00
s112	No	EPH	Jurisdictional	2.0	0.2	SILT/GRAVEL	44	61	0.00
s113	No	EPH	Jurisdictional	1.0	0.1	GRAVEL/GRAVEL	34	58	0.00
s201	Yes	PER	Jurisdictional	12.0	1.0	GRAVEL/SAND	66.5/72	2351	0.65
s202	No	EPH	Jurisdictional	2.5	0.5	GRAVEL/GRAVEL	54	514	0.03
s203	No	EPH	Jurisdictional	3.0	0.3	GRAVEL/SAND	57	339	0.02
s204	No	EPH	Jurisdictional	1.0	0.5	SILT/BLDR SLABS	28	195	0.00
s205	Yes	PER	Jurisdictional	4.5	0.5	GRAVEL/SILT	59	2188	0.23
s206	Yes	PER	Jurisdictional	8.0	2.0	GRAVEL/COBBLE	78	825	0.15
s207	Yes	INT	Jurisdictional	3.0	0.5	GRAVEL/SAND	57	755	0.05
s208	Yes	PER	Jurisdictional	3.0	1.0	GRAVEL/GRAVEL	46	1816	0.13
s209	No	EPH	Jurisdictional	2.0	0.5	SILT/BLDR SLABS	48	101	0.00
s210	Yes	EPH	Jurisdictional	2.0	0.5	SILT/GRAVEL	44	423	0.02
s211	Yes	PER	Jurisdictional	6.5	1.0	BEDROCK/GRAVEL	77	1118	0.17
s212	No	EPH	Jurisdictional	2.5	0.0	SILT/GRAVEL	54	84	0.00
s213	Yes	INT	Jurisdictional	4.5	1.5	CLAY/GRAVEL	58	4684	0.48
s214	Yes	EPH	Jurisdictional	3.0	0.5	SILT/SAND	41	1629	0.11
s215	Yes	INT	Jurisdictional	3.0	0.3	GRAVEL/SILT	54	1073	0.07
s216	Yes	EPH	Jurisdictional	3.0	0.3	CLAY/SILT	45	3302	0.23
Totals			EPH					11,800	0.56
			INT					16,317	1.18
			PER					19,744	2.74
			TOTAL					47,861	4.48

¹ Regulatory Status is based on our “professional judgment” and experience; however the USACE makes the final determination.

Table 6-2 Wetlands and Ponds Identified within the Ross County Solar Study Area

Feature Name	USGS/ NWI Identified	Feature Class	Regulatory Status ¹	ORAM Score	Acreage (AC)
w001	Yes	PEM	Jurisdictional	30	0.83
w002	Yes	PFO	Jurisdictional	39	0.07
w003	Yes	PFO	Jurisdictional	46	0.45
w004	Yes	PFO	Jurisdictional	39	0.09
w005	No	PFO	Jurisdictional	44	0.05
w006	No	PFO	Isolated	35	0.10
w007	No	PEM	Jurisdictional	22	0.31
w008	Yes	PEM	Jurisdictional	41	0.05
w009	No	PEM	Jurisdictional	75	0.66
w010	No	PFO	Jurisdictional	56	0.02
w011	No	PFO	Jurisdictional	55	0.03
w101	No	PFO	Jurisdictional	28	0.13
w102	No	PEM	Jurisdictional	22	0.01
w103	No	PEM	Isolated	17	0.01
w104	Yes	PEM	Jurisdictional	30	0.06
w105	No	PEM	Jurisdictional	26	0.00
w106	Yes	PEM	Jurisdictional	26	0.00
w107	No	PEM	Jurisdictional	26	0.03
w108	No	PEM	Isolated	20	0.01
w109	Yes	PFO	Jurisdictional	43	0.06
w110	Yes	PFO	Jurisdictional	43	0.07
w201	No	PFO	Isolated	49	0.06
w202	No	PFO	Isolated	48	0.06
w203	No	PEM	Jurisdictional	11	0.01
w204	Yes	PEM	Jurisdictional	37	0.12
w205	Yes	PEM	Jurisdictional	36	0.07
w206	Yes	PEM	Jurisdictional	36	0.03
w207	Yes	PFO	Isolated	21	0.09
w208	Yes	PEM	Jurisdictional	18	0.11
w209	Yes	PEM	Jurisdictional	29	0.76
w210	Yes	PEM	Jurisdictional	37	0.33
w211	Yes	PEM	Jurisdictional	30	0.17
w212	Yes	PEM	Isolated	26	1.42
w213	Yes	PFO	Jurisdictional	23	0.14
w214	No	PFO	Jurisdictional	32	0.02
w215	No	PEM	Jurisdictional	22	0.15
w216	No	PEM	Jurisdictional	23	0.07

Table 6-2 Wetlands and Ponds Identified within the Ross County Solar Study Area

Feature Name	USGS/ NWI Identified	Feature Class	Regulatory Status ¹	ORAM Score	Acreage (AC)
w217	No	PEM	Jurisdictional	7	0.13
p001	Yes	PUB	Isolated	NA	0.33
Totals			PEM		5.34
			PFO		1.46
			Isolated		1.76
			Jurisdictional		5.04
			Grand Total		6.80

¹ Regulatory Status is based on our “professional judgment” and experience; however the USACE makes the final determination.

6.1.2 Floodways and Floodplains

The FEMA FIRMette map of the area identified no areas of flood hazard on the site.

6.2 Conclusion

Thirty-eight wetlands, 60 streams, and one pond were identified.

While this report represents our best professional judgment based on our knowledge and experience, it is important to note that the Huntington District of the U.S. Army Corps of Engineers has final discretionary authority over all jurisdictional determinations of ‘waters of the U.S.’ including wetlands under Section 404 of the CWA in this region. It is therefore, recommended that a copy of this report be furnished to the Huntington District of the U.S. Army Corps of Engineers to confirm the results of our findings.

7 References

Environmental Laboratory. 1987. *U.S. Army Corps of Engineers' Wetland Delineation Manual*, Technical Report Y-87-1, U.S. Waterways Experiment Station, Vicksburg, MS.

Environmental Laboratory. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region*, ERDC/EL TR-10-16, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

Gleason, H.A. and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*. 2nd Edition. The New York Botanical Garden. Bronx, NY.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. *Phytoneuron* 2016-30: 1-17. Published April 28, 2016. ISSN 2153 733X

Lichvar, R.W., and John T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC.

Lichvar, R., Melvin, N.C., Butterwick, M.L. and Kirchner, W.N. 2012. *National Wetland Plant List Indicator Rating Definitions*. ERDC/CRREL TN-12-1. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. <http://www.fws.gov/wetlands/documents/National-Wetland-Plant-List-Indicator-Rating-Definitions.pdf>

Reed, P. B., Jr. 1988. *National List of Plant Species that Occur in Wetlands: 1988*. Washington, DC: U.S. Fish and Wildlife Service.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed [6/26/2020].

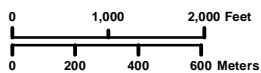
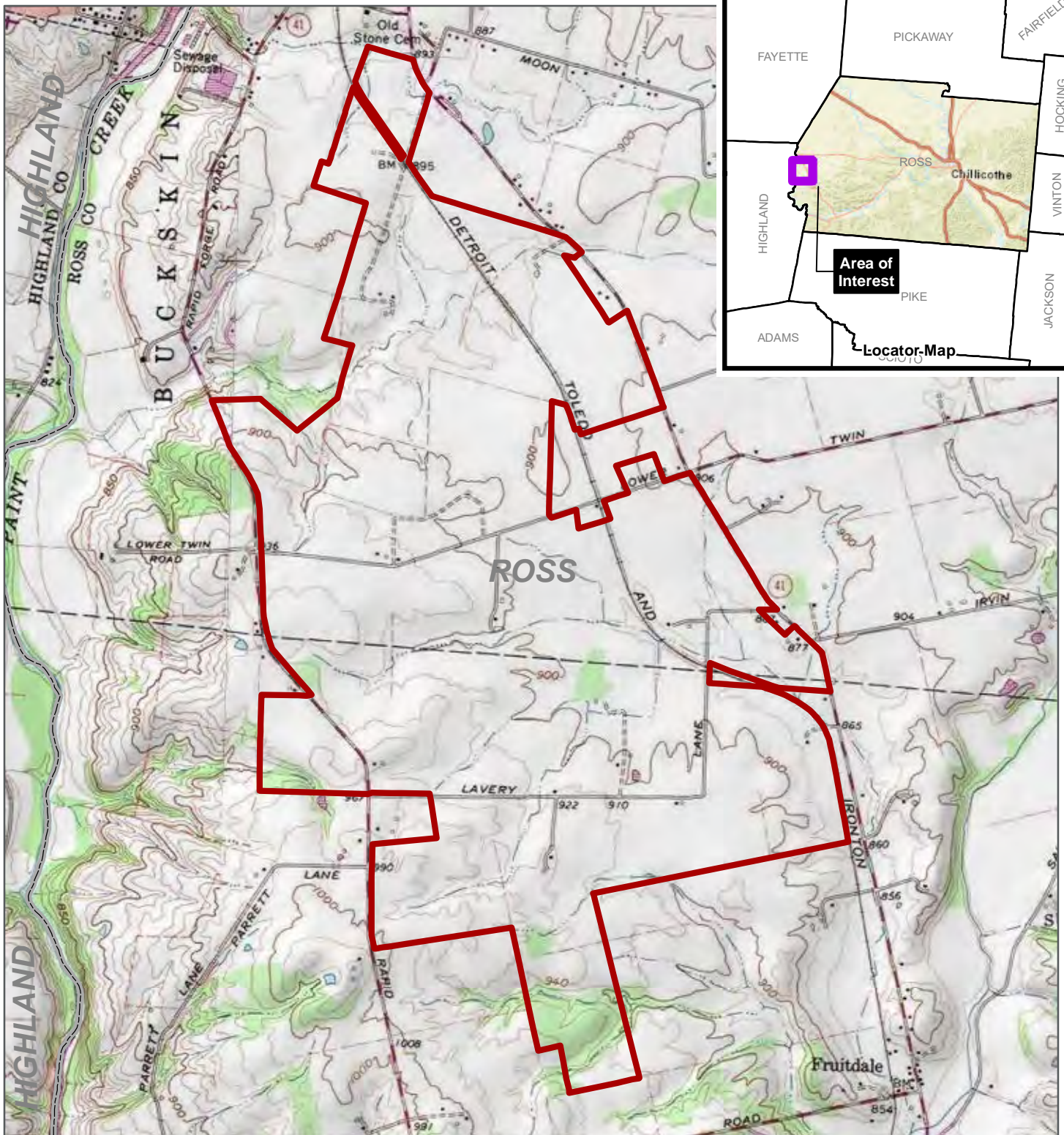
StreamStats, United States Geological Survey. Available online at <https://streamstats.usgs.gov>.

Ross County Solar, Ross County,
Ohio

APPENDIX

A

FIGURES



 Project Location

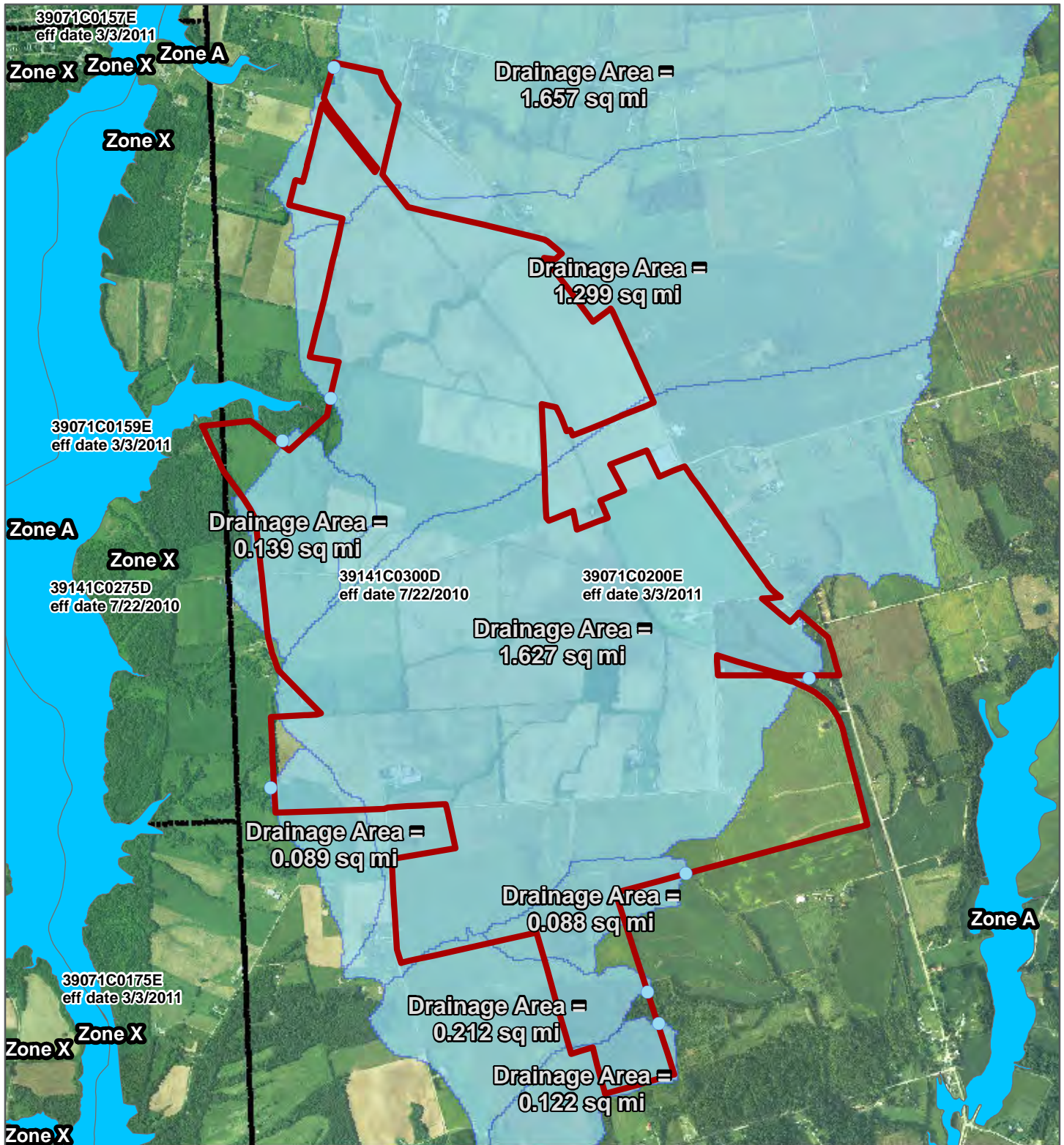
7.5' Quadrangle:
South Salem

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Figure 1: Project Location **Ross County Solar** **Regulated Waters Delineation Report** **Ross County Solar LLC** **Ross County, Ohio**


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0 1,000 2,000 Feet
0 200 400 600 Meters

- StreamStats Basin Point
- Project Location
- StreamStats Delineated Basin
- National Flood Hazard - FIRM Panels
- FEMA Mapped 100-year Floodplain



7.5' Quadrangle:
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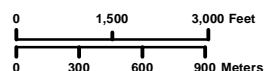
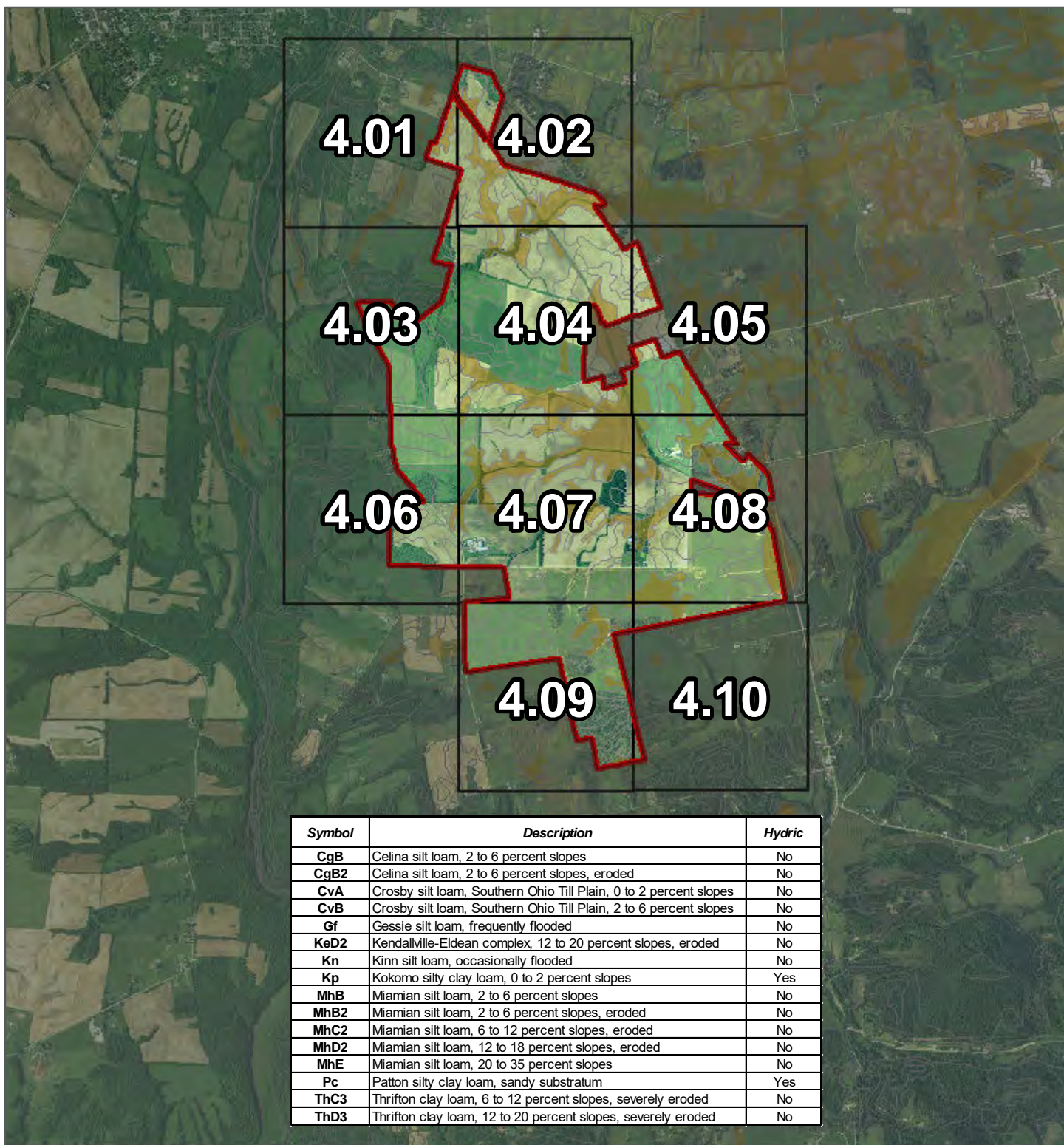
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Figure 3: Construction in Floodway Constraints

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Soil Unit



Soil Unit - Hydric



Map Page



Project Location



7.5' Quadrangle:
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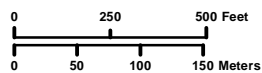
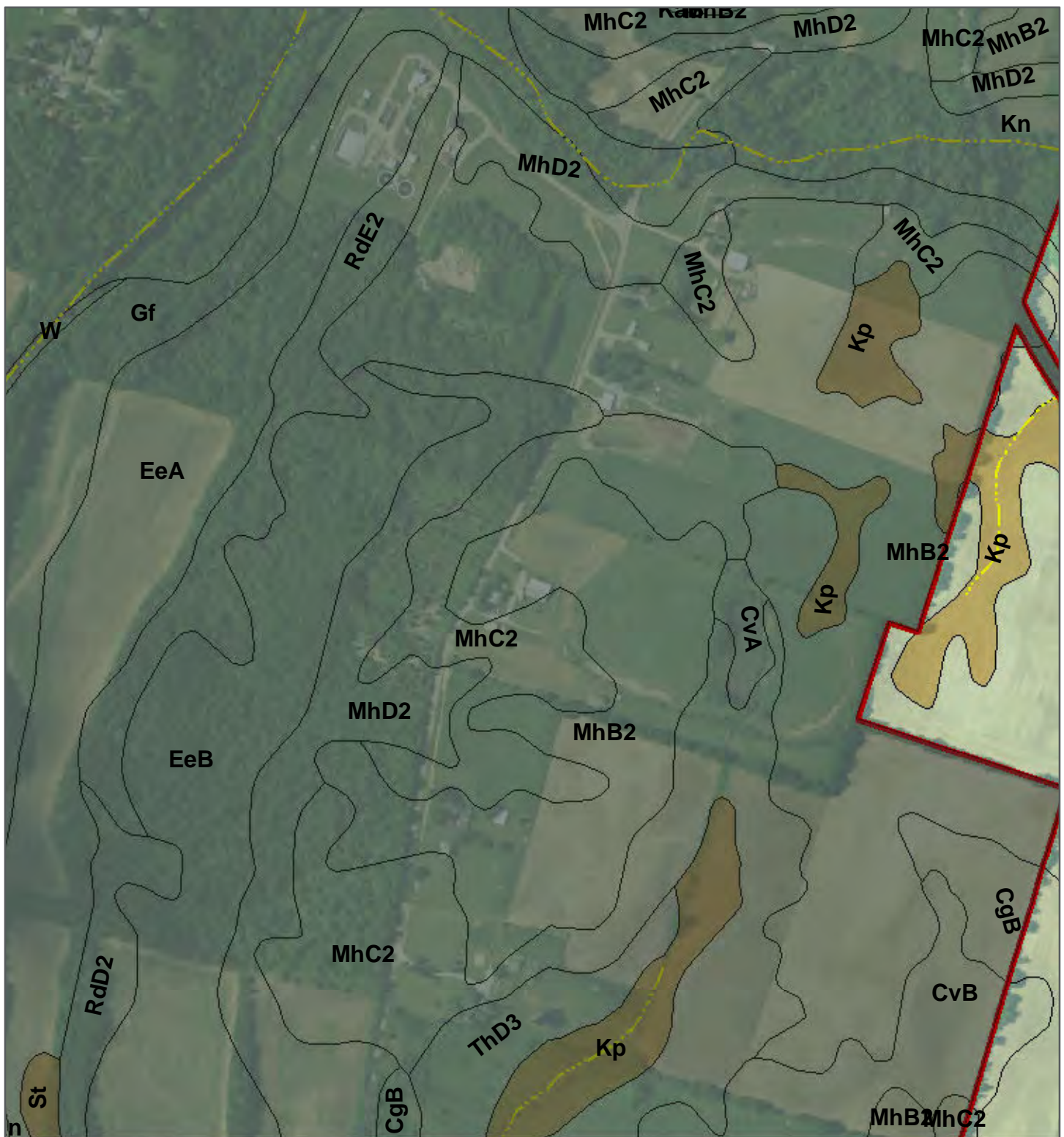
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Figure 4: Soil Survey Overview Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio



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Figure 4.01: Soil Survey

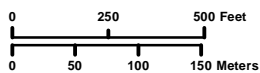
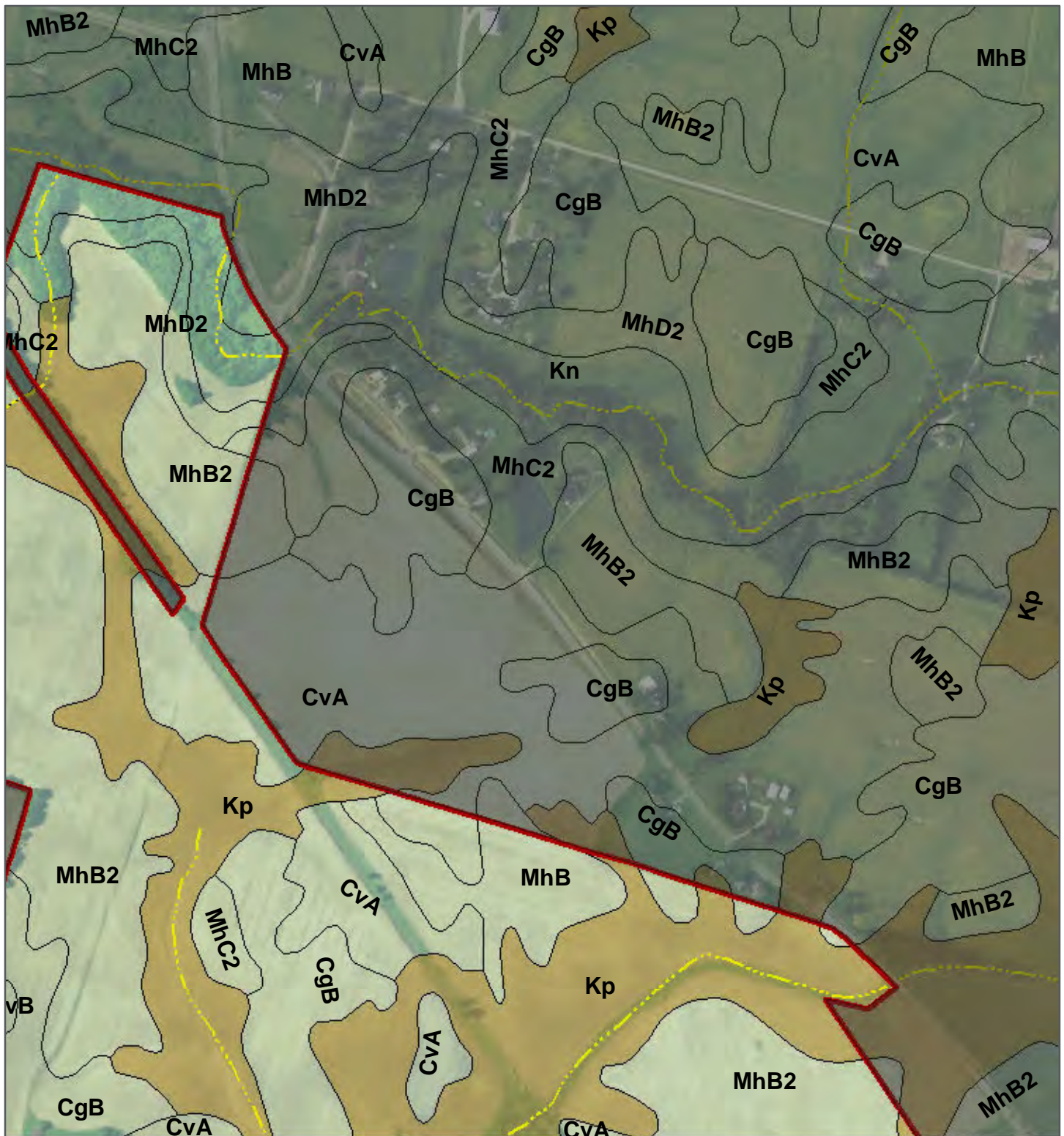
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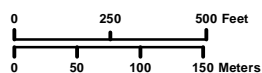
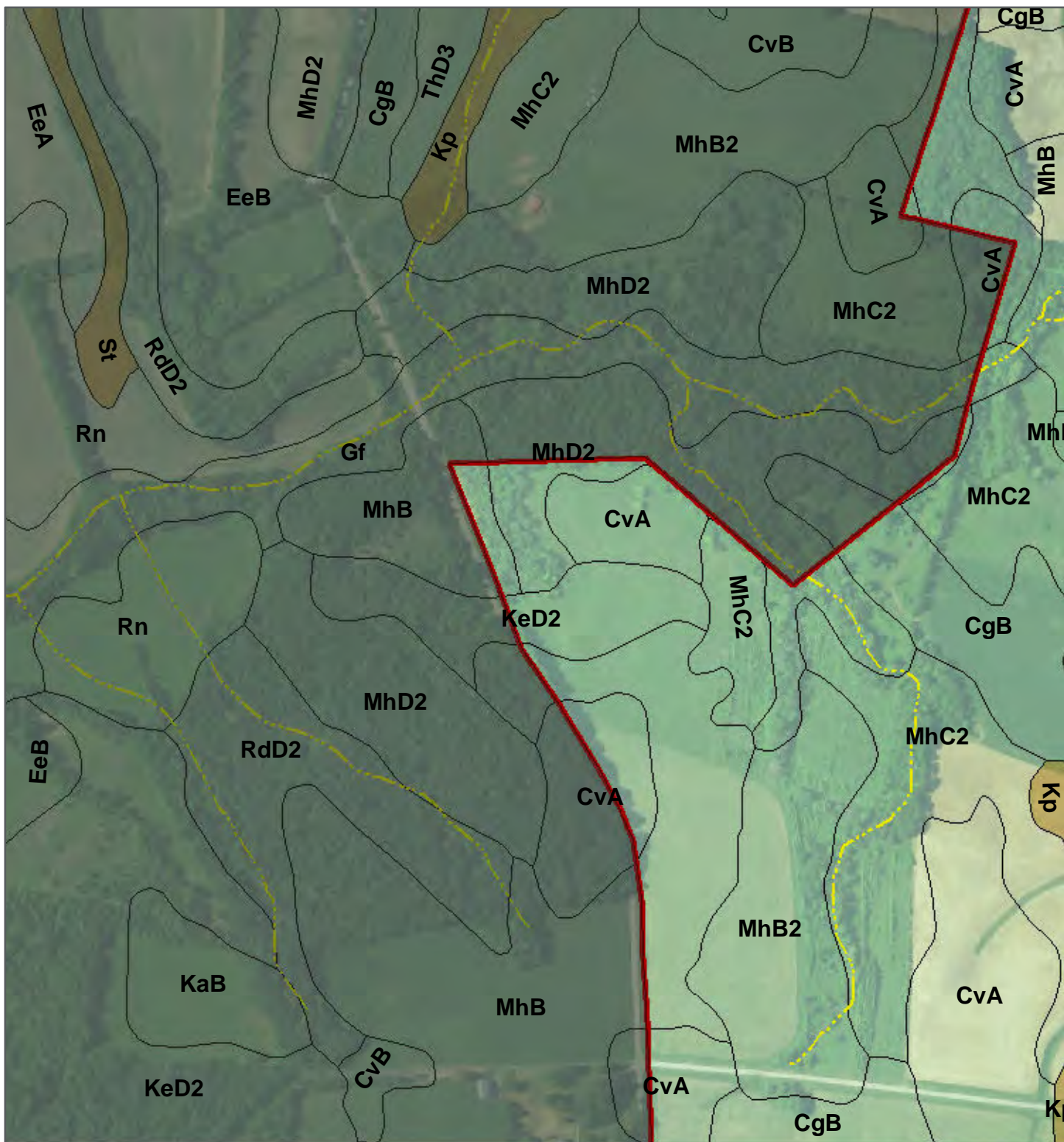
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Figure 4.02: Soil Survey
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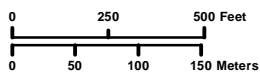
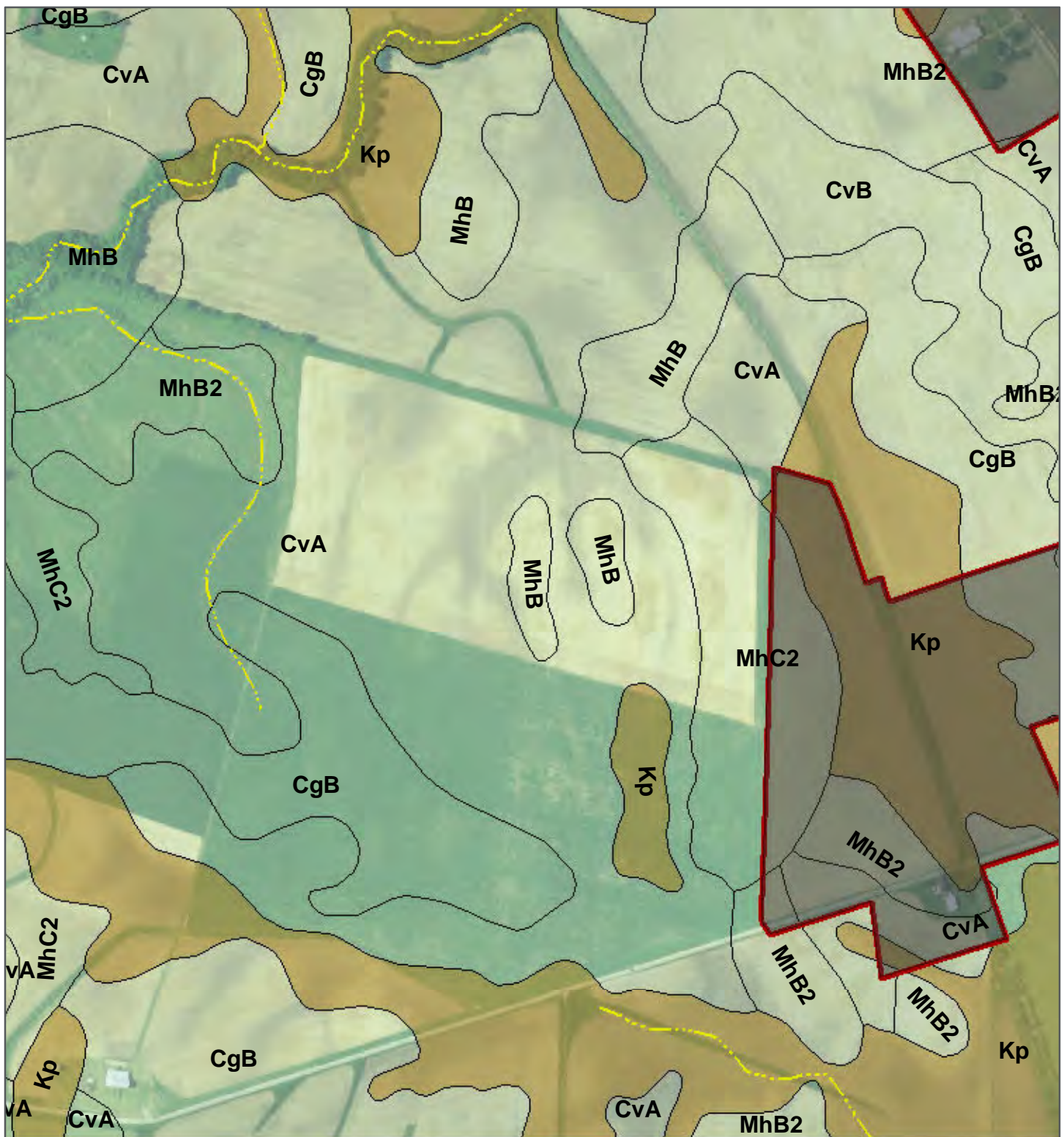
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Figure 4.03: Soil Survey
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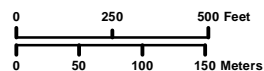
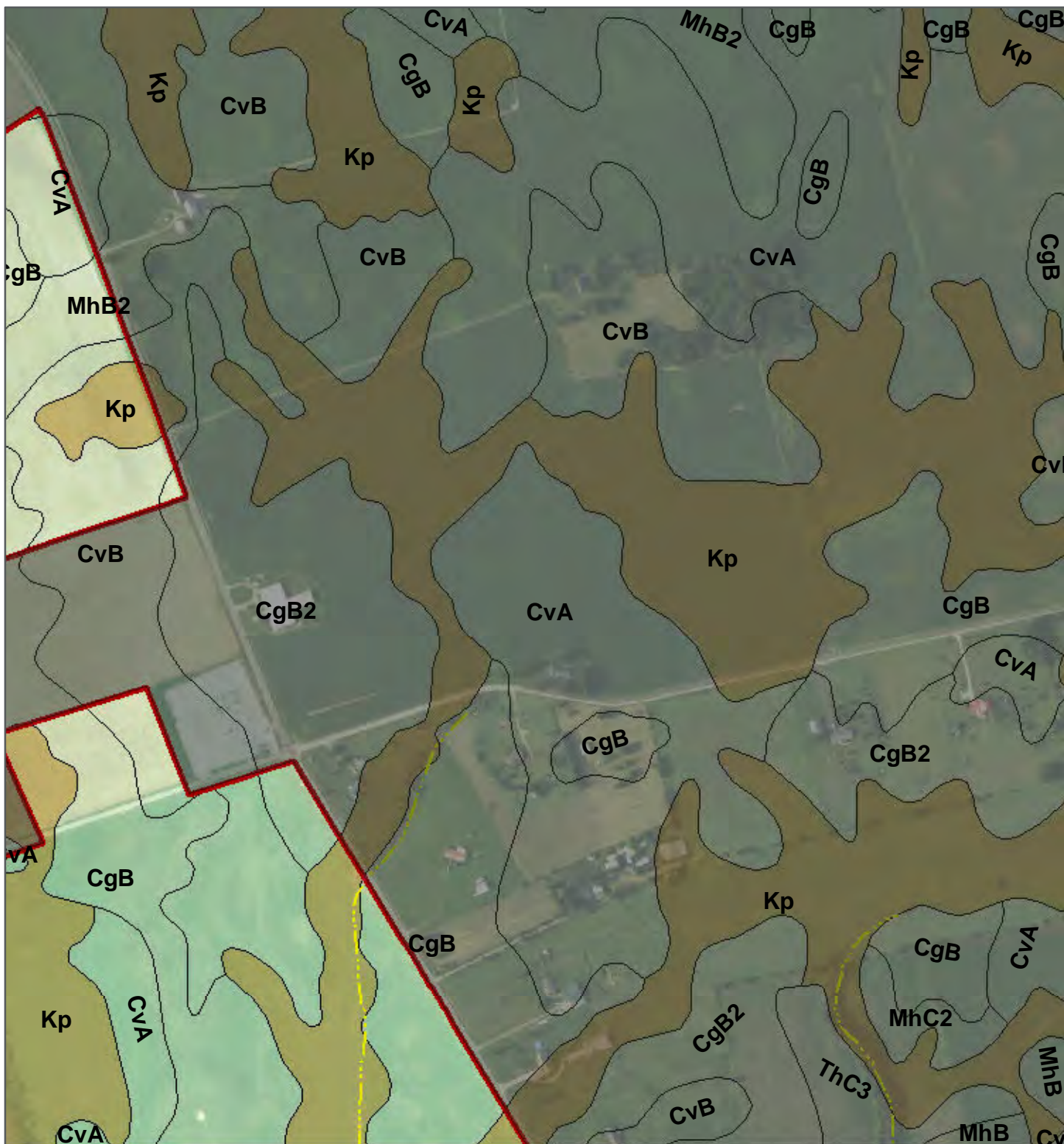
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Figure 4.04: Soil Survey **Ross County Solar** **Regulated Waters Delineation Report** **Ross County Solar LLC** **Ross County, Ohio**



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Soil Unit



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NHD Flowline



Project Location



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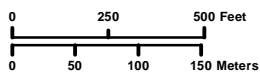
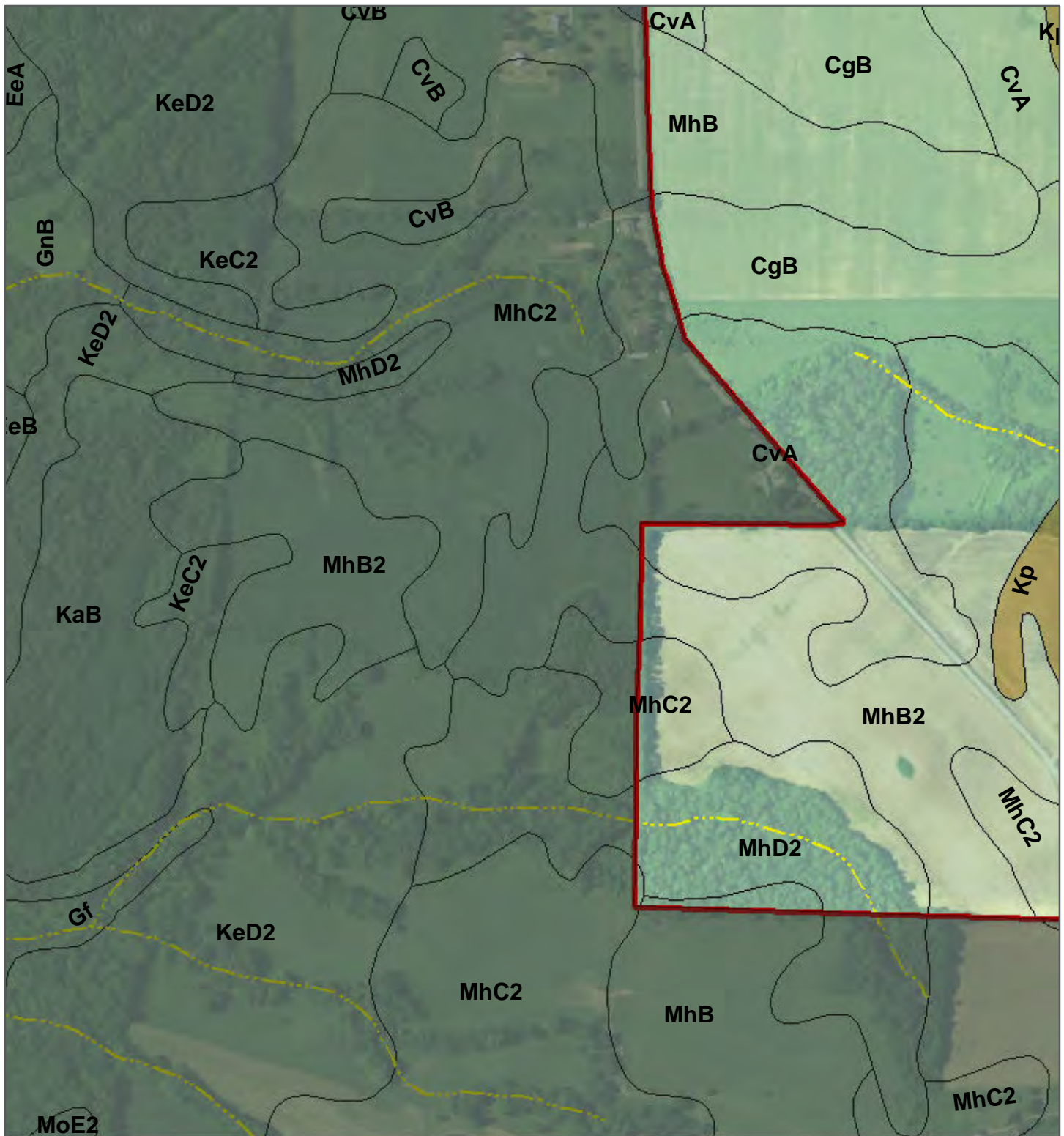
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Figure 4.05: Soil Survey

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Figure 4.06: Soil Survey

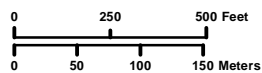
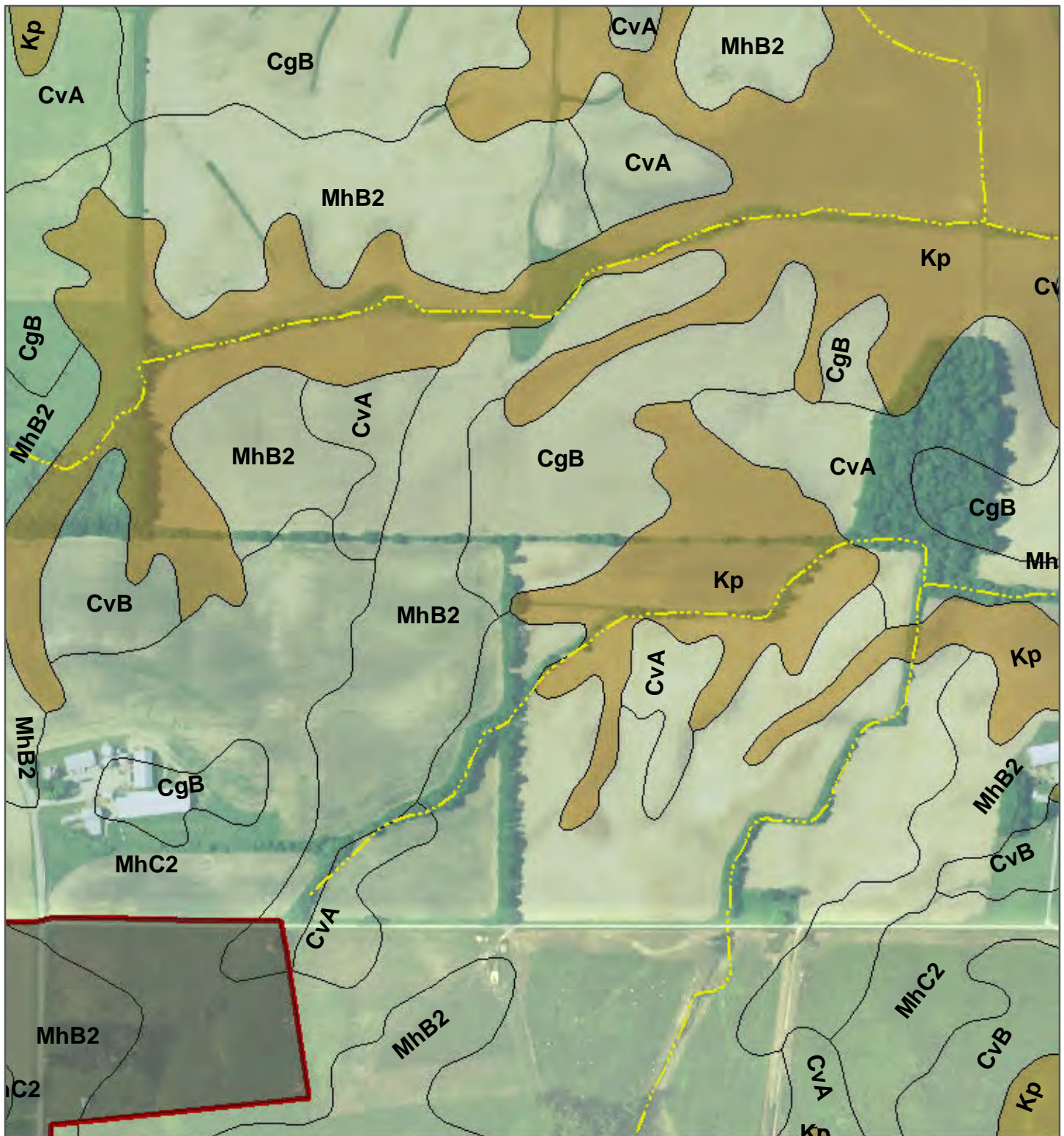
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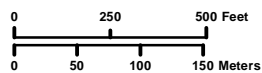
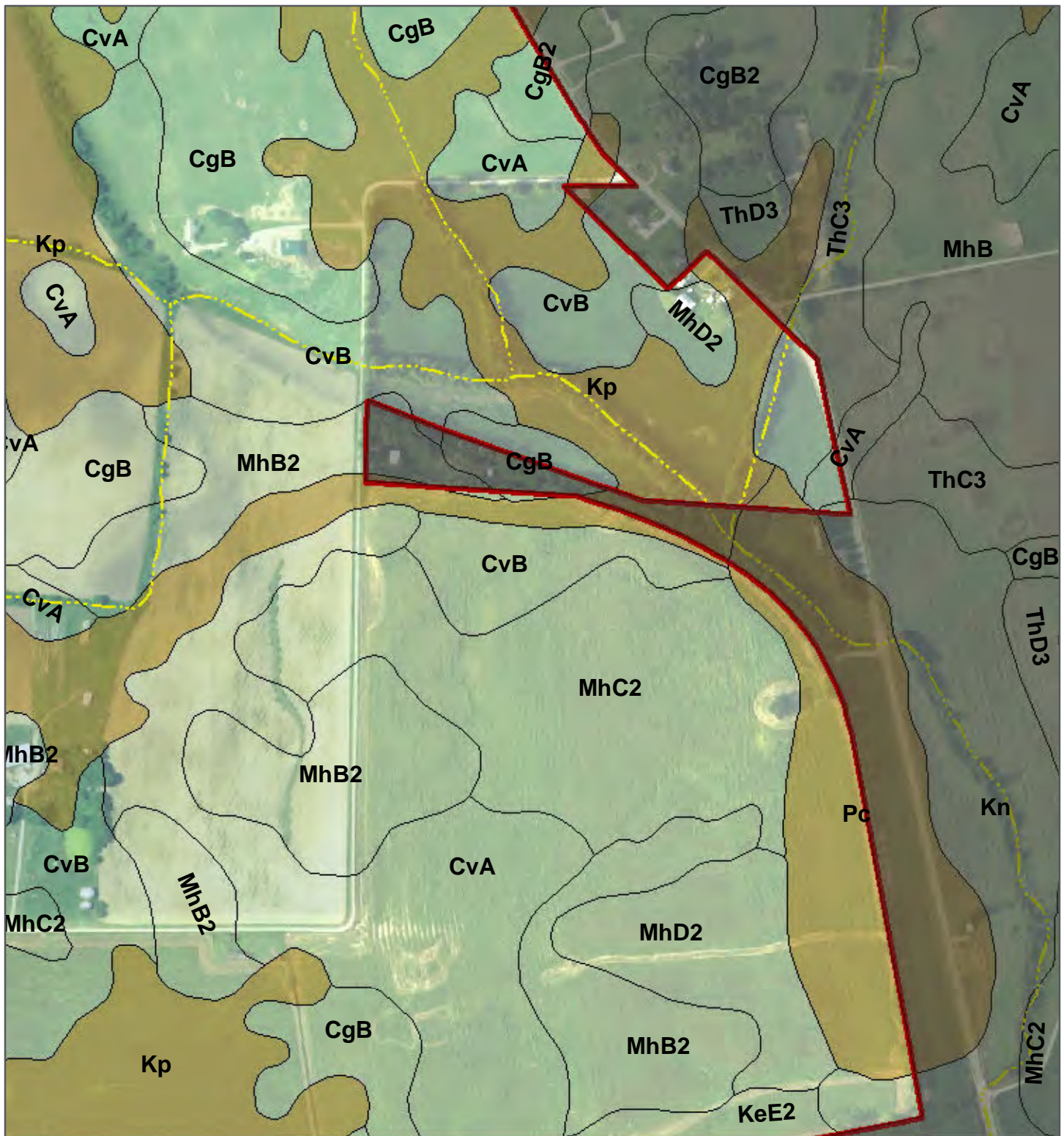
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Figure 4.07: Soil Survey **Ross County Solar** **Regulated Waters Delineation Report** **Ross County Solar LLC** **Ross County, Ohio**



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-  NHD Flowline
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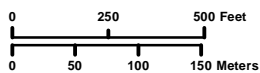
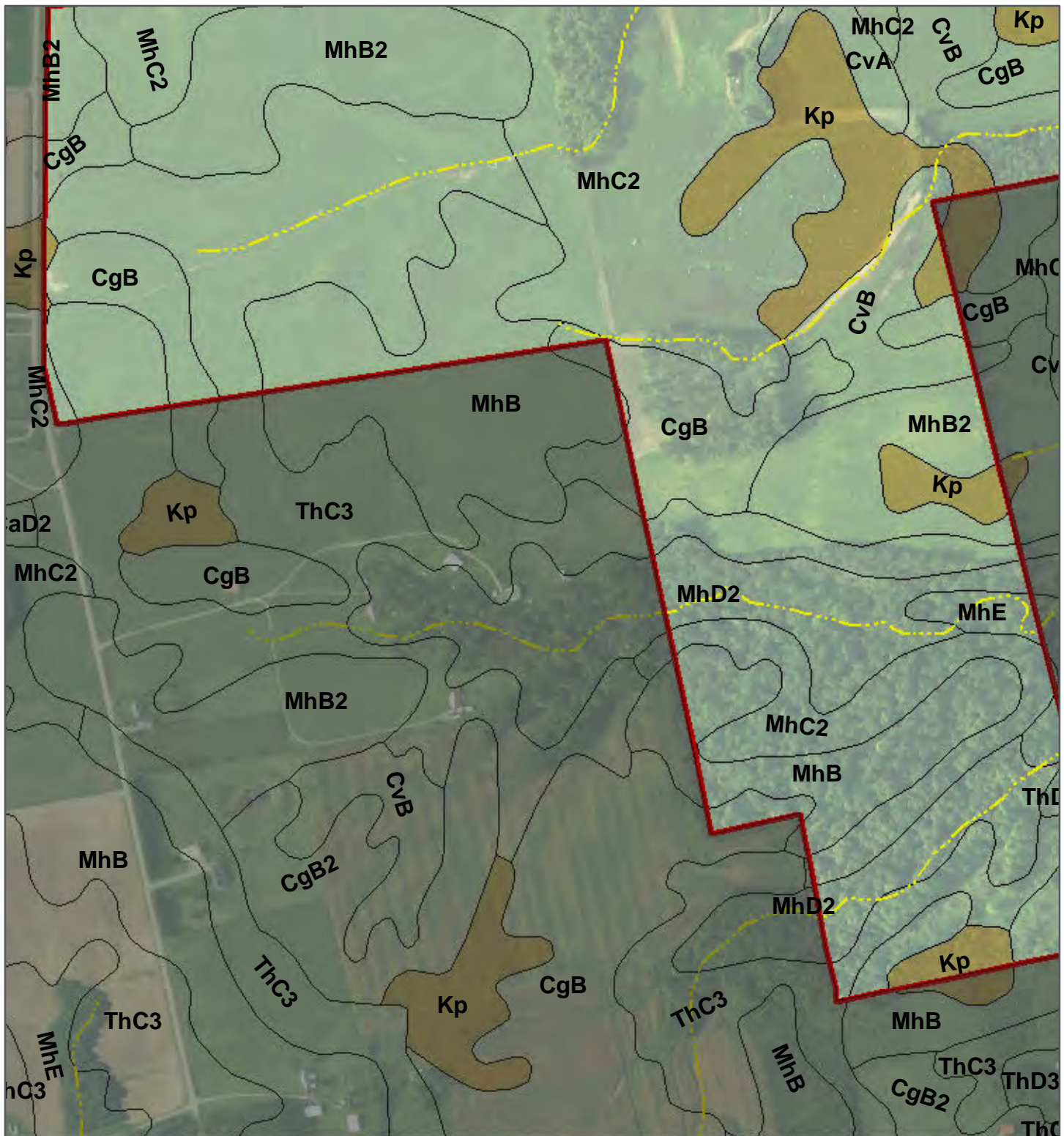
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Figure 4.08: Soil Survey
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-  Project Location

7.5' Quadrangle:
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Figure 4.09: Soil Survey

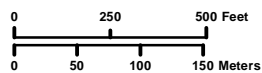
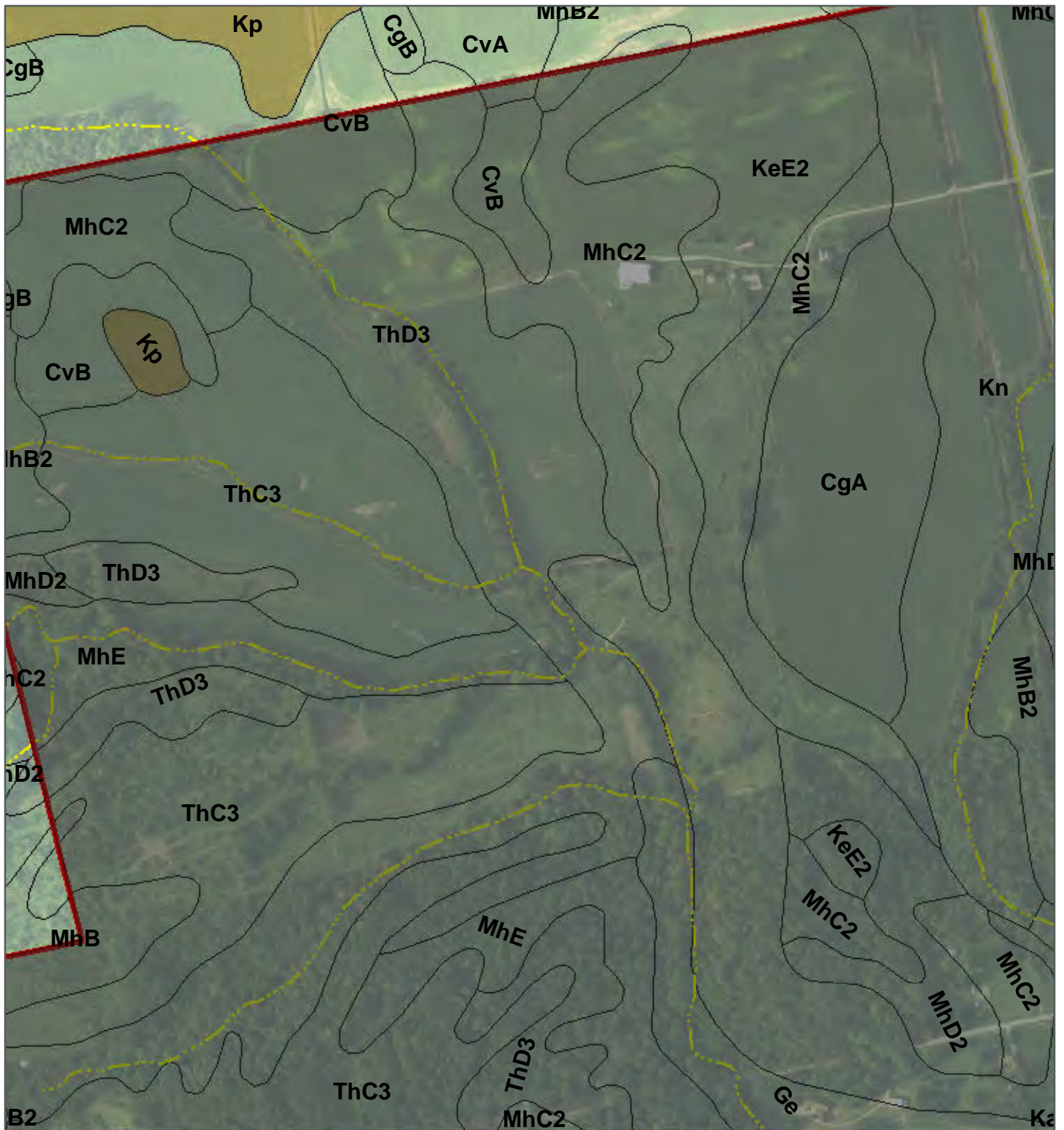
Ross County Solar Regulated Waters Delineation Report

Ross County Solar LLC

Ross County, Ohio



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-  Soil Unit
-  Soil Unit - Hydric
-  NHD Flowline
-  Project Location

7.5' Quadrangle:
South Salem

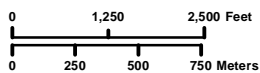
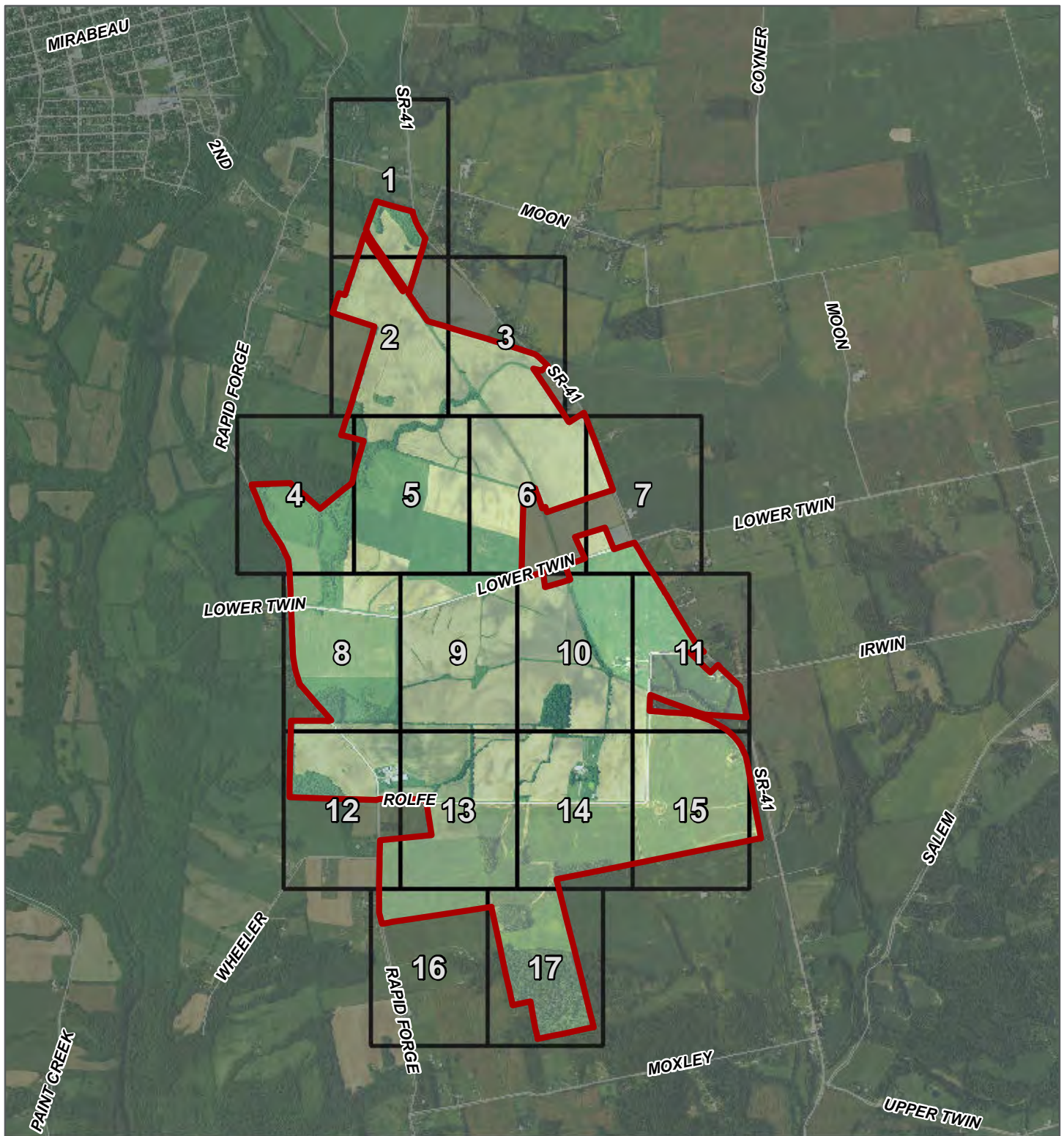
Project No.
e320201300



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Figure 4.10: Soil Survey
Ross County Solar
Regulated Waters Delineation Report
Ross County Solar LLC
Ross County, Ohio



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 Project Location
 Map Page



7.5' Quadrangle:
South Salem

Project No.
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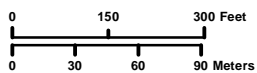
Figure 5.00: Delineation Overview

Ross County Solar Regulated Waters Delineation Report

Ross County Solar LLC Ross County, Ohio



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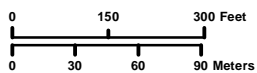
- Data Point
- Delineated Stream
- Project Location
- Delineated Pond
- Delineated Wetland

7.5' Quadrangle:
 South Salem
 Project No.
 e320201300

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Figure 5.1: Delineation Set Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio

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- Data Point
- Delineated Stream
- Delineated Pond
- Project Location
- Delineated Wetland

**7.5' Quadrangle:
South Salem**

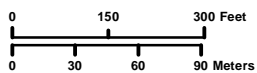
**Project No.
e320201300**

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Figure 5.2: Delineation Set

Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio

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- Data Point
- Delineated Stream
- Delineated Pond
- Delineated Wetland
- Project Location

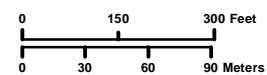
**7.5' Quadrangle:
South Salem**

**Project No.
e320201300**

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Figure 5.3: Delineation Set Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio

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- Data Point
- Delineated Stream
- ▨ Delineated Wetland
- ▭ Project Location
- ▭ Delineated Pond

7.5' Quadrangle:
South Salem

Project No.
e320201300

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Figure 5.4: Delineation Set

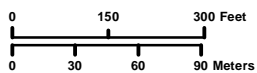
Ross County Solar Regulated Waters Delineation Report

Ross County Solar LLC

Ross County, Ohio

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- Data Point
- Delineated Stream
- Delineated Pond
- Delineated Wetland
- Project Location

7.5' Quadrangle:
South Salem

Project No.
e320201300

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Figure 5.5: Delineation Set

Ross County Solar

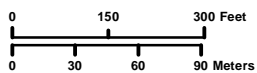
Regulated Waters Delineation Report

Ross County Solar LLC

Ross County, Ohio

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- Data Point
- Delineated Stream
- Delineated Pond
- Delineated Wetland
- Project Location

7.5' Quadrangle:
South Salem

Project No.
e320201300

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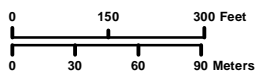
Figure 5.6: Delineation Set

Ross County Solar Regulated Waters Delineation Report

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- Data Point
- Delineated Stream
- Delineated Pond
- Delineated Wetland
- Project Location



7.5' Quadrangle:
South Salem

Project No.
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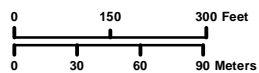
Figure 5.7: Delineation Set

Ross County Solar Regulated Waters Delineation Report

Ross County Solar LLC Ross County, Ohio



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- Data Point
- Delineated Stream
- ▨ Delineated Wetland
- Project Location
- ▭ Delineated Pond

7.5' Quadrangle:
South Salem

Project No.
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Figure 5.8: Delineation Set

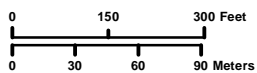
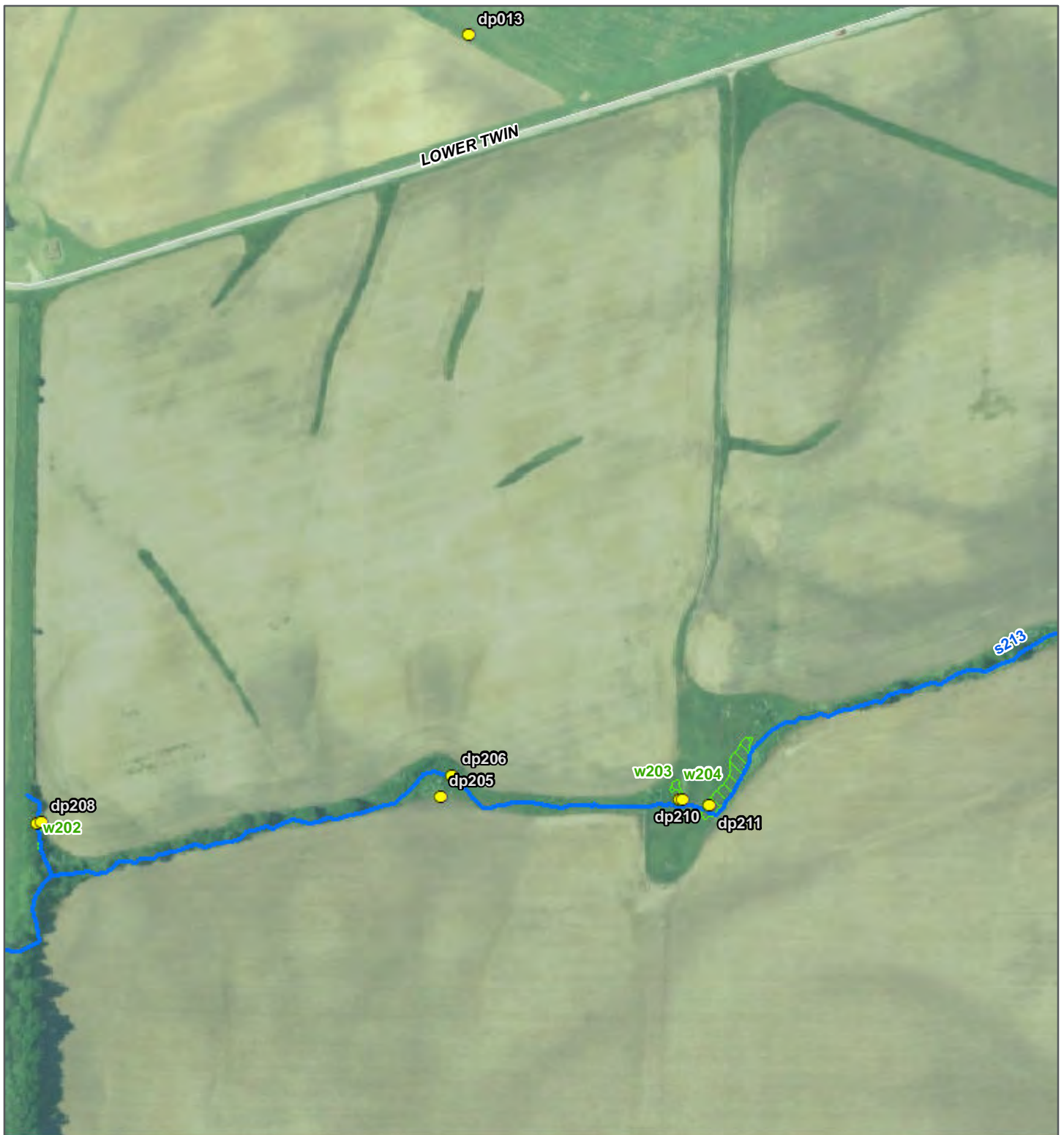
Ross County Solar Regulated Waters Delineation Report

Ross County Solar LLC

Ross County, Ohio

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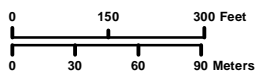
- Data Point
- Delineated Stream
- ▨ Delineated Wetland
- Project Location
- ▭ Delineated Pond

7.5' Quadrangle:
 South Salem
 Project No.
 e320201300

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Figure 5.9: Delineation Set Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio

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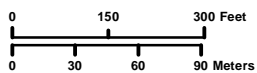
- Data Point
- Delineated Stream
- Delineated Pond
- ▨ Delineated Wetland
- Project Location

7.5' Quadrangle:
 South Salem
Project No.
 e320201300

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Figure 5.10: Delineation Set Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio

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- Data Point
- Delineated Stream
- Project Location
- Delineated Pond
- ▨ Delineated Wetland

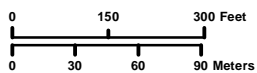
7.5' Quadrangle:
South Salem

Project No.
e320201300

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Figure 5.11: Delineation Set
Ross County Solar
Regulated Waters Delineation Report
Ross County Solar LLC
Ross County, Ohio

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- Data Point
- Delineated Stream
- Delineated Pond
- ▨ Delineated Wetland
- Project Location

7.5' Quadrangle:
South Salem

Project No.
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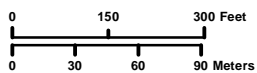
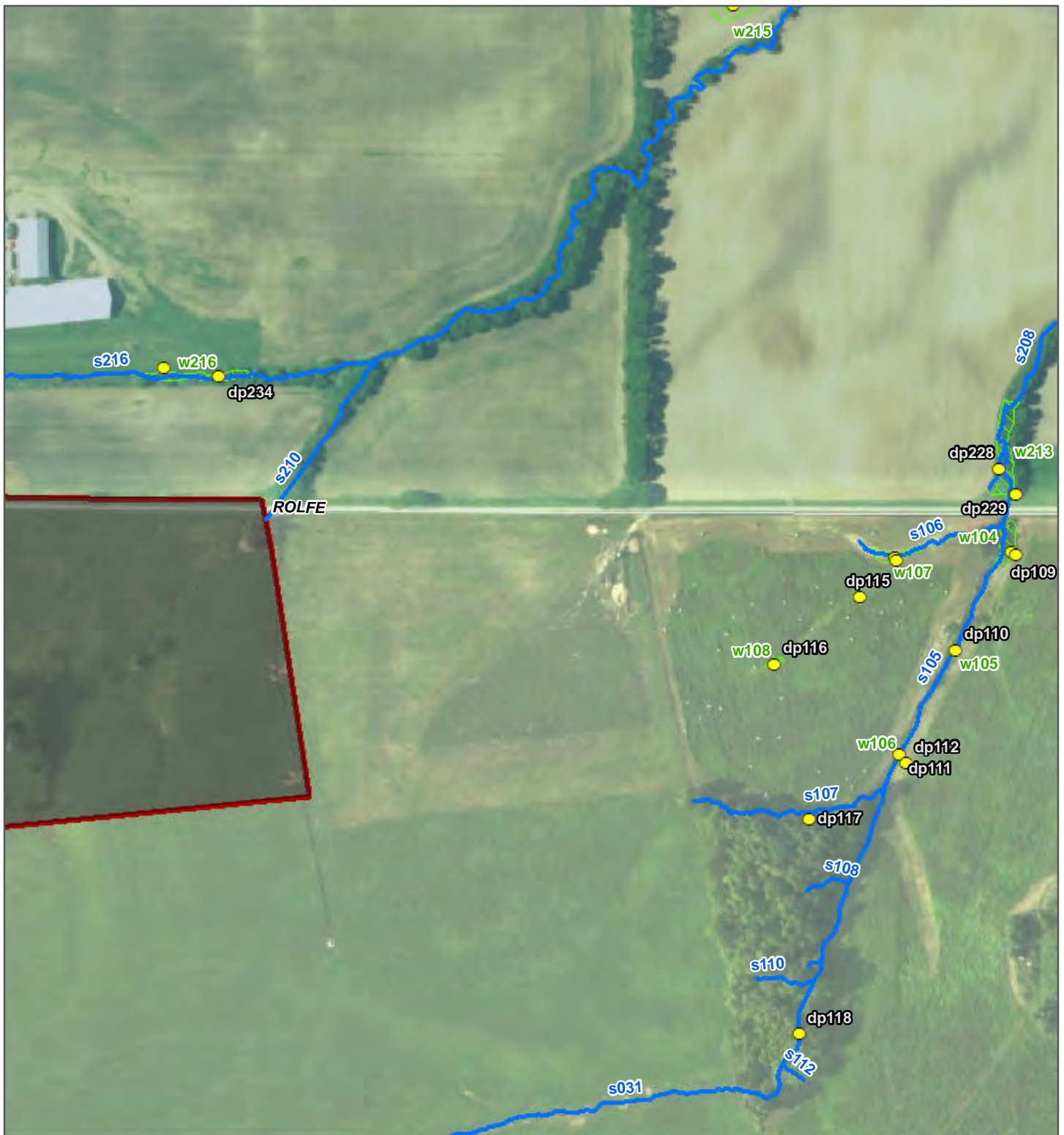
Figure 5.12: Delineation Set

Ross County Solar Regulated Waters Delineation Report

Ross County Solar LLC Ross County, Ohio

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- Data Point
- Delineated Stream
- ▨ Delineated Wetland
- ▭ Project Location
- ▭ Delineated Pond



7.5' Quadrangle:
South Salem

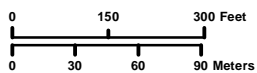
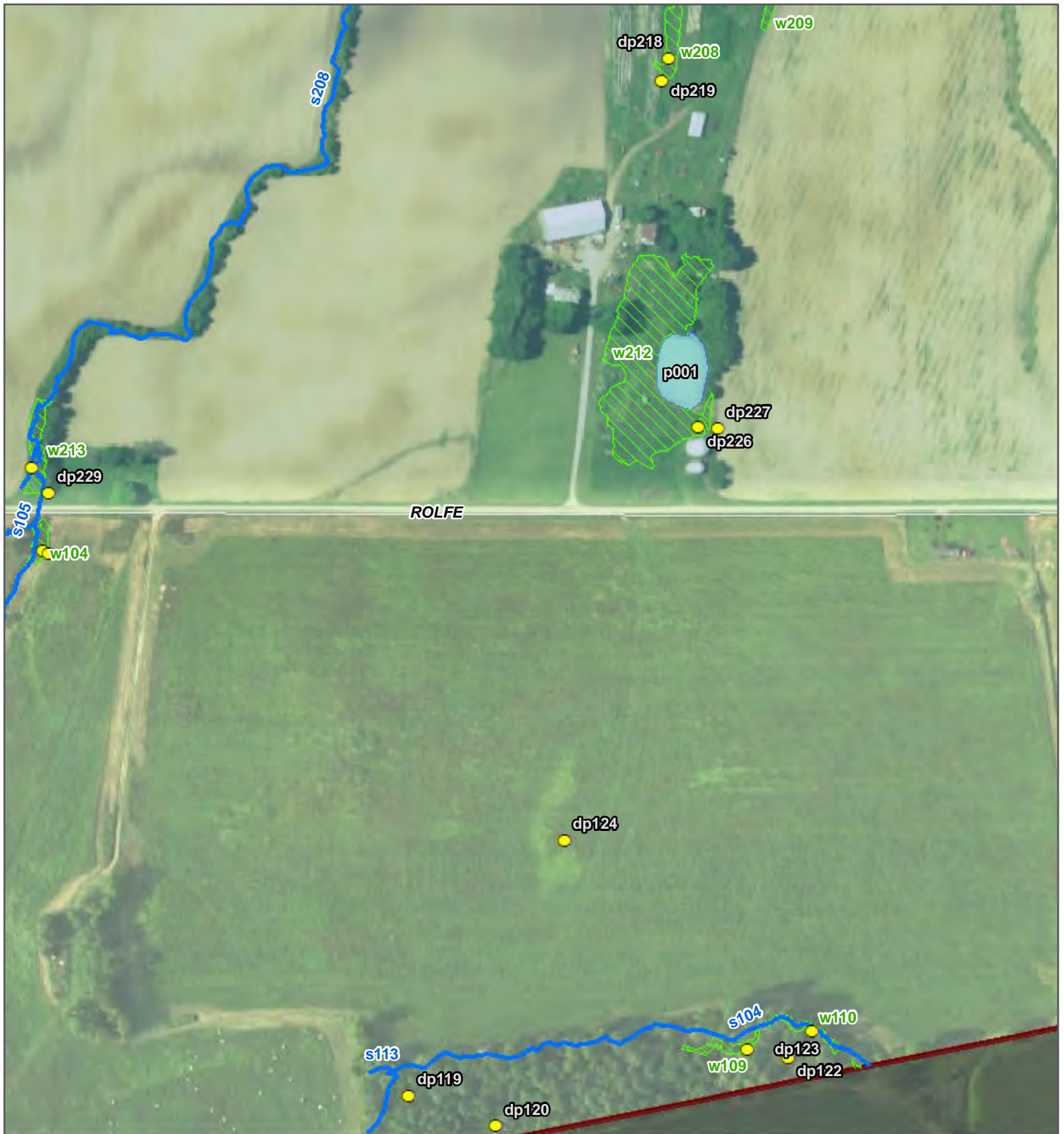
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Figure 5.13: Delineation Set Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio



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- Data Point
- Delineated Stream
- Delineated Pond
- ▨ Delineated Wetland
- ▬ Project Location



7.5' Quadrangle:
South Salem

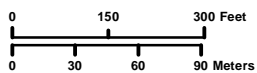
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Figure 5.14: Delineation Set Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio



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- Data Point
- Delineated Stream
- ▨ Delineated Wetland
- Project Location
- Delineated Pond



7.5' Quadrangle:
South Salem

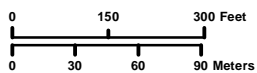
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Figure 5.15: Delineation Set Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio



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- Data Point
- Delineated Stream
- Delineated Pond
- Delineated Wetland
- Project Location

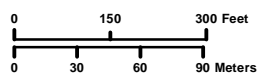
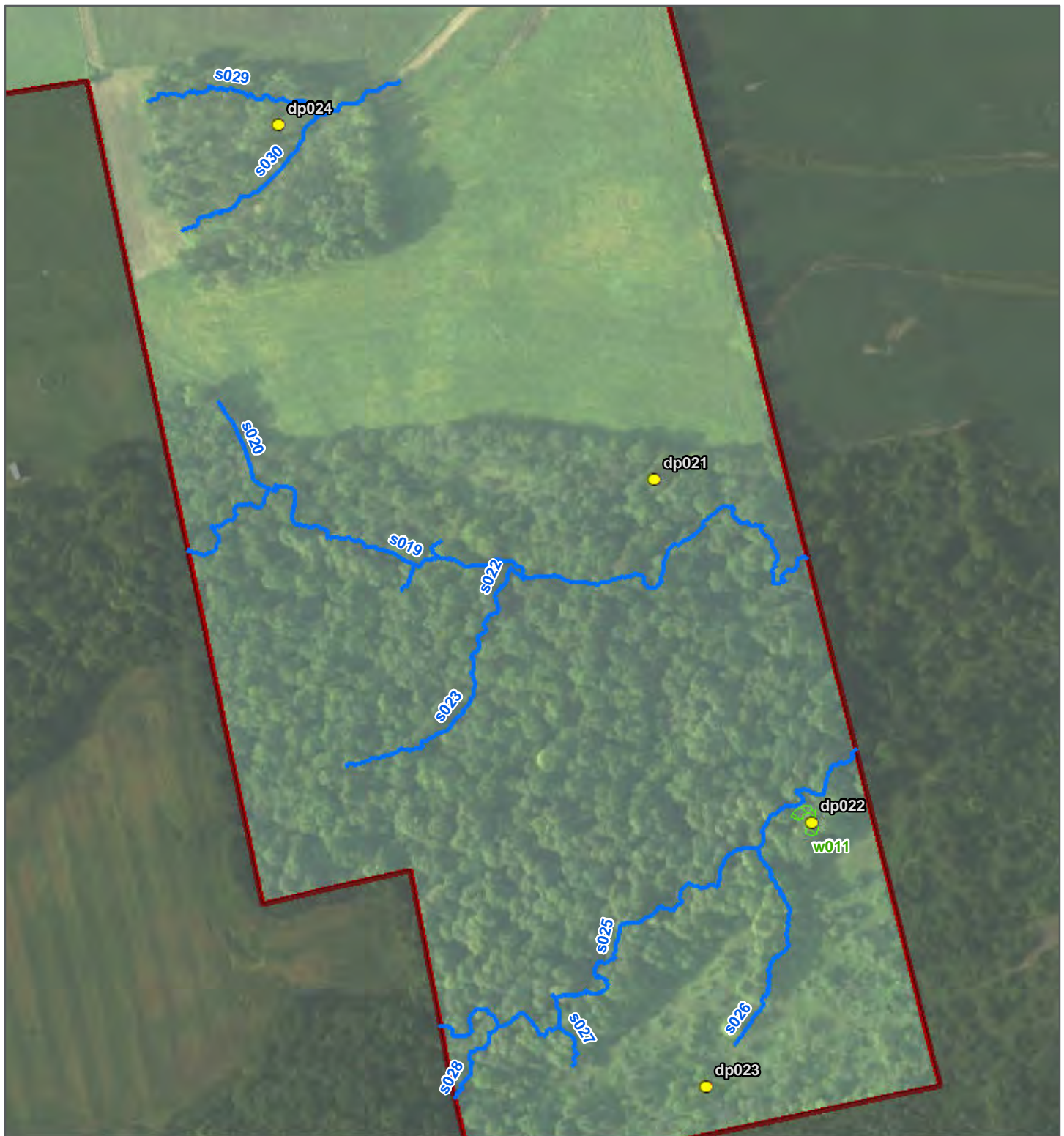
**7.5' Quadrangle:
South Salem**

**Project No.
e320201300**

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Figure 5.16: Delineation Set Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio

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- Data Point
- Delineated Stream
- Project Location
- Delineated Pond
- Delineated Wetland



7.5' Quadrangle:
South Salem

Project No.
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Figure 5.17: Delineation Set Ross County Solar Regulated Waters Delineation Report Ross County Solar LLC Ross County, Ohio



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Ross County Solar, Ross County,
Ohio

APPENDIX

B

SITE PHOTOGRAPHS



DP001, View Looking North



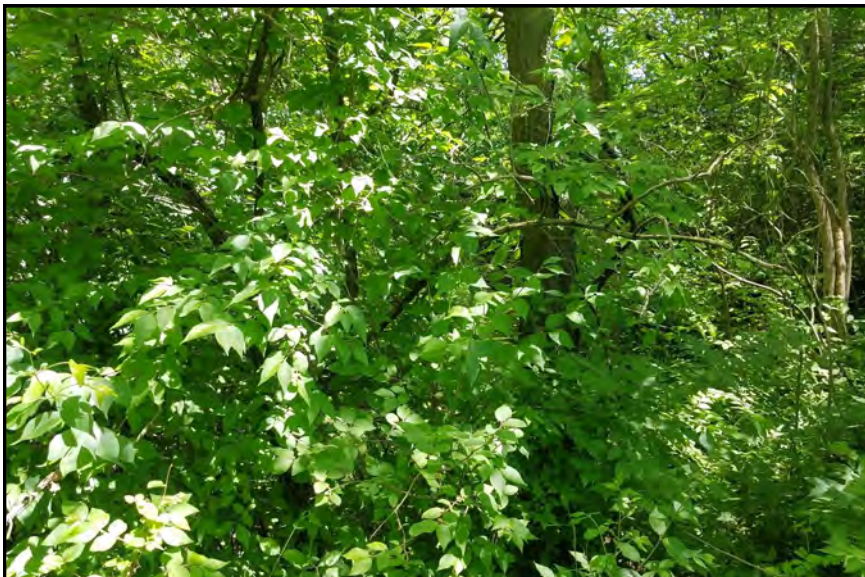
DP001, View Looking South



DP002, View Looking North



DP002, View Looking South



DP003, View Looking North



DP003, View Looking South



DP004, View Looking North



DP004, View Looking South



DP005, View Looking North



DP005, View Looking South



DP006, View Looking North



DP006, View Looking South



DP007, View Looking North



DP007, View Looking South



DP008, View Looking North



DP008, View Looking South



DP009, View Looking North



DP009, View Looking South



DP010, View Looking North



DP010, View Looking South



DP011, View Looking North



DP011, View Looking South



DP012, View Looking North



DP012, View Looking South



DP013, View Looking North



DP013, View Looking South



DP014, View Looking North



DP014, View Looking South



DP015, View Looking North



DP015, View Looking South



DP016, View Looking North



DP016, View Looking South



DP017, View Looking North



DP017, View Looking South



DP018, View Looking North



DP018, View Looking South



DP019, View Looking North



DP019, View Looking South



DP020, View Looking North



DP020, View Looking South



DP021, View Looking North



DP021, View Looking South



DP022, View Looking North



DP022, View Looking South



DP023, View Looking North



DP023, View Looking South



DP024, View Looking North



DP024, View Looking South



DP101, View Looking North



DP101, View Looking South



DP102, View Looking North



DP102, View Looking South



DP103, View Looking North



DP103, View Looking South



DP104, View Looking North



DP104, View Looking South



DP105, View Looking North



DP105, View Looking South



DP106, View Looking North



DP106, View Looking South



DP107, View Looking North



DP107, View Looking South



DP108, View Looking North



DP108, View Looking South



DP109, View Looking North



DP109, View Looking South



DP110, View Looking North



DP110, View Looking South



DP111, View Looking North



DP111, View Looking South



DP112, View Looking North



DP112, View Looking South



DP113, View Looking North



DP113, View Looking South



DP114, View Looking North



DP114, View Looking South

Site Photographs

Ross County Solar
Regulated Waters Delineation Report
Ross County Solar LLC
Ross County, Ohio

Project Number:
E320201300

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DP114, View Looking North



DP114, View Looking South



DP115, View Looking North



DP115, View Looking South

Site Photographs
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 Regulated Waters Delineation Report
 Ross County Solar LLC
 Ross County, Ohio

Project Number:
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DP116, View Looking North



DP116, View Looking South



DP117, View Looking North



DP117, View Looking South

Site Photographs
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 Ross County Solar LLC
 Ross County, Ohio

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DP118, View Looking North



DP118, View Looking South



DP119, View Looking North



DP119, View Looking South



DP120, View Looking North



DP120, View Looking South



DP121, View Looking North



DP121, View Looking South

Site Photographs

Ross County Solar
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Ross County Solar LLC
Ross County, Ohio

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DP121, View Looking North



DP121, View Looking South



DP122, View Looking North



DP122, View Looking South



DP123, View Looking North



DP123, View Looking South



DP124, View Looking North



DP124, View Looking South



DP201, View Looking North



DP201, View Looking South



DP202, View Looking North



DP202, View Looking South

Site Photographs

Ross County Solar
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Ross County Solar LLC
Ross County, Ohio

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DP202, View Looking North



DP202, View Looking South



DP203, View Looking North



DP203, View Looking South



DP204, View Looking North



DP204, View Looking South



DP205, View Looking North



DP205, View Looking South



DP206, View Looking North



DP206, View Looking South



DP207, View Looking North



DP207, View Looking South



DP208, View Looking North



DP208, View Looking South



DP209, View Looking North



DP209, View Looking South



DP210, View Looking North



DP210, View Looking South



DP211, View Looking North



DP211, View Looking South



DP212, View Looking North



DP212, View Looking South



DP213, View Looking North



DP213, View Looking South

Site Photographs

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Ross County Solar LLC
Ross County, Ohio

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DP214, View Looking North



DP214, View Looking South



DP215, View Looking North



DP215, View Looking South



DP216, View Looking North



DP216, View Looking South



DP217, View Looking North



DP217, View Looking South



DP218, View Looking North



DP218, View Looking South



DP219, View Looking North



DP219, View Looking South

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DP220, View Looking North



DP220, View Looking South



DP221, View Looking North



DP221, View Looking South



DP222, View Looking North



DP222, View Looking South



DP223, View Looking North



DP223, View Looking South



DP224, View Looking North



DP224, View Looking South



DP225, View Looking North



DP225, View Looking South



DP226, View Looking North



DP226, View Looking South



DP227, View Looking North



DP227, View Looking South



DP228, View Looking North



DP228, View Looking South



DP230, View Looking North



DP230, View Looking South



DP231, View Looking North need photo



DP231, View Looking South need photo



DP232, View Looking North



DP232, View Looking South



DP233, View Looking North need photo



DP233, View Looking South need photo

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DP234, View Looking North



DP234, View Looking South



DP235, View Looking North need photo



DP235, View Looking South need photo



DP236, View Looking North



DP236, View Looking South



DP237, View Looking North need photo



DP237, View Looking South need photo

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DP238, View Looking North



DP238, View Looking South



S001, View Looking Upstream



S001, View Looking Downstream



S002, View Looking Upstream



S002, View Looking Downstream

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S003, View Looking Upstream



S003, View Looking Downstream



S004, View Looking Upstream



S004, View Looking Downstream

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S006, View Looking Upstream



S006, View Looking Downstream

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S007, View Looking Upstream



S007, View Looking Downstream



S008, View Looking Upstream



S008, View Looking Downstream



S009, View Looking Upstream



S009, View Looking Downstream



S010, View Looking Upstream



S010, View Looking Downstream

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S011, View Looking Upstream



S011, View Looking Downstream



S012, View Looking Upstream



S012, View Looking Downstream



S013, View Looking Upstream



S013, View Looking Downstream



S014, View Looking Upstream



S014, View Looking Downstream

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S015, View Looking Upstream



S015, View Looking Downstream



S016, View Looking Upstream



S016, View Looking Downstream

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S017, View Looking Upstream



S017, View Looking Downstream



S018, View Looking Upstream



S018, View Looking Downstream

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S019, View Looking Upstream



S019, View Looking Downstream



S020, View Looking Upstream



S020, View Looking Downstream



S021, View Looking Upstream



S021, View Looking Downstream



S022, View Looking Upstream



S022, View Looking Downstream



S023, View Looking Upstream



S023, View Looking Downstream



S024, View Looking Upstream



S024, View Looking Downstream

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S025, View Looking Upstream



S025, View Looking Downstream



S026, View Looking Upstream



S026, View Looking Downstream



S027, View Looking Upstream



S027, View Looking Downstream



S028, View Looking Upstream



S028, View Looking Downstream



S029, View Looking Upstream



S029, View Looking Downstream



S030, View Looking Upstream



S030, View Looking Downstream



S031, View Looking Upstream



S031, View Looking Downstream



S101, View Looking Upstream



S101, View Looking Downstream

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S102, View Looking Upstream



S102, View Looking Downstream



S103, View Looking Upstream



S103, View Looking Downstream

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S104, View Looking Upstream



S104, View Looking Downstream



S105, View Looking Upstream



S105, View Looking Downstream

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S106, View Looking Upstream



S106, View Looking Downstream



S107, View Looking Upstream



S107, View Looking Downstream

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S108, View Looking Upstream



S108, View Looking Downstream



S109, View Looking Upstream



S109, View Looking Downstream



S110, View Looking Upstream



S110, View Looking Downstream



S111, View Looking Upstream



S111, View Looking Downstream



S112, View Looking Upstream



S112, View Looking Downstream



S113, View Looking Upstream



S113, View Looking Downstream



S201, View Looking Upstream



S201, View Looking Downstream



S202, View Looking Upstream



S202, View Looking Downstream



S203, View Looking Upstream



S203, View Looking Downstream



S204, View Looking Upstream



S204, View Looking Downstream



S205, View Looking Upstream



S205, View Looking Downstream



S206, View Looking Upstream



S206, View Looking Downstream



S207, View Looking Upstream



S207, View Looking Downstream



S208, View Looking Upstream



S208, View Looking Downstream

Site Photographs

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S209, View Looking Upstream



S209, View Looking Downstream



S210 View Looking Upstream



S210, View Looking Downstream

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S211, View Looking Upstream



S211, View Looking Downstream



S212, View Looking Upstream



S212, View Looking Downstream



S213, View Looking Upstream



S213, View Looking Downstream



S214, View Looking Upstream



S214, View Looking Downstream



S215, View Looking Upstream



S215, View Looking Downstream



S216, View Looking Upstream



S216, View Looking Downstream

Site Photographs

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Ross County Solar, Ross County,
Ohio

APPENDIX

C

WETLAND DELINEATION DATA
SHEETS – MIDWEST REGION

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp001
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
 Slope (%): 0-2% Lat: 39.3418 Long: -83.3686 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kinn silt loam, occasionally flooded (Kn) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Populus deltoides</u>			50%	Yes	FAC
2.	<u>Acer negundo</u>			40%	Yes	FAC
3.	<u>Gleditsia triacanthos</u>			20%	No	FACU
4.	<u>Fraxinus pennsylvanica</u>			10%	No	FACW
5.	<u>Morus alba</u>			10%	No	FAC
				130%	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species
 That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species
 That Are OBL, FACW, or FAC: 80% (A/B)

Sapling/Shrub Stratum (Plot size: 15' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Acer negundo</u>			15%	Yes	FAC
2.	<u>Lonicera maackii</u>			40%	Yes	UPL
3.	<u>Ligustrum obtusifolium</u>			5%	No	UPL
4.						
5.						
				60%	= Total Cover	

Prevalence Index worksheet:

That Are OBL, FACW, or FAC:		Multiply by:	
OBL species	x1 =		A/B
FACW species	x2 =	10%	0.20
FAC species	x3 =	210%	6.30
FACU species	x4 =	30%	1.20
UPL species	x5 =	50%	2.50
Column Totals:		300% (A)	10.20 (B)

Prevalence Index = B/A = 3.40

Herb Stratum (Plot size: 5' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Sanicula odorata</u>			60%	Yes	FAC
2.	<u>Cryptotaenia canadensis</u>			10%	No	FAC
3.	<u>Poa pratensis</u>			10%	No	FAC
4.	<u>Rubus occidentalis</u>			5%	No	UPL
5.	<u>Alliaria petiolata</u>			5%	No	FAC
6.	<u>Viola sororia</u>			10%	No	FAC
7.	<u>Galium aparine</u>			5%	No	FACU
8.	<u>Hesperis matronalis</u>			5%	No	FACU
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
				110%	= Total Cover	

Hydrophytic Vegetation Indicators:

 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
 3-Prevalence Index is ≤3.0¹
 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Woody Vine Stratum (Plot size: 30' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.						
2.						
					= Total Cover	

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: dp001**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 ¹	Loc ²		
0-20"	10yr 4/2	100					Silty clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>18"</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>18"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No Hydrologic Indicators Observed

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp002
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Shoulder Local relief (concave, convex, none): concave
 Slope (%): 0-2% Lat: 39.3332 Long: -83.3616 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	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>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)																																				
1. _____																																								
2. _____																																								
3. _____																																								
4. _____																																								
5. _____																																								
= Total Cover																																								
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet: <table border="1"> <thead> <tr> <th colspan="2">Total % Cover of:</th> <th colspan="2">Multiply by:</th> </tr> <tr> <th colspan="2">That Are OBL, FACW, or FAC:</th> <th colspan="2">A/B</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>70%</td> <td>x1 =</td> <td>0.70</td> </tr> <tr> <td>FACW species</td> <td>20%</td> <td>x2 =</td> <td>0.40</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x3 =</td> <td></td> </tr> <tr> <td>FACU species</td> <td></td> <td>x4 =</td> <td></td> </tr> <tr> <td>UPL species</td> <td></td> <td>x5 =</td> <td></td> </tr> <tr> <td>Column Totals:</td> <td>90% (A)</td> <td></td> <td>1.10 (B)</td> </tr> <tr> <td colspan="4">Prevalence Index = B/A = <u>1.22</u></td> </tr> </tbody> </table>	Total % Cover of:		Multiply by:		That Are OBL, FACW, or FAC:		A/B		OBL species	70%	x1 =	0.70	FACW species	20%	x2 =	0.40	FAC species		x3 =		FACU species		x4 =		UPL species		x5 =		Column Totals:	90% (A)		1.10 (B)	Prevalence Index = B/A = <u>1.22</u>			
Total % Cover of:		Multiply by:																																						
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3. _____																																								
4. _____																																								
5. _____																																								
= Total Cover																																								
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																				
1. <u>Acorus calamus</u>	10%	No	OBL																																					
2. <u>Typha latifolia</u>	35%	Yes	OBL																																					
3. <u>Carex trichocarpa</u>	25%	Yes	OBL																																					
4. <u>Phalaris arundinacea</u>	20%	Yes	FACW																																					
5. _____																																								
6. _____																																								
7. _____																																								
8. _____																																								
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20. _____																																								
90% = Total Cover																																								
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																																				
1. _____																																								
2. _____																																								
= Total Cover																																								

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

SOIL

Sampling Point: dp002**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 ¹	Loc ²		
0-16"	10yr 4/2	90	10yr 4/6	10	C	M	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" 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 (C6)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp003
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
 Slope (%): 0-2% Lat: 39.3322 Long: -83.3636 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u>	No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1. <i>Celtis occidentalis</i>	30%	Yes	FAC
2. <i>Acer negundo</i>	20%	Yes	FAC
3. <i>Maclura pomifera</i>	10%	No	FACU
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>
	60%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. <i>Lonicera maackii</i>	60%	Yes	UPL
2. <i>Celtis occidentalis</i>	10%	No	FAC
3. <i>Prunus serotina</i>	10%	No	FACU
4. <i>Rosa multiflora</i>	5%	No	FACU
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>
	85%	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. <i>Carex davisii</i>	45%	Yes	FAC
2. <i>Teucrium canadense</i>	10%	No	FACW
3. <i>Sanicula odorata</i>	5%	No	FAC
4. <i>Cryptotaenia canadensis</i>	5%	No	FAC
5. <i>Carex amphibola</i>	5%	No	FAC
6. <i>Solidago altissima</i>	5%	No	FACU
7. <i>Erigeron annuus</i>	5%	No	FACU
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>
	80%	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	= Total Cover	
Remarks: (Include photo numbers here or on a separate sheet.)			

Dominance Test worksheet:

Number of Dominant Species

That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species <u> </u>	x1 = <u> </u>
FACW species <u>10%</u>	x2 = <u>0.20</u>
FAC species <u>120%</u>	x3 = <u>3.60</u>
FACU species <u>35%</u>	x4 = <u>1.40</u>
UPL species <u>60%</u>	x5 = <u>3.00</u>
Column Totals: <u>225%</u> (A)	<u>8.20</u> (B)
Prevalence Index = B/A = <u>3.64</u>	

Hydrophytic Vegetation Indicators:

 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

 3-Prevalence Index is ≤3.0¹

 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

SOIL

Sampling Point: dp003**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 ¹	Loc ²		
0-20"	10yr 5/2	100					Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>18"</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>18"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp004
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
 Slope (%): 0-2% Lat: 39.3317 Long: -83.3641 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			

Remarks:

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	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>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)
1. <u>Celtis occidentalis</u>	25%	Yes	FAC	
2. <u>Juglans nigra</u>	10%	Yes	FACU	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	35% = Total Cover			

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> That Are OBL, FACW, or FAC: <u> </u> A/B OBL species <u>65%</u> x1 = <u>0.65</u> FACW species <u>15%</u> x2 = <u>0.30</u> FAC species <u>35%</u> x3 = <u>1.05</u> FACU species <u>10%</u> x4 = <u>0.40</u> UPL species <u> </u> x5 = <u> </u> Column Totals: <u>125%</u> (A) <u>2.40</u> (B) Prevalence Index = B/A = <u>1.92</u>
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				

<u>Herb Stratum</u> (Plot size: 5' radius)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												</
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<u>Woody Vine Stratum</u> (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>				
2. <u> </u>				

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

SOIL

Sampling Point: dp004**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 ¹	Loc ²		
0-20"	10yr 4/2	90	10yr 4/6	10	C	M	Silty Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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 checked="" type="checkbox"/> Redox Depressions (F8)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/ADepth (inches): Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" 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 checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp005
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
 Slope (%): 0-2% Lat: 39.3309 Long: -83.3665 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			

Remarks:

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Acer negundo</u>	25%	Yes	FAC	
2. <u>Salix nigra</u>	30%	Yes	OBL	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	55% = Total Cover			

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> That Are OBL, FACW, or FAC: <u> </u> A/B OBL species <u>90%</u> x1 = <u>0.90</u> FACW species <u> </u> x2 = <u> </u> FAC species <u>50%</u> x3 = <u>1.50</u> FACU species <u> </u> x4 = <u> </u> UPL species <u> </u> x5 = <u> </u> Column Totals: <u>140%</u> (A) <u>2.40</u> (B) Prevalence Index = B/A = <u>1.71</u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	<u> </u> = Total Cover			

<u>Herb Stratum</u> (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u> </u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Acorus calamus</u>	30%	Yes	OBL	
2. <u>Poa pratensis</u>	25%	Yes	FAC	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
3. <u>Glyceria striata</u>	15%	No	OBL	
4. <u>Leersia oryzoides</u>	10%	No	OBL	
5. <u>Alisma subcordatum</u>	5%	No	OBL	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	85% = Total Cover			

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	<u> </u> = Total Cover			

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

SOIL

Sampling Point: dp005**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 ¹	Loc ²		
0-20"	10yr 5/1	95	10yr 4/4	5	C	M	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>3"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0"</u>

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp006
Investigator(s): B Hess Section, Township, Range: NA
Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
Slope (%): 2-6% Lat: 39.3309 Long: -83.3669 Datum: NAD83 UTM16N
Soil Map Unit Name: Miamian silt loam, 2 to 6 percent slopes (MhB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>x</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>x</u>
Hydric Soil Present?	Yes <u> </u>	No <u>x</u>		
Wetland Hydrology Present?	Yes <u>x</u>	No <u> </u>		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)
1. <u>Acer negundo</u>	10%	No	FAC	
2. <u>Maclura pomifera</u>	25%	Yes	FACU	
3. <u>Juglans nigra</u>	10%	No	FACU	
4. <u>Celtis occidentalis</u>	25%	Yes	FAC	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	70%	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u>A/B</u> That Are OBL, FACW, or FAC: <u> </u> OBL species <u> </u> x1 = <u> </u> FACW species <u>25%</u> x2 = <u>0.50</u> FAC species <u>125%</u> x3 = <u>3.75</u> FACU species <u>40%</u> x4 = <u>1.60</u> UPL species <u>35%</u> x5 = <u>1.75</u> Column Totals: <u>225%</u> (A) <u>7.60</u> (B) Prevalence Index = B/A = <u>3.38</u>
1. <u>Fraxinus pennsylvanica</u>	10%	Yes	FACW	
2. <u>Lonicera maackii</u>	35%	Yes	UPL	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	45%	= Total Cover		
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators: <u> </u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u> </u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Cryptotaenia canadensis</u>	50%	Yes	FAC	
2. <u>Parthenocissus inserta</u>	5%	No	FACU	
3. <u>Viola sororia</u>	5%	No	FAC	
4. <u>Elymus virginicus</u>	10%	No	FACW	
5. <u>Vernonia gigantea</u>	10%	No	FAC	
6. <u>Sanicula odorata</u>	15%	Yes	FAC	
7. <u>Impatiens capensis</u>	5%	No	FACW	
8. <u>Poa pratensis</u>	10%	No	FAC	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	110%	= Total Cover		
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	<u> </u>	= Total Cover		
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: dp006

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 ¹	Loc ²		
0-20"	10yr 3/2	60					Silt Loam	
0-20"	10yr 5/3	40					Loamy Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators ³ :		Test Indicators of Hydric Soils:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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)		

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):		Hydric Soil Present?	
Type: <u>N/A</u>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Depth (inches): <u> </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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input checked="" 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 (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>	
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp007
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
 Slope (%): 0-2% Lat: 39.3301 Long: -83.3675 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 2 to 6 percent slopes (MhB) NWI classification: R4SBC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>x</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	No <u> </u>
Hydric Soil Present?	Yes <u>x</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>x</u>	No <u> </u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Juglans nigra</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Acer negundo</u>	<u>25%</u>	<u>Yes</u>	<u>FAC</u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u>45%</u>	<u>= Total Cover</u>	

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

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acorus calamus</u>	<u>50%</u>	<u>Yes</u>	<u>OBL</u>
2. <u>Poa pratensis</u>	<u>25%</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Elymus virginicus</u>	<u>10%</u>	<u>No</u>	<u>FACW</u>
4. <u>Valerianella radiata</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u>125%</u>	<u>= Total Cover</u>	

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	<u>= Total Cover</u>	

Dominance Test worksheet:

Number of Dominant Species
That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species
That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	A/B
That Are OBL, FACW, or FAC:		
OBL species <u>50%</u>	x1 =	<u>0.50</u>
FACW species <u>10%</u>	x2 =	<u>0.20</u>
FAC species <u>90%</u>	x3 =	<u>2.70</u>
FACU species <u>20%</u>	x4 =	<u>0.80</u>
UPL species <u> </u>	x5 =	<u> </u>
Column Totals: <u>170%</u> (A)		<u>4.20</u> (B)

Prevalence Index = B/A = 2.47

Hydrophytic Vegetation Indicators:

 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: dp007**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 ¹	Loc ²		
0-20"	10yr 4/1	95	10yr 4/4	5	C	m	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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 checked="" type="checkbox"/> Redox Depressions (F8)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/ADepth (inches): Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0"</u>

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp008
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
 Slope (%): 2-6% Lat: 39.33 Long: -83.3676 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 2 to 6 percent slopes (MhB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Juglans nigra</u>			25%	Yes	FACU
2.						
3.						
4.						
5.						
				25%	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species
 That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species
 That Are OBL, FACW, or FAC: 71% (A/B)

Sapling/Shrub Stratum (Plot size: 15' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Juglans nigra</u>			70%	Yes	FACU
2.	<u>Lonicera maackii</u>			15%	No	UPL
3.						
4.						
5.						
				85%	= Total Cover	

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species <u> </u>	x1 = <u> </u>
FACW species <u>15%</u>	x2 = <u>0.30</u>
FAC species <u>65%</u>	x3 = <u>1.95</u>
FACU species <u>95%</u>	x4 = <u>3.80</u>
UPL species <u>15%</u>	x5 = <u>0.75</u>
Column Totals: <u>190%</u> (A)	<u>6.80</u> (B)
Prevalence Index = B/A = <u>3.58</u>	

Herb Stratum (Plot size: 5' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Cryptotaenia canadensis</u>			5%	No	FAC
2.	<u>Poa pratensis</u>			10%	Yes	FAC
3.	<u>Ambrosia trifida</u>			10%	Yes	FAC
4.	<u>Sisyrinchium angustifolium</u>			5%	No	FAC
5.	<u>Elymus virginicus</u>			10%	Yes	FACW
6.	<u>Sanicula odorata</u>			25%	Yes	FAC
7.	<u>Verbesina alternifolia</u>			5%	No	FACW
8.	<u>Vernonia gigantea</u>			10%	Yes	FAC
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
				80%	= Total Cover	

Hydrophytic Vegetation Indicators:

 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
 3-Prevalence Index is ≤3.0¹
 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Woody Vine Stratum (Plot size: 30' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.						
2.						
					= Total Cover	

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: dp008

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 ¹	Loc ²		
0-20"	10yr 4/3	100					Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators ³ :	Test Indicators of Hydric Soils:
<input type="checkbox"/> Histosol (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)
	³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils in the United States</i> , Version 8.0, 2016.

Restrictive Layer (if observed):
 Type: N/A
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations:			
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>18"</u>	
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>18"</u>	
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site:	Ross	City/County:	Greenfield/Ross	Sampling Date:	6/2/2020
Applicant/Owner:	Geronimo	State:	OH	Sampling Point:	dp009
Investigator(s):	B Hess	Section, Township, Range:	NA		
Landform (hillslope, terrace, etc.):	Oxbow	Local relief (concave, convex, none):	concave		
Slope (%):	2-6%	Lat:	39.3298	Long:	-83.3687
Soil Map Unit Name:	Miamian silt loam, 2 to 6 percent slopes (MhB)	NWI classification:	none		
Datum:	NAD83 UTM16N				

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes	X	No	(If no, explain in Remarks.)
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Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>x</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	No <u> </u>
Hydric Soil Present?	Yes <u>x</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>x</u>	No <u> </u>			

Remarks:

VEGETATION -- Use scientific names of plants.

VEGETATION – Use scientific names of plants.					
Tree <u>Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Juglans nigra</u>	10%	Yes	FACU	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>4</u> (B)	
2. <u>Acer negundo</u>	15%	Yes	FAC		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
	25% = Total Cover				

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)					Percent of Dominant Species That Are OBL, FACW, or FAC:		75%	(A/B)
1.								
2.								
3.								
4.								
5.								
					Total % Cover of:		Multiply by:	

Herb Stratum (Plot size: 5' radius)			
1. <i>Acorus calamus</i>	50%	Yes	OBL
2. <i>Poa pratensis</i>	25%	Yes	FAC
3. <i>Glyceria striata</i>	20%	No	OBL
4. <i>Lycopus americanus</i>	5%	No	OBL
5. <i>Toxicodendron radicans</i>	5%	No	FAC
6. <i>Scirpus atrovirens</i>	5%	No	OBL
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	110%	= Total Cover	

That Are OBL, FACW, or FAC:		A/B	
OBL species	80%	x1 =	0.80
FACW species		x2 =	
FAC species	45%	x3 =	1.35
FACU species	10%	x4 =	0.40
UPL species		x5 =	
Column Totals:	135% (A)		2.55 (B)
Prevalence Index = B/A =		1.89	

Hydrophytic Vegetation Indicators:

1-Rapid Test for Hydrophytic Vegetation

☒ 2-Dominance Test is >50%

☒ 3-Prevalence Index is ≤3.0¹

4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	
1. _____ 2. _____ _____ = Total Cover	Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u>

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

SOIL

Sampling Point: dp009**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 ¹	Loc ²		
0-20"	10yr 4/1	95	10yr 4/4	5	c	m	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/ADepth (inches): Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0"</u>

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp010
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
 Slope (%): 2-6% Lat: 39.3298 Long: -83.3688 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 2 to 6 percent slopes (MhB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 30' radius)	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%</u> (A/B)
1. <u>Juglans nigra</u>	25%	Yes	FACU	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	25% = Total Cover			

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> That Are OBL, FACW, or FAC: <u> </u> A/B OBL species <u> </u> x1 = <u> </u> FACW species <u>45%</u> x2 = <u>0.90</u> FAC species <u>115%</u> x3 = <u>3.45</u> FACU species <u>85%</u> x4 = <u>3.40</u> UPL species <u>15%</u> x5 = <u>0.75</u> Column Totals: <u>260%</u> (A) <u>8.50</u> (B) Prevalence Index = B/A = <u>3.27</u>
1. <u>Juglans nigra</u>	50%	Yes	FACU	
2. <u>Lonicera maackii</u>	15%	No	UPL	
3. <u>Fraxinus pennsylvanica</u>	20%	Yes	FACW	
4. <u>Gleditsia triacanthos</u>	10%	No	FACU	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	95% = Total Cover			

<u>Herb Stratum</u> (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u> </u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u> </u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Cryptotaenia canadensis</u>	50%	Yes	FAC	
2. <u>Poa pratensis</u>	5%	No	FAC	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
3. <u>Valerianella radiata</u>	40%	Yes	FAC	
4. <u>Sisyrinchium angustifolium</u>	5%	No	FAC	
5. <u>Elymus virginicus</u>	10%	No	FACW	
6. <u>Vernonia gigantea</u>	10%	No	FAC	
7. <u>Sanicula odorata</u>	5%	No	FAC	
8. <u>Verbesina alternifolia</u>	5%	No	FACW	
9. <u>Symphytotrichum lateriflorum</u>	10%	No	FACW	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	140% = Total Cover			

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	<u> </u> = Total Cover			

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

SOIL

Sampling Point: dp010**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 ¹	Loc ²		
0-20"	10yr 4/2	100					Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/ADepth (inches): Hydric Soil Present? Yes No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>>18"</u>
Saturation Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>>18"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp011
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
 Slope (%): 2-6% Lat: 39.3308 Long: -83.3695 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u>	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 30' radius)	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>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. <u>Juglans nigra</u>	10%	No	FACU	
2. <u>Acer negundo</u>	40%	Yes	FAC	
3. <u>Gleditsia triacanthos</u>	25%	Yes	FACU	
4. <u>Celtis occidentalis</u>	10%	No	FAC	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	85% = Total Cover			

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> That Are OBL, FACW, or FAC: <u> </u> A/B OBL species <u> </u> x1 = <u> </u> FACW species <u>25%</u> x2 = <u>0.50</u> FAC species <u>180%</u> x3 = <u>5.40</u> FACU species <u>45%</u> x4 = <u>1.80</u> UPL species <u>20%</u> x5 = <u>1.00</u> Column Totals: <u>270%</u> (A) <u>8.70</u> (B) Prevalence Index = B/A = <u>3.22</u>
1. <u>Juglans nigra</u>	10%	Yes	FACU	
2. <u>Lonicera maackii</u>	20%	Yes	UPL	
3. <u>Morus alba</u>	15%	Yes	FAC	
4. <u>Celtis occidentalis</u>	5%	No	FAC	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	50% = Total Cover			

<u>Herb Stratum</u> (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u> </u> 1-Rapid Test for Hydrophytic Vegetation <u> </u> 2-Dominance Test is >50% <u> </u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Cryptotaenia canadensis</u>	80%	Yes	FAC	
2. <u>Poa pratensis</u>	10%	No	FAC	
3. <u>Viola sororia</u>	10%	No	FAC	
4. <u>Alliaria petiolata</u>	10%	No	FAC	
5. <u>Elymus virginicus</u>	10%	No	FACW	
6. <u>Carex grayi</u>	5%	No	FACW	
7. <u>Verbesina alternifolia</u>	10%	No	FACW	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	135% = Total Cover			

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	<u> </u> = Total Cover			

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

SOIL

Sampling Point: dp011**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 ¹	Loc ²		
0-20"	10yr 4/2	100					Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/ADepth (inches): Hydric Soil Present? Yes No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>>18"</u>
Saturation Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>>18"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp012
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
 Slope (%): 2-6% Lat: 39.3379 Long: -83.3674 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			

Remarks:

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</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>100%</u> (A/B)
1. <u>Platanus occidentalis</u>	40%	Yes	FACW	
2. <u>Acer negundo</u>	20%	Yes	FAC	
3. <u>Fraxinus pennsylvanica</u>	10%	No	FACW	
4. <u>Salix nigra</u>	25%	Yes	OBL	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	95% = Total Cover			

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

<u>Herb Stratum</u> (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carex stipata</u>	50%	Yes	OBL
2. <u>Glyceria melicaria</u>	60%	Yes	OBL
3. <u>Symphyotrichum lateriflorum</u>	20%	No	FACW
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>
	130% = Total Cover		

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u> = Total Cover		

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

Prevalence Index worksheet:			
Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:		A/B	
OBL species	135%	x1 =	1.35
FACW species	70%	x2 =	1.40
FAC species	20%	x3 =	0.60
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	225% (A)		3.35 (B)
Prevalence Index = B/A = <u>1.49</u>			

Hydrophytic Vegetation Indicators:

 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

SOIL

Sampling Point: dp012**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 ¹	Loc ²		
0-20"	10yr 4/1	95	10yr 3/6	5	C	M	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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 checked="" type="checkbox"/> Redox Depressions (F8)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp013
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Slough Local relief (concave, convex, none): concave
 Slope (%): 0-2% Lat: 39.3232 Long: -83.3634 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
= Total Cover				

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u>A/B</u> That Are OBL, FACW, or FAC: <u> </u> OBL species <u> </u> x1 = <u> </u> FACW species <u>85%</u> x2 = <u>1.70</u> FAC species <u>15%</u> x3 = <u>0.45</u> FACU species <u>5%</u> x4 = <u>0.20</u> UPL species <u> </u> x5 = <u> </u> Column Totals: <u>105%</u> (A) <u>2.35</u> (B) Prevalence Index = B/A = <u>2.24</u>
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
= Total Cover				

<u>Herb Stratum</u> (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u> </u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>	<u>85%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Apocynum cannabinum</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
3. <u>Calystegia sepium</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Asclepias syriaca</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
5. <u> </u>				
6. <u> </u>				
7. <u> </u>				
8. <u> </u>				
9. <u> </u>				
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13. <u> </u>				
14. <u> </u>				
15. <u> </u>				
16. <u> </u>				
17. <u> </u>				
18. <u> </u>				
19. <u> </u>				
20. <u> </u>				
105% = Total Cover				

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>				
2. <u> </u>				
= Total Cover				

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

SOIL

Sampling Point: dp013**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 ¹	Loc ²		
0-20"	10yr 3/2	100					Silty Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/ADepth (inches): Hydric Soil Present? Yes No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>>18"</u>
Saturation Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>>18"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp014
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Slough Local relief (concave, convex, none): concave
 Slope (%): 0-2% Lat: 39.3219 Long: -83.3684 Datum: NAD83 UTM16N
 Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>x</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	No <u> </u>
Hydric Soil Present?	Yes <u>x</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>x</u>	No <u> </u>			

Remarks:

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
= Total Cover				

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u>A/B</u> That Are OBL, FACW, or FAC: <u> </u> OBL species <u> </u> x1 = <u> </u> FACW species <u>100%</u> x2 = <u>2.00</u> FAC species <u> </u> x3 = <u> </u> FACU species <u> </u> x4 = <u> </u> UPL species <u> </u> x5 = <u> </u> Column Totals: <u>100%</u> (A) <u>2.00</u> (B) Prevalence Index = B/A = <u>2.00</u>
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
= Total Cover				

<u>Herb Stratum</u> (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>	<u>100%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
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11. <u> </u>				
12. <u> </u>				
13. <u> </u>				
14. <u> </u>				
15. <u> </u>				
16. <u> </u>				
17. <u> </u>				
18. <u> </u>				
19. <u> </u>				
20. <u> </u>				
100% = Total Cover				

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>				
2. <u> </u>				
= Total Cover				

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

SOIL

Sampling Point: dp014**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 ¹	Loc ²		
0-20"	10yr 4/1	90	10yr 4/6	10	c	m	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>2"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp015
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Slough Local relief (concave, convex, none): concave
 Slope (%): 0-2% Lat: 39.3222 Long: -83.3717 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 2 to 6 percent slopes, eroded (MhB2) NWI classification: R4SBC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>x</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>x</u> No <u> </u>
Hydric Soil Present?	Yes <u>x</u>	No <u> </u>		
Wetland Hydrology Present?	Yes <u>x</u>	No <u> </u>		

Remarks:

VEGETATION -- Use scientific names of plants.

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

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u>10%</u> Multiply by: <u>100%</u> (A/B) That Are OBL, FACW, or FAC: <u>100%</u> (A/B) OBL species <u>80%</u> x1 = <u>0.80</u> FACW species <u>20%</u> x2 = <u>0.40</u> FAC species <u>20%</u> x3 = <u>0.60</u> FACU species <u> </u> x4 = <u> </u> UPL species <u> </u> x5 = <u> </u> Column Totals: <u>120%</u> (A) <u>1.80</u> (B) Prevalence Index = B/A = <u>1.50</u>
1. <u>Sambucus nigra</u>	10%	Yes	FAC	
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
			= Total Cover	

<u>Herb Stratum</u> (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u> </u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>	20%	No	FACW	
2. <u>Scirpus atrovirens</u>	60%	Yes	OBL	
3. <u>Glyceria striata</u>	20%	No	OBL	
4. <u>Symphyotrichum lanceolatum</u>	10%	No	FAC	
5. <u> </u>				
6. <u> </u>				
7. <u> </u>				
8. <u> </u>				
9. <u> </u>				
10. <u> </u>				
11. <u> </u>				
12. <u> </u>				
13. <u> </u>				
14. <u> </u>				
15. <u> </u>				
16. <u> </u>				
17. <u> </u>				
18. <u> </u>				
19. <u> </u>				
20. <u> </u>				
			= Total Cover	

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>				
2. <u> </u>				
			= Total Cover	

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

SOIL

Sampling Point: dp015**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 ¹	Loc ²		
0-20"	10yr 4/2	90	10yr 5/6	10	c	m	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>2"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp016
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
 Slope (%): 0-2% Lat: 39.3229 Long: -83.3713 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 2 to 6 percent slopes, eroded (MhB2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u>	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius) 1. <u> </u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> <div style="text-align: right;">= Total Cover</div>	<table border="0"> <tr> <th>Absolute % Cover</th> <th>Dominant Species?</th> <th>Indicator Status</th> </tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	Absolute % Cover	Dominant Species?	Indicator Status																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>4</u> (B)
Absolute % Cover	Dominant Species?	Indicator Status																		

Sapling/Shrub Stratum (Plot size: 15' radius) 1. <u>Prunus serotina</u> 2. <u>Acer negundo</u> 3. <u>Liquidambar styraciflua</u> 4. <u>Lonicera maackii</u> 5. <u> </u> <div style="text-align: right;">125% = Total Cover</div>	<table border="0"> <tr> <th>Absolute % Cover</th> <th>Dominant Species?</th> <th>Indicator Status</th> </tr> <tr><td>15%</td><td>No</td><td>FACU</td></tr> <tr><td>25%</td><td>Yes</td><td>FAC</td></tr> <tr><td>75%</td><td>Yes</td><td>FACW</td></tr> <tr><td>10%</td><td>No</td><td>UPL</td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	Absolute % Cover	Dominant Species?	Indicator Status	15%	No	FACU	25%	Yes	FAC	75%	Yes	FACW	10%	No	UPL				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
Absolute % Cover	Dominant Species?	Indicator Status																		
15%	No	FACU																		
25%	Yes	FAC																		
75%	Yes	FACW																		
10%	No	UPL																		

Herb Stratum (Plot size: 5' radius) 1. <u>Parthenocissus quinquefolia</u> 2. <u>Solidago altissima</u> 3. <u>Galium aparine</u> 4. <u>Carex granularis</u> 5. <u> </u> 6. <u> </u> 7. <u> </u> 8. <u> </u> 9. <u> </u> 10. <u> </u> 11. <u> </u> 12. <u> </u> 13. <u> </u> 14. <u> </u> 15. <u> </u> 16. <u> </u> 17. <u> </u> 18. <u> </u> 19. <u> </u> 20. <u> </u> <div style="text-align: right;">50% = Total Cover</div>	<table border="0"> <tr> <th>Absolute % Cover</th> <th>Dominant Species?</th> <th>Indicator Status</th> </tr> <tr><td>15%</td><td>Yes</td><td>FACU</td></tr> <tr><td>25%</td><td>Yes</td><td>FACU</td></tr> <tr><td>5%</td><td>No</td><td>FACU</td></tr> <tr><td>5%</td><td>No</td><td>FACW</td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	Absolute % Cover	Dominant Species?	Indicator Status	15%	Yes	FACU	25%	Yes	FACU	5%	No	FACU	5%	No	FACW																																																							Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>That Are OBL, FACW, or FAC:</td> <td>A/B</td> </tr> <tr> <td>OBL species <u> </u></td> <td>x1 = <u> </u></td> </tr> <tr> <td>FACW species <u>80%</u></td> <td>x2 = <u>1.60</u></td> </tr> <tr> <td>FAC species <u>25%</u></td> <td>x3 = <u>0.75</u></td> </tr> <tr> <td>FACU species <u>60%</u></td> <td>x4 = <u>2.40</u></td> </tr> <tr> <td>UPL species <u>10%</u></td> <td>x5 = <u>0.50</u></td> </tr> <tr> <td>Column Totals: <u>175%</u> (A)</td> <td><u>5.25</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	That Are OBL, FACW, or FAC:	A/B	OBL species <u> </u>	x1 = <u> </u>	FACW species <u>80%</u>	x2 = <u>1.60</u>	FAC species <u>25%</u>	x3 = <u>0.75</u>	FACU species <u>60%</u>	x4 = <u>2.40</u>	UPL species <u>10%</u>	x5 = <u>0.50</u>	Column Totals: <u>175%</u> (A)	<u>5.25</u> (B)	Prevalence Index = B/A = <u>3.00</u>	
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Woody Vine Stratum (Plot size: 30' radius) 1. <u> </u> 2. <u> </u> <div style="text-align: right;">= Total Cover</div>	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
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Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: dp016

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 ¹	Loc ²		
0-20"	10yr 4/4	100					Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators ³ :	Test Indicators of Hydric Soils:
<input type="checkbox"/> Histosol (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)
	³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils in the United States</i> , Version 8.0, 2016.

Restrictive Layer (if observed):
 Type: N/A
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations:			
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>18"</u>	
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>18"</u>	
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp017
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
 Slope (%): 12 to 20% Lat: 39.3268 Long: -83.3739 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kendallville-Eldean complex, 12 to 20 percent slopes, eroded (KeD2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			

Remarks:

VEGETATION -- Use scientific names of plants.

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

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> That Are OBL, FACW, or FAC: <u> </u> A/B OBL species <u>35%</u> x1 = <u>0.35</u> FACW species <u>40%</u> x2 = <u>0.80</u> FAC species <u>20%</u> x3 = <u>0.60</u> FACU species <u>10%</u> x4 = <u>0.40</u> UPL species <u> </u> x5 = <u> </u> Column Totals: <u>105%</u> (A) <u>2.15</u> (B) Prevalence Index = B/A = <u>2.05</u>
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
= Total Cover				

<u>Herb Stratum</u> (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Equisetum arvense</u>	<u>20%</u>	<u>No</u>	<u>FAC</u>	
2. <u>Scirpus atrovirens</u>	<u>35%</u>	<u>Yes</u>	<u>OBL</u>	
3. <u>Schedonorus arundinaceus</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
4. <u>Juncus dudleyi</u>	<u>25%</u>	<u>Yes</u>	<u>FACW</u>	
5. <u>Carex vulpinoidea</u>	<u>15%</u>	<u>No</u>	<u>FACW</u>	
6. <u> </u>				
7. <u> </u>				
8. <u> </u>				
9. <u> </u>				
10. <u> </u>				
11. <u> </u>				
12. <u> </u>				
13. <u> </u>				
14. <u> </u>				
15. <u> </u>				
16. <u> </u>				
17. <u> </u>				
18. <u> </u>				
19. <u> </u>				
20. <u> </u>				
105% = Total Cover				

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>				
2. <u> </u>				
= Total Cover				

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

SOIL

Sampling Point: dp017**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 ¹	Loc ²		
0-20"	10yr 5/1	90	10yr 5/6	10	c	m	Silty Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>4"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp018
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
 Slope (%): 12 to 20% Lat: 39.3274 Long: -83.3753 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 12 to 18 percent slopes, eroded (MhD2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>x</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>x</u>
Hydric Soil Present?	Yes <u> </u>	No <u>x</u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>x</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

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

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)				Percent of Dominant Species	
1.				That Are OBL, FACW, or FAC:	100% (A/B)
2.				Prevalence Index worksheet:	
3.					
4.					
5.					

Herb Stratum (Plot size: 5' radius)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</
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<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>				
2. <u> </u>				
= Total Cover				

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

SOIL

Sampling Point: dp018

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 ¹	Loc ²		
0-20"	10yr 4/3	100					Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators ³ :		Test Indicators of Hydric Soils:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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)		

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):		Hydric Soil Present?	
Type: <u>N/A</u>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Depth (inches): <u></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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp019
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
 Slope (%): 12 to 20% Lat: 39.3275 Long: -83.3752 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 12 to 18 percent slopes, eroded (Mhd2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>x</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>x</u> No <u> </u>
Hydric Soil Present?	Yes <u>x</u>	No <u> </u>		
Wetland Hydrology Present?	Yes <u>x</u>	No <u> </u>		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius) 1. <u> </u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> <div style="text-align: right;">= Total Cover</div>	<table border="0"> <tr> <th>Absolute % Cover</th> <th>Dominant Species?</th> <th>Indicator Status</th> </tr> <tr><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> </table>	Absolute % Cover	Dominant Species?	Indicator Status	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	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>3</u> (B)
Absolute % Cover	Dominant Species?	Indicator Status																		
<u> </u>	<u> </u>	<u> </u>																		
<u> </u>	<u> </u>	<u> </u>																		
<u> </u>	<u> </u>	<u> </u>																		
<u> </u>	<u> </u>	<u> </u>																		
<u> </u>	<u> </u>	<u> </u>																		

Sapling/Shrub Stratum (Plot size: 15' radius) 1. <u> </u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> <div style="text-align: right;">= Total Cover</div>	<table border="0"> <tr> <th>Absolute % Cover</th> <th>Dominant Species?</th> <th>Indicator Status</th> </tr> <tr><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> </table>	Absolute % Cover	Dominant Species?	Indicator Status	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
Absolute % Cover	Dominant Species?	Indicator Status																		
<u> </u>	<u> </u>	<u> </u>																		
<u> </u>	<u> </u>	<u> </u>																		
<u> </u>	<u> </u>	<u> </u>																		
<u> </u>	<u> </u>	<u> </u>																		
<u> </u>	<u> </u>	<u> </u>																		

Herb Stratum (Plot size: 5' radius) 1. <u>Leersia oryzoides</u> 20% Yes OBL 2. <u>Poa pratensis</u> 10% No FAC 3. <u>Impatiens capensis</u> 80% Yes FACW 4. <u>Pilea pumila</u> 20% Yes FACW 5. <u>Valerianella radiata</u> 5% No FAC 6. <u>Equisetum arvense</u> 5% No FAC 7. <u>Symphytotrichum puniceum</u> 5% No OBL 8. <u>Lobelia siphilitica</u> 5% No OBL 9. <u>Symphytotrichum lanceolatum</u> 5% No FAC 10. <u>Cryptotaenia canadensis</u> 5% No FAC 11. <u> </u> 12. <u> </u> 13. <u> </u> 14. <u> </u> 15. <u> </u> 16. <u> </u> 17. <u> </u> 18. <u> </u> 19. <u> </u> 20. <u> </u> <div style="text-align: right;">160% = Total Cover</div>	<table border="0"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> <th>A/B</th> </tr> <tr> <td>That Are OBL, FACW, or FAC:</td> <td></td> <td></td> </tr> <tr> <td>OBL species 30%</td> <td>x1 =</td> <td>0.30</td> </tr> <tr> <td>FACW species 100%</td> <td>x2 =</td> <td>2.00</td> </tr> <tr> <td>FAC species 30%</td> <td>x3 =</td> <td>0.90</td> </tr> <tr> <td>FACU species</td> <td>x4 =</td> <td></td> </tr> <tr> <td>UPL species</td> <td>x5 =</td> <td></td> </tr> <tr> <td>Column Totals: 160% (A)</td> <td></td> <td>3.20 (B)</td> </tr> <tr> <td colspan="3">Prevalence Index = B/A = <u>2.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	A/B	That Are OBL, FACW, or FAC:			OBL species 30%	x1 =	0.30	FACW species 100%	x2 =	2.00	FAC species 30%	x3 =	0.90	FACU species	x4 =		UPL species	x5 =		Column Totals: 160% (A)		3.20 (B)	Prevalence Index = B/A = <u>2.00</u>		
Total % Cover of:	Multiply by:	A/B																										
That Are OBL, FACW, or FAC:																												
OBL species 30%	x1 =	0.30																										
FACW species 100%	x2 =	2.00																										
FAC species 30%	x3 =	0.90																										
FACU species	x4 =																											
UPL species	x5 =																											
Column Totals: 160% (A)		3.20 (B)																										
Prevalence Index = B/A = <u>2.00</u>																												

Woody Vine Stratum (Plot size: 30' radius) 1. <u> </u> 2. <u> </u> <div style="text-align: right;">= Total Cover</div>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
--	--

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

SOIL

Sampling Point: dp019**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 ¹	Loc ²		
0-20"	10yr 4/1	90	10yr 4/4	10	c	m	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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

Secondary Indicators (minimum of two required)

<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp020
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Shoulder Local relief (concave, convex, none): convex
 Slope (%): 12 to 18% Lat: 39.3278 Long: -83.3748 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 12 to 18 percent slopes, eroded (Mhd2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u>	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	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>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
= Total Cover				

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u>A/B</u> That Are OBL, FACW, or FAC: <u> </u> OBL species <u> </u> x1 = <u> </u> FACW species <u>5%</u> x2 = <u>0.10</u> FAC species <u>5%</u> x3 = <u>0.15</u> FACU species <u>115%</u> x4 = <u>4.60</u> UPL species <u>10%</u> x5 = <u>0.50</u> Column Totals: <u>135%</u> (A) <u>5.35</u> (B) Prevalence Index = B/A = <u>3.96</u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
= Total Cover				

<u>Herb Stratum</u> (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u> </u> 1-Rapid Test for Hydrophytic Vegetation <u> </u> 2-Dominance Test is >50% <u> </u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Solidago altissima</u>	<u>30%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Lonicera japonica</u>	<u>45%</u>	<u>Yes</u>	<u>FACU</u>	
3. <u>Vernonia gigantea</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Rubus pensilvanicus</u>	<u>5%</u>	<u>No</u>	<u>UPL</u>	
5. <u>Elaeagnus umbellata</u>	<u>5%</u>	<u>No</u>	<u>UPL</u>	
6. <u>Lonicera tatarica</u>	<u>15%</u>	<u>No</u>	<u>FACU</u>	
7. <u>Symphytotrichum novae-angliae</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>	
8. <u>Achillea millefolium</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
9. <u>Bromus inermis</u>	<u>20%</u>	<u>No</u>	<u>FACU</u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
13. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
14. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
16. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
17. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
18. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
19. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
20. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
135% = Total Cover				

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
= Total Cover				

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

SOIL

Sampling Point: dp020**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 ¹	Loc ²		
0-20"	10yr 5/2	90	10yr 5/4	10	c	m	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/4/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp021
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Shoulder Local relief (concave, convex, none): convex
 Slope (%): 20% Lat: 39.3054 Long: -83.3559 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 12 to 18 percent slopes, eroded (MhD2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius) 1. <u> </u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> <div style="text-align: right;">= Total Cover</div>	<table border="0"> <tr> <th>Absolute % Cover</th> <th>Dominant Species?</th> <th>Indicator Status</th> </tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	Absolute % Cover	Dominant Species?	Indicator Status																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)
Absolute % Cover	Dominant Species?	Indicator Status																		

Sapling/Shrub Stratum (Plot size: 15' radius) 1. <u> </u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> <div style="text-align: right;">= Total Cover</div>	<table border="0"> <tr> <th>Absolute % Cover</th> <th>Dominant Species?</th> <th>Indicator Status</th> </tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	Absolute % Cover	Dominant Species?	Indicator Status																Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
Absolute % Cover	Dominant Species?	Indicator Status																		

Herb Stratum (Plot size: 5' radius) 1. <u>Carex stipata</u> 65% Yes OBL 2. <u>Carex granularis</u> 5% No FACW 3. <u>Carex frankii</u> 35% Yes OBL 4. <u>Pericaria longiseta</u> 10% No FAC 5. <u>Bidens frondosa</u> 5% No FACW 6. <u>Poa pratensis</u> 5% No FAC 7. <u> </u> 8. <u> </u> 9. <u> </u> 10. <u> </u> 11. <u> </u> 12. <u> </u> 13. <u> </u> 14. <u> </u> 15. <u> </u> 16. <u> </u> 17. <u> </u> 18. <u> </u> 19. <u> </u> 20. <u> </u> <div style="text-align: right;">125% = Total Cover</div>	<table border="0"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> <th>A/B</th> </tr> <tr> <td>That Are OBL, FACW, or FAC:</td> <td></td> <td></td> </tr> <tr> <td>OBL species 100%</td> <td>x1 =</td> <td>1.00</td> </tr> <tr> <td>FACW species 10%</td> <td>x2 =</td> <td>0.20</td> </tr> <tr> <td>FAC species 15%</td> <td>x3 =</td> <td>0.45</td> </tr> <tr> <td>FACU species</td> <td>x4 =</td> <td></td> </tr> <tr> <td>UPL species</td> <td>x5 =</td> <td></td> </tr> <tr> <td>Column Totals: 125% (A)</td> <td></td> <td>1.65 (B)</td> </tr> </table> <p>Prevalence Index = B/A = <u>1.32</u></p>	Total % Cover of:	Multiply by:	A/B	That Are OBL, FACW, or FAC:			OBL species 100%	x1 =	1.00	FACW species 10%	x2 =	0.20	FAC species 15%	x3 =	0.45	FACU species	x4 =		UPL species	x5 =		Column Totals: 125% (A)		1.65 (B)
Total % Cover of:	Multiply by:	A/B																							
That Are OBL, FACW, or FAC:																									
OBL species 100%	x1 =	1.00																							
FACW species 10%	x2 =	0.20																							
FAC species 15%	x3 =	0.45																							
FACU species	x4 =																								
UPL species	x5 =																								
Column Totals: 125% (A)		1.65 (B)																							

Woody Vine Stratum (Plot size: 30' radius) 1. <u> </u> 2. <u> </u> <div style="text-align: right;">= Total Cover</div>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
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Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: dp021**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 ¹	Loc ²		
0-20"	10yr 5/2	90	10yr 5/6	10	c	m	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>18"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/4/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp022
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Backswamps Local relief (concave, convex, none): convex
 Slope (%): 12 to 18% Lat: 39.3034 Long: -83.3547 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 12 to 18 percent slopes, eroded (MhD2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>x</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>x</u> No <u> </u>
Hydric Soil Present?	Yes <u>x</u>	No <u> </u>		
Wetland Hydrology Present?	Yes <u>x</u>	No <u> </u>		

Remarks:

VEGETATION -- Use scientific names of plants.

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

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> That Are OBL, FACW, or FAC: <u> </u> A/B OBL species <u>5%</u> x1 = <u>0.05</u> FACW species <u>45%</u> x2 = <u>0.90</u> FAC species <u>60%</u> x3 = <u>1.80</u> FACU species <u> </u> x4 = <u> </u> UPL species <u> </u> x5 = <u> </u> Column Totals: <u>110%</u> (A) <u>2.75</u> (B) Prevalence Index = B/A = <u>2.50</u>
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
= Total Cover				

<u>Herb Stratum</u> (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u> </u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Equisetum arvense</u>	55%	Yes	FAC	
2. <u>Impatiens capensis</u>	40%	Yes	FACW	
3. <u>Packera glabella</u>	5%	No	FACW	
4. <u>Glyceria striata</u>	5%	No	OBL	
5. <u>Cryptotaenia canadensis</u>	5%	No	FAC	
6. <u> </u>				
7. <u> </u>				
8. <u> </u>				
9. <u> </u>				
10. <u> </u>				
11. <u> </u>				
12. <u> </u>				
13. <u> </u>				
14. <u> </u>				
15. <u> </u>				
16. <u> </u>				
17. <u> </u>				
18. <u> </u>				
19. <u> </u>				
20. <u> </u>				
110% = Total Cover				

<u>Woody Vine Stratum</u> (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>				
2. <u> </u>				
= Total Cover				

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

SOIL

Sampling Point: dp022**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 ¹	Loc ²		
0-20"	10yr 3/2	90	10yr 3/6	10	c	m	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/4/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp023
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Backswamps Local relief (concave, convex, none): convex
 Slope (%): 12 to 18% Lat: 39.3018 Long: -83.3554 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u>	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Juglans nigra</u>			75%	Yes	FACU
2.	<u>Celtis occidentalis</u>			10%	No	FAC
3.	<u>Ulmus rubra</u>			10%	No	FAC
4.	<u> </u>					
5.	<u> </u>					
				95%	= 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: 3 (B)

Percent of Dominant Species
 That Are OBL, FACW, or FAC: 0% (A/B)

Sapling/Shrub Stratum (Plot size: 15' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Lonicera maackii</u>			75%	Yes	UPL
2.	<u>Rosa multiflora</u>			5%	No	FACU
3.	<u>Acer saccharinum</u>			5%	No	FACW
4.	<u> </u>					
5.	<u> </u>					
				85%	= Total Cover	

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
That Are OBL, FACW, or FAC:	A/B	
OBL species <u> </u>	x1 =	<u> </u>
FACW species <u>5%</u>	x2 =	<u>0.10</u>
FAC species <u>40%</u>	x3 =	<u>1.20</u>
FACU species <u>155%</u>	x4 =	<u>6.20</u>
UPL species <u>75%</u>	x5 =	<u>3.75</u>
Column Totals: <u>275%</u> (A)		<u>11.25</u> (B)

Prevalence Index = B/A = 4.09

Herb Stratum (Plot size: 5' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Carex grisea</u>			10%	No	FAC
2.	<u>Galium aparine</u>			5%	No	FACU
3.	<u>Geum canadense</u>			5%	No	FAC
4.	<u>Elymus villosus</u>			15%	No	FACU
5.	<u>Dactylis glomerata</u>			5%	No	FACU
6.	<u>Carex radiata</u>			5%	No	FAC
7.	<u>Circaea canadensis</u>			50%	Yes	FACU
8.	<u> </u>					
9.	<u> </u>					
10.	<u> </u>					
11.	<u> </u>					
12.	<u> </u>					
13.	<u> </u>					
14.	<u> </u>					
15.	<u> </u>					
16.	<u> </u>					
17.	<u> </u>					
18.	<u> </u>					
19.	<u> </u>					
20.	<u> </u>					
				95%	= Total Cover	

Hydrophytic Vegetation Indicators:

 1-Rapid Test for Hydrophytic Vegetation
 2-Dominance Test is >50%
 3-Prevalence Index is ≤3.0¹
 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Woody Vine Stratum (Plot size: 30' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u> </u>					
2.	<u> </u>					
					= Total Cover	

Hydrophytic Vegetation
 Present? Yes No X

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

SOIL

Sampling Point: dp023

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 ¹	Loc ²		
0-20"	10yr 4/3	100					Silty Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators ³ :		Test Indicators of Hydric Soils:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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)		

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):		Hydric Soil Present?	
Type: <u>N/A</u>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Depth (inches): <u></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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>Surface</u>	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>Surface</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross City/County: Greenfield/Ross Sampling Date: 6/4/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp024
 Investigator(s): B Hess Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): convex
 Slope (%): 6 to 12% Lat: 39.3074 Long: -83.3588 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u>	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>		
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Juglans nigra</u>			25%	Yes	FACU
2.	<u>Acer saccharum</u>			50%	Yes	FACU
3.	<u> </u>					
4.	<u> </u>					
5.	<u> </u>					
				75%	= 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: 6 (B)

Percent of Dominant Species
 That Are OBL, FACW, or FAC: 0% (A/B)

Sapling/Shrub Stratum (Plot size: 15' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Lonicera maackii</u>			20%	Yes	UPL
2.	<u>Rubus pensilvanicus</u>			30%	Yes	UPL
3.	<u>Asimina triloba</u>			5%	No	FAC
4.	<u>Celtis occidentalis</u>					FAC
5.	<u> </u>					
				55%	= Total Cover	

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species <u> </u>	x1 = <u> </u>
FACW species <u> </u>	x2 = <u> </u>
FAC species <u>10%</u>	x3 = <u>0.30</u>
FACU species <u>185%</u>	x4 = <u>7.40</u>
UPL species <u>50%</u>	x5 = <u>2.50</u>
Column Totals: <u>245%</u> (A)	<u>10.20</u> (B)
Prevalence Index = B/A = <u>4.16</u>	

Herb Stratum (Plot size: 5' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Solidago altissima</u>			20%	No	FACU
2.	<u>Podophyllum peltatum</u>			50%	Yes	FACU
3.	<u>Festuca subverticillata</u>			40%	Yes	FACU
4.	<u>Alliaria petiolata</u>			5%	No	FAC
5.	<u> </u>					
6.	<u> </u>					
7.	<u> </u>					
8.	<u> </u>					
9.	<u> </u>					
10.	<u> </u>					
11.	<u> </u>					
12.	<u> </u>					
13.	<u> </u>					
14.	<u> </u>					
15.	<u> </u>					
16.	<u> </u>					
17.	<u> </u>					
18.	<u> </u>					
19.	<u> </u>					
20.	<u> </u>					
				115%	= Total Cover	

Hydrophytic Vegetation Indicators:

 1-Rapid Test for Hydrophytic Vegetation
 2-Dominance Test is >50%
 3-Prevalence Index is ≤3.0¹
 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Woody Vine Stratum (Plot size: 30' radius)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u> </u>					
2.	<u> </u>					
					= Total Cover	

Hydrophytic Vegetation

Present? Yes No X

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

SOIL

Sampling Point: dp024**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 ¹	Loc ²		
0-20"	10yr 5/3	100					Silty Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: N/ADepth (inches): Hydric Soil Present? Yes No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>Surface</u>
Saturation Present?	Yes <u></u> No <u>X</u>	Depth (inches): <u>Surface</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp101
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): none
 Slope (%): 1% Lat: 39.317342 Long: -83.350521 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Elymus virginicus</i>	60%	Yes	FACW
2. <i>Carex vulpinoidea</i>	10%	No	FACW
3. <i>Eupatorium perfoliatum</i>	10%	No	OBL
4. <i>Scirpus atrovirens</i>	5%	No	OBL
5. <i>Ranunculus sceleratus</i>	3%	No	OBL
6. <i>Poa pratensis</i>	3%	No	FAC
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
91% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:		A/B	
OBL species	18%	x1 =	0.18
FACW species	70%	x2 =	1.40
FAC species	3%	x3 =	0.09
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	91% (A)		1.67 (B)

Prevalence Index = B/A = 1.84

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
 _____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 _____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes X No _____

SOIL

Sampling Point: dp101**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features					
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3"	10YR 3/2	97	10YR 5/6	3	c	m	silty clay loam	
3-16"	10YR 4/2	95	10YR 5/6	5	c	m	silty clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (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"/> Other (Explain in Remarks)
	<input type="checkbox"/> Other (Explain in Remarks)

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>1"</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>5"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp102
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 1% Lat: 39.317318 Long: -83.350498 Datum: NAD83 UTM16N
Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>50%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species <u>18%</u> x3 = <u>0.54</u> FACU species <u>40%</u> x4 = <u>1.60</u> UPL species <u>45%</u> x5 = <u>2.25</u> Column Totals: <u>103%</u> (A) <u>4.39</u> (B) Prevalence Index = B/A = <u>4.26</u>
= Total Cover				
Herb Stratum (Plot size: 5' radius) _____				
1. <u>Triticum aestivum</u>	<u>40%</u>	<u>Yes</u>	<u>UPL</u>	
2. <u>Poa pratensis</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Erigeron annuus</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
4. <u>Capsella bursa-pastoris</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
5. <u>Mellilotus officinalis</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
6. <u>Solidago canadensis</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
7. <u>Erigeron canadensis</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
8. <u>Daucus carota</u>	<u>5%</u>	<u>No</u>	<u>UPL</u>	
9. <u>Erigeron strigosus</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
10. <u>Apocynum cannabinum</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
103% = Total Cover				
Woody Vine Stratum (Plot size: 30' radius) _____				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: dp102**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 ¹	Loc ²		
0-3"	10YR 3/2	90	10YR 2/2	7	c	m	silty clay loam	
			10YR 4/3	3	c	m		
3-16"	10YR 4/2	95	10YR 4/4	5	c	m	silty clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?

Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present?

Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp103
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 3% Lat: 39.31331 Long: -83.344998 Datum: NAD83 UTM16N
Soil Map Unit Name: Patton silty clay loam, sandy substratum (Pc) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	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>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species _____ x1 = _____ FACW species <u>2%</u> x2 = <u>0.04</u> FAC species _____ x3 = _____ FACU species <u>3%</u> x4 = <u>0.12</u> UPL species <u>95%</u> x5 = <u>4.75</u> Column Totals: <u>100%</u> (A) <u>4.91</u> (B) Prevalence Index = B/A = <u>4.91</u>
Sapling/Shrub Stratum (Plot size: 15' radius)	_____	_____	_____	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: 5' radius)	_____	_____	_____	Hydrophytic Vegetation Indicators: ____ 1-Rapid Test for Hydrophytic Vegetation ____ 2-Dominance Test is >50% ____ 3-Prevalence Index is ≤3.0 ¹ ____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Triticum aestivum</i>	95%	Yes	UPL	
2. <i>Ambrosia artemisiifolia</i>	3%	No	FACU	
3. <i>Lysimachia nummularia</i>	2%	No	FACW	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
100% = Total Cover				
Woody Vine Stratum (Plot size: 30' radius)	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: dp103**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features					
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2"	10YR 3/2	100					Loam	
2-12"	10YR 4/2	97	10YR 4/4	3	c	m	clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present?

Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present?

Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp104
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): concave
 Slope (%): 0% Lat: 39.311073 Long: -83.346701 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kendallville-Eldean complex, 20 to 35 percent slopes, eroded (KeE2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Leersia oryzoides</i>	90%	Yes	OBL
2. <i>Scirpus atrovirens</i>	10%	No	OBL
3. <i>Cirsium arvense</i>	3%	No	FACU
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
103% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

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% (A/B)

Prevalence Index worksheet:

That Are OBL, FACW, or FAC:	Total % Cover of:	Multiply by:	A/B
OBL species	100%	x1 =	1.00
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	3%	x4 =	0.12
UPL species	_____	x5 =	_____
Column Totals:	103% (A)		1.12 (B)
Prevalence Index = B/A = <u>1.09</u>			

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
 _____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 _____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes X No _____

SOIL

Sampling Point: dp104**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 ¹	Loc ²		
0-3"	10YR 4/3	100					Loam	
3-16"	10YR 5/2	95	10YR 4/6	3	c	m	clay loam	
			10YR 5/6	2	c	m		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?

Yes ☒ No _____

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present?

Yes ☒ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp105
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 1% Lat: 39.311056 Long: -83.346682 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kendallville-Eldean complex, 20 to 35 percent slopes, eroded (KeE2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Solidago canadensis</i>	50%	Yes	FACU
2. <i>Poa pratensis</i>	45%	Yes	FAC
3. <i>Cirsium arvense</i>	5%	No	FACU
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			
13. _____			
14. _____			
15. _____			
16. _____			
17. _____			
18. _____			
19. _____			
20. _____			
100% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
= 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: 2 (B)

Percent of Dominant Species
That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species	x1 = _____
FACW species	x2 = _____
FAC species	x3 = <u>1.35</u>
FACU species	x4 = <u>2.20</u>
UPL species	x5 = _____
Column Totals:	<u>100%</u> (A) <u>3.55</u> (B)
Prevalence Index = B/A = <u>3.55</u>	

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Vegetation
 ____ 2-Dominance Test is >50%
 ____ 3-Prevalence Index is $\leq 3.0^1$
 ____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation

Present? Yes _____ No X

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

SOIL

Sampling Point: dp105**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 ¹	Loc ²		
0-4"	10YR 3/3	100					clay loam	
4-16"	10YR 4/3	95	10YR 4/6	5	c	m	clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?

Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present?

Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp106
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): concave
 Slope (%): 1% Lat: 39.310215 Long: -83.35077 Datum: NAD83 UTM16N
 Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)																																				
1. _____	_____	_____	_____																																					
2. _____	_____	_____	_____																																					
3. _____	_____	_____	_____																																					
4. _____	_____	_____	_____																																					
5. _____	_____	_____	_____																																					
= Total Cover																																								
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet: <table border="0"> <tr> <td colspan="2">Total % Cover of:</td> <td colspan="2">Multiply by:</td> </tr> <tr> <td>That Are OBL, FACW, or FAC:</td> <td></td> <td></td> <td>A/B</td> </tr> <tr> <td>OBL species</td> <td>65%</td> <td>x1 =</td> <td>0.65</td> </tr> <tr> <td>FACW species</td> <td>30%</td> <td>x2 =</td> <td>0.60</td> </tr> <tr> <td>FAC species</td> <td>8%</td> <td>x3 =</td> <td>0.24</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x4 =</td> <td></td> </tr> <tr> <td>UPL species</td> <td></td> <td>x5 =</td> <td></td> </tr> <tr> <td>Column Totals:</td> <td>103% (A)</td> <td></td> <td>1.49 (B)</td> </tr> <tr> <td colspan="4">Prevalence Index = B/A = <u>1.45</u></td> </tr> </table>	Total % Cover of:		Multiply by:		That Are OBL, FACW, or FAC:			A/B	OBL species	65%	x1 =	0.65	FACW species	30%	x2 =	0.60	FAC species	8%	x3 =	0.24	FACU species		x4 =		UPL species		x5 =		Column Totals:	103% (A)		1.49 (B)	Prevalence Index = B/A = <u>1.45</u>			
Total % Cover of:		Multiply by:																																						
That Are OBL, FACW, or FAC:			A/B																																					
OBL species	65%	x1 =	0.65																																					
FACW species	30%	x2 =	0.60																																					
FAC species	8%	x3 =	0.24																																					
FACU species		x4 =																																						
UPL species		x5 =																																						
Column Totals:	103% (A)		1.49 (B)																																					
Prevalence Index = B/A = <u>1.45</u>																																								
1. _____	_____	_____	_____																																					
2. _____	_____	_____	_____																																					
3. _____	_____	_____	_____																																					
4. _____	_____	_____	_____																																					
5. _____	_____	_____	_____																																					
= Total Cover																																								
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																				
1. <u>Eleocharis palustris</u>	65%	Yes	OBL																																					
2. <u>Echinochloa crus-galli</u>	20%	No	FACW																																					
3. <u>Alopecurus carolinianus</u>	10%	No	FACW																																					
4. <u>Rumex crispus</u>	5%	No	FAC																																					
5. <u>Poa pratensis</u>	3%	No	FAC																																					
6. _____	_____	_____	_____																																					
7. _____	_____	_____	_____																																					
8. _____	_____	_____	_____																																					
9. _____	_____	_____	_____																																					
10. _____	_____	_____	_____																																					
11. _____	_____	_____	_____																																					
12. _____	_____	_____	_____																																					
13. _____	_____	_____	_____																																					
14. _____	_____	_____	_____																																					
15. _____	_____	_____	_____																																					
16. _____	_____	_____	_____																																					
17. _____	_____	_____	_____																																					
18. _____	_____	_____	_____																																					
19. _____	_____	_____	_____																																					
20. _____	_____	_____	_____																																					
103% = Total Cover																																								
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																																				
1. _____	_____	_____	_____																																					
2. _____	_____	_____	_____																																					
= Total Cover																																								

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

SOIL

Sampling Point: dp106**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
0-2"	10YR 4/2	95	10YR 5/8	5	c	m	clay loam	
2-18"	10YR 5/2	90	10YR 5/8	7	c	m	clay loam	
			5YR 5/2	3	c	m		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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 checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input checked="" 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)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp107
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.310292 Long: -83.350775 Datum: NAD83 UTM16N
 Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Triticum aestivum</i>	100%	Yes	UPL
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			
13. _____			
14. _____			
15. _____			
16. _____			
17. _____			
18. _____			
19. _____			
20. _____			
100% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
= 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: 1 (B)

Percent of Dominant Species
 That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species <u>100%</u>	x5 = <u>5.00</u>
Column Totals: <u>100%</u> (A)	<u>5.00</u> (B)
Prevalence Index = B/A = <u>5.00</u>	

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Vegetation
 ____ 2-Dominance Test is >50%
 ____ 3-Prevalence Index is ≤3.0¹
 ____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes _____ No X

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

SOIL

Sampling Point: dp107**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 ¹	Loc ²		
0-2"	10YR 3/2	100					loam	
2-18"	10YR 4/2	97	10YR 4/4	3	c	m	clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present?

Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present?

Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp108
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.312575 Long: -83.358921 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>x</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>x</u> No _____
Hydric Soil Present?	Yes <u>x</u>	No _____		
Wetland Hydrology Present?	Yes <u>x</u>	No _____		

Remarks: _____

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover	Absolute % Cover Dominant Species? Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)
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Sapling/Shrub Stratum (Plot size: 15' radius) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover	Absolute % Cover Dominant Species? Indicator Status	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
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Herb Stratum (Plot size: 5' radius) 1. <u>Leersia oryzoides</u> 80% Yes OBL 2. <u>Equisetum arvense</u> 15% No FAC 3. <u>Impatiens capensis</u> 5% No FACW 4. <u>Bidens frondosa</u> 3% No FACW 5. <u>Poa pratensis</u> 3% No FAC 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____ 19. _____ 20. _____ _____ 106% = Total Cover	Absolute % Cover Dominant Species? Indicator Status	Prevalence Index worksheet: <table border="0"> <tr> <td colspan="2">Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>That Are OBL, FACW, or FAC:</td> <td></td> <td>A/B</td> </tr> <tr> <td>OBL species</td> <td>80%</td> <td>x1 = 0.80</td> </tr> <tr> <td>FACW species</td> <td>8%</td> <td>x2 = 0.16</td> </tr> <tr> <td>FAC species</td> <td>18%</td> <td>x3 = 0.54</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x5 =</td> </tr> <tr> <td>Column Totals:</td> <td>106% (A)</td> <td>1.50 (B)</td> </tr> </table> Prevalence Index = B/A = <u>1.42</u>	Total % Cover of:		Multiply by:	That Are OBL, FACW, or FAC:		A/B	OBL species	80%	x1 = 0.80	FACW species	8%	x2 = 0.16	FAC species	18%	x3 = 0.54	FACU species		x4 =	UPL species		x5 =	Column Totals:	106% (A)	1.50 (B)
Total % Cover of:		Multiply by:																								
That Are OBL, FACW, or FAC:		A/B																								
OBL species	80%	x1 = 0.80																								
FACW species	8%	x2 = 0.16																								
FAC species	18%	x3 = 0.54																								
FACU species		x4 =																								
UPL species		x5 =																								
Column Totals:	106% (A)	1.50 (B)																								

Woody Vine Stratum (Plot size: 30' radius) 1. _____ 2. _____ _____ = Total Cover	Absolute % Cover Dominant Species? Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
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Remarks: (Include photo numbers here or on a separate sheet.)
 trees have been clearcut within the last 5 years

SOIL

Sampling Point: dp108**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 ¹	Loc ²		
0-18"	10YR 5/2	98	10YR 4/4	2	C	M	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>6"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp109
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 1% Lat: 39.312563 Long: -83.35888 Datum: NAD83 UTM16N
Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Trifolium repens</u>	40%	Yes	FACU
2. <u>Poa pratensis</u>	20%	Yes	FAC
3. <u>Carex frankii</u>	15%	Yes	OBL
4. <u>Trifolium pratense</u>	15%	Yes	FACU
5. <u>Plantago major</u>	15%	Yes	FAC
6. <u>Erigeron annuus</u>	10%	No	FACU
7. <u>Taraxacum officinale</u>	5%	No	FACU
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
120% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)			
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Dominance Test worksheet:Number of Dominant Species
That Are OBL, FACW, or FAC: 3 (A)Total Number of Dominant
Species Across All Strata: 5 (B)Percent of Dominant Species
That Are OBL, FACW, or FAC: 60% (A/B)**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	15%	x1 =	0.15
FACW species		x2 =	
FAC species	35%	x3 =	1.05
FACU species	70%	x4 =	2.80
UPL species		x5 =	
Column Totals:	120% (A)		4.00 (B)

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
____ 3-Prevalence Index is $\leq 3.0^1$
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes X No _____

SOIL

Sampling Point: dp109**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 ¹	Loc ²		
0-2"	10YR 3/3	100					loam	
2-18"	10YR 4/1	70	10YR 3/4	30	c	m	loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?

Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:Surface Water Present? Yes ☐ No ☒ Depth (inches): N/AWater Table Present? Yes ☐ No ☒ Depth (inches): N/ASaturation Present? Yes ☐ No ☒ Depth (inches): N/A

(includes capillary fringe)

Wetland Hydrology Present?

Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp110
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.311993 Long: -83.359318 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Leersia oryzoides</i>	40%	Yes	OBL
2. <i>Equisetum arvense</i>	40%	Yes	FAC
3. <i>Poa pratensis</i>	30%	Yes	FAC
4. <i>Eupatorium perfoliatum</i>	10%	No	OBL
5. <i>Carex vulpinoidea</i>	5%	No	FACW
6. <i>Juncus effusus</i>	5%	No	OBL
7. <i>Rumex crispus</i>	3%	No	FAC
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
133% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:		A/B	
OBL species	55%	x1 =	0.55
FACW species	5%	x2 =	0.10
FAC species	73%	x3 =	2.19
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	133% (A)		2.84 (B)
Prevalence Index = B/A =		<u>2.14</u>	

Hydrophytic Vegetation Indicators:

☐ 1-Rapid Test for Hydrophytic Vegetation
☒ 2-Dominance Test is >50%
☒ 3-Prevalence Index is ≤3.0¹
☐ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes X No _____

SOIL

Sampling Point: dp110**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 ¹	Loc ²		
0-2"	10YR 4/2	95	10YR 4/6	5	c	m	loam	
2-18"	10YR 4/1	99	10YR 4/6	1	c	m	loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?

Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>4"</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>
(includes capillary fringe)		

Wetland Hydrology Present?

Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp111
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.311376 Long: -83.35972 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																																				
1. _____	_____	_____	_____		Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)																																			
2. _____	_____	_____	_____																																					
3. _____	_____	_____	_____																																					
4. _____	_____	_____	_____																																					
5. _____	_____	_____	_____																																					
= Total Cover																																								
Sapling/Shrub Stratum (Plot size: 15' radius)																																								
1. _____	_____	_____	_____	Prevalence Index worksheet:																																				
2. _____	_____	_____	_____																																					
3. _____	_____	_____	_____																																					
4. _____	_____	_____	_____																																					
5. _____	_____	_____	_____																																					
= Total Cover																																								
Herb Stratum (Plot size: 5' radius)																																								
1. <u>Equisetum arvense</u>	<u>35%</u>	<u>Yes</u>	<u>FAC</u>	<table border="1"> <thead> <tr> <th colspan="2">Total % Cover of:</th> <th colspan="2">Multiply by:</th> </tr> <tr> <th>That Are OBL, FACW, or FAC:</th> <th></th> <th></th> <th>A/B</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td><u>20%</u></td> <td>x1 =</td> <td><u>0.20</u></td> </tr> <tr> <td>FACW species</td> <td><u>15%</u></td> <td>x2 =</td> <td><u>0.30</u></td> </tr> <tr> <td>FAC species</td> <td><u>65%</u></td> <td>x3 =</td> <td><u>1.95</u></td> </tr> <tr> <td>FACU species</td> <td>_____</td> <td>x4 =</td> <td>_____</td> </tr> <tr> <td>UPL species</td> <td>_____</td> <td>x5 =</td> <td>_____</td> </tr> <tr> <td>Column Totals:</td> <td><u>100%</u> (A)</td> <td></td> <td><u>2.45</u> (B)</td> </tr> <tr> <td colspan="4">Prevalence Index = B/A = <u>2.45</u></td> </tr> </tbody> </table> Hydrophytic Vegetation Indicators: <u>1</u> -Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ <u>4</u> -Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>Problematic Hydrophytic Vegetation</u> ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	Total % Cover of:		Multiply by:		That Are OBL, FACW, or FAC:			A/B	OBL species	<u>20%</u>	x1 =	<u>0.20</u>	FACW species	<u>15%</u>	x2 =	<u>0.30</u>	FAC species	<u>65%</u>	x3 =	<u>1.95</u>	FACU species	_____	x4 =	_____	UPL species	_____	x5 =	_____	Column Totals:	<u>100%</u> (A)		<u>2.45</u> (B)	Prevalence Index = B/A = <u>2.45</u>			
Total % Cover of:		Multiply by:																																						
That Are OBL, FACW, or FAC:			A/B																																					
OBL species	<u>20%</u>	x1 =	<u>0.20</u>																																					
FACW species	<u>15%</u>	x2 =	<u>0.30</u>																																					
FAC species	<u>65%</u>	x3 =	<u>1.95</u>																																					
FACU species	_____	x4 =	_____																																					
UPL species	_____	x5 =	_____																																					
Column Totals:	<u>100%</u> (A)		<u>2.45</u> (B)																																					
Prevalence Index = B/A = <u>2.45</u>																																								
2. <u>Poa pratensis</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>																																					
3. <u>Scirpus atrovirens</u>	<u>15%</u>	<u>Yes</u>	<u>OBL</u>																																					
4. <u>Symphyotrichum lanceolatum</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>																																					
5. <u>Eupatorium perfoliatum</u>	<u>5%</u>	<u>No</u>	<u>OBL</u>																																					
6. <u>Impatiens capensis</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>																																					
7. <u>Carex vulpinoidea</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>																																					
8. <u>Carex shortiana</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>																																					
9. _____	_____	_____	_____																																					
10. _____	_____	_____	_____																																					
11. _____	_____	_____	_____																																					
12. _____	_____	_____	_____																																					
13. _____	_____	_____	_____																																					
14. _____	_____	_____	_____																																					
15. _____	_____	_____	_____																																					
16. _____	_____	_____	_____																																					
17. _____	_____	_____	_____																																					
18. _____	_____	_____	_____																																					
19. _____	_____	_____	_____																																					
20. _____	_____	_____	_____																																					
100% = Total Cover																																								
Woody Vine Stratum (Plot size: 30' radius)																																								
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																																				
2. _____	_____	_____	_____																																					
= Total Cover																																								

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

SOIL

Sampling Point: dp111**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 ¹	Loc ²		
0-1"	10YR 4/2	95	10YR 5/6	5	c	m	silt loam	
1-18"	10YR 4/2	97	10YR 5/8	3	c	m	Sandy Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>4"</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/3/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp112
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 2% Lat: 39.311323 Long: -83.359672 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Trifolium pratense</i>	40%	Yes	FACU
2. <i>Conium maculatum</i>	25%	Yes	FACW
3. <i>Poa pratensis</i>	15%	Yes	FAC
4. <i>Plantago rugelii</i>	10%	No	FAC
5. <i>Cirsium vulgare</i>	10%	No	FACU
6. <i>Cirsium arvense</i>	10%	No	FACU
7. <i>Taraxacum officinale</i>	5%	No	FACU
8. <i>Rumex crispus</i>	5%	No	FAC
9. <i>Bromus arvensis</i>	3%	No	FACU
10. <i>Phleum pratense</i>	3%	No	FACU
11. <i>Plantago lanceolata</i>	3%	No	FACU
12. <i>Daucus carota</i>	3%	No	UPL
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
132% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= 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: 3 (B)

Percent of Dominant Species
 That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species	x1 = _____
FACW species	x2 = <u>0.50</u>
FAC species	x3 = <u>0.90</u>
FACU species	x4 = <u>2.96</u>
UPL species	x5 = <u>0.15</u>
Column Totals:	<u>132%</u> (A) <u>4.51</u> (B)
Prevalence Index = B/A = <u>3.42</u>	

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
 ____ 3-Prevalence Index is $\leq 3.0^1$
 ____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes X No _____

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

SOIL

Sampling Point: dp112**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 ¹	Loc ²		
0-6"	10YR 3/3	100					loam	
6-18"	10YR 3/3	98	10YR 4/6	2	c	m	clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp113
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
Slope (%): 0% Lat: 39.312531 Long: -83.359796 Datum: NAD83 UTM16N
Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Leersia oryzoides</u>	70%	Yes	OBL
2. <u>Scirpus atrovirens</u>	10%	No	OBL
3. <u>Cyperus esculentus</u>	10%	No	FACW
4. <u>Poa pratensis</u>	5%	No	FAC
5. <u>Ranunculus sceleratus</u>	3%	No	OBL
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
98% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)			
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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% (A/B)**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	83%	x1 =	0.83
FACW species	10%	x2 =	0.20
FAC species	5%	x3 =	0.15
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	98% (A)		1.18 (B)

Prevalence Index = B/A = 1.20

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is $\leq 3.0^1$
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.**Hydrophytic
Vegetation**Present? Yes X No _____

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 ¹	Loc ²		
0-4"	10YR 5/2	97	10YR 5/8	3	c	m	silt loam	
4-18"	10YR 5/2	95	10YR 5/8	5	c	m	clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?Yes ☒ No _____

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**

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

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>1"</u>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>4"</u>
(includes capillary fringe)		

Wetland Hydrology Present?Yes ☒ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp114
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 2% Lat: 39.312513 Long: -83.35978 Datum: NAD83 UTM16N
Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Trifolium pratense</u>	80%	Yes	FACU
2. <u>Carex frankii</u>	10%	No	OBL
3. <u>Poa pratensis</u>	5%	No	FAC
4. <u>Plantago lanceolata</u>	3%	No	FACU
5. <u>Erigeron philadelphicus</u>	3%	No	FACW
6. <u>Plantago major</u>	3%	No	FAC
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
104% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)			
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Dominance Test worksheet:Number of Dominant Species
That Are OBL, FACW, or FAC: 0 (A)Total Number of Dominant
Species Across All Strata: 1 (B)Percent of Dominant Species
That Are OBL, FACW, or FAC: 0% (A/B)**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	10%	x1 =	0.10
FACW species	3%	x2 =	0.06
FAC species	8%	x3 =	0.24
FACU species	83%	x4 =	3.32
UPL species		x5 =	
Column Totals:	104% (A)		3.72 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
____ 2-Dominance Test is >50%
____ 3-Prevalence Index is $\leq 3.0^1$
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes _____ No X

SOIL

Sampling Point: dp114**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 ¹	Loc ²		
0-4"	10YR 3/3	90	10YR 4/4	10	c	m	silt loam	
4-18"	10YR 4/2	95	10YR 4/6	5	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp115
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 3% Lat: 39.312287 Long: -83.360048 Datum: NAD83 UTM16N
Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Trifolium pratense</u>	80%	Yes	FACU
2. <u>Carex frankii</u>	10%	No	OBL
3. <u>Poa pratensis</u>	5%	No	FAC
4. <u>Plantago lanceolata</u>	3%	No	FACU
5. <u>Erigeron philadelphicus</u>	3%	No	FACW
6. <u>Plantago major</u>	3%	No	FAC
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
104% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)			
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Dominance Test worksheet:Number of Dominant Species
That Are OBL, FACW, or FAC: 0 (A)Total Number of Dominant
Species Across All Strata: 1 (B)Percent of Dominant Species
That Are OBL, FACW, or FAC: 0% (A/B)**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	10%	x1 =	0.10
FACW species	3%	x2 =	0.06
FAC species	8%	x3 =	0.24
FACU species	83%	x4 =	3.32
UPL species		x5 =	
Column Totals:	104% (A)		3.72 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
____ 2-Dominance Test is >50%
____ 3-Prevalence Index is $\leq 3.0^1$
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes _____ No X

SOIL

Sampling Point: dp115**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 ¹	Loc ²		
0-3"	10YR 3/2	100					loam	
3-18"	10YR 4/3	97	10YR 4/6	3	c	m	clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp116
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
 Slope (%): 3% Lat: 39.311884 Long: -83.360684 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Leersia oryzoides</i>	90%	Yes	OBL
2. <i>Poa pratensis</i>	10%	No	FAC
3. <i>Rumex crispus</i>	3%	No	FAC
4. <i>Trifolium pratense</i>	3%	No	FACU
5. <i>Erigeron philadelphicus</i>	3%	No	FACW
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
109% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:		A/B	
OBL species	90%	x1 =	0.90
FACW species	3%	x2 =	0.06
FAC species	13%	x3 =	0.39
FACU species	3%	x4 =	0.12
UPL species		x5 =	
Column Totals:	109% (A)		1.47 (B)

Prevalence Index = B/A = 1.35

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
 _____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 _____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes X No _____

SOIL

Sampling Point: dp116**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features					
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-18"	10YR 4/2	95	10YR 5/8	5	c	m	silty clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>1"</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>
(includes capillary fringe)		

Wetland Hydrology Present?Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp117
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): convex
Slope (%): 3% Lat: 39.310981 Long: -83.36039 Datum: NAD83 UTM16N
Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>		
Wetland Hydrology Present?	Yes _____	No <u>X</u>		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer saccharum</u>	90%	Yes	FACU
2. <u>Celtis occidentalis</u>	15%	No	FAC
3. <u>Fraxinus americana</u>	10%	No	FACU
4. <u>Quercus alba</u>	10%	No	FACU
5. _____			
	125%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. <u>Acer saccharum</u>	25%	Yes	FACU
2. _____			
3. _____			
4. _____			
5. _____			
	25%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. <u>Alliaria petiolata</u>	55%	Yes	FAC
2. <u>Ambrosia trifida</u>	10%	No	FAC
3. <u>Leersia virginica</u>	10%	No	FACW
4. <u>Aesculus glabra</u>	5%	No	FAC
5. <u>Rubus allegheniensis</u>	3%	No	FACU
6. <u>Conium maculatum</u>	3%	No	FACW
7. <u>Carex jamesii</u>	3%	No	UPL
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			
13. _____			
14. _____			
15. _____			
16. _____			
17. _____			
18. _____			
19. _____			
20. _____			
	89%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. _____			
2. _____			
		= 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: 3 (B)Percent of Dominant Species
That Are OBL, FACW, or FAC: 33% (A/B)**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:		A/B	
OBL species	_____	x1 =	_____
FACW species	13%	x2 =	0.26
FAC species	85%	x3 =	2.55
FACU species	138%	x4 =	5.52
UPL species	3%	x5 =	0.15
Column Totals:	239% (A)		8.48 (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
____ 2-Dominance Test is >50%
____ 3-Prevalence Index is ≤3.0¹
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes _____ No X

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

SOIL

Sampling Point: dp117**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 ¹	Loc ²		
0-4"	10YR 3/3	100					loam	
4-18"	10YR 4/3	97	10YR 4/6	3	c	m	loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp118
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
Slope (%): 0% Lat: 39.309718 Long: -83.360426 Datum: NAD83 UTM16N
Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>11</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>64%</u> (A/B)
1. <u>Ulmus rubra</u>	45%	Yes	FAC	
2. <u>Celtis occidentalis</u>	30%	Yes	FAC	
3. <u>Tilia americana</u>	20%	No	FACU	
4. <u>Juglans nigra</u>	5%	No	FACU	
5. <u>Asimina triloba</u>	5%	No	FAC	
105% = Total Cover				
Sapling/Shrub Stratum (Plot size: 15' radius)				
1. <u>Rosa multiflora</u>	25%	Yes	FACU	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species <u>5%</u> x1 = <u>0.05</u> FACW species <u>30%</u> x2 = <u>0.60</u> FAC species <u>140%</u> x3 = <u>4.20</u> FACU species <u>85%</u> x4 = <u>3.40</u> UPL species <u>13%</u> x5 = <u>0.65</u> Column Totals: <u>273%</u> (A) <u>8.90</u> (B) Prevalence Index = B/A = <u>3.26</u>
2. <u>Asimina triloba</u>	10%	Yes	FAC	
3. <u>Lonicera maackii</u>	10%	Yes	UPL	
4. <u>Celtis occidentalis</u>	10%	Yes	FAC	
5. _____				
55% = Total Cover				
Herb Stratum (Plot size: 5' radius)				
1. <u>Cryptotaenia canadensis</u>	25%	Yes	FAC	Hydrophytic Vegetation Indicators: ____ 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% ____ 3-Prevalence Index is ≤3.0 ¹ ____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Sanicula marilandica</u>	20%	Yes	FACU	
3. <u>Impatiens capensis</u>	15%	Yes	FACW	
4. <u>Leersia virginica</u>	15%	Yes	FACW	
5. <u>Solidago altissima</u>	15%	Yes	FACU	
6. <u>Glyceria striata</u>	5%	No	OBL	
7. <u>Ambrosia trifida</u>	5%	No	FAC	
8. <u>Poa pratensis</u>	5%	No	FAC	
9. <u>Symphotrichum lanceolatum</u>	5%	No	FAC	
10. <u>Lactuca virosa</u>	3%	No	UPL	
11. _____				
12. _____				
13. _____				
14. _____				
15. _____				
16. _____				
17. _____				
18. _____				
19. _____				
20. _____				
113% = Total Cover				
Woody Vine Stratum (Plot size: 30' radius)				
1. _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____				
_____ = Total Cover				

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

SOIL

Sampling Point: dp118**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 ¹	Loc ²		
0-6"	10YR 3/2	100					loam	
6-18"	10YR 4/2	90	10YR 4/6	10	c	m	loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp119
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 0% Lat: 39.309443 Long: -83.356061 Datum: NAD83 UTM16N
Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Gymnocladus dioica</u>	65%	Yes	UPL
2. <u>Juglans nigra</u>	15%	No	FACU
3. <u>Robinia pseudoacacia</u>	10%	No	FACU
4. <u>Ulmus rubra</u>	10%	No	FAC
5. <u>Tilia americana</u>	10%	No	FACU
	110%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. <u>Rosa multiflora</u>	10%	Yes	FACU
2. <u>Rubus allegheniensis</u>	10%	Yes	FACU
3. <u>Lonicera maackii</u>	5%	No	UPL
4. <u>Celtis occidentalis</u>	5%	No	FAC
5. _____			
	30%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. <u>Carex radiata</u>	50%	Yes	FAC
2. <u>Cryptotaenia canadensis</u>	25%	Yes	FAC
3. <u>Sanicula marilandica</u>	15%	No	FACU
4. <u>Ambrosia trifida</u>	15%	No	FAC
5. <u>Poa pratensis</u>	10%	No	FAC
6. <u>Carex stipata</u>	5%	No	OBL
7. <u>Lonicera maackii</u>	5%	No	UPL
8. <u>Elymus villosus</u>	5%	No	FACU
9. <u>Geum vernum</u>	5%	No	FACU
10. <u>Galium aparine</u>	5%	No	FACU
11. <u>Carex granularis</u>	3%	No	FACW
12. <u>Carex shortiana</u>	3%	No	FACW
13. _____			
14. _____			
15. _____			
16. _____			
17. _____			
18. _____			
19. _____			
20. _____			
	146%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. _____			
2. _____			
		= 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% (A/B)

Prevalence Index worksheet:
Total % Cover of: That Are OBL, FACW, or FAC:
OBL species 5% x1 = 0.05
FACW species 6% x2 = 0.12
FAC species 115% x3 = 3.45
FACU species 85% x4 = 3.40
UPL species 75% x5 = 3.75
Column Totals: 286% (A) 10.77 (B)

Prevalence Index = B/A = 3.77

Hydrophytic Vegetation Indicators:
____ 1-Rapid Test for Hydrophytic Vegetation
____ 2-Dominance Test is >50%
____ 3-Prevalence Index is ≤3.0¹
____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: dp119**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 ¹	Loc ²		
0-5"	10YR 3/2	95	10YR 4/4	5	c	m	loam	
5-18"	10YR 3/2	97	10YR 4/6	3	c	m	loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp120
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 0% Lat: 39.309277 Long: -83.3554 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Fraxinus pennsylvanica</u>	45%	Yes	FACW	
2. <u>Ulmus rubra</u>	15%	Yes	FAC	
3. <u>Robinia pseudoacacia</u>	10%	No	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
70% = Total Cover				Dominance Test worksheet:
				Number of Dominant Species
				That Are OBL, FACW, or FAC: <u>7</u> (A)
				Total Number of Dominant
				Species Across All Strata: <u>9</u> (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: <u>78%</u> (A/B)
				Prevalence Index worksheet:
				Total % Cover of: _____ Multiply by: _____
				That Are OBL, FACW, or FAC: _____ A/B
				OBL species <u>25%</u> x1 = <u>0.25</u>
				FACW species <u>100%</u> x2 = <u>2.00</u>
				FAC species <u>95%</u> x3 = <u>2.85</u>
				FACU species <u>38%</u> x4 = <u>1.52</u>
				UPL species <u>5%</u> x5 = <u>0.25</u>
				Column Totals: <u>263%</u> (A) <u>6.87</u> (B)
				Prevalence Index = B/A = <u>2.61</u>
				Hydrophytic Vegetation Indicators:
				_____ 1-Rapid Test for Hydrophytic Vegetation
				<u>X</u> 2-Dominance Test is >50%
				_____ 3-Prevalence Index is ≤3.0 ¹
				_____ 4-Morphological Adaptations ¹ (Provide supporting
				data in Remarks or on a separate sheet)
				_____ Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must
				be present, unless disturbed or problematic.
				Hydrophytic
				Vegetation
				Present? Yes <u>X</u> No _____

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Rosa multiflora</u>	15%	Yes	FACU
2. <u>Lonicera maackii</u>	5%	Yes	UPL
3. <u>Sambucus nigra</u>	5%	Yes	FAC
4. <u>Asimina triloba</u>	5%	Yes	FAC
5. _____	_____	_____	_____
30% = Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Poa pratensis</u>	45%	Yes	FAC
2. <u>Impatiens capensis</u>	30%	Yes	FACW
3. <u>Pilea pumila</u>	25%	Yes	FACW
4. <u>Scirpus atrovirens</u>	15%	No	OBL
5. <u>Apocynum cannabinum</u>	10%	No	FAC
6. <u>Solidago canadensis</u>	10%	No	FACU
7. <u>Toxicodendron radicans</u>	10%	No	FAC
8. <u>Carex blanda</u>	5%	No	FAC
9. <u>Carex tribuloides</u>	5%	No	OBL
10. <u>Carex frankii</u>	5%	No	OBL
11. <u>Juglans nigra</u>	3%	No	FACU
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
163% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
_____ = Total Cover			

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

SOIL

Sampling Point: dp120**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 ¹	Loc ²		
0-2"	10YR 3/2	100					loam	
2-18"	10YR 4/4	95	10YR 4/6	5	c	m	loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 <u>X</u> No _____	Depth (inches): <u>1"</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
recent heavy rain the night before

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp121
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): none
Slope (%): 0% Lat: 39.309759 Long: -83.353516 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer negundo</u>	10%	Yes	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
10% = Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Impatiens capensis</u>	45%	Yes	FACW
2. <u>Glyceria striata</u>	40%	Yes	OBL
3. <u>Carex tribuloides</u>	10%	No	OBL
4. <u>Carex granularis</u>	5%	No	FACW
5. <u>Poa pratensis</u>	5%	No	FAC
6. <u>Elymus virginicus</u>	5%	No	FACW
7. <u>Carex shortiana</u>	3%	No	FACW
8. <u>Solidago gigantea</u>	3%	No	FACW
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
116% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
_____ = Total Cover			

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

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% (A/B)**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:		A/B	
OBL species	50%	x1 =	0.50
FACW species	61%	x2 =	1.22
FAC species	15%	x3 =	0.45
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	126% (A)		2.17 (B)

Prevalence Index = B/A = 1.72

Hydrophytic Vegetation Indicators:

_____ 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is $\leq 3.0^1$
_____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
_____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes X No _____

SOIL

Sampling Point: dp121**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 ¹	Loc ²		
0-18"	10YR 4/2	90	10YR 5/8	10	c	m	silty clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?

Yes ☒ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>1"</u>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>Surface</u>
(includes capillary fringe)		

Wetland Hydrology Present?

Yes ☒ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp122
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 0% Lat: 39.30972 Long: -83.353203 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Ulmus americana</u>	60%	Yes	FACW	
2. <u>Morus alba</u>	30%	Yes	FAC	
3. <u>Fraxinus americana</u>	20%	No	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
110% = Total Cover				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%</u> (A/B)

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Rosa multiflora</u>	15%	Yes	FACU	
2. <u>Lonicera maackii</u>	5%	Yes	UPL	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
20% = Total Cover				Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B
				OBL species _____ x1 = _____
				FACW species <u>135%</u> x2 = <u>2.70</u>
				FAC species <u>65%</u> x3 = <u>1.95</u>
				FACU species <u>48%</u> x4 = <u>1.92</u>
				UPL species <u>20%</u> x5 = <u>1.00</u>
				Column Totals: <u>268%</u> (A) <u>7.57</u> (B)
				Prevalence Index = B/A = <u>2.82</u>

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Elymus virginicus</u>	70%	Yes	FACW	
2. <u>Ambrosia trifida</u>	15%	No	FAC	
3. <u>Rubus occidentalis</u>	15%	No	UPL	
4. <u>Cryptotaenia canadensis</u>	10%	No	FAC	
5. <u>Poa annua</u>	10%	No	FACU	
6. <u>Carex shortiana</u>	5%	No	FACW	
7. <u>Morus alba</u>	5%	No	FAC	
8. <u>Carex grisea</u>	5%	No	FAC	
9. <u>Galium aparine</u>	3%	No	FACU	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
138% = Total Cover				1-Rapid Test for Hydrophytic Vegetation X 2-Dominance Test is >50% 3-Prevalence Index is ≤3.0¹ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				Yes <u>X</u> No _____

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

SOIL

Sampling Point: dp122**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 ¹	Loc ²		
0-4"	10YR 3/2	100					loam	
4-18"	10YR 3/3	60					clay loam	
	10YR 4/4	40						

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp123
Investigator(s): Crystal Renskers Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
Slope (%): 0% Lat: 39.309881 Long: -83.353029 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB) NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ulmus rubra</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
20% = Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Impatiens capensis</u>	<u>70%</u>	<u>Yes</u>	<u>FACW</u>
2. <u>Leersia oryzoides</u>	<u>25%</u>	<u>Yes</u>	<u>OBL</u>
3. <u>Ambrosia trifida</u>	<u>15%</u>	<u>No</u>	<u>FAC</u>
4. <u>Glyceria striata</u>	<u>5%</u>	<u>No</u>	<u>OBL</u>
5. <u>Poa pratensis</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
118% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
_____ = 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% (A/B)**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	<u>30%</u>	x1 =	<u>0.30</u>
FACW species	<u>70%</u>	x2 =	<u>1.40</u>
FAC species	<u>38%</u>	x3 =	<u>1.14</u>
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	<u>138%</u> (A)		<u>2.84</u> (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

_____ 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
_____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
_____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.**Hydrophytic
Vegetation**Present? Yes X No _____

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

SOIL

Sampling Point: dp123**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 ¹	Loc ²		
0-4"	10YR 4/4	60	10YR 4/6	40	C	M	loam	
4-18"	10YR 5/2	95	10YR 5/8	5	C	M	loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present?

Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>6"</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>

(includes capillary fringe)

Wetland Hydrology Present?

Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/4/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp124
 Investigator(s): Crystal Renskers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 10% Lat: 39.31096 Long: -83.354939 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: PEM1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species <u>10%</u> x4 = <u>0.40</u> UPL species <u>2%</u> x5 = <u>0.10</u> Column Totals: <u>12%</u> (A) <u>0.50</u> (B) Prevalence Index = B/A = <u>4.17</u>
Sapling/Shrub Stratum (Plot size: 15' radius) _____				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: _____ 1-Rapid Test for Hydrophytic Vegetation _____ 2-Dominance Test is >50% _____ 3-Prevalence Index is ≤3.0 ¹ _____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: 5' radius) _____				
1. <u>Capsella bursa-pastoris</u>	<u>10%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Triticum aestivum</u>	<u>2%</u>	<u>No</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
<u>12%</u> = Total Cover				
Woody Vine Stratum (Plot size: 30' radius) _____				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

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

SOIL

Sampling Point: dp124**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 ¹	Loc ²		
0-5"	10YR 3/2	100					clay loam	
5-18"	10YR 4/2	98	10YR 4/6	2	C	M	clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp201
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
Slope (%): 2% Lat: 39.317353 Long: -83.370276 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Ulmus americana</u>	20%	Yes	FACW	
2. <u>Celtis occidentalis</u>	15%	Yes	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
35% = Total Cover				
Sapling/Shrub Stratum (Plot size: 15' radius)				
1. <u>Carya cordiformis</u>	3%	No	FACU	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species _____ x1 = _____ FACW species <u>64%</u> x2 = <u>1.28</u> FAC species <u>56%</u> x3 = <u>1.68</u> FACU species <u>3%</u> x4 = <u>0.12</u> UPL species _____ x5 = _____ Column Totals: <u>123%</u> (A) <u>3.08</u> (B) Prevalence Index = B/A = <u>2.50</u>
2. <u>Ulmus americana</u>	1%	No	FACW	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
4% = Total Cover				
Herb Stratum (Plot size: 5' radius)				
1. <u>Carex conjuncta</u>	25%	Yes	FACW	Hydrophytic Vegetation Indicators: ____ 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ ____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Carex radiata</u>	20%	Yes	FAC	
3. <u>Packera glabella</u>	15%	No	FACW	
4. <u>Carex grisea</u>	10%	No	FAC	
5. <u>Poa sylvestris</u>	5%	No	FAC	
6. <u>Leersia virginica</u>	3%	No	FACW	
7. <u>Persicaria virginiana</u>	3%	No	FAC	
8. <u>Toxicodendron radicans</u>	3%	No	FAC	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
84% = Total Cover				
Woody Vine Stratum (Plot size: 30' radius)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: dp201**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 ¹	Loc ²		
0-16"	10YR 3/1	90	10YR 3/6	10	C	M	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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 checked="" type="checkbox"/> Redox Depressions (F8)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp202
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 2% Lat: 39.317503 Long: -83.370298 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Celtis occidentalis</u>	75%	Yes	FAC
2. <u>Juglans nigra</u>	40%	Yes	FACU
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	115%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Celtis occidentalis</u>	5%	Yes	FAC
2. <u>Fraxinus pennsylvanica</u>	5%	Yes	FACW
3. <u>Lonicera maackii</u>	3%	Yes	UPL
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	13%	= Total Cover	

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Festuca subverticillata</u>	75%	Yes	FACU
2. <u>Parthenocissus quinquefolia</u>	60%	Yes	FACU
3. <u>Geum canadense</u>	10%	No	FAC
4. <u>Persicaria virginiana</u>	5%	No	FAC
5. <u>Lonicera maackii</u>	5%	No	UPL
6. <u>Rosa multiflora</u>	5%	No	FACU
7. <u>Carex hirsutella</u>	3%	No	UPL
8. <u>Alliaria petiolata</u>	1%	No	FAC
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
	164%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
	_____	= 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: 43% (A/B)**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species <u>5%</u>	x2 = <u>0.10</u>
FAC species <u>96%</u>	x3 = <u>2.88</u>
FACU species <u>180%</u>	x4 = <u>7.20</u>
UPL species <u>11%</u>	x5 = <u>0.55</u>
Column Totals: <u>292%</u> (A)	<u>10.73</u> (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Vegetation
____ 2-Dominance Test is >50%
____ 3-Prevalence Index is $\leq 3.0^1$
____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes _____ No X

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

SOIL

Sampling Point: dp202**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 ¹	Loc ²		
0-16"	10YR 3/2	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp203
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
Slope (%): 1% Lat: 39.317251 Long: -83.370433 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Fraxinus pennsylvanica</u>	25%	Yes	FACW
2. <u>Ulmus americana</u>	20%	Yes	FACW
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	45%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Asimina triloba</u>	55%	Yes	FAC
2. <u>Lonicera maackii</u>	10%	No	UPL
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	65%	= Total Cover	

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carex grisea</u>	25%	Yes	FAC
2. <u>Leersia virginica</u>	15%	Yes	FACW
3. <u>Carex conjuncta</u>	10%	No	FACW
4. <u>Parthenocissus quinquefolia</u>	3%	No	FACU
5. <u>Geum canadense</u>	3%	No	FAC
6. <u>Packera glabella</u>	1%	No	FACW
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
	57%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
	_____	= Total Cover	

Dominance Test worksheet:Number of Dominant Species
That Are OBL, FACW, or FAC: 5 (A)Total Number of Dominant
Species Across All Strata: 5 (B)Percent of Dominant Species
That Are OBL, FACW, or FAC: 100% (A/B)**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species <u>71%</u>	x2 = <u>1.42</u>
FAC species <u>83%</u>	x3 = <u>2.49</u>
FACU species <u>3%</u>	x4 = <u>0.12</u>
UPL species <u>10%</u>	x5 = <u>0.50</u>
Column Totals: <u>167%</u> (A)	<u>4.53</u> (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is $\leq 3.0^1$
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes X No _____

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

SOIL

Sampling Point: dp203**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 ¹	Loc ²		
0-16"	10YR 3/1	90	10YR 3/6	10	C	M	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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 checked="" type="checkbox"/> Redox Depressions (F8)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp204
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): concave
Slope (%): 1% Lat: 39.317 Long: -83.367631 Datum: NAD83 UTM16N
Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Prunus serotina</u>	20%	Yes	FACU
2. <u>Carya cordiformis</u>	15%	Yes	FACU
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	35%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carya cordiformis</u>	10%	Yes	FACU
2. <u>Ulmus americana</u>	5%	Yes	FACW
3. <u>Fraxinus pennsylvanica</u>	5%	Yes	FACW
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	20%	= Total Cover	

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Persicaria virginiana</u>	20%	Yes	FAC
2. <u>Lonicera japonica</u>	20%	Yes	FACU
3. <u>Carex grisea</u>	15%	Yes	FAC
4. <u>Symphoricarum lateriflorum</u>	15%	Yes	FACW
5. <u>Parthenocissus quinquefolia</u>	15%	Yes	FACU
6. <u>Sanicula marilandica</u>	10%	No	FACU
7. <u>Poa sylvestris</u>	10%	No	FAC
8. <u>Arisaema triphyllum</u>	3%	No	FACW
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
	108%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
	_____	= Total Cover	

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

Dominance Test worksheet:Number of Dominant Species
That Are OBL, FACW, or FAC: 5 (A)Total Number of Dominant
Species Across All Strata: 10 (B)Percent of Dominant Species
That Are OBL, FACW, or FAC: 50% (A/B)**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species <u>28%</u>	x2 = <u>0.56</u>
FAC species <u>45%</u>	x3 = <u>1.35</u>
FACU species <u>90%</u>	x4 = <u>3.60</u>
UPL species _____	x5 = _____
Column Totals: <u>163%</u> (A)	<u>5.51</u> (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
____ 2-Dominance Test is >50%
____ 3-Prevalence Index is $\leq 3.0^1$
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes _____ No X

SOIL

Sampling Point: dp204**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 ¹	Loc ²		
0-16"	10YR 4/3	95	10YR 4/6	5	C	M	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project/Site:	Ross County Solar Farm Project	City/County:	Greenfield/Ross	Sampling Date:	6/2/2020
Applicant/Owner:	Geronimo	State:	OH	Sampling Point:	dp205
Investigator(s):	Kaitlin Hillier	Section, Township, Range:			
Landform (hillslope, terrace, etc.):	Stream Terrace	Local relief (concave, convex, none): none			
Slope (%):	0%	Lat:	39.318747	Long:	-83.363433
				Datum:	NAD83 UTM16N
Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes				NWI classification:	none

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u> x </u>	Is the Sampled Area within a Wetland?	Yes _____	No <u> x </u>
Hydric Soil Present?	Yes _____	No <u> x </u>			
Wetland Hydrology Present?	Yes _____	No <u> x </u>			
Remarks:					

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

<u>Sapling/Shrub Stratum</u> (Plot size: 15' radius)				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)	
1. <i>Rubus allegheniensis</i>	10%	Yes	FACU	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____	
2. <i>Celtis occidentalis</i>	3%	Yes	FAC		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
13%		= Total Cover			

Herb Stratum (Plot size: 5' radius)			
1. <i>Carex shortiana</i>	40%	Yes	FACW
2. <i>Solidago altissima</i>	35%	Yes	FACU
3. <i>Packera glabella</i>	5%	No	FACW
4. <i>Rumex crispus</i>	1%	No	FAC
5. <i>Ambrosia trifida</i>	1%	No	FAC
6. <i>Sisyrinchium angustifolium</i>	1%	No	FAC
7. <i>Erigeron annuus</i>	1%	No	FACU
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	84%	= Total Cover	

That Are OBL, FACW, or FAC:		A/B
OBL species	x1 =	
FACW species	45% x2 =	0.90
FAC species	6% x3 =	0.18
FACU species	46% x4 =	1.84
UPL species	x5 =	
Column Totals:	97% (A)	2.92 (B)
Prevalence Index = B/A =		3.01

Hydrophytic Vegetation Indicators:

1-Rapid Test for Hydrophytic Vegetation

2-Dominance Test is >50%

3-Prevalence Index is ≤3.0¹

4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Woody Vine Stratum (Plot size: 30' radius) <div> <div>1. _____</div> <div>2. _____</div> <div>_____ = Total Cover</div> </div>		Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
--	--	---

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

SOIL

Sampling Point: dp205**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 ¹	Loc ²		
0-16"	10YR 3/1	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp206
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.318877 Long: -83.363344 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	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>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species _____ x1 = _____ FACW species <u>180%</u> x2 = <u>3.60</u> FAC species <u>95%</u> x3 = <u>2.85</u> FACU species <u>3%</u> x4 = <u>0.12</u> UPL species _____ x5 = _____ Column Totals: <u>278%</u> (A) <u>6.57</u> (B) Prevalence Index = B/A = <u>2.36</u>
1. <u>Salix interior</u>	<u>80%</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
80% = Total Cover				

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: _____ 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% _____ 3-Prevalence Index is ≤3.0 ¹ _____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Solidago gigantea</u>	<u>90%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Poa pratensis</u>	<u>75%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Viola sororia</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Conium maculatum</u>	<u>10%</u>	<u>No</u>	<u>FACW</u>	
5. <u>Amphicarpaea bracteata</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
6. <u>Calystegia sepium</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
7. <u>Erigeron annuus</u>	<u>3%</u>	<u>No</u>	<u>FACU</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
198% = Total Cover				

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				

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

SOIL

Sampling Point: dp206**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 ¹	Loc ²		
0-16"	10YR 4/2	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp207
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.318531 Long: -83.366463 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species <u>43%</u> x1 = <u>0.43</u> FACW species <u>40%</u> x2 = <u>0.80</u> FAC species <u>13%</u> x3 = <u>0.39</u> FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: <u>96%</u> (A) <u>1.62</u> (B) Prevalence Index = B/A = <u>1.69</u>
1. <u>Salix interior</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
10% = Total Cover				
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ _____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Scirpus atrovirens</u>	<u>40%</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Juncus dudleyi</u>	<u>20%</u>	<u>Yes</u>	<u>FACW</u>	
3. <u>Poa pratensis</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Solidago gigantea</u>	<u>10%</u>	<u>No</u>	<u>FACW</u>	
5. <u>Typha X glauca</u>	<u>3%</u>	<u>No</u>	<u>OBL</u>	
6. <u>Toxicodendron radicans</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
86% = Total Cover				
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

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

SOIL

Sampling Point: dp207**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 ¹	Loc ²		
0-16"	10YR 4/2	90	10YR 4/6	10	C	M	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>4"</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present?Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp208
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.318536 Long: -83.366437 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Solidago altissima</i>	75%	Yes	FACU
2. <i>Schedonorus arundinaceus</i>	20%	No	FACU
3. <i>Toxicodendron radicans</i>	5%	No	FAC
4. <i>Trifolium pratense</i>	5%	No	FACU
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
105% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)			
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Dominance Test worksheet:

Number of Dominant Species
 That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species
 That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species <u>5%</u>	x3 = <u>0.15</u>
FACU species <u>100%</u>	x4 = <u>4.00</u>
UPL species _____	x5 = _____
Column Totals: <u>105%</u> (A)	<u>4.15</u> (B)
Prevalence Index = B/A = <u>3.95</u>	

Hydrophytic Vegetation Indicators:

- _____ 1-Rapid Test for Hydrophytic Vegetation
 _____ 2-Dominance Test is >50%
 _____ 3-Prevalence Index is $\leq 3.0^1$
 _____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 _____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes _____ No X

SOIL

Sampling Point: dp208**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 ¹	Loc ²		
0-16"	10YR 4/2	40					silt loam	
	10YR 4/4	60					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp209
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
 Slope (%): 0% Lat: 39.318765 Long: -83.361626 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Typha X glauca</u>	100%	Yes	OBL
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			
13. _____			
14. _____			
15. _____			
16. _____			
17. _____			
18. _____			
19. _____			
20. _____			
100% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
= 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:		A/B	
OBL species	100%	x1 =	1.00
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	100% (A)		1.00 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- X 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
 _____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 _____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes X No _____

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

SOIL

Sampling Point: dp209**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 ¹	Loc ²		
0-16"	10YR 4/2	90	10YR 4/6	10	C	M	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp210
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): convex
 Slope (%): 0% Lat: 39.318773 Long: -83.361608 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Lonicera maackii</u>	20%	Yes	UPL
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
20% = Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Solidago altissima</u>	30%	Yes	FACU
2. <u>Valerianella umbilicata</u>	15%	Yes	FACW
3. <u>Conium maculatum</u>	15%	Yes	FACW
4. <u>Vitis riparia</u>	15%	Yes	FACW
5. <u>Amphicarpaea bracteata</u>	10%	No	FAC
6. <u>Calystegia sepium</u>	10%	No	FAC
7. <u>Poa pratensis</u>	5%	No	FAC
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
100% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= 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: 5 (B)
 Percent of Dominant Species
 That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species <u>45%</u>	x2 = <u>0.90</u>
FAC species <u>25%</u>	x3 = <u>0.75</u>
FACU species <u>30%</u>	x4 = <u>1.20</u>
UPL species <u>20%</u>	x5 = <u>1.00</u>
Column Totals: <u>120%</u> (A)	<u>3.85</u> (B)
Prevalence Index = B/A = <u>3.21</u>	

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
 ____ 3-Prevalence Index is ≤3.0¹
 ____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation

Present? Yes X No _____

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

SOIL

Sampling Point: dp210**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 ¹	Loc ²		
0-16"	10YR 4/3	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp211
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): none
 Slope (%): 1% Lat: 39.318738 Long: -83.361405 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																																
1. _____	_____	_____	_____		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%</u> (A/B)																															
2. _____	_____	_____	_____																																	
3. _____	_____	_____	_____																																	
4. _____	_____	_____	_____																																	
5. _____	_____	_____	_____																																	
= Total Cover																																				
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet: <table border="1"> <thead> <tr> <th colspan="2">Total % Cover of:</th> <th colspan="2">Multiply by:</th> </tr> <tr> <th>That Are OBL, FACW, or FAC:</th> <th></th> <th></th> <th>A/B</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>20%</td> <td>x1 =</td> <td>0.20</td> </tr> <tr> <td>FACW species</td> <td>115%</td> <td>x2 =</td> <td>2.30</td> </tr> <tr> <td>FAC species</td> <td>5%</td> <td>x3 =</td> <td>0.15</td> </tr> <tr> <td>FACU species</td> <td>20%</td> <td>x4 =</td> <td>0.80</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x5 =</td> <td></td> </tr> <tr> <td>Column Totals:</td> <td>160% (A)</td> <td></td> <td>3.45 (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = <u>2.16</u>	Total % Cover of:		Multiply by:		That Are OBL, FACW, or FAC:			A/B	OBL species	20%	x1 =	0.20	FACW species	115%	x2 =	2.30	FAC species	5%	x3 =	0.15	FACU species	20%	x4 =	0.80	UPL species		x5 =		Column Totals:	160% (A)		3.45 (B)
Total % Cover of:		Multiply by:																																		
That Are OBL, FACW, or FAC:			A/B																																	
OBL species	20%	x1 =	0.20																																	
FACW species	115%	x2 =	2.30																																	
FAC species	5%	x3 =	0.15																																	
FACU species	20%	x4 =	0.80																																	
UPL species		x5 =																																		
Column Totals:	160% (A)		3.45 (B)																																	
1. _____	_____	_____	_____																																	
2. _____	_____	_____	_____																																	
3. _____	_____	_____	_____																																	
4. _____	_____	_____	_____																																	
5. _____	_____	_____	_____																																	
= Total Cover																																				
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																
1. <u>Carex shortiana</u>	65%	Yes	FACW																																	
2. <u>Carex vulpinoidea</u>	40%	Yes	FACW																																	
3. <u>Scirpus atrovirens</u>	20%	No	OBL																																	
4. <u>Schedonorus arundinaceus</u>	15%	No	FACU																																	
5. <u>Phalaris arundinacea</u>	10%	No	FACW																																	
6. <u>Calystegia sepium</u>	5%	No	FAC																																	
7. <u>Trifolium pratense</u>	5%	No	FACU																																	
8. _____	_____	_____	_____																																	
9. _____	_____	_____	_____																																	
10. _____	_____	_____	_____																																	
11. _____	_____	_____	_____																																	
12. _____	_____	_____	_____																																	
13. _____	_____	_____	_____																																	
14. _____	_____	_____	_____																																	
15. _____	_____	_____	_____																																	
16. _____	_____	_____	_____																																	
17. _____	_____	_____	_____																																	
18. _____	_____	_____	_____																																	
19. _____	_____	_____	_____																																	
20. _____	_____	_____	_____																																	
160% = Total Cover																																				
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																																
1. _____	_____	_____	_____																																	
2. _____	_____	_____	_____																																	
= Total Cover																																				

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

SOIL

Sampling Point: dp211**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 ¹	Loc ²		
0-16"	10YR 4/2	90	10YR 4/6	10	C	M	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp212
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
Slope (%): 0% Lat: 39.319811 Long: -83.35868 Datum: NAD83 UTM16N
Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carex shortiana</u>	65%	Yes	FACW
2. <u>Carex vulpinoidea</u>	40%	Yes	FACW
3. <u>Scirpus atrovirens</u>	20%	No	OBL
4. <u>Schedonorus arundinaceus</u>	15%	No	FACU
5. <u>Phalaris arundinacea</u>	10%	No	FACW
6. <u>Calystegia sepium</u>	5%	No	FAC
7. <u>Trifolium pratense</u>	5%	No	FACU
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
160% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

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% (A/B)**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	20%	x1 =	0.20
FACW species	115%	x2 =	2.30
FAC species	5%	x3 =	0.15
FACU species	20%	x4 =	0.80
UPL species		x5 =	
Column Totals:	160% (A)		3.45 (B)

Prevalence Index = B/A = 2.16

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is $\leq 3.0^1$
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes X No _____

SOIL

Sampling Point: dp212**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 ¹	Loc ²		
0-16"	10YR 4/2	90	10YR 4/6	10	C	M	Sandy Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp213
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Shoulder Local relief (concave, convex, none): none
Slope (%): 0% Lat: 39.319803 Long: -83.357849 Datum: NAD83 UTM16N
Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Morus alba</u>	5%	Yes	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
5% = Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Toxicodendron radicans</u>	35%	Yes	FAC
2. <u>Conium maculatum</u>	30%	Yes	FACW
3. <u>Sorghum halepense</u>	15%	No	FACU
4. <u>Asclepias syriaca</u>	5%	No	FACU
5. <u>Ipomoea purpurea</u>	3%	No	FACU
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
88% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= 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% (A/B)

Prevalence Index worksheet:
Total % Cover of: _____ Multiply by: _____
That Are OBL, FACW, or FAC: _____ A/B
OBL species _____ x1 = _____
FACW species 30% x2 = 0.60
FAC species 40% x3 = 1.20
FACU species 23% x4 = 0.92
UPL species _____ x5 = _____
Column Totals: 93% (A) 2.72 (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:
1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
3-Prevalence Index is ≤3.0¹
4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: dp213**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 ¹	Loc ²		
0-16"	10YR 4/3	100					silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp214
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.319714 Long: -83.355863 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Salix interior</u>	40%	Yes	FACW	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
40% = Total Cover				
Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Poa pratensis</u>	20%	Yes	FAC	
2. <u>Valerianella umbilicata</u>	20%	Yes	FACW	
3. <u>Leersia oryzoides</u>	15%	Yes	OBL	
4. <u>Solidago gigantea</u>	15%	Yes	FACW	
5. <u>Eupatorium perfoliatum</u>	15%	Yes	OBL	
6. <u>Scirpus atrovirens</u>	10%	No	OBL	
7. <u>Typha X glauca</u>	10%	No	OBL	
8. <u>Sium suave</u>	5%	No	OBL	
9. <u>Amphicarpaea bracteata</u>	3%	No	FAC	
10. <u>Ambrosia trifida</u>	3%	No	FAC	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
116% = Total Cover				
Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: dp214**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 ¹	Loc ²		
0-16"	10YR 4/2	90	10YR 4/6	10	c	m	Sandy Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present?

Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present?

Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp215
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
Slope (%): 0% Lat: 39.318015 Long: -83.356475 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA) NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. <u>Lindera benzoin</u>	15%	Yes	FACW
2. <u>Rosa multiflora</u>	10%	Yes	FACU
3. <u>Acer negundo</u>	10%	Yes	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
35% = Total Cover			

Herb Stratum (Plot size: 5' radius)			
1. <u>Carex shortiana</u>	25%	Yes	FACW
2. <u>Carex conjuncta</u>	20%	Yes	FACW
3. <u>Solidago canadensis</u>	10%	No	FACU
4. <u>Glyceria striata</u>	10%	No	OBL
5. <u>Toxicodendron radicans</u>	5%	No	FAC
6. <u>Carex davisii</u>	5%	No	FAC
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
75% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)
The woodlot had been cleared cut within the last 5 years

Dominance Test worksheet:

Number of Dominant Species
That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species
That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of: 110% (A) Multiply by: 2.70 (B)
That Are OBL, FACW, or FAC:
OBL species 10% x1 = 0.10
FACW species 60% x2 = 1.20
FAC species 20% x3 = 0.60
FACU species 20% x4 = 0.80
UPL species _____ x5 = _____
Column Totals: 110% (A) 2.70 (B)

Prevalence Index = B/A = 2.45

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation
Present?** Yes X No _____

SOIL

Sampling Point: dp215**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 ¹	Loc ²		
0-16"	10YR 3/2	90	10YR 3/6	10	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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 checked="" type="checkbox"/> Redox Depressions (F8)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp216
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 2% Lat: 39.317882 Long: -83.356549 Datum: NAD83 UTM16N
 Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA) NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species <u>44%</u> x3 = <u>1.32</u> FACU species <u>114%</u> x4 = <u>4.56</u> UPL species _____ x5 = _____ Column Totals: <u>158%</u> (A) <u>5.88</u> (B) Prevalence Index = B/A = <u>3.72</u>
1. <u>Rosa multiflora</u>	<u>15%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Asimina triloba</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
25% = Total Cover				

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: _____ 1-Rapid Test for Hydrophytic Vegetation _____ 2-Dominance Test is >50% _____ 3-Prevalence Index is ≤3.0 ¹ _____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Parthenocissus quinquefolia</u>	<u>55%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Sanicula marilandica</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>	
3. <u>Viola sororia</u>	<u>15%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Carex davisi</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
5. <u>Solidago altissima</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
6. <u>Galium aparine</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
7. <u>Ambrosia trifida</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
8. <u>Carya cordiformis</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
9. <u>Rubus allegheniensis</u>	<u>3%</u>	<u>No</u>	<u>FACU</u>	
10. <u>Toxicodendron radicans</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>	
11. <u>Acer rubrum</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	
12. <u>Geum vernum</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
133% = Total Cover				

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)
 The woodlot had been cleared cut within the last 5 years

SOIL

Sampling Point: dp216**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 ¹	Loc ²		
0-16"	10YR 3/2	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp217
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 1% Lat: 39.315953 Long: -83.354374 Datum: NAD83 UTM16N
 Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA) NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>50%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species _____ x1 = _____ FACW species <u>80%</u> x2 = <u>1.60</u> FAC species _____ x3 = _____ FACU species <u>83%</u> x4 = <u>3.32</u> UPL species _____ x5 = _____ Column Totals: <u>163%</u> (A) <u>4.92</u> (B) Prevalence Index = B/A = <u>3.02</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: _____ 1-Rapid Test for Hydrophytic Vegetation _____ 2-Dominance Test is >50% _____ 3-Prevalence Index is ≤3.0 ¹ _____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Conium maculatum</i>	80%	Yes	FACW	
2. <i>Galium aparine</i>	30%	Yes	FACU	
3. <i>Stellaria media</i>	15%	No	FACU	
4. <i>Solidago altissima</i>	15%	No	FACU	
5. <i>Glechoma hederacea</i>	10%	No	FACU	
6. <i>Cirsium arvense</i>	5%	No	FACU	
7. <i>Bromus inermis</i>	5%	No	FACU	
8. <i>Phleum pratense</i>	3%	No	FACU	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
163% = Total Cover				

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)
 Area filled with old hay bales

SOIL

Sampling Point: dp217**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-16"	10YR 3/2	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
 Water Table Present? Yes _____ No X Depth (inches): N/A
 Saturation Present? Yes _____ No X Depth (inches): N/A
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp218
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.315558 Long: -83.354306 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Rumex crispus</u>	20%	Yes	FAC
2. <u>Phalaris arundinacea</u>	15%	Yes	FACW
3. <u>Carex frankii</u>	10%	No	OBL
4. <u>Poa pratensis</u>	10%	No	FAC
5. <u>Ambrosia trifida</u>	5%	No	FAC
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
60% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:		A/B	
OBL species	10%	x1 =	0.10
FACW species	15%	x2 =	0.30
FAC species	35%	x3 =	1.05
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	60% (A)		1.45 (B)

Prevalence Index = B/A = 2.42

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
 ____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes X No _____

SOIL

Sampling Point: dp218**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-16"	10YR 3/2	95	10YR 3/6	5	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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 checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<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)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp219
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 1% Lat: 39.315419 Long: -83.354349 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Trifolium pratense</i>	100%	Yes	FACU
2. <i>Poa pratensis</i>	20%	No	FAC
3. <i>Melilotus officinalis</i>	10%	No	FACU
4. <i>Pastinaca sativa</i>	3%	No	UPL
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
133% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species
 That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species
 That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species <u>20%</u>	x3 = <u>0.60</u>
FACU species <u>110%</u>	x4 = <u>4.40</u>
UPL species <u>3%</u>	x5 = <u>0.15</u>
Column Totals: <u>133%</u> (A)	<u>5.15</u> (B)
Prevalence Index = B/A = <u>3.87</u>	

Hydrophytic Vegetation Indicators:

- 1-Rapid Test for Hydrophytic Vegetation
- 2-Dominance Test is >50%
- 3-Prevalence Index is $\leq 3.0^1$
- 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes _____ No X

SOIL

Sampling Point: dp219**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 ¹	Loc ²		
0-16"	10YR 3/2	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp220
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
 Slope (%): 1% Lat: 39.316034 Long: -83.353646 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 2 to 6 percent slopes, eroded (MhB2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																																
1. _____	_____	_____	_____		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%</u> (A/B)																															
2. _____	_____	_____	_____																																	
3. _____	_____	_____	_____																																	
4. _____	_____	_____	_____																																	
5. _____	_____	_____	_____																																	
= Total Cover				Prevalence Index worksheet: <table border="1"> <thead> <tr> <th colspan="2">Total % Cover of:</th> <th colspan="2">Multiply by:</th> </tr> <tr> <th colspan="2">That Are OBL, FACW, or FAC:</th> <th colspan="2">A/B</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>22%</td> <td>x1 =</td> <td>0.22</td> </tr> <tr> <td>FACW species</td> <td>75%</td> <td>x2 =</td> <td>1.50</td> </tr> <tr> <td>FAC species</td> <td>_____</td> <td>x3 =</td> <td>_____</td> </tr> <tr> <td>FACU species</td> <td>_____</td> <td>x4 =</td> <td>_____</td> </tr> <tr> <td>UPL species</td> <td>_____</td> <td>x5 =</td> <td>_____</td> </tr> <tr> <td>Column Totals:</td> <td>97% (A)</td> <td></td> <td>1.72 (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = <u>1.77</u>	Total % Cover of:		Multiply by:		That Are OBL, FACW, or FAC:		A/B		OBL species	22%	x1 =	0.22	FACW species	75%	x2 =	1.50	FAC species	_____	x3 =	_____	FACU species	_____	x4 =	_____	UPL species	_____	x5 =	_____	Column Totals:	97% (A)		1.72 (B)
Total % Cover of:		Multiply by:																																		
That Are OBL, FACW, or FAC:		A/B																																		
OBL species	22%	x1 =	0.22																																	
FACW species	75%	x2 =	1.50																																	
FAC species	_____	x3 =	_____																																	
FACU species	_____	x4 =	_____																																	
UPL species	_____	x5 =	_____																																	
Column Totals:	97% (A)		1.72 (B)																																	
= Total Cover				Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ _____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																
= Total Cover																																				
Herb Stratum (Plot size: 5' radius)																																				
1. <i>Phalaris arundinacea</i>	75%	Yes	FACW																																	
2. <i>Leersia oryzoides</i>	20%	Yes	OBL																																	
3. <i>Ranunculus sceleratus</i>	2%	No	OBL																																	
4. _____	_____	_____	_____																																	
5. _____	_____	_____	_____																																	
6. _____	_____	_____	_____																																	
7. _____	_____	_____	_____																																	
8. _____	_____	_____	_____																																	
9. _____	_____	_____	_____																																	
10. _____	_____	_____	_____																																	
11. _____	_____	_____	_____																																	
12. _____	_____	_____	_____																																	
13. _____	_____	_____	_____																																	
14. _____	_____	_____	_____																																	
15. _____	_____	_____	_____																																	
16. _____	_____	_____	_____																																	
17. _____	_____	_____	_____																																	
18. _____	_____	_____	_____																																	
19. _____	_____	_____	_____																																	
20. _____	_____	_____	_____																																	
97% = Total Cover																																				
Woody Vine Stratum (Plot size: 30' radius)																																				
1. _____	_____	_____	_____																																	
2. _____	_____	_____	_____																																	
= Total Cover																																				

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

SOIL

Sampling Point: dp220**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 ¹	Loc ²		
0-16"	10YR 4/2	80	10YR 4/6	20	c	m	sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp221
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 1% Lat: 39.315974 Long: -83.35369 Datum: NAD83 UTM16N
 Soil Map Unit Name: kokomo silty clay loam, 2 to 6 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Bromus inermis</i>	80%	Yes	FACU
2. <i>Trifolium pratense</i>	15%	No	FACU
3. <i>Cirsium arvense</i>	15%	No	FACU
4. <i>Schedonorus arundinaceus</i>	5%	No	FACU
5. <i>Daucus carota</i>	5%	No	UPL
6. <i>Phleum pratense</i>	5%	No	FACU
7. <i>Solidago altissima</i>	5%	No	FACU
8. <i>Phalaris arundinacea</i>	3%	No	FACW
9. <i>Erigeron canadensis</i>	3%	No	FACU
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
136% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= 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: 1 (B)
 Percent of Dominant Species
 That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species	x1 = _____
FACW species	x2 = <u>0.06</u>
FAC species	x3 = _____
FACU species	x4 = <u>5.12</u>
UPL species	x5 = <u>0.25</u>
Column Totals:	<u>136%</u> (A) <u>5.43</u> (B)
Prevalence Index = B/A = <u>3.99</u>	

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Vegetation
- ____ 2-Dominance Test is >50%
- ____ 3-Prevalence Index is ≤3.0¹
- ____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes _____ No X

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

SOIL

Sampling Point: dp221**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 ¹	Loc ²		
0-16"	10YR 3/2	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp222
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
 Slope (%): 0% Lat: 39.318745 Long: -83.351728 Datum: NAD83 UTM16N
 Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carex vulpinoidea</u>	70%	Yes	FACW
2. <u>Poa pratensis</u>	20%	No	FAC
3. <u>Scirpus atrovirens</u>	10%	No	OBL
4. <u>Eleocharis palustris</u>	5%	No	OBL
5. <u>Carex shortiana</u>	5%	No	FACW
6. <u>Rumex crispus</u>	1%	No	FAC
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			
13. _____			
14. _____			
15. _____			
16. _____			
17. _____			
18. _____			
19. _____			
20. _____			
111% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
= 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:		A/B	
OBL species	15%	x1 =	0.15
FACW species	75%	x2 =	1.50
FAC species	21%	x3 =	0.63
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	111% (A)		2.28 (B)
Prevalence Index = B/A =		<u>2.05</u>	

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
 3-Prevalence Index is ≤3.0¹
 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation

Present? Yes X No _____

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

SOIL

Sampling Point: dp222**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 ¹	Loc ²		
0-16"	10YR 4/2	50	10yr 4/6	50	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <u>X</u> No _____	Depth (inches): <u>Surface</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp223
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 2% Lat: 39.318801 Long: -83.351739 Datum: NAD83 UTM16N
 Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>50%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species <u>30%</u> x3 = <u>0.90</u> FACU species <u>58%</u> x4 = <u>2.32</u> UPL species _____ x5 = _____ Column Totals: <u>88%</u> (A) <u>3.22</u> (B) Prevalence Index = B/A = <u>3.66</u>
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators: _____ 1-Rapid Test for Hydrophytic Vegetation _____ 2-Dominance Test is >50% _____ 3-Prevalence Index is ≤3.0 ¹ _____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Poa pratensis</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Trifolium repens</u>	<u>25%</u>	<u>Yes</u>	<u>FACU</u>	
3. <u>Taraxacum officinale</u>	<u>15%</u>	<u>No</u>	<u>FACU</u>	
4. <u>Bromus inermis</u>	<u>15%</u>	<u>No</u>	<u>FACU</u>	
5. <u>Plantago lanceolata</u>	<u>3%</u>	<u>No</u>	<u>FACU</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
13. _____				
14. _____				
15. _____				
16. _____				
17. _____				
18. _____				
19. _____				
20. _____				
<u>88%</u> = Total Cover				
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: dp223**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 ¹	Loc ²		
0-16"	10YR 4/3	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp224
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): none
 Slope (%): 2% Lat: 39.320469 Long: -83.350169 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																																
1. _____	_____	_____	_____		Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</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>100%</u> (A/B)																															
2. _____	_____	_____	_____																																	
3. _____	_____	_____	_____																																	
4. _____	_____	_____	_____																																	
5. _____	_____	_____	_____																																	
= Total Cover																																				
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet: <table border="1"> <thead> <tr> <th colspan="2">Total % Cover of:</th> <th colspan="2">Multiply by:</th> </tr> <tr> <th>That Are OBL, FACW, or FAC:</th> <th></th> <th></th> <th>A/B</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>85%</td> <td>x1 =</td> <td>0.85</td> </tr> <tr> <td>FACW species</td> <td>20%</td> <td>x2 =</td> <td>0.40</td> </tr> <tr> <td>FAC species</td> <td>3%</td> <td>x3 =</td> <td>0.09</td> </tr> <tr> <td>FACU species</td> <td>10%</td> <td>x4 =</td> <td>0.40</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x5 =</td> <td></td> </tr> <tr> <td>Column Totals:</td> <td>118% (A)</td> <td></td> <td>1.74 (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = <u>1.47</u>	Total % Cover of:		Multiply by:		That Are OBL, FACW, or FAC:			A/B	OBL species	85%	x1 =	0.85	FACW species	20%	x2 =	0.40	FAC species	3%	x3 =	0.09	FACU species	10%	x4 =	0.40	UPL species		x5 =		Column Totals:	118% (A)		1.74 (B)
Total % Cover of:		Multiply by:																																		
That Are OBL, FACW, or FAC:			A/B																																	
OBL species	85%	x1 =	0.85																																	
FACW species	20%	x2 =	0.40																																	
FAC species	3%	x3 =	0.09																																	
FACU species	10%	x4 =	0.40																																	
UPL species		x5 =																																		
Column Totals:	118% (A)		1.74 (B)																																	
1. _____	_____	_____	_____																																	
2. _____	_____	_____	_____																																	
3. _____	_____	_____	_____																																	
4. _____	_____	_____	_____																																	
5. _____	_____	_____	_____																																	
= Total Cover																																				
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																
1. <u>Leersia oryzoides</u>	50%	Yes	OBL																																	
2. <u>Eleocharis palustris</u>	20%	Yes	OBL																																	
3. <u>Carex shortiana</u>	20%	Yes	FACW																																	
4. <u>Scirpus atrovirens</u>	10%	No	OBL																																	
5. <u>Schedonorus arundinaceus</u>	10%	No	FACU																																	
6. <u>Juncus canadensis</u>	5%	No	OBL																																	
7. <u>Rumex crispus</u>	3%	No	FAC																																	
8. _____	_____	_____	_____																																	
9. _____	_____	_____	_____																																	
10. _____	_____	_____	_____																																	
11. _____	_____	_____	_____																																	
12. _____	_____	_____	_____																																	
13. _____	_____	_____	_____																																	
14. _____	_____	_____	_____																																	
15. _____	_____	_____	_____																																	
16. _____	_____	_____	_____																																	
17. _____	_____	_____	_____																																	
18. _____	_____	_____	_____																																	
19. _____	_____	_____	_____																																	
20. _____	_____	_____	_____																																	
118% = Total Cover																																				
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																																
1. _____	_____	_____	_____																																	
2. _____	_____	_____	_____																																	
= Total Cover																																				

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

SOIL

Sampling Point: dp224**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 ¹	Loc ²		
0-16"	10YR 3/2	95	10YR 4/6	5	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp225
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 2% Lat: 39.320578 Long: -83.35023 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Schedonorus arundinaceus</u>	60%	Yes	FACU
2. <u>Calystegia sepium</u>	10%	No	FAC
3. <u>Daucus carota</u>	6%	No	UPL
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
76% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species
 That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species
 That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species <u>10%</u>	x3 = <u>0.30</u>
FACU species <u>60%</u>	x4 = <u>2.40</u>
UPL species <u>6%</u>	x5 = <u>0.30</u>
Column Totals: <u>76%</u> (A)	<u>3.00</u> (B)
Prevalence Index = B/A = <u>3.95</u>	

Hydrophytic Vegetation Indicators:

- _____ 1-Rapid Test for Hydrophytic Vegetation
 _____ 2-Dominance Test is >50%
 _____ 3-Prevalence Index is ≤3.0¹
 _____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 _____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes _____ No X

SOIL

Sampling Point: dp225**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 ¹	Loc ²		
0-16"	10YR 3/2	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp226
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): none
 Slope (%): 2% Lat: 39.313398 Long: -83.354006 Datum: NAD83 UTM16N
 Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Phalaris arundinacea</i>	100%	Yes	FACW
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			
13. _____			
14. _____			
15. _____			
16. _____			
17. _____			
18. _____			
19. _____			
20. _____			
100% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
= 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species <u>100%</u>	x1 = _____
FACW species <u>100%</u>	x2 = <u>2.00</u>
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: <u>100%</u> (A)	<u>2.00</u> (B)
Prevalence Index = B/A = <u>2.00</u>	

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
 _____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 _____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation

Present? Yes X No _____

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

SOIL

Sampling Point: dp226**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 ¹	Loc ²		
0-16"	10YR 4/2	90	10YR 4/6	10	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp227
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 2% Lat: 39.313397 Long: -83.353864 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>50%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species _____ x1 = _____ FACW species <u>35%</u> x2 = <u>0.70</u> FAC species <u>20%</u> x3 = <u>0.60</u> FACU species <u>40%</u> x4 = <u>1.60</u> UPL species <u>3%</u> x5 = <u>0.15</u> Column Totals: <u>98%</u> (A) <u>3.05</u> (B) Prevalence Index = B/A = <u>3.11</u>
Sapling/Shrub Stratum (Plot size: 15' radius)	_____	_____	_____	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				Hydrophytic Vegetation Indicators: ____ 1-Rapid Test for Hydrophytic Vegetation ____ 2-Dominance Test is >50% ____ 3-Prevalence Index is ≤3.0 ¹ ____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: 5' radius)	_____	_____	_____	
1. <i>Conium maculatum</i>	35%	Yes	FACW	
2. <i>Solidago altissima</i>	20%	Yes	FACU	
3. <i>Bromus inermis</i>	10%	No	FACU	
4. <i>Poa pratensis</i>	10%	No	FAC	
5. <i>Rumex crispus</i>	5%	No	FAC	
6. <i>Arctium minus</i>	5%	No	FACU	
7. <i>Cirsium arvense</i>	5%	No	FACU	
8. <i>Ambrosia trifida</i>	5%	No	FAC	
9. <i>Lamium purpureum</i>	3%	No	UPL	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
98% = Total Cover				
Woody Vine Stratum (Plot size: 30' radius)	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: dp227**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 ¹	Loc ²		
0-16"	10YR 4/2	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
 Water Table Present? Yes _____ No X Depth (inches): N/A
 Saturation Present? Yes _____ No X Depth (inches): N/A
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp228
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): concave
Slope (%): 1% Lat: 39.313063 Long: -83.359028 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	65%	Yes	OBL
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
65% = Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer negundo</u>	20%	Yes	FAC
2. <u>Aesculus glabra</u>	10%	Yes	FAC
3. <u>Celtis occidentalis</u>	10%	Yes	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
40% = Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Impatiens capensis</u>	40%	Yes	FACW
2. <u>Equisetum arvense</u>	30%	Yes	FAC
3. <u>Solidago gigantea</u>	20%	No	FACW
4. <u>Acer negundo</u>	20%	No	FAC
5. <u>Poa sylvestris</u>	10%	No	FAC
6. <u>Galium aparine</u>	3%	No	FACU
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
123% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
_____ = Total Cover			

Dominance Test worksheet:

Number of Dominant Species

That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant

Species Across All Strata: 6 (B)

Percent of Dominant Species

That Are OBL, FACW, or FAC: 100% (A/B)**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species	65%	x1 =	0.65
FACW species	60%	x2 =	1.20
FAC species	100%	x3 =	3.00
FACU species	3%	x4 =	0.12
UPL species		x5 =	
Column Totals:	228% (A)		4.97 (B)

Prevalence Index = B/A = 2.18

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
X 3-Prevalence Index is ≤3.0¹
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes X No _____

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

SOIL

Sampling Point: dp228**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 ¹	Loc ²		
0-16"	10YR 4/2	90	10YR 4/6	10	c	m	sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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 checked="" type="checkbox"/> Redox Depressions (F8)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>6"</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp229
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 1% Lat: 39.312921 Long: -83.35893 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes (CvB) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Solidago altissima</u>	90%	Yes	FACU
2. <u>Daucus carota</u>	10%	No	UPL
3. <u>Equisetum arvense</u>	5%	No	FAC
4. <u>Dipsacus fullonum</u>	5%	No	FACU
5. <u>Cirsium arvense</u>	3%	No	FACU
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
113% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

Dominance Test worksheet:Number of Dominant Species
That Are OBL, FACW, or FAC: 0 (A)Total Number of Dominant
Species Across All Strata: 1 (B)Percent of Dominant Species
That Are OBL, FACW, or FAC: 0% (A/B)**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species <u>5%</u>	x3 = <u>0.15</u>
FACU species <u>98%</u>	x4 = <u>3.92</u>
UPL species <u>10%</u>	x5 = <u>0.50</u>
Column Totals: <u>113%</u> (A)	<u>4.57</u> (B)

Prevalence Index = B/A = 4.04

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
____ 2-Dominance Test is >50%
____ 3-Prevalence Index is ≤3.0¹
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation**Present? Yes _____ No X

SOIL

Sampling Point: dp229**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 ¹	Loc ²		
0-16"	10YR 4/3	100					sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp230
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): none
 Slope (%): 1% Lat: 39.316726 Long: -83.35679 Datum: NAD83 UTM16N
 Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	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>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species <u>25%</u> x1 = <u>0.25</u> FACW species <u>50%</u> x2 = <u>1.00</u> FAC species <u>30%</u> x3 = <u>0.90</u> FACU species <u>22%</u> x4 = <u>0.88</u> UPL species _____ x5 = _____ Column Totals: <u>127%</u> (A) <u>3.03</u> (B) Prevalence Index = B/A = <u>2.39</u>
1. <u>Rosa multiflora</u>	<u>15%</u>	<u>Yes</u>	<u>FACU</u>	
2. _____				
3. _____				
4. _____				
5. _____				
<u>15%</u> = Total Cover				
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators: _____ 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ _____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Carex normalis</u>	<u>45%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Carex davisi</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Eupatorium perfoliatum</u>	<u>25%</u>	<u>Yes</u>	<u>OBL</u>	
4. <u>Solidago altissima</u>	<u>7%</u>	<u>No</u>	<u>FACU</u>	
5. <u>Vitis riparia</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
13. _____				
14. _____				
15. _____				
16. _____				
17. _____				
18. _____				
19. _____				
20. _____				
<u>112%</u> = Total Cover				
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____				
2. _____				
= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)
 trees have been clearcut within the last 5 years

SOIL

Sampling Point: dp230**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 ¹	Loc ²		
0-16"	10YR 4/2	98	10YR 4/6	2	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<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 checked="" 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): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present?Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp231
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
Slope (%): 2% Lat: 39.316795 Long: -83.356722 Datum: NAD83 UTM16N
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CvA) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. <u>Lonicera maackii</u>	40%	Yes	UPL
2. <u>Ulmus rubra</u>	15%	Yes	FAC
3. <u>Asimina triloba</u>	5%	No	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
60% = Total Cover			

Herb Stratum (Plot size: 5' radius)			
1. <u>Solidago altissima</u>	75%	Yes	FACU
2. <u>Sanicula marilandica</u>	15%	No	FACU
3. <u>Rubus allegheniensis</u>	10%	No	FACU
4. <u>Carex shortiana</u>	5%	No	FACW
5. <u>Carex radiata</u>	3%	No	FAC
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
108% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)
trees have been clearcut within the last 5 years

Dominance Test worksheet:

Number of Dominant Species
That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species
That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____
That Are OBL, FACW, or FAC: _____ A/B
OBL species _____ x1 = _____
FACW species 5% x2 = 0.10
FAC species 23% x3 = 0.69
FACU species 100% x4 = 4.00
UPL species 40% x5 = 2.00
Column Totals: 168% (A) 6.79 (B)

Prevalence Index = B/A = 4.04

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
____ 2-Dominance Test is >50%
____ 3-Prevalence Index is ≤3.0¹
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.

**Hydrophytic
Vegetation
Present?** Yes _____ No X

SOIL

Sampling Point: dp231**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 ¹	Loc ²		
0-16"	10YR 4/2	98	10YR 4/6	2	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp232
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): none
 Slope (%): 1% Lat: 39.315737 Long: -83.361122 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	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%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
			= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species _____ x1 = _____ FACW species _____ x2 = <u>2.20</u> FAC species _____ x3 = <u>0.45</u> FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: <u>125%</u> (A) <u>2.65</u> (B) Prevalence Index = B/A = <u>2.12</u>
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
			= Total Cover	
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Carex vulpinoidea</u>	75%	Yes	FACW	
2. <u>Juncus dudleyi</u>	35%	Yes	FACW	
3. <u>Rumex crispus</u>	10%	No	FAC	
4. <u>Symphoricarum lanceolatum</u>	5%	No	FAC	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
13. _____				
14. _____				
15. _____				
16. _____				
17. _____				
18. _____				
19. _____				
20. _____				
			125% = Total Cover	
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____				
2. _____				
			= Total Cover	
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: dp232**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 ¹	Loc ²		
0-16"	10YR 4/2	95	10YR 4/6	5	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>2"</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp233
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 1% Lat: 39.315819 Long: -83.361158 Datum: NAD83 UTM16N
 Soil Map Unit Name: Kokomo silty clay loam, 0 to 2 percent slopes (Kp) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																																
1. _____	_____	_____	_____		Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0%</u> (A/B)																															
2. _____	_____	_____	_____																																	
3. _____	_____	_____	_____																																	
4. _____	_____	_____	_____																																	
5. _____	_____	_____	_____																																	
= Total Cover				Prevalence Index worksheet: <table border="1"> <thead> <tr> <th colspan="2">Total % Cover of:</th> <th colspan="2">Multiply by:</th> </tr> <tr> <th colspan="2">That Are OBL, FACW, or FAC:</th> <th colspan="2">A/B</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>_____</td> <td>x1 =</td> <td>_____</td> </tr> <tr> <td>FACW species</td> <td>10%</td> <td>x2 =</td> <td>0.20</td> </tr> <tr> <td>FAC species</td> <td>3%</td> <td>x3 =</td> <td>0.09</td> </tr> <tr> <td>FACU species</td> <td>30%</td> <td>x4 =</td> <td>1.20</td> </tr> <tr> <td>UPL species</td> <td>15%</td> <td>x5 =</td> <td>0.75</td> </tr> <tr> <td>Column Totals:</td> <td>58% (A)</td> <td></td> <td>2.24 (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = <u>3.86</u>	Total % Cover of:		Multiply by:		That Are OBL, FACW, or FAC:		A/B		OBL species	_____	x1 =	_____	FACW species	10%	x2 =	0.20	FAC species	3%	x3 =	0.09	FACU species	30%	x4 =	1.20	UPL species	15%	x5 =	0.75	Column Totals:	58% (A)		2.24 (B)
Total % Cover of:		Multiply by:																																		
That Are OBL, FACW, or FAC:		A/B																																		
OBL species	_____	x1 =	_____																																	
FACW species	10%	x2 =	0.20																																	
FAC species	3%	x3 =	0.09																																	
FACU species	30%	x4 =	1.20																																	
UPL species	15%	x5 =	0.75																																	
Column Totals:	58% (A)		2.24 (B)																																	
= Total Cover																																				
Sapling/Shrub Stratum (Plot size: 15' radius)																																				
1. _____	_____	_____	_____																																	
2. _____	_____	_____	_____																																	
3. _____	_____	_____	_____																																	
4. _____	_____	_____	_____																																	
5. _____	_____	_____	_____																																	
= Total Cover																																				
Herb Stratum (Plot size: 5' radius)																																				
1. <u>Trifolium repens</u>	25%	Yes	FACU																																	
2. <u>Daucus carota</u>	15%	Yes	UPL																																	
3. <u>Juncus dudleyi</u>	10%	No	FACW																																	
4. <u>Oxalis stricta</u>	5%	No	FACU																																	
5. <u>Rumex crispus</u>	3%	No	FAC																																	
6. _____	_____	_____	_____																																	
7. _____	_____	_____	_____																																	
8. _____	_____	_____	_____																																	
9. _____	_____	_____	_____																																	
10. _____	_____	_____	_____																																	
11. _____	_____	_____	_____																																	
12. _____	_____	_____	_____																																	
13. _____	_____	_____	_____																																	
14. _____	_____	_____	_____																																	
15. _____	_____	_____	_____																																	
16. _____	_____	_____	_____																																	
17. _____	_____	_____	_____																																	
18. _____	_____	_____	_____																																	
19. _____	_____	_____	_____																																	
20. _____	_____	_____	_____																																	
58% = Total Cover																																				
Woody Vine Stratum (Plot size: 30' radius)																																				
1. _____	_____	_____	_____																																	
2. _____	_____	_____	_____																																	
= Total Cover																																				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																																				

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

SOIL

Sampling Point: dp233**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 ¹	Loc ²		
0-16"	10YR 4/2	99	10YR 4/6	1	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp234
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): none
Slope (%): 0% Lat: 39.313482 Long: -83.364926 Datum: NAD83 UTM16N
Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	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%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: 15' radius)				
1. <u>Salix interior</u>	40%	Yes	FACW	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B OBL species <u>5%</u> x1 = <u>0.05</u> FACW species <u>45%</u> x2 = <u>0.90</u> FAC species <u>36%</u> x3 = <u>1.08</u> FACU species <u>1%</u> x4 = <u>0.04</u> UPL species _____ x5 = _____ Column Totals: <u>87%</u> (A) <u>2.07</u> (B) Prevalence Index = B/A = <u>2.38</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
40% = Total Cover				
Herb Stratum (Plot size: 5' radius)				
1. <u>Poa pratensis</u>	30%	Yes	FAC	Hydrophytic Vegetation Indicators: ____ 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ ____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Typha X glauca</u>	5%	No	OBL	
3. <u>Solidago gigantea</u>	5%	No	FACW	
4. <u>Ambrosia trifida</u>	3%	No	FAC	
5. <u>Rumex crispus</u>	3%	No	FAC	
6. <u>Cirsium arvense</u>	1%	No	FACU	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
13. _____	_____	_____	_____	
14. _____	_____	_____	_____	
15. _____	_____	_____	_____	
16. _____	_____	_____	_____	
17. _____	_____	_____	_____	
18. _____	_____	_____	_____	
19. _____	_____	_____	_____	
20. _____	_____	_____	_____	
47% = Total Cover				
Woody Vine Stratum (Plot size: 30' radius)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____	_____	_____	_____	
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: dp234**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 ¹	Loc ²		
0-16"	10YR 4/2	95	10YR 4/6	5	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp235
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): none
 Slope (%): 2% Lat: 39.313527 Long: -83.365343 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Schedonorus arundinaceus</i>	75%	Yes	FACU
2. <i>Conium maculatum</i>	15%	No	FACW
3. <i>Rumex crispus</i>	10%	No	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
100% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species
 That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species
 That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species <u>15%</u>	x2 = <u>0.30</u>
FAC species <u>10%</u>	x3 = <u>0.30</u>
FACU species <u>75%</u>	x4 = <u>3.00</u>
UPL species _____	x5 = _____
Column Totals: <u>100%</u> (A)	<u>3.60</u> (B)
Prevalence Index = B/A = <u>3.60</u>	

Hydrophytic Vegetation Indicators:

- ____ 1-Rapid Test for Hydrophytic Vegetation
 ____ 2-Dominance Test is >50%
 ____ 3-Prevalence Index is ≤3.0¹
 ____ 4-Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes _____ No X

SOIL

Sampling Point: dp235**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 ¹	Loc ²		
0-16"	10YR 4/2	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
 Water Table Present? Yes _____ No X Depth (inches): N/A
 Saturation Present? Yes _____ No X Depth (inches): N/A
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
 Applicant/Owner: Geronimo State: OH Sampling Point: dp236
 Investigator(s): Kaitlin Hillier Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
 Slope (%): 0% Lat: 39.313241 Long: -83.36735 Datum: NAD83 UTM16N
 Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed?

Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)																																				
1. _____																																								
2. _____																																								
3. _____																																								
4. _____																																								
5. _____																																								
= Total Cover																																								
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet: <table border="1"> <thead> <tr> <th colspan="2">Total % Cover of:</th> <th colspan="2">Multiply by:</th> </tr> <tr> <th colspan="2">That Are OBL, FACW, or FAC:</th> <th colspan="2">A/B</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>100%</td> <td>x1 =</td> <td>1.00</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x2 =</td> <td></td> </tr> <tr> <td>FAC species</td> <td>5%</td> <td>x3 =</td> <td>0.15</td> </tr> <tr> <td>FACU species</td> <td>15%</td> <td>x4 =</td> <td>0.60</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x5 =</td> <td></td> </tr> <tr> <td>Column Totals:</td> <td>120% (A)</td> <td></td> <td>1.75 (B)</td> </tr> <tr> <td colspan="4">Prevalence Index = B/A = <u>1.46</u></td> </tr> </tbody> </table>	Total % Cover of:		Multiply by:		That Are OBL, FACW, or FAC:		A/B		OBL species	100%	x1 =	1.00	FACW species		x2 =		FAC species	5%	x3 =	0.15	FACU species	15%	x4 =	0.60	UPL species		x5 =		Column Totals:	120% (A)		1.75 (B)	Prevalence Index = B/A = <u>1.46</u>			
Total % Cover of:		Multiply by:																																						
That Are OBL, FACW, or FAC:		A/B																																						
OBL species	100%	x1 =	1.00																																					
FACW species		x2 =																																						
FAC species	5%	x3 =	0.15																																					
FACU species	15%	x4 =	0.60																																					
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Column Totals:	120% (A)		1.75 (B)																																					
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1. _____																																								
2. _____																																								
3. _____																																								
4. _____																																								
5. _____																																								
= Total Cover																																								
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators: <u>X</u> 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 ¹ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																				
1. <u>Typha X glauca</u>	95%	Yes	OBL																																					
2. <u>Cirsium arvense</u>	15%	No	FACU																																					
3. <u>Poa pratensis</u>	5%	No	FAC																																					
4. <u>Leersia oryzoides</u>	5%	No	OBL																																					
5. _____																																								
6. _____																																								
7. _____																																								
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19. _____																																								
20. _____																																								
120% = Total Cover																																								
Woody Vine Stratum (Plot size: 30' radius)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																																				
1. _____																																								
2. _____																																								
= Total Cover																																								

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

SOIL

Sampling Point: dp236**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 ¹	Loc ²		
0-16"	10YR 4/2	90	10YR 4/6	10	c	m	silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

<input type="checkbox"/> Histosol (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 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 checked="" type="checkbox"/> Redox Depressions (F8)

Test Indicators of Hydric Soils:

<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

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"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (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 (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>
(includes capillary fringe)		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Ross County Solar Farm Project City/County: Greenfield/Ross Sampling Date: 6/2/2020
Applicant/Owner: Geronimo State: OH Sampling Point: dp237
Investigator(s): Kaitlin Hillier Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): convex
Slope (%): 2% Lat: 39.313053 Long: -83.367448 Datum: NAD83 UTM16N
Soil Map Unit Name: Miamian silt loam, 6 to 12 percent slopes, eroded (MhC2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year?

Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed?Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N naturally problematic?

(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
= Total Cover			

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Morus alba</u>	15%	Yes	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
15% = Total Cover			

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Solidago altissima</u>	95%	Yes	FACU
2. <u>Conium maculatum</u>	35%	Yes	FACW
3. <u>Calystegia sepium</u>	10%	No	FAC
4. <u>Dipsacus fullonum</u>	10%	No	FACU
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
150% = Total Cover			

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
= Total Cover			

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

Dominance Test worksheet:Number of Dominant Species
That Are OBL, FACW, or FAC: 2 (A)Total Number of Dominant
Species Across All Strata: 3 (B)Percent of Dominant Species
That Are OBL, FACW, or FAC: 67% (A/B)**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
That Are OBL, FACW, or FAC:	A/B
OBL species _____	x1 = _____
FACW species <u>35%</u>	x2 = <u>0.70</u>
FAC species <u>25%</u>	x3 = <u>0.75</u>
FACU species <u>105%</u>	x4 = <u>4.20</u>
UPL species _____	x5 = _____
Column Totals: <u>165%</u> (A)	<u>5.65</u> (B)
Prevalence Index = B/A = <u>3.42</u>	

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation
X 2-Dominance Test is >50%
____ 3-Prevalence Index is $\leq 3.0^1$
____ 4-Morphological Adaptations¹ (Provide supporting
data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.**Hydrophytic
Vegetation**Present? Yes X No _____

SOIL

Sampling Point: dp237**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 ¹	Loc ²		
0-16"	10YR 4/2	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site:	Ross County Solar Farm Project		City/County:	Greenfield/Ross		Sampling Date:	6/2/2020	
Applicant/Owner:	Geronimo		State:	OH		Sampling Point:	dp238	
Investigator(s):	Kaitlin Hillier		Section, Township, Range:					
Landform (hillslope, terrace, etc.):	Summit		Local relief (concave, convex, none): none					
Slope (%):	12%	Lat:	39.313181	Long:	-83.372266	Datum:	NAD83 UTM16N	
Soil Map Unit Name: Miamian silt loam, 12 to 18 percent slopes, eroded (MhD2)						NW1 classification: none		

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> x </u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u>	No <u> x </u>
Hydric Soil Present?	Yes <u> </u>	No <u> x </u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u> x </u>			
Remarks:					

VEGETATION -- Use scientific names of plants.

2021-2022 Use column names of plants			
Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Robinia pseudoacacia</i>	20%	Yes	FACU
2. <i>Juglans nigra</i>	20%	Yes	FACU
3. <i>Ulmus americana</i>	15%	Yes	FACW
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	55%	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Sapling/Shrub Stratum (Plot size: 15' radius)					Percent of Dominant Species	
1. <i>Asimina triloba</i>	40%	Yes	FAC	That Are OBL, FACW, or FAC: 63% (A/B)		
2. <i>Fraxinus pennsylvanica</i>	10%	Yes	FACW			
3.						
4.						
5.						
50%		= Total Cover				
Prevalence Index worksheet:						
Total % Cover of:			Multiply by:			

Herb Stratum (Plot size: 5' radius)				That Are OBL, FACW, or FAC:		A/B
1. <i>Impatiens capensis</i>	20%	Yes	FACW	OBL species	x1 =	
2. <i>Alliaria petiolata</i>	15%	Yes	FAC	FACW species	x2 =	0.90
3. <i>Sanicula marilandica</i>	15%	Yes	FACU	FAC species	x3 =	1.65
4. <i>Festuca subverticillata</i>	5%	No	FACU	FACU species	x4 =	2.92
5. <i>Rosa multiflora</i>	5%	No	FACU	UPL species	x5 =	0.15
6. <i>Osmorhiza claytonii</i>	5%	No	FACU	Column Totals:	176% (A)	5.62 (B)
7. <i>Galium aparine</i>	3%	No	FACU	Prevalence Index = B/A = 3.19		
8. <i>Carex jamesii</i>	3%	No	UPL	Hydrophytic Vegetation Indicators: _____ 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% _____ 3-Prevalence Index is ≤3.0 ¹ _____ 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain)		
9. _____						
10. _____						
11. _____						
12. _____						
13. _____						
14. _____						
15. _____						
16. _____						
17. _____						
18. _____						
19. _____						
20. _____	71%	= Total Cover				

<u>Woody Vine Stratum</u> (Plot size: 30' radius)				Hydrophytic	
1. _____				Vegetation	
2. _____				Present?	
_____ = Total Cover				Yes <u> X </u> No <u> </u>	

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

SOIL

Sampling Point: dp238**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 ¹	Loc ²		
0-16"	10YR 4/3	100					silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators³:**

☐ Histosol (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)

Test Indicators of Hydric Soils:

☐ Iron-Manganese Masses (F12)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

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)
☐ 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 _____ No X Depth (inches): N/A
Water Table Present? Yes _____ No X Depth (inches): N/A
Saturation Present? Yes _____ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Ross County Solar, Ross County,
Ohio

APPENDIX

D

WETLAND AND STREAM FORMS

Site: w001	Rater(s): B Hess	Date: June 2, 2020
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2	2
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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

1	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), 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)

18	21
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 checked="" 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 |

10	31
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 checked="" type="checkbox"/> clearcutting | <input 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 |

31

subtotal this page

Site: w001	Rater(s): B Hess	Date: June 2, 2020
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-1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

-1

-1

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)
- ☒ 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.

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 0 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
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	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

30

Grand Total (max 100 pts)

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

Comments:

Site: w002	Rater(s): B Hess	Date: June 2, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

2	2
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)

21	23
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 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 |

16	39
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 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 |

39

subtotal this page

Site: w002	Rater(s): B Hess	Date: June 2, 2020
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0

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

0	0
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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
- ☐ 0 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)
- ☐ Sparse 5-25% cover (-1)
- ☒ X Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

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

39

Grand Total (max 100 pts)

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

Comments:

Site: w003	Rater(s): B Hess	Date: June 2, 2020
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2	2
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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

1	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), 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)

20	23
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 checked="" 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 |

16	39
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 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 |

39

subtotal this page

Site: w003	Rater(s): B Hess	Date: June 2, 2020
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7

subtotal this page

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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)
- ☐ Not Applicable (0)

Site: Ross County Solar

7

7

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
- ☐ 1 Forest
- ☐ 0 Mudflats
- ☐ 0 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.

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 0 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
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	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)

Comments:

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Site: w004	Rater(s): B Hess	Date: June 2, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

2	2
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)

20	22
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 checked="" 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 |

16	38
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 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 |

38

subtotal this page

Site: w004	Rater(s): B Hess	Date: June 2, 2020
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1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

1

1

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
- ☐ 0 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)
- ☐ 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.

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

39

Grand Total (max 100 pts)

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

Comments:

Site: w005	Rater(s): B Hess	Date: June 2, 2020
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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) (2 pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

2	2
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)

25	27
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 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 |

16	43
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 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 |

43

subtotal this page

Site: w005	Rater(s): B Hess	Date: June 2, 2020
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1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

1

1

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
- ☐ 0 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)
- ☐ 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.

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

44

Grand Total (max 100 pts)

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

Comments:

Site: w006	Rater(s): B Hess	Date: June 2, 2020
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1	1
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) (2 pts)
☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

1	2
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)

15	17
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 type="checkbox"/> filling/grading |
| <input checked="" 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 |

17	34
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 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 |

34

subtotal this page

Site: w006	Rater(s): B Hess	Date: June 2, 2020
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1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

1

1

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
- ☐ 0 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)
- ☐ 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.

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

35

Grand Total (max 100 pts)

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

Comments:

Site: w007	Rater(s): B Hess	Date: June 3, 2020
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2	2
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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

1	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), 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)

12	15
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 checked="" 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 |

9	24
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 checked="" type="checkbox"/> clearcutting | <input 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 |

24

subtotal this page

Site: w007	Rater(s): B Hess	Date: June 3, 2020
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-2

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

-2

-2

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)
- ☒ 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.

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

22

Grand Total (max 100 pts)

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

Comments:

Site: w008	Rater(s): B Hess	Date: June 3, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

12	12
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)

21	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"/> 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 |

9	42
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 checked="" type="checkbox"/> clearcutting | <input 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 |

42

subtotal this page

Site: w008	Rater(s): B Hess	Date: June 3, 2020
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-1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

-1

-1

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
- ☐ 0 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.

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

41

Grand Total (max 100 pts)

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

Comments:

Site: w009	Rater(s): B Hess	Date: June 3, 2020
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2	2
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) (2 pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

12	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)

24	38
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 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 |

19	57
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 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 |

57

subtotal this page

Site: w009	Rater(s): B Hess	Date: June 3, 2020
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18

subtotal this page

Site: Ross County Solar

10

10

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)
☐ Not Applicable (0)

8

18

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) 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.

- ☒ 2 Vegetated hummocks/tussocks
☐ 0 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
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	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

75

Grand Total (max 100 pts)

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

Comments:

Site: w010	Rater(s): B Hess	Date: June 3, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

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)

25	39
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 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 |

16	55
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 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 |

55

subtotal this page

Site: w010	Rater(s): B Hess	Date: June 3, 2020
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1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

1

1

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
- ☐ 0 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)
- ☒ 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.

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

56

Grand Total (max 100 pts)

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

Comments:

Site: w011	Rater(s): B Hess	Date: June 4, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

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

- | | |
|---|---|
| <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 |

17	53
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 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 |

53

subtotal this page

Site: w011	Rater(s): B Hess	Date: June 4, 2020
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2

subtotal this page

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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)
- ☐ Not Applicable (0)

Site: Ross County Solar

2

2

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
- ☐ 0 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)
- ☐ 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.

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

55

Grand Total (max 100 pts)

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

Comments:

Site: w101	Rater(s): C Renskers	Date: June 3, 2020
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1	1
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) (2 pts)
☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

8	9
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)

11	20
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 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 |

6	26
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 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 |

26

subtotal this page

Site: w101	Rater(s): C Renskers	Date: June 3, 2020
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2

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

2

2

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
- ☐ 0 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)
- ☐ 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.

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 0 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
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	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

28

Grand Total (max 100 pts)

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

Comments:

Site: w102	Rater(s): C Renskers	Date: June 3, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

8	8
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)

6	14
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)

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)

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

- | | |
|---|---|
| <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	22
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 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 |

22

subtotal this page

Site: w102	Rater(s): C Renskers	Date: June 3, 2020
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0

subtotal this page

0

max 10 pts subtotal

Site: Ross County Solar

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)
- ☐ Not Applicable (0)

0

0

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
- ☐ 0 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)
- ☐ Sparse 5-25% cover (-1)
- ☒ X Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

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

22

Grand Total (max 100 pts)

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

Site: w103	Rater(s): C Renskers	Date: June 3, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

8	8
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)

5	13
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)

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)

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

- | | |
|---|---|
| <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 |

3	16
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 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 |

16

subtotal this page

Site: w103	Rater(s): C Renskers	Date: June 3, 2020
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1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

1

1

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
- ☐ 0 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)
- ☒ 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.

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

17

Grand Total (max 100 pts)

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

Comments:

Site: w104	Rater(s): C Renskers	Date: June 3, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

10	10
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)

11	21
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 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	29
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 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 |

29

subtotal this page

Site: w104	Rater(s): C Renskers	Date: June 3, 2020
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1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

1

1

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
- ☐ 0 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)
- ☐ 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.

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

30

Grand Total (max 100 pts)

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

Comments:

Site: w105	Rater(s): C Renskers	Date: June 3, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

8	8
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)

10	18
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 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	26
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 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 |

26

subtotal this page

Site: w105	Rater(s): C Renskers	Date: June 3, 2020
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0

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

0	0
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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
- ☐ 0 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)
- ☐ Sparse 5-25% cover (-1)
- ☒ X Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Grand Total (max 100 pts)

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

Comments:

Site: w106	Rater(s): C Renskers	Date: June 3, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

8	8
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)

10	18
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 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	26
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 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 |

26

subtotal this page

Site: w106	Rater(s): C Renskers	Date: June 3, 2020
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0

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

0	0
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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
- ☐ 0 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)
- ☐ Sparse 5-25% cover (-1)
- ☒ X Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Grand Total (max 100 pts)

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

Comments:

Site: w107	Rater(s): C Renskers	Date: June 4, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

8	8
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)

10	18
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)

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)

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

- | | |
|---|---|
| <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	26
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 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 |

26

subtotal this page

Site: w107	Rater(s): C Renskers	Date: June 4, 2020
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0

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

0	0
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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
- ☐ 0 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)
- ☐ Sparse 5-25% cover (-1)
- ☒ X Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Grand Total (max 100 pts)

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

Comments:

Site: w108	Rater(s): C Renskers	Date: June 4, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

8	8
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)

8	16
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 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 |

5	21
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 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 |

21

subtotal this page

Site: w108	Rater(s): C Renskers	Date: June 4, 2020
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-1

subtotal this page

max 10 pts subtotal

Site: Ross County Solar

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)
- ☐ Not Applicable (0)

-1

-1

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
- ☐ 0 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)
- ☒ 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.

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

20

Grand Total (max 100 pts)

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

Comments:

Site: w109	Rater(s): C Renskers	Date: June 4, 2020
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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) (2 pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

6	6
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)

15	21
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 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 |

19	40
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 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 |

40

subtotal this page

Site: w109	Rater(s): C Renskers	Date: June 4, 2020
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3

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

3

3

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
- ☐ 0 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)
- ☐ 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.

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

43

Grand Total (max 100 pts)

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

Comments:

Site: w110	Rater(s): C Renskers	Date: June 4, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

6	6
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)

15	21
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 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 |

19	40
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 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 |

40

subtotal this page

Site: w110	Rater(s): C Renskers	Date: June 4, 2020
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3

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

3

3

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
- ☐ 0 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)
- ☐ 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.

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

43

Grand Total (max 100 pts)

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

Comments:

Site: w201	Rater(s): K Hillier	Date: June 2, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

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)

15	29
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 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 |

16	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"/> 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 type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

45

subtotal this page

Site: w201	Rater(s): K Hillier	Date: June 2, 2020
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4

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

4

4

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
- ☐ 0 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)
- ☐ 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.

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

49

Grand Total (max 100 pts)

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

Comments:

Site: w202	Rater(s): K Hillier	Date: June 2, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

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)

15	29
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 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 |

16	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"/> 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 type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

45

subtotal this page

Site: w202	Rater(s): K Hillier	Date: June 2, 2020
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3

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

3

3

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
- ☐ 0 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)
- ☐ 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.

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

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

Comments:

Site: w203	Rater(s): K Hillier	Date: June 2, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

1	1
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)

15	16
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 type="checkbox"/> filling/grading |
| <input checked="" 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 |

10	26
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 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 type="checkbox"/> nutrient enrichment |

26

subtotal this page

Site: w203	Rater(s): K Hillier	Date: June 2, 2020
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-15

subtotal this page

-10 -10

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)
☐ Not Applicable (0)

Site: Ross County Solar

-5 -15

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
☐ 0 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)
☒ 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.

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

11

Grand Total (max 100 pts)

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

Comments:

Site: w204	Rater(s): K Hillier	Date: June 3, 2020
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1	1
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) (2 pts)
☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

2	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), 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)

19	22
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 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 |

13	35
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 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 type="checkbox"/> nutrient enrichment |

35

subtotal this page

Site: w204	Rater(s): K Hillier	Date: June 3, 2020
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2

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

2

2

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
- ☐ 0 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)
- ☒ 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.

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

37

Grand Total (max 100 pts)

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

Comments:

Site: w205	Rater(s): K Hillier	Date: June 3, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

1	1
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)

21	22
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 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 |

13	35
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 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 type="checkbox"/> nutrient enrichment |

35

subtotal this page

Site: w205	Rater(s): K Hillier	Date: June 3, 2020
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1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

1

1

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
- ☐ 0 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)
- ☐ 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.

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

36

Grand Total (max 100 pts)

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

Comments:

Site: w206	Rater(s): K Hillier	Date: June 3, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

1	1
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)

21	22
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 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 |

13	35
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 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 type="checkbox"/> nutrient enrichment |

35

subtotal this page

Site: w206	Rater(s): K Hillier	Date: June 3, 2020
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1

subtotal this page

max 10 pts subtotal

Site: Ross County Solar

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)
- ☐ Not Applicable (0)

1

1

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
- ☐ 0 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)
- ☐ 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.

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

36

Grand Total (max 100 pts)

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

Site: w207	Rater(s): K Hillier	Date: June 3, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

9	9
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)

6	15
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 checked="" 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 |

7	22
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 checked="" type="checkbox"/> clearcutting | <input 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 |

22

subtotal this page

Site: w207	Rater(s): K Hillier	Date: June 3, 2020
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-1

subtotal this page

max 10 pts subtotal

Site: Ross County Solar

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)
- ☐ Not Applicable (0)

-1

-1

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
- ☐ 0 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)
- ☒ 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.

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

21

Grand Total (max 100 pts)

Site: w208	Rater(s): K Hillier	Date: June 3, 2020
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1	1
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) (2 pts)
☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

7	8
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)

6	14
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 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 |

5	19
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 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 type="checkbox"/> nutrient enrichment |

19

subtotal this page

Site: w208	Rater(s): K Hillier	Date: June 3, 2020
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-1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

-1

-1

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
- ☐ 0 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)
- ☒ 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.

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

18

Grand Total (max 100 pts)

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

Comments:

Site: w209	Rater(s): K Hillier	Date: June 3, 2020
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2	2
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) (2 pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

2	4
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)

23	27
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 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 |

11	38
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 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 type="checkbox"/> nutrient enrichment |

38

subtotal this page

Site: w209	Rater(s): K Hillier	Date: June 3, 2020
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-9

subtotal this page

-10 -10

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)
- ☐ Not Applicable (0)

Site: Ross County Solar

1

-9

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)
- ☐ 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.

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

29

Grand Total (max 100 pts)

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

Comments:

Site: w210	Rater(s): K Hillier	Date: June 3, 2020
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2	2
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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

2	4
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)

18	22
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 type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other |

14	36
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 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 type="checkbox"/> nutrient enrichment |

36

subtotal this page

Site: w210	Rater(s): K Hillier	Date: June 3, 2020
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1

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

1

1

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.

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

37

Grand Total (max 100 pts)

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

Comments:

Site: w211	Rater(s): K Hillier	Date: June 3, 2020
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1	1
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) (2 pts)
☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

2	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), 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)

15	18
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 type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other |

12	30
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 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 type="checkbox"/> nutrient enrichment |

30

subtotal this page

Site: w211	Rater(s): K Hillier	Date: June 3, 2020
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0

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

0	0
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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
- ☐ 0 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.

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

30

Grand Total (max 100 pts)

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

Comments:

Site: w212	Rater(s): K Hillier	Date: June 4, 2020
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2	2
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) (2 pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

3	5
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)

17	22
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 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 |

13	35
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 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 type="checkbox"/> nutrient enrichment |

35

subtotal this page

Site: w212	Rater(s): K Hillier	Date: June 4, 2020
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-9

subtotal this page

Site: Ross County Solar

-10 -10

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)
☐ Not Applicable (0)

1 -9

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) 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.

- ☒ 2 Vegetated hummocks/tussocks
☐ 0 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
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	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

Grand Total (max 100 pts)

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

Comments:

Site: w213	Rater(s): K Hillier	Date: June 4, 2020
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1	1
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) (2 pts)
☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

1	2
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)

14	16
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 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	23
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 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 type="checkbox"/> nutrient enrichment |

23

subtotal this page

Site: w213	Rater(s): K Hillier	Date: June 4, 2020
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0

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

0	0
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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
- ☐ 0 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)
- ☐ 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.

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

Grand Total (max 100 pts)

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

Comments:

Site: w214	Rater(s): K Hillier	Date: June 4, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

12	12
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)

11	23
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 checked="" 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 |

10	33
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 checked="" type="checkbox"/> clearcutting | <input 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 |

33

subtotal this page

Site: w214	Rater(s): K Hillier	Date: June 4, 2020
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-1

subtotal this page

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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)
- ☐ Not Applicable (0)

Site: Ross County Solar

-1

-1

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
- ☐ 0 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ Other

6b. Horizontal (plan view) Interspersions.

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.

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

32

Grand Total (max 100 pts)

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

Comments:

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Site: w215	Rater(s): K Hillier	Date: June 4, 2020
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1	1
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) (2 pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

1	2
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)

12	14
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 checked="" 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

7	21
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"/> grazing <input 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

21
subtotal this page

Site: w215	Rater(s): K Hillier	Date: June 4, 2020
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1

subtotal this page

Site: Ross County Solar

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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)
☐ Not Applicable (0)

1

1

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
☐ 0 Emergent
☐ 0 Shrub
☐ 0 Forest
☐ 0 Mudflats
☐ 0 Open water
☐ Other

6b. Horizontal (plan view) Interspersions.

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.

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

22

Grand Total (max 100 pts)

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

Comments:

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Site: w216	Rater(s): K Hillier	Date: June 4, 2020
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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) (2 pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

1	1
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)

16	17
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 |

11	28
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 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 type="checkbox"/> nutrient enrichment |

28

subtotal this page

Site: w216	Rater(s): K Hillier	Date: June 4, 2020
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-5

subtotal this page

Site: Ross County Solar

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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)
- ☐ Not Applicable (0)

-5

-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
- ☐ 0 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ Other

6b. Horizontal (plan view) Interspersions.

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

- ☒ X 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.

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

Grand Total (max 100 pts)

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

Comments:

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Site: w217	Rater(s): K Hillier	Date: June 4, 2020
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1	1
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) (2 pts)
☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Project: Ross County Solar

3	4
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)

12	16
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 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 |

6	22
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 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 type="checkbox"/> nutrient enrichment |

22

subtotal this page

Site: w217	Rater(s): K Hillier	Date: June 4, 2020
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-15

subtotal this page

-10

-10

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)
- ☐ Not Applicable (0)

Site: Ross County Solar

-5

-15

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
- ☐ 0 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ Other

6b. Horizontal (plan view) Interspersions.

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

- ☒ X 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.

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

7

Grand Total (max 100 pts)

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

Comments:



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

64.50

Stream & Location: s001

RM: Date: 6/2/2020

Ben Hess

Scorers Full Name & Affiliation:

Cardno

Office verified

River Code:

STORET #:

Lat/ Long:

location

1] SUBSTRATE

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

Check ONE (Or 2 & average)

BEST TYPES		POOL	RIFFLE	OTHER TYPES		POOL	RIFFLE	ORIGIN		QUALITY		Substrate 16.0 Maximum 20
<input type="checkbox"/>	BLDR /SLABS [10]			<input type="checkbox"/>	HARDPAN [4]			<input type="checkbox"/>	LIMESTONE [1]	<input type="checkbox"/>	HEAVY [-2]	
<input type="checkbox"/>	BOULDER [9]		10	<input type="checkbox"/>	DETRITUS [3]			<input checked="" type="checkbox"/>	TILLS [1]	<input type="checkbox"/>	MODERATE [-1]	
<input type="checkbox"/>	COBBLE [8]		10	<input type="checkbox"/>	MUCK [2]			<input type="checkbox"/>	WETLANDS [0]	<input checked="" type="checkbox"/>	NORMAL [0]	
<input checked="" type="checkbox"/>	GRAVEL [7]		40	<input type="checkbox"/>	SILT [2]		10	<input type="checkbox"/>	HARDPAN [0]	<input type="checkbox"/>	FREE [1]	
<input checked="" type="checkbox"/>	SAND [6]		30	<input type="checkbox"/>	ARTIFICIAL [0]			<input type="checkbox"/>	SANDSTONE [0]	<input type="checkbox"/>	EXTENSIVE [-2]	
<input type="checkbox"/>	BEDROCK [5]							<input type="checkbox"/>	RIP/RAP [0]	<input type="checkbox"/>	MODERATE [-1]	
								<input type="checkbox"/>	LACUSTURINE [0]	<input checked="" type="checkbox"/>	NORMAL [0]	
								<input type="checkbox"/>	SHALE [-1]	<input type="checkbox"/>	NONE [1]	
								<input type="checkbox"/>	COAL FINES [-2]			

Comments: NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0] (Score natural substrates; ignore sludge from point-sources)

2] INSTREAM COVER

Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal

AMOUNT

Check ONE (Or 2 & average)

<input type="checkbox"/> 1 UNDERCUT BANKS [1]	developed rootwad in deep / fast water, or deep, well-defined, functional pools.	<input type="checkbox"/> POOLS > 70cm [2]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]
<input 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: Cover 5.0 Maximum 20

3] CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	Channel Maximum 20 16.0
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input checked="" type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]	
<input checked="" type="checkbox"/> MODERATE [3]	<input checked="" type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]	
<input type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]	
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]		

Comments:

4] BANK EROSION AND RIPARIAN ZONE

Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream		L	R	RIPARIAN WIDTH		L	R	FLOOD PLAIN QUALITY		L	R	CONSERVATION TILLAGE		Riparian Maximum 10 8.5
L	R													
<input type="checkbox"/>	<input checked="" type="checkbox"/>	EROSION	<input checked="" type="checkbox"/>	WIDE > 50m [4]	<input checked="" type="checkbox"/>	FOREST, SWAMP [3]	<input type="checkbox"/>	CONSERVATION TILLAGE [1]	<input type="checkbox"/>			URBAN OR INDUSTRIAL [0]		
<input type="checkbox"/>	<input type="checkbox"/>	NONE / LITTLE [3]	<input type="checkbox"/>	MODERATE 10-50m [3]	<input type="checkbox"/>	SHRUB OR OLD FIELD [2]	<input type="checkbox"/>	MINING / CONSTRUCTION [0]	<input type="checkbox"/>					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MODERATE [2]	<input type="checkbox"/>	NARROW 5-10m [2]	<input type="checkbox"/>	RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/>		<input type="checkbox"/>					
<input type="checkbox"/>	<input type="checkbox"/>	HEAVY / SEVERE [1]	<input type="checkbox"/>	VERY NARROW < 5m [1]	<input type="checkbox"/>	FENCED PASTURE [1]	<input type="checkbox"/>		<input type="checkbox"/>					
			<input type="checkbox"/>	NONE [0]	<input type="checkbox"/>	OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/>							

Comments: Indicate predominant land use(s) past 100m riparian.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check ONE (ONLY Y!)

<input type="checkbox"/>	> 1m [6]
<input type="checkbox"/>	0.7-<1m [4]
<input checked="" type="checkbox"/>	0.4-<0.7m [2]
<input type="checkbox"/>	0.2-<0.4m [1]
<input type="checkbox"/>	< 0.2m [0]

CHANNEL WIDTH

Check ONE (Or 2 & average)

<input type="checkbox"/>	POOL WIDTH > RIFFLE WIDTH [2]
<input checked="" type="checkbox"/>	POOL WIDTH = RIFFLE WIDTH [1]
<input type="checkbox"/>	POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

<input type="checkbox"/>	TORRENTIAL [-1]	<input checked="" type="checkbox"/>	SLOW [1]
<input type="checkbox"/>	VERY FAST [1]	<input type="checkbox"/>	INTERSTITIAL [-1]
<input checked="" type="checkbox"/>	FAST [1]	<input type="checkbox"/>	INTERMITTENT [-2]
<input checked="" type="checkbox"/>	MODERATE [1]	<input type="checkbox"/>	EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential

Primary Contact

Secondary Contact

(check one and comment on back)

Pool /
Current
Maximum 12
6.0

Comments:

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

Check ONE (Or 2 & average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS	Riffle / Run Maximum 8 5.0
<input checked="" type="checkbox"/> BEST AREAS > 10cm [2]	<input 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 checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input checked="" type="checkbox"/> LOW [1]	
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input type="checkbox"/> MODERATE [0]	
			<input type="checkbox"/> EXTENSIVE [-1]	

Comments:

6] GRADIENT DRAINAGE AREA

(37.0 ft/mi)

(1.657 mi²)

<input type="checkbox"/>	VERY LOW - LOW [2-4]
<input type="checkbox"/>	MODERATE [6-10]
<input checked="" type="checkbox"/>	HIGH - VERY HIGH [10-6]

%POOL:

30%

%GLIDE:

0%

%RUN:

20%

%RIFFLE:

50%

Gradient
Maximum 10

8.0

AJ SAMPLED REACH

Check ALL that apply

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

See Delineation Report for stream figure and photos

METHOD

☐ BOAT

☐ WADE

☐ L. LINE

☐ OTHER

STAGE

☐ HIGH

☐ UP

☐ NORMAL

☐ LOW

☐ DRY

DISTANCE

☐ 0.5 Km

☐ 0.2 Km

☐ 0.15 Km

☐ 0.12 Km

☐ OTHER

meters

CLARITY

1st

--sample pass--

2nd

☐ <20 cm

☐ 20 - <40 cm

☐ 40 - 70 cm

☐ > 70 cm/ CTB

☐ SECCHI DEPTH

1st

cm

--sample pass--

2nd

cm

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

Circle some & COMMENT

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 / SCURED

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 H20 / TILE / H20 TABLE

ACID / MINE / QUARRY / FLOW

NATURAL / WETLAND / STAGNANT

PARK / GOLF / LAWN / HOME

ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

☐ \bar{x} width

☐ \bar{x} depth max. depth

☐ \bar{x} bankfull width

☐ bankfull \bar{x} depth

☐ W/D ratio

☐ bankfull max. depth

☐ floodprone x^2 width

☐ entrench. ratio

Legacy Tree:

Stream Drawing:



Primary Headwater Habitat Evaluation Form

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

72

SITE NAME/LOCATION Ross County
 SITE NUMBER S001 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 1009 LAT _____ LONG _____ RIVER CODE _____ RIVER MILE _____
 DATE 6/2/2020 SCORER B Hess COMMENTS _____

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	10
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	10	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	40	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 20 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

12

HHEI
Metric
Points

Substrate
Max = 40

27

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____

MAXIMUM POOL DEPTH (centimeters):

61

Pool Depth
Max = 30

20

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 checked="" 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 (>4'8" - 9'7") [20 pts]	

COMMENTS _____

AVERAGE BANKFULL WIDTH (meters)

3.7

Bankfull
Width
Max = 30

25

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
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments _____

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

FLOODPLAIN QUALITY

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

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
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 _____

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☒ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

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

s001

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

66

SITE NAME/LOCATION Ross County
 SITE NUMBER s002 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 52 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	0	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	60	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

(B) 12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES: 9

TOTAL NUMBER OF SUBSTRATE TYPES: 12

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters): 15

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters) 1.8

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

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

Comments

L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input 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"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s002**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION Ross County
 SITE NUMBER s003 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 519 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	1	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	40
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	9	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 1 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES: 3

TOTAL NUMBER OF SUBSTRATE TYPES: 12 (B)

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters): 8

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters) 0.9

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
Moderate 5-10m
Narrow <5m
None

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Mature Forest, Wetland
Immature Forest, Shrub, or Old Field
Residential, Park, New Field
Fenced Pasture

L

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☒ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s003**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

71

SITE NAME/LOCATION Ross County
 SITE NUMBER s004 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 1528 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	70
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

(B) 12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES: 9

TOTAL NUMBER OF SUBSTRATE TYPES: 12

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters): 15

Pool Depth
Max = 30

25

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 checked="" 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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters) 3.0

Bankfull
Width
Max = 30

25

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream

RIPARIAN WIDTH
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

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

s004

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

51

SITE NAME/LOCATION Ross County
 SITE NUMBER S005 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 186 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	70
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

9

(B)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters):

8

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.2

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

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

s005

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

56.50

Stream & Location: s006

RM: Cardno Date: 6/2/2020

Ben Hess

Scorers Full Name & Affiliation:

Cardno

Office verified

River Code: - - - - -

STORET #: - - - - -

Lat/ Long: - - - - - / - - - - -

location

1] SUBSTRATE

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

Check ONE (Or 2 & average)

BEST TYPES		POOL	RIFFLE	OTHER TYPES		POOL	RIFFLE	ORIGIN		QUALITY		Substrate 9.0 Maximum 20
<input type="checkbox"/>	BLDR / SLABS [10]			<input type="checkbox"/>	HARDPAN [4]			<input type="checkbox"/>	LIMESTONE [1]	<input type="checkbox"/>	HEAVY [-2]	
<input type="checkbox"/>	BOULDER [9]			<input type="checkbox"/>	DETRITUS [3]			<input checked="" type="checkbox"/>	TILLS [1]	<input type="checkbox"/>	MODERATE [-1]	
<input type="checkbox"/>	COBBLE [8]		10	<input type="checkbox"/>	MUCK [2]			<input type="checkbox"/>	WETLANDS [0]	<input checked="" type="checkbox"/>	NORMAL [0]	
<input type="checkbox"/>	GRAVEL [7]		20	<input checked="" type="checkbox"/>	SILT [2]		40	<input type="checkbox"/>	HARDPAN [0]	<input type="checkbox"/>	FREE [1]	
<input checked="" type="checkbox"/>	SAND [6]		30	<input type="checkbox"/>	ARTIFICIAL [0]			<input type="checkbox"/>	SANDSTONE [0]	<input type="checkbox"/>	EXTENSIVE [-2]	
<input type="checkbox"/>	BEDROCK [5]							<input type="checkbox"/>	RIP/RAP [0]	<input type="checkbox"/>	MODERATE [-1]	
								<input type="checkbox"/>	LACUSTURINE [0]	<input checked="" type="checkbox"/>	NORMAL [0]	
								<input type="checkbox"/>	SHALE [-1]	<input type="checkbox"/>	NONE [1]	
								<input type="checkbox"/>	COAL FINES [-2]			

Comments: NUMBER OF BEST TYPES: ☒ 4 or more [2] ☒ 3 or less [0] (Score natural substrates; ignore sludge from point-sources)

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

AMOUNT

Check ONE (Or 2 & average)

<input type="checkbox"/> UNDERCUT BANKS [1]	developed rootwad in deep / fast water, or deep, well-defined, functional pools.	<input type="checkbox"/> POOLS > 70cm [2]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]
<input 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: Cover 4.0 Maximum 20

3] CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

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

Comments: Channel 16.0 Maximum 20

4] BANK EROSION AND RIPARIAN ZONE

Check ONE in each category for EACH BANK (Or 2 per bank & average)

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

Comments: Indicate predominant land use(s) past 100m riparian. Riparian 6.5 Maximum 10

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check ONE (ONLY Y!)

<input type="checkbox"/>	> 1m [6]
<input type="checkbox"/>	0.7-<1m [4]
<input checked="" type="checkbox"/>	0.4-<0.7m [2]
<input type="checkbox"/>	0.2-<0.4m [1]
<input type="checkbox"/>	< 0.2m [0]

CHANNEL WIDTH

Check ONE (Or 2 & average)

<input type="checkbox"/>	POOL WIDTH > RIFFLE WIDTH [2]
<input checked="" type="checkbox"/>	POOL WIDTH = RIFFLE WIDTH [1]
<input type="checkbox"/>	POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

<input type="checkbox"/>	TORRENTIAL [-1]	<input checked="" type="checkbox"/>	SLOW [1]
<input type="checkbox"/>	VERY FAST [1]	<input type="checkbox"/>	INTERSTITIAL [-1]
<input checked="" type="checkbox"/>	FAST [1]	<input type="checkbox"/>	INTERMITTENT [-2]
<input checked="" type="checkbox"/>	MODERATE [1]	<input type="checkbox"/>	EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential

Primary Contact

Secondary Contact

(check one and comment on back)

Pool / Current 6.0 Maximum 12

Comments:

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

Check ONE (Or 2 & average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS	Riffle / Run Maximum 8
<input checked="" type="checkbox"/> BEST AREAS > 10cm [2]	<input 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 checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input checked="" type="checkbox"/> LOW [1]	
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input type="checkbox"/> MODERATE [0]	
			<input type="checkbox"/> EXTENSIVE [-1]	

Comments: Riffle / Run 5.0 Maximum 8

6] GRADIENT DRAINAGE AREA

(26.0 ft/mi)

(1.299 mi²)

<input type="checkbox"/>	VERY LOW - LOW [2-4]
<input type="checkbox"/>	MODERATE [6-10]
<input checked="" type="checkbox"/>	HIGH - VERY HIGH [10-6]

%POOL:

30%

%GLIDE:

0%

%RUN:

40%

%RIFFLE:

30%

Gradient

Maximum 10

10.0

AJ SAMPLED REACH

Check ALL that apply

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

See Delineation Report for stream figure and photos

METHOD

☐ BOAT

☐ WADE

☐ L. LINE

☐ OTHER

STAGE

☐ HIGH

☐ UP

☐ NORMAL

☐ LOW

☐ DRY

DISTANCE

☐ 0.5 Km

☐ 0.2 Km

☐ 0.15 Km

☐ 0.12 Km

☐ OTHER

meters

CLARITY

1st

--sample pass--

2nd

☐

<20 cm

☐

☐

20 - <40 cm

☐

☐

40 - 70 cm

☐

☐

> 70 cm/ CTB

☐

☐

SECCHI DEPTH

☐

1st cm

--sample pass--

2nd cm

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 / SCURED

☐ IMPOUNDED / DESICCATED

☐ FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

EJ ISSUES

☐ WWTP / CSO / NPDES / INDUSTRY

☐ HARDENED / URBAN / DIRT&GRIME

☐ CONTAMINATED / LANDFILL

☐ BMPs-CONSTRUCTION-SEDIMENT

☐ LOGGING / IRRIGATION / COOLING

☐ BANK / EROSION / SURFACE

☐ FALSE BANK / MANURE / LAGOON

☐ WASH H20 / TILE / H20 TABLE

☐ ACID / MINE / QUARRY / FLOW

☐ NATURAL / WETLAND / STAGNANT

☐ PARK / GOLF / LAWN / HOME

☐ ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

☐ \bar{x} width

☐ \bar{x} depth max. depth

☐ \bar{x} bankfull width

☐ bankfull \bar{x} depth

☐ W/D ratio

☐ bankfull max. depth

☐ floodprone x^2 width

☐ entrench. ratio

Legacy Tree:

Stream Drawing:



Primary Headwater Habitat Evaluation Form

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

66

SITE NAME/LOCATION Ross County
SITE NUMBER s006 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 4011 LAT LONG RIVER CODE RIVER MILE
DATE 6/2/2020 SCORER B Hess COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

10

(A)

9

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

30

Pool Depth
Max = 30

20

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 checked="" 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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

3.0

Bankfull
Width
Max = 30

25

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream

RIPARIAN WIDTH
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
Moderate 5-10m
Narrow <5m
None

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Mature Forest, Wetland
Immature Forest, Shrub, or Old Field
Residential, Park, New Field
Fenced Pasture

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
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

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

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

s006

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

61

SITE NAME/LOCATION Ross County
 SITE NUMBER s007 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 705 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	50
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	1	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	19	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

1

(A)

9

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

30

Pool Depth
Max = 30

20

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.8

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

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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)

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☒ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s007**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



PHWH Form Page - 1

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

s008

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

45

SITE NAME/LOCATION Ross County
SITE NUMBER s009 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 799 LAT LONG RIVER CODE RIVER MILE
DATE 6/3/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	50
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	1	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	1	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	30
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	8	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

2

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

15

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.6

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

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 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☒ Severe (10ft/100ft)

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

s009

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s010**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

57

SITE NAME/LOCATION Ross County
SITE NUMBER s011 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 492 LAT LONG RIVER CODE RIVER MILE
DATE 6/3/2020 SCORER B Hess COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	10
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	50	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

10

(A)

15

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

27

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

15

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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 (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments		Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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)

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☒ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s011**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

44

SITE NAME/LOCATION Ross County
 SITE NUMBER s012 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 66 LAT LONG RIVER CODE RIVER MILE
 DATE 6/3/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	15
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input checked="" type="checkbox"/> ARTIFICIAL [3 PTS]	50

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 5

(A)

12

(B)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters):

5

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (10ft/100ft)
---	---	---	---	---

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

s012

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

44

SITE NAME/LOCATION Ross County
 SITE NUMBER s013 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 127 LAT LONG RIVER CODE RIVER MILE
 DATE 6/3/2020 SCORER B Hess COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	15
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input checked="" type="checkbox"/> ARTIFICIAL [3 PTS]	50

Total of Percentages of Bldr
 Slabs, Boulder, Cobble, & Bedrock 5

(A)

12

(B)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters):

5

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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

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

Comments

L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input 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 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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (10ft/100ft)
---	---	---	---	---

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s013**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

31

SITE NAME/LOCATION Ross County
SITE NUMBER s014 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 71 LAT LONG RIVER CODE RIVER MILE
DATE 6/3/2020 SCORER B Hess COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	10	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	5
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	35	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

15

(A)

9

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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):

3

Pool Depth
Max = 30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.6

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

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

s014

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

69

SITE NAME/LOCATION Ross County
SITE NUMBER s015 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 638 LAT LONG RIVER CODE RIVER MILE
DATE 6/3/2020 SCORER B Hess COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	5
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	25	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	15	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

15

(A)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

18

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.5

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 (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments		Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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)

SINUOSITY (Number of bends per 61m (200ft) 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

<input type="checkbox"/> Flat (0.5ft/100ft)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
---	---	--	---	--

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s015**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

54

SITE NAME/LOCATION Ross County
SITE NUMBER s016 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 85 LAT LONG RIVER CODE RIVER MILE
DATE 6/3/2020 SCORER B Hess COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	30
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	20	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	30	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	15	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

25

(A)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

20

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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

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 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☒ Severe (10ft/100ft)

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

s016

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

64

SITE NAME/LOCATION Ross County
SITE NUMBER s017 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 462 LAT LONG RIVER CODE RIVER MILE
DATE 6/3/2020 SCORER B Hess COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	30
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	20	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	30	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	15	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

25

(A)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

20

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.2

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

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

Comments

L	R	FLOODPLAIN QUALITY (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 type="checkbox"/> Stream Flowing	<input checked="" 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

SINUOSITY (Number of bends per 61m (200ft) 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

<input type="checkbox"/> Flat (0.5ft/100ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (10ft/100ft)
---	---	---	---	---

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s017**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s018**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

75

SITE NAME/LOCATION Ross County
SITE NUMBER s019 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 2036 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).
Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	10
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	10	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input checked="" type="checkbox"/> COBBLE (65-256mm) [12 pts]	21	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	5
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	19	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	35	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

31

(A)

18

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

30

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

30

Pool Depth
Max = 30

20

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 checked="" 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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

3.0

Bankfull
Width
Max = 30

25

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream

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

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

<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)

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☒ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

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

s019

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

63

SITE NAME/LOCATION Ross County
SITE NUMBER s020 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 230 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	15
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	10	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input checked="" type="checkbox"/> COBBLE (65-256mm) [12 pts]	25	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	5
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	30	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	15	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

35

(A)

21

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

33

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

10

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.6

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
Moderate 5-10m
Narrow <5m
None

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Mature Forest, Wetland
Immature Forest, Shrub, or Old Field
Residential, Park, New Field
Fenced Pasture

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☒ Severe (10ft/100ft)

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

s020

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION Ross County
 SITE NUMBER s021 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 51 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	22
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	19	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	25
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	19	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

24

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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):

3

Pool Depth
Max = 30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.6

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

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)

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☒ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s021**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

55

SITE NAME/LOCATION Ross County
SITE NUMBER s022 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 189 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).
Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	20
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	15	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	25
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	15	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	15	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

25

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

15

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.2

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

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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	

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☒ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s022**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

45

SITE NAME/LOCATION Ross County
SITE NUMBER s023 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 539 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	21
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	24
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

15

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

10

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☒ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s023**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION Ross County
SITE NUMBER s024 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 70 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	21
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	24
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

15

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters):

5

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
Moderate 5-10m
Narrow <5m
None

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Mature Forest, Wetland
Immature Forest, Shrub, or Old Field
Residential, Park, New Field
Fenced Pasture

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s024**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

66

SITE NAME/LOCATION Ross County
SITE NUMBER s025 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 1655 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).
Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	20
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	10	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	15	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	10
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	15	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

25

(A)

9

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

30

Pool Depth
Max = 30

20

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 checked="" 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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

3.0

Bankfull
Width
Max = 30

25

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream

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

Comments

L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input 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"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
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

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☒ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s025**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

45

SITE NAME/LOCATION Ross County
SITE NUMBER s026 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 532 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	24
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	21
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

15

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

15

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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

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 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☒ Moderate to Severe ☐ Severe (10ft/100ft)

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

s026

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

31

SITE NAME/LOCATION Ross County
 SITE NUMBER s027 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 119 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	45
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	15
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

10

(A)

9

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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):

3

Pool Depth
Max = 30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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

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)

SINUOSITY (Number of bends per 61m (200ft) 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

<input type="checkbox"/> Flat (0.5ft/100ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2ft/100ft)	<input checked="" type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

s027

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

51

SITE NAME/LOCATION Ross County
SITE NUMBER s028 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 220 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	45
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	15
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

10

(A)

9

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

10

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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

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 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☐ Moderate (2ft/100ft) ☒ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s028**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION Ross County
 SITE NUMBER s029 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 666 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	65
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	15
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

5

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters):

5

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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

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)

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☒ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

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

s029

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION Ross County
 SITE NUMBER s030 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 436 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	65
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	15
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

5

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
 Metric
 Points

Substrate
 Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters):

5

Pool Depth
 Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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

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 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☒ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s030**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION Ross County
SITE NUMBER s031 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 2054 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER B Hess COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	40
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

10

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters):

8

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.6

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☐ Flat to Moderate ☒ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

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

s031

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION Ross County
SITE NUMBER s101 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 177 LAT LONG RIVER CODE RIVER MILE
DATE 6/3/2020 SCORER C Renskers COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	10
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	5
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	5
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	80
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	0	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

0

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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):

3

Pool Depth
Max = 30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.8

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 (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s101**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

51

SITE NAME/LOCATION Ross County
SITE NUMBER s102 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 44 LAT LONG RIVER CODE RIVER MILE
DATE 6/3/2020 SCORER C Renskers COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	70
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	5
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

10

(A)

9

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

10

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.5

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s102**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

55

SITE NAME/LOCATION Ross County
SITE NUMBER s103 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 270 LAT LONG RIVER CODE RIVER MILE
DATE 6/3/2020 SCORER C Renskers COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	10
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	5
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	85
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	0	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

0

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

10

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.2

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s103**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

45

SITE NAME/LOCATION Ross County
SITE NUMBER s104 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 1283 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER C Renskers COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	10
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	25
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	15	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

0

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

15

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.8

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
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

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☒ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s104**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

83

SITE NAME/LOCATION Ross County
SITE NUMBER s105 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 1454 LAT LONG RIVER CODE RIVER MILE
DATE 6/3/2020 SCORER C Renskers COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	2	<input type="checkbox"/> SILT [3 PTS]	10
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input checked="" type="checkbox"/> COBBLE (65-256mm) [12 pts]	48	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	10
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

50

(A)

21

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

33

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" 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

MAXIMUM POOL DEPTH (centimeters):

25

Pool Depth
Max = 30

30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.5

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
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

SINUOSITY (Number of bends per 61m (200ft) 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 (0.5ft/100ft) ☒ Flat to Moderate ☐ Moderate (2ft/100ft) ☐ Moderate to Severe ☐ Severe (10ft/100ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s105**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION Ross County
 SITE NUMBER s106 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 360 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER C Renskers COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	15
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	5
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	80
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	0	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

0

(A)

3

(B)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters):

5

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.3

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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)

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

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

s106

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

55

SITE NAME/LOCATION Ross County
 SITE NUMBER s107 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 460 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER C Renskers COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	20
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	60
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

0

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

10

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.1

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

FLOODPLAIN QUALITY
(Most Predominant per Bank)

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
 Urban or Industrial
 Open Pasture, Row Crop
 Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s107**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION Ross County
 SITE NUMBER s108 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 97 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER C Renskers COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	5
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	15
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	80
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	0	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

0

(A)

3

(B)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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):

3

Pool Depth
Max = 30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.6

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

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
---	---	--	---	--

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s108**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION Ross County
SITE NUMBER s109 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
LENGTH OF STREAM REACH (ft) 42 LAT LONG RIVER CODE RIVER MILE
DATE 6/4/2020 SCORER C Renskers COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).
Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	5
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	20
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	5	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	60
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

5

(A)

3

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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):

3

Pool Depth
Max = 30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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 (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments		Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s109**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION Ross County
 SITE NUMBER s110 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 130 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER C Renskers COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).

Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	15
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	25
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	40
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

0

(A)

3

(B)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') 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):

3

Pool Depth
Max = 30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.3

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
 Moderate 5-10m
 Narrow <5m
 None

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Mature Forest, Wetland
 Immature Forest, Shrub, or Old Field
 Residential, Park, New Field
 Fenced Pasture

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
 Urban or Industrial
 Open Pasture, Row Crop
 Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
---	---	--	---	--

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s110**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

34

SITE NAME/LOCATION Ross County
 SITE NUMBER s111 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 21 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER C Renskers COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	30
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	10
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	20	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	10
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	25	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

20

(A)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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):

3

Pool Depth
Max = 30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.6

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s111**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

44

SITE NAME/LOCATION Ross County
 SITE NUMBER s112 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 61 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER C Renskers COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	5
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	30	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	15	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 10

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES: 12

TOTAL NUMBER OF SUBSTRATE TYPES: 12

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters): 5

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters) 0.9

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

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 <u> </u>	

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s112**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

34

SITE NAME/LOCATION Ross County
 SITE NUMBER s113 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 58 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER C Renskers COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	25
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	10
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	10
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	25	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	15	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

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

15

(A)

12

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

(B)

12

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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):

3

Pool Depth
Max = 30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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)

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s113**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

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

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 Hedwater Habitat Assessment Manual)

Fish observed? (Y/N) N Voucher(Y/N) N Salamander 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

FLOW →



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

66.50

Stream & Location: s201

RM: - - -

Date: - - -

6/2/2020

Kaitlin Hillier

Scorers Full Name & Affiliation:

Cardno

Office verified

River Code: - - - - -

STORET #: - - - - -

Lat/ Long: 39.3184 / -83.3485

location ☐

1] SUBSTRATE

Check **ONLY Two** substrate **TYPE BOXES**; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		POOL	RIFFLE	OTHER TYPES		POOL	RIFFLE	ORIGIN		QUALITY		Substrate 14.0 Maximum 20
<input type="checkbox"/>	BLDR / SLABS [10]			<input type="checkbox"/>	HARDPAN [4]			<input type="checkbox"/>	LIMESTONE [1]	<input type="checkbox"/>	HEAVY [-2]	
<input type="checkbox"/>	BOULDER [9]			<input type="checkbox"/>	DETRITUS [3]			<input checked="" type="checkbox"/>	TILLS [1]	<input type="checkbox"/>	MODERATE [-1]	
<input type="checkbox"/>	COBBLE [8]		5	<input type="checkbox"/>	MUCK [2]			<input type="checkbox"/>	WETLANDS [0]	<input checked="" type="checkbox"/>	NORMAL [0]	
<input checked="" type="checkbox"/>	GRAVEL [7]		60	<input type="checkbox"/>	SILT [2]		15	<input type="checkbox"/>	HARDPAN [0]	<input type="checkbox"/>	FREE [1]	
<input checked="" type="checkbox"/>	SAND [6]		20	<input type="checkbox"/>	ARTIFICIAL [0]			<input type="checkbox"/>	SANDSTONE [0]	<input type="checkbox"/>	EXTENSIVE [-2]	
<input type="checkbox"/>	BEDROCK [5]							<input type="checkbox"/>	RIP/RAP [0]	<input type="checkbox"/>	MODERATE [-1]	
								<input type="checkbox"/>	LACUSTURINE [0]	<input checked="" type="checkbox"/>	NORMAL [0]	
								<input type="checkbox"/>	SHALE [-1]	<input type="checkbox"/>	NONE [1]	
								<input type="checkbox"/>	COAL FINES [-2]			

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

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

AMOUNT

Check ONE (Or 2 & average)

1 UNDERCUT BANKS [1]		0 POOLS > 70cm [2]		0 OXBOWS, BACKWATERS [1]	
1	OVERHANGING VEGETATION [1]	0	ROOTWADS [1]	0	AQUATIC MACROPHYTES [1]
0	SHALLOWS (IN SLOW WATER) [1]	0	BOULDERS [1]	1	LOGS OR WOODY DEBRIS [1]
0	ROOTMATS [1]	1			

Comments

Cover 11.0
Maximum 20

3] CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	Channel Maximum 20 14.0
<input type="checkbox"/> HIGH [4] <input checked="" type="checkbox"/> MODERATE [3] <input type="checkbox"/> LOW [2] <input type="checkbox"/> NONE [1]	<input type="checkbox"/> EXCELLENT [7] <input checked="" type="checkbox"/> GOOD [5] <input type="checkbox"/> FAIR [3] <input type="checkbox"/> POOR [1]	<input type="checkbox"/> NONE [6] <input checked="" type="checkbox"/> RECOVERED [4] <input type="checkbox"/> RECOVERING [3] <input type="checkbox"/> RECENT OR NO RECOVERY [1]	<input type="checkbox"/> HIGH [3] <input checked="" type="checkbox"/> MODERATE [2] <input type="checkbox"/> LOW [1]	

Comments

4] BANK EROSION AND RIPARIAN ZONE

Check ONE in each category for EACH BANK (Or 2 per bank & average)

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

Comments

Riparian 7.5
Maximum 10

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check ONE (ONLY Y!)

<input type="checkbox"/> > 1m [6]
<input type="checkbox"/> 0.7-1m [4]
<input checked="" type="checkbox"/> 0.4-0.7m [2]
<input type="checkbox"/> 0.2-0.4m [1]
<input type="checkbox"/> < 0.2m [0]

CHANNEL WIDTH

Check ONE (Or 2 & average)

<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]
<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]
<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

<input type="checkbox"/> TORRENTIAL [-1]	<input checked="" type="checkbox"/> SLOW [1]
<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]
<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]
<input checked="" type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential

Primary Contact

Secondary Contact

(check one and comment on back)

Pool /
Current
Maximum 12
5.0

Comments

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

Check ONE (Or 2 & average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS	Riffle / Run Maximum 8 5.0
<input checked="" type="checkbox"/> BEST AREAS > 10cm [2] <input type="checkbox"/> BEST AREAS 5-10cm [1] <input type="checkbox"/> BEST AREAS < 5cm [metric=0]	<input type="checkbox"/> MAXIMUM > 50cm [2] <input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2] <input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1] <input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input type="checkbox"/> NONE [2] <input checked="" type="checkbox"/> LOW [1] <input type="checkbox"/> MODERATE [0] <input type="checkbox"/> EXTENSIVE [-1]	

Comments

6] GRADIENT DRAINAGE AREA

(20.0 ft/mi)

(1.627 mi²)

<input type="checkbox"/> VERY LOW - LOW [2-4]
<input checked="" type="checkbox"/> MODERATE [6-10]
<input type="checkbox"/> HIGH - VERY HIGH [10-6]

%POOL:

25%

%GLIDE:

0%

%RUN:

40%

%RIFFLE:

35%

Gradient
Maximum 10

10.0

AJ SAMPLED REACH

Check ALL that apply

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

See Delineation Report for stream figure and photos

METHOD

☐

BOAT

☒

WADE

☐

L. LINE

☐

OTHER

STAGE

☐

HIGH

☐

UP

☒

NORMAL

☐

LOW

☐

DRY

DISTANCE

☐

0.5 Km

☐

0.2 Km

☐

0.15 Km

☐

0.12 Km

☐

OTHER

meters

CLARITY

1st

--sample pass--

2nd

☐

<20 cm

☐

20 - <40 cm

☐

40 - 70 cm

☐

> 70 cm/ CTB

☐

SECCHI DEPTH

1st

cm

--sample pass--

2nd

cm

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

Circle some & COMMENT

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 / SCURED

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 H20 / TILE / H20 TABLE

ACID / MINE / QUARRY / FLOW

NATURAL / WETLAND / STAGNANT

PARK / GOLF / LAWN / HOME

ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

☐

 \bar{x} width

☐

 \bar{x} depth max. depth

☐

 \bar{x} bankfull width

☐

bankfull \bar{x} depth

☐

W/D ratio

☐

bankfull max. depth

☐

floodprone x^2 width

☐

entrench. ratio

Legacy Tree:

Stream Drawing:



Primary Headwater Habitat Evaluation Form

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

72

SITE NAME/LOCATION Ross County
 SITE NUMBER s201 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 2351 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	15
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	65	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

12

HHEI
Metric
Points

Substrate
Max = 40

27

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

61

Pool Depth
Max = 30

20

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 checked="" 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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

3.7

Bankfull
Width
Max = 30

25

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream

RIPARIAN WIDTH
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
 Moderate 5-10m
 Narrow <5m
 None

Comments

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

FLOODPLAIN QUALITY
(Most Predominant per Bank)

Mature Forest, Wetland
 Immature Forest, Shrub, or Old Field
 Residential, Park, New Field
 Fenced Pasture

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
 Urban or Industrial
 Open Pasture, Row Crop
 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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s201**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

54

SITE NAME/LOCATION Ross County
 SITE NUMBER s202 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 514 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	40	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

12

TOTAL NUMBER OF SUBSTRATE TYPES:

12

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters):

8

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.2

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

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

FLOODPLAIN QUALITY

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s202**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

57

SITE NAME/LOCATION Ross County
 SITE NUMBER s203 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 339 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	20
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	50	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

12

HHEI
Metric
Points

Substrate
Max = 40

27

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

13

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L R

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

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)

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s203**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

28

SITE NAME/LOCATION Ross County
 SITE NUMBER s204 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 195 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	100
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	0	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

12

HHEI
Metric
Points

Substrate
Max = 40

18

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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):

3

Pool Depth
Max = 30

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.3

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
Moderate 5-10m
Narrow <5m
None

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Mature Forest, Wetland
Immature Forest, Shrub, or Old Field
Residential, Park, New Field
Fenced Pasture

L

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s204**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

59

SITE NAME/LOCATION Ross County
 SITE NUMBER s205 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 2188 LAT LONG RIVER CODE RIVER MILE
 DATE 6/3/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	25
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	15
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	55	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

12

TOTAL NUMBER OF SUBSTRATE TYPES:

12 (B)

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

30

Pool Depth
Max = 30

20

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.4

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

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Comments

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

FLOODPLAIN QUALITY

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s205**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

78

SITE NAME/LOCATION Ross County
 SITE NUMBER s206 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 825 LAT LONG RIVER CODE RIVER MILE
 DATE 6/3/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	5
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input checked="" type="checkbox"/> COBBLE (65-256mm) [12 pts]	20	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	65	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 20 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES: **21**

TOTAL NUMBER OF SUBSTRATE TYPES: **12**

HHEI
Metric
Points

Substrate
Max = 40

33

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters): **15**

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters) **2.4**

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

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
Moderate 5-10m
Narrow <5m
None

Comments

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

FLOODPLAIN QUALITY

(Most Predominant per Bank)
Mature Forest, Wetland
Immature Forest, Shrub, or Old Field
Residential, Park, New Field
Fenced Pasture

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

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

s206

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

57

SITE NAME/LOCATION Ross County
 SITE NUMBER s207 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 755 LAT LONG RIVER CODE RIVER MILE
 DATE 6/3/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	20
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	40	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	35	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 5 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

12

HHEI
Metric
Points

Substrate
Max = 40

27

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

10

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
Moderate 5-10m
Narrow <5m
None

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Mature Forest, Wetland
Immature Forest, Shrub, or Old Field
Residential, Park, New Field
Fenced Pasture

L R

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s207**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

46

SITE NAME/LOCATION Ross County
 SITE NUMBER s208 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 1816 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	10
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	5	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	35
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	35	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	15	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 5 (A)

9

12 (B)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

21

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

41

Pool Depth
Max = 30

20

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
Moderate 5-10m
Narrow <5m
None

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Mature Forest, Wetland
Immature Forest, Shrub, or Old Field
Residential, Park, New Field
Fenced Pasture

L

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s208**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

48

SITE NAME/LOCATION Ross County
 SITE NUMBER s209 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 101 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER K Hillier COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.				HHEI Metric Points
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	100	Substrate Max = 40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0	
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0	
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0	
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	0	<input type="checkbox"/> MUCK [0 PT]	0	
<input type="checkbox"/> SAND (<2mm) [6 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0	
Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock <u>0</u> (A)		(B) <u>12</u>		
SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES: <u>6</u>		TOTAL NUMBER OF SUBSTRATE TYPES: <u>12</u>		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				Pool Depth Max = 30
<input type="checkbox"/> >30 centimeters [20 pts]	<input type="checkbox"/> >5 cm - 10 cm [15 pts]	<u>10</u>		<u>25</u>
<input type="checkbox"/> >22.5 - 30 cm [30 pts]	<input type="checkbox"/> <5 cm [5 pts]			
<input checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]			
COMMENTS <u> </u>		MAXIMUM POOL DEPTH (centimeters):		
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):				Bankfull Width Max = 30
<input type="checkbox"/> >4.0 meters (>13') [30 pts]	<input type="checkbox"/> >1.0 m - 1.5 m (>3'3" - 4'8") [15 pts]	<u>0.6</u>		<u>5</u>
<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 (>4'8" - 9'7") [20 pts]				
COMMENTS <u> </u>		AVERAGE BANKFULL WIDTH (meters)		

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream

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

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

☐ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)

☐ Subsurface flow with isolated pools (Interstitial) ☒ Dry channel, no water (Ephemeral)

Comments

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

☒ None ☐ 1.0 ☐ 2.0 ☐ 3.0

☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

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

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

s209

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

44

SITE NAME/LOCATION Ross County
 SITE NUMBER s210 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 423 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	45
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	20
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	35	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

12

TOTAL NUMBER OF SUBSTRATE TYPES:

12

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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

MAXIMUM POOL DEPTH (centimeters):

8

Pool Depth
Max = 30

15

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.6

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Wide >10m
Moderate 5-10m
Narrow <5m
None

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Mature Forest, Wetland
Immature Forest, Shrub, or Old Field
Residential, Park, New Field
Fenced Pasture

L R

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s210**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

77

SITE NAME/LOCATION Ross County
 SITE NUMBER s211 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 1118 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	5
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	3	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input checked="" type="checkbox"/> BEDROCK [16 PTS]	52	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 65 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

25

TOTAL NUMBER OF SUBSTRATE TYPES:

12

HHEI
Metric
Points

Substrate
Max = 40

37

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

41

Pool Depth
Max = 30

20

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

2.0

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
(Per Bank)

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L R

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s211**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

54

SITE NAME/LOCATION Ross County
 SITE NUMBER s212 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 84 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	67
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	3	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	30	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 3 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

12

TOTAL NUMBER OF SUBSTRATE TYPES:

12 (B)

HHEI Metric Points

Substrate Max = 40

24

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

10

Pool Depth Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.3

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
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

FLOODPLAIN QUALITY

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s212**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

58

SITE NAME/LOCATION Ross County
 SITE NUMBER s213 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 4684 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input type="checkbox"/> SILT [3 PTS]	0
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	3	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	87
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	4	<input type="checkbox"/> MUCK [0 PT]	0
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	6	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 3 (A)

6 (B) **12**

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

18

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

10

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

1.4

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

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

FLOODPLAIN QUALITY

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s213**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

41

SITE NAME/LOCATION Ross County
 SITE NUMBER s214 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 1629 LAT LONG RIVER CODE RIVER MILE
 DATE 6/2/2020 SCORER K Hillier COMMENTS

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

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

1. SUBSTRATE (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.				HHEI Metric Points
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	55	Substrate Max = 40
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0	
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0	
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	0	
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 PT]	0	
<input checked="" type="checkbox"/> SAND (<2mm) [6 pts]	25	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0	
Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock <u>0</u> (A)		(B) <u>12</u>		A + B
SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES: <u>9</u> TOTAL NUMBER OF SUBSTRATE TYPES: <u>12</u>				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61m (200') evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				Pool Depth Max = 30
<input type="checkbox"/> >30 centimeters [20 pts]	<input checked="" type="checkbox"/> >5 cm - 10 cm [15 pts]	<u>5</u>		<u>15</u>
<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 <u> </u>		MAXIMUM POOL DEPTH (centimeters):		
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):				Bankfull Width Max = 30
<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]	<u>0.9</u>		<u>5</u>
<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 (>4'8" - 9'7") [20 pts]				
COMMENTS <u> </u>		AVERAGE BANKFULL WIDTH (meters)		

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream

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

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

☐ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)

☐ Subsurface flow with isolated pools (Interstitial) ☒ Dry channel, no water (Ephemeral)

Comments

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

☒ None ☐ 1.0 ☐ 2.0 ☐ 3.0

☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s214**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

54

SITE NAME/LOCATION Ross County
 SITE NUMBER s215 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 1073 LAT LONG RIVER CODE RIVER MILE
 DATE 6/3/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	30
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [0 PT]	20
<input checked="" type="checkbox"/> GRAVEL (2-64mm) [9 pts]	45	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES: **12**

TOTAL NUMBER OF SUBSTRATE TYPES: **12**

HHEI
Metric
Points

Substrate
Max = 40

24

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters): **10**

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters) **0.9**

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
(Per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Comments

FLOODPLAIN QUALITY
(Most Predominant per Bank)

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" 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

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

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s215**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →



Primary Headwater Habitat Evaluation Form

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

45

SITE NAME/LOCATION Ross County
 SITE NUMBER s216 RIVER BASIN the Scioto River DRAINAGE AREA (mi²) <1
 LENGTH OF STREAM REACH (ft) 3302 LAT LONG RIVER CODE RIVER MILE
 DATE 6/4/2020 SCORER K Hillier COMMENTS

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

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

1. **SUBSTRATE** (Est. % of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is A + B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0	<input checked="" type="checkbox"/> SILT [3 PTS]	35
<input type="checkbox"/> BOULDER (>256mm) [16 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 PTS]	0
<input type="checkbox"/> BEDROCK [16 PTS]	0	<input type="checkbox"/> FINE DETRITUS [3 PTS]	0
<input type="checkbox"/> COBBLE (65-256mm) [12 pts]	0	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 PT]	60
<input type="checkbox"/> GRAVEL (2-64mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 PT]	0
<input type="checkbox"/> SAND (<2mm) [6 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 PTS]	0

Total of Percentages of Bldr Slabs, Boulder, Cobble, & Bedrock 0 (A)

3 (B) **12**

SCORE OF 2 MOST PREDOMINANT SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61m (200') 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 checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

15

Pool Depth
Max = 30

25

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 (>4'8" - 9'7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.9

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
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Comments

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

FLOODPLAIN QUALITY

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

L	R
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Conservation Tillage
Urban or Industrial
Open Pasture, Row Crop
Mining or Construction

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 61m (200ft) of channel) (Check ONLY one box):

<input checked="" 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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5ft/100ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2ft/100ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10ft/100ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**s216**QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township/City: _____

MISCELLANEOUSBase Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photographer Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): _____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 EVALUATIONPerformed? (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 Hedwater Habitat Assessment Manual)Fish observed? (Y/N) N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) NFrogs 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

FLOW →

About Cardno

Cardno is an ASX-200 professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage, and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

Cardno Zero Harm

Cardno
ZERO
HARM
EVERY JOB. EVERY DAY.

At Cardno, our primary concern is to develop and maintain safe and healthy conditions for anyone involved at our project worksites. We require full compliance with our Health and Safety Policy Manual and established work procedures and expect the same protocol from our subcontractors. We are committed to achieving our Zero Harm goal by continually improving our safety systems, education, and vigilance at the workplace and in the field.

Safety is a Cardno core value and through strong leadership and active employee participation, we seek to implement and reinforce these leading actions on every job, every day.

Ross County Solar Energy Project

APPENDIX

E

WETLAND AND WATERBODY IMPACT TABLES

Table F-1 - Anticipated Wetland Impacts for the Ross County Solar Project

									ACCESS ROADS				COLLECTION LINES			
									TEMPORARY IMPACTS		PERMANENT IMPACTS		TEMPORARY IMPACTS		PERMANENT IMPACTS	
									Access Road Impact (s.f.)	Access Road Impact (acre)	Access Road Impact (s.f.)	Access Road Impact (acre)	Collection Line Impact (s.f.)	Collection Line Impact (acre)	Collection Line Impact (s.f.)	Collection Line Impact (acre)
Wetland ID	County	Acres within Project Area	Wetland Type	ORAM Score	Wetland Category	Anticipate d Jurisdictional	Drainage Basin	Crossed (Yes/No)								
p001	Ross	0.33	PUB	N/A	N/A	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w001	Ross	0.83	PEM	30	2	Yes	Farmers Run-Point Creek	Yes	86	0.0020	144	0.0033	492	0.0113	0	0
w002	Ross	0.07	PFO	39	2	Yes	Farmers Run-Point Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w003	Ross	0.45	PFO	46	2	Yes	Farmers Run-Point Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w004	Ross	0.09	PFO	39	2	Yes	Farmers Run-Point Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w005	Ross	0.05	PFO	44	2	Yes	Farmers Run-Point Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w006	Ross	0.10	PFO	35	2	No	Farmers Run-Point Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w007	Ross	0.31	PEM	22	1	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w008	Ross	0.05	PEM	41	2	No	Farmers Run-Point Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w009	Ross	0.66	PEM	75	3	Yes	Farmers Run-Point Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w010	Ross	0.02	PFO	56	2	Yes	Farmers Run-Point Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w011	Ross	0.03	PFO	55	2	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w101	Ross	0.13	PFO	28	1	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w102	Ross	0.01	PEM	22	1	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w103	Ross	0.01	PEM	17	1	No	Buckskin Creek	Yes	92	0.0021	126	0.0029	n/a	n/a	n/a	n/a
w104	Ross	0.06	PEM	30	2	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w105	Ross	0.00	PEM	26	1	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w106	Ross	0.01	PEM	26	1	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w107	Ross	0.03	PEM	26	1	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w108	Ross	0.01	PEM	20	1	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w109	Ross	0.06	PFO	43	2	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w110	Ross	0.07	PFO	43	2	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w201	Ross	0.06	PFO	49	2	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w202	Ross	0.01	PFO	48	2	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w203	Ross	0.01	PEM	11	1	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w204	Ross	0.12	PEM	37	2	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w205	Ross	0.07	PEM	36	2	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w206	Ross	0.03	PEM	36	2	No	Buckskin Creek	Yes	83	0.0019	146	0.0033	107	0.0025	0	0
w207	Ross	0.09	PFO	21	1	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w208	Ross	0.11	PEM	18	1	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w209	Ross	0.75	PEM	29	1	Yes	Buckskin Creek	Yes	n/a	n/a	n/a	n/a	331	0.0076	0	0
w210	Ross	0.32	PEM	37	2	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w211	Ross	0.17	PEM	30	2	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w212	Ross	1.42	PEM	26	1	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w213	Ross	0.14	PFO	23	1	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w214	Ross	0.02	PFO	32	2	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w215	Ross	0.15	PEM	22	1	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w216	Ross	0.07	PEM	23	1	Yes	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
w217	Ross	0.13	PEM	7	1	No	Buckskin Creek	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wetland Totals		7.07						4	261	0.01	416	0.01	930	0.02	0	0.00

Table F-2 - Anticipated Waterbody Crossing Methods & Impacts for the Ross County Solar Project

								ACCESS ROADS						COLLECTION LINES					
								CROSSINGS		TEMPORARY IMPACTS		PERMANENT IMPACTS		CROSSINGS		TEMPORARY IMPACTS		PERMANENT IMPACTS	
Feature ID	County	Linear Feet in Project Area	Flow Regime	Type	Drainage Basin	Anticipated Jurisidictional (Yes/No)	Crossed (Yes/No)	Number of Crossings	Crossing Method	Access Road Impact (l.f.)	Access Road Impact (acre)	Access Road Impact\ (l.f.)	Access Road Impact (acre)	Number of Crossings	Crossing Method	Collection Line Impact (l.f.)	Collection Line Impact (acre)	Collection Line Impact (l.f.)	Collection Line Impact (acre)
s004	Ross	1,528	Intermittent	Stream	Farmers Run-Paint Creek	Yes	Yes	0	n/a	n/a	n/a	n/a	n/a	1	Open Cut	15.8	0.002176	0	0
s006	Ross	3,952	Perennial	Stream	Farmers Run-Paint Creek	Yes	Yes	1	Culvert	9.00	0.001653	16.00	0.002938	0	n/a	n/a	n/a	n/a	n/a
s105	Ross	1,447	Perennial	Stream	Buckskin Creek	Yes	Yes	0	n/a	n/a	n/a	n/a	n/a	1	HDD	23.1*	0.001588*	0	0
s107	Ross	460	Intermittent	Stream	Buckskin Creek	Yes	Yes	1	Culvert	4.59	0.000316	8.22	0.000566	0	n/a	n/a	n/a	n/a	n/a
s205	Ross	2,187	Perennial	Stream	Buckskin Creek	Yes	Yes	0	n/a	n/a	n/a	n/a	n/a	1	Open Cut	15.1	0.001555	0	0
s208	Ross	1,816	Perennial	Stream	Buckskin Creek	Yes	Yes	1	Culvert	9.10	0.000626	16.10	0.002218	0	n/a	n/a	n/a	n/a	n/a
s213	Ross	4,684	Intermittent	Stream	Buckskin Creek	Yes	Yes	1	Culvert	9.30	0.000961	16.50	0.001705	1	Open Cut	8.7	0.000899	0	0
s216	Ross	3,302	Ephemeral	Stream	Buckskin Creek	No	Yes	1	Culvert	16.40	0.001129	16.40	0.001152	1	Open Cut	10.5	0.000723	0	0
Project Totals		46,984				28	8	5	n/a	48	0.005	73	0.009	5	0.00	50	0.005	0	0.00

	Temporary Impacts						Permanent Impacts					
	Upland Soil (acres)	Forested Uplands (Tree Clearing) (acres)	Wetland (acres)	Streams (acres)	Streams (linear feet)	Ponds (acres)	Upland Soil (acres)	Forested Uplands (Tree Clearing) (acres)	Wetland (acres)	Streams (acres)	Streams (linear feet)	Ponds (acres)
Access Roads	13.32	0.03	0.01	0.005	48	0	24.03	0.05	0.01	0.01	73	0
Collection Line	11.41	0.03	0.02	0.01	73	0	0	0	0	0	0	0
Equipment Lay Down Area	6.08	0	0	0	0	0	0	0	0	0	0	0
Substation	0.00	0	0	0	0	0	2.81	0	0	0	0	0
O&M Building	0.26	0	0	0	0	0	1.28	0	0	0	0	0
Array Pilings	662.42	0	0	0	0	0	1.38	0.90	0	0	0	0
Gen-Tie Line	0.46	0	0	0	0	0	0.00	0.00	0	0	0	0
Inverter Pads	0	0	0	0		0	2.38	0	0	0	0	0
Pyranometer	0	0	0	0		0	0.00	0	0	0	0	0
Totals	693.95	0.06	0.03	0.015	121	0	31.88	0.95	0.01	0.01	73	0

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in

Case No(s). 20-1380-EL-BGN

Summary: Application Application Exhibit S electronically filed by Mr. Michael J. Settineri on behalf of Ross County Solar, LLC