Clearview Solar I, LLC

Clearview Solar

Exhibit O

Water Delineation Report

Case No. 20-1362-EL-BGN

Wetland and Waterbody Delineation Report

Clearview Solar I, LLC

Clearview Solar Project

December 2020

E318305307

Document Information

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Table of Contents

Appendices

Tables

Figures

Acronyms

CFR	Code of Federal Regulations
CWA	Clean Water Act
EWH	Possible Exceptional Warm Water Habitat
FAC	Facultative Plants
FACU	Facultative Upland Plants
FACW	Facultative Wetland Plants
FWS	U.S. Fish & Wildlife Service
GIS	Geographic Information Systems
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
JD	Jurisdictional Determination
LRW	Limited Resource Water
MWH	Modified Warm Water Habitat
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OBL	Obligate Wetland Plants
ODGS	Ohio Division of Geological Survey
ODNR	Ohio Division of Natural Resources
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High Water Mark
ORAM	Ohio Rapid Assessment Methodology
OWI	Ohio Wetland Inventory
PFO	Palustrine Forested Wetlands
PHWH	Primary Headwater Stream
QHEI	Qualitative Habitat Evaluation Index
SBAS	Satellite-based Augmentation System
UPL	Obligate Upland Plants
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
WOTUS	Waters of the United States
WWH	Warm Water Habitat

1 Introduction

Clearview Solar I, LLC, is developing the Clearview Solar Project (Project) in the northwest corner of Champaign County, Ohio. The Project is planned within an area of approximately 1,190 acres on private land (Project Area). The Project Area is entirely within Adams Township, Champaign County, Ohio.

In support of planning for the Project, Cardno conducted a desktop assessment wetland and waterbody delineation field survey to identify wetlands 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 approximately 1,225 acres, which included the entire Project Area, and consisted of all or part of 18 parcels (Survey Area). Figure 1.1 shows the Aerial Overview of the Clearview Solar Project. Figure 1.2 shows the Project Overview of the Project Area.

This report describes the methodology used by Cardno to complete the wetland and waterbody delineation survey and provides the results of Cardno's desktop assessment and field survey. Specifically, Section 2 of the report identifies the methodology used for the identification of wetlands and surface waters within the Survey Area. Section 3 of the report outlines the findings of the desktop assessment of the Survey Area. Section 4 of the report identifies the results of the field surveys. Section 5 presents the conclusions of the delineation and field survey. Section 6 provides a list of references cited in this report.

The report is accompanied by several appendices. Appendix A contains representative photographic documentation of the delineated wetland and waterbody features. Appendix B contains maps depicting the delineated wetlands and waterbodies. Appendix C contains the completed wetland data and assessment forms from the field efforts. Appendix D contains the completed stream assessment forms.

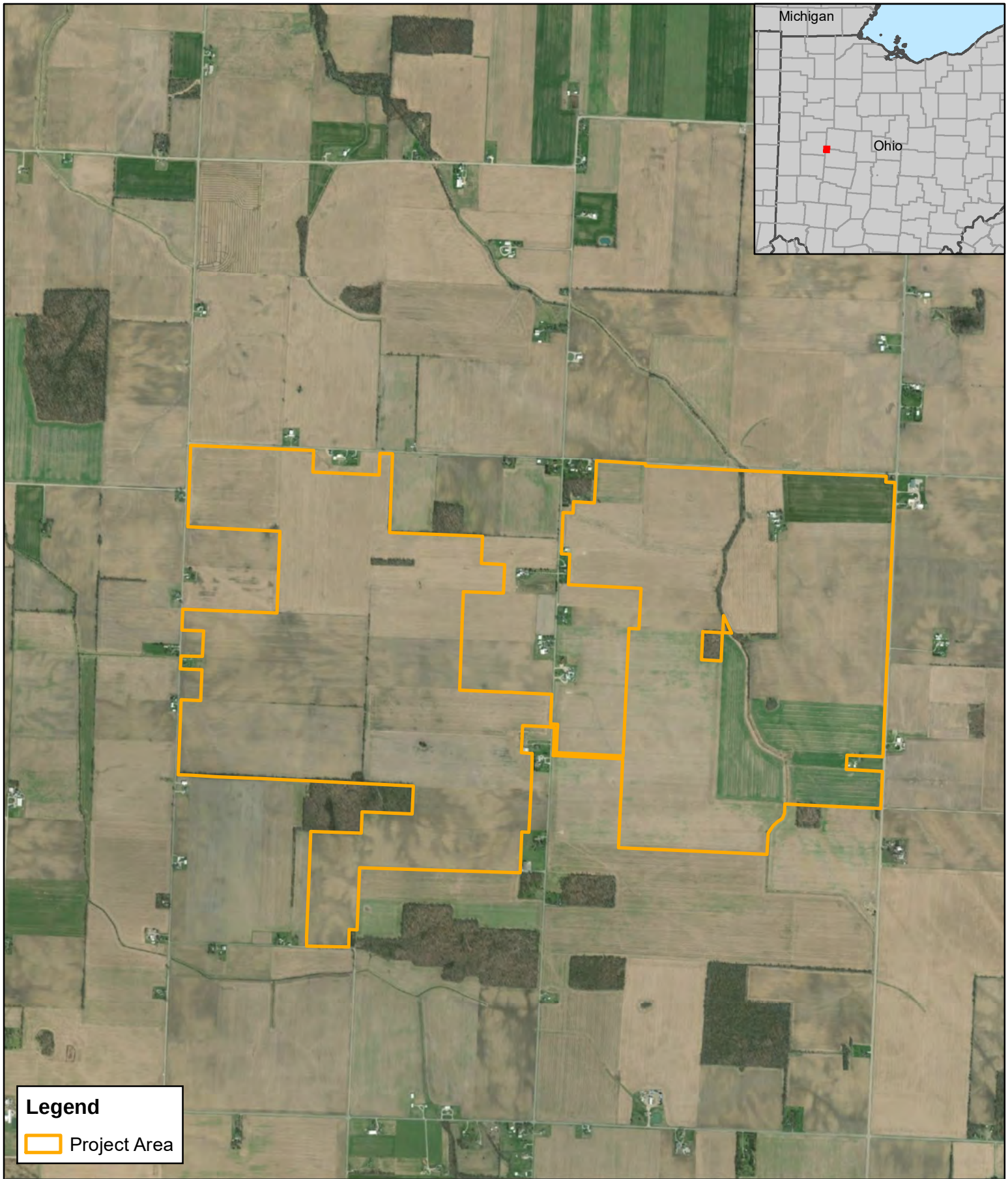

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Figure 1.1 - Aerial Overview

Clearview Solar Project
Champaign County, Ohio

0 1,000 2,000 3,000 4,000 5,000 Feet
0 300 600 900 1,200 1,500 Meters

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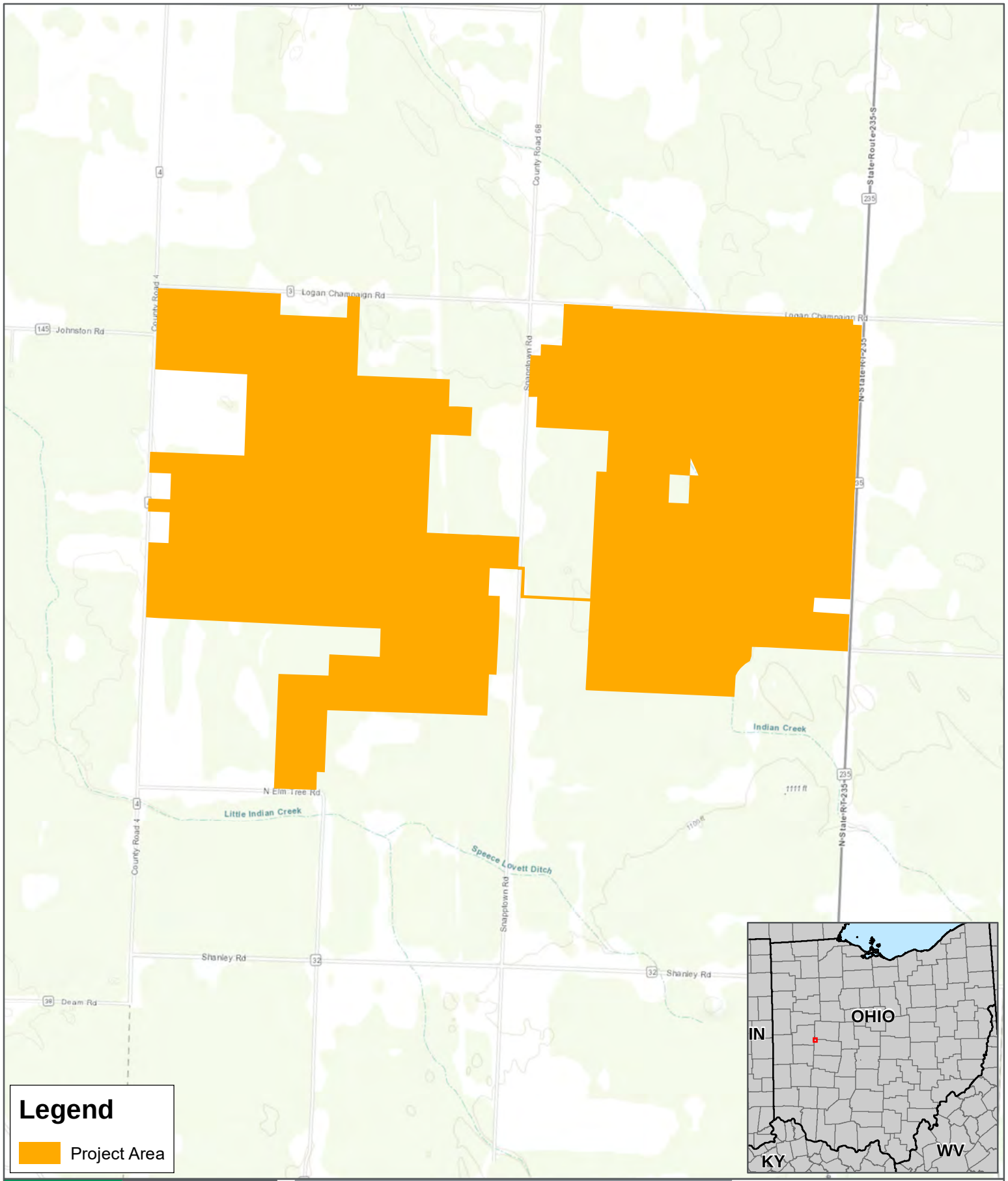
Date Created: 8/26/2020 Date Revised: 8/26/2020 File Path: S:\GIS\Open_Road_Renewables\Clearview_Solar_Farm\MXD\Ecological Assessment\Figure 1.1 - Aerial Overview.mxd
GIS Analyst: Peter.Marsey



Legend

Project Area

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Figure 1.2 - Project Overview

Clearview Solar Project

Champaign County, Ohio

0 1,000 2,000 3,000 4,000 5,000 Feet

0 500 1,000 1,500 Meters

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Date Created: 8/26/2020 Date Revised: 8/26/2020 File Path: S:\GIS\Open_Road_Renewables\Clearview_Solar_Farm\MXD\Ecological Assessment\Figure 1.2 - Project Overview.mxd
GIS Analyst: Peter.Marsey

2 Survey Methodology

This section of the report identifies the methodologies used during the desktop review and field delineations of wetland and open waterbodies within the Survey Area. Cardno conducted surveys within 18 parcels that totaled approximately 1,225 acres in October 2019 and April 2020.

2.1 Desktop Review

Prior to field surveys, Cardno conducted a desktop review of the Survey Area using publicly available Geographic Information Systems (GIS) data to identify and classify potential environmental resources and create maps for use during the field surveys. Reference material sources included, but were not limited to: the National Land Cover Database (NLCD); the U.S. Department of Agriculture (USDA) National Resource Conservation Service (NRCS) Soil Survey for Champaign; historic aerial photographs; U.S. Fish and Wildlife Service (FWS) National Wetland Inventory (NWI) maps; U.S. Geologic Service (USGS) topographic maps; the USGS National Hydrography Dataset (NHD); and the Ohio Wetland Inventory (OWI).

2.2 Field Delineation Methodologies

Field surveys were conducted in the Survey Area to determine the extent of wetlands and waterbodies in accordance with applicable Federal and State regulations and guidelines. A Trimble ® Global Positioning System (GPS) with sub-meter accuracy was used to collect data points for mapping. As wetland and waterbody point features were collected, they were assigned a FEATURE_ID with the format of F-XX, where:

F = Feature Type

- S – Stream
- W – Wetland

XX = Two-digit number as the unique identifier

The information collected in the field was processed real-time in the field using Satellite-based Augmentation System (SBAS) and verified by the field team for accuracy. If a feature continued outside of the Survey Area, it was noted by the field teams.

2.2.1 Wetland Delineation Methodologies

Wetland delineations were conducted according to the 1987 U.S. Army Corps of Engineers (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. Table 2-1 shows the indicator status categories for plants.

Table 2-1 Plant Indicator Categories

Indicator Category	Indicator Symbol	Definition
Obligate Wetland Plants	OBL	Plants that occur almost always (estimated probability > 99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1 percent) in non-wetlands.
Facultative Wetland Plants	FACW	Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in non-wetlands.
Facultative Plants	FAC	Plants with a similar likelihood (estimated probability 33 percent to 67 percent) of occurring in both wetlands and non-wetlands.
Facultative Upland Plants	FACU	Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in non-wetlands.
Obligate Upland Plants	UPL	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.

After identifying the plant species present within a sampling area of a potential wetland, the dominance and indicator status for each identified unique species was determined. Based on the results, the vegetation community being evaluated was determined to be indicative of either a wetland or non-wetland.

Under certain circumstances, such as after disturbance from storm events or surveys occurring outside of the prime growing season, additional methods are employed to evaluate the vegetative communities of suspected wetlands. This can include calculating a prevalence index which weights the coverage of a particular class of species (using its wetland indicator status) against the total coverage within the sampling area. If a sampling area passes this test (which requires the value to be less than or equal to 3), it can be considered a wetland. Another potential evaluation method is the presence of morphological adaptations, which can include root buttressing, shallow roots, or multi-stemmed trunks. The presence of such adaptations is considered evidence that the plants (even FACU species) have adapted to survive in prolonged inundation or root saturation. Another method is to report "Problematic Hydrophytic Vegetation." This method is used sparingly, and reflects the delineator's opinion that conditions outside of those considered normal may be present, such as vegetation being bent or damaged to such a degree that identification to species level is impracticable. Under this method, the vegetation present would be treated as consistent with a wetland, but the vegetation could not be reliably identified.

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.

Wetland delineation data is reported on routine wetland determination data forms. The perimeter of each wetland was mapped using the GPS systems. Flagging is hung along wetland boundaries, when conditions

allow, including private landowner permission and livestock safety. In addition to identifying the boundaries of wetlands, additional data points are taken with the GPS to locate delineation data collection center points.

After delineation, the identified wetlands are scored using the Ohio Environmental Protection Agency (OEPA)'s Ohio Rapid Assessment Method (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 are 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 59.90 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 one of these transitional ranges are assigned to the higher category unless collected data suggests the wetland should be placed in the lower category.

Category 1 consists of wetlands that are often isolated emergent marshes dominated by cattails with little or no upland buffers located in active agricultural fields. Category 2 consists of wetlands for which rare, threatened or endangered (RTE) species and their habitat are absent, but may have well developed habitat for other more common 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 that contain or provide habitat for threatened or endangered species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide.

2.2.2 Waterbody Delineation Methodologies

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. To be classified as a waterbody, however, each feature must have a defined bed and bank with indications of a channel flow; grassy swales are not waterbodies, and were not identified as such. Table 2-2 identifies the definitions used in assigning waterbody flow.

Table 2-2 Waterbody Flow Categories

Flow Category	Definition
Perennial	Flow is continuous and likely permanent across the seasons (although it may vary). Such flow can be surface based or occur as interstitial flow, which would include the flow driving underground for a portion of the channel.
Intermittent	Flow is present during extended periods of time during some seasons, but gradually returns to a state of isolated pools in the channel or a dry channel. There may be indications of subsurface flow.
Ephemeral	Flow is often not present during the majority of the year, and only occurs after a precipitation event. Channels of ephemeral streams will be dry with no evidence of isolated pools of water.

All flowing waterbodies (streams and ditches, but not ponds) delineated in the Survey Area were assessed using the Headwater Habitat Evaluation Index (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 1 square mile. A summary of the HHEI Scoring is provided in Table 2-3 below.

Table 2-3 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)

PHWH – Primary Headwater Stream

Larger features are evaluated using the Qualitative Habitat Evaluation Index (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 1 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 QHEI criteria, they were still evaluated with the QHEI to better record the conditions present. Table 2-4 provides an overview of the typical score ranges and waterbody classification under QHEI.

Table 2-4 Qualitative Habitat Evaluation Index (QHEI) Scoring

Final QHEI 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)

2.2.3 Jurisdictional Determination

Although Cardno cannot formally determine the jurisdictional status of a waterbody or wetland, Cardno has identified features it considers potentially jurisdictional. Any determination made by the USACE would be binding however, and may vary from Cardno's interpretation. Our interpretation is made based on available documentation from the U.S. Environmental Protection Agency (USEPA), including guidance on the "Current Implementation of Waters of the United States"[1] (WOTUS) which refers to the original 1986/1988 promulgation and subsequent Supreme Court cases which further defined the term. In general, the term Waters of the U.S. means:

1. All waters that 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;

[1] https://www.epa.gov/nwpr/about-waters-united-states

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 paragraphs (1) through (4) above;
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 Code of Federal Regulations (CFR) 423.11(m) which also meet the criteria of this definition) are not WOTUS.

Although no navigable WOTUS were identified in the Survey Area, many of the features could be considered tributaries that eventually flow into a WOTUS. Tributaries themselves may not be navigable, but have a significant impact on water quality 'downstream' in the WOTUS. Status as a tributary was primarily assessed on the presence or absence of a USGS NHD blue line feature and possibility for flow into a larger WOTUS. Additionally, if the waterbody or wetland abuts a potentially jurisdictional feature and had a permanent or potentially permanent hydrologic connection, then both waterbodies would be considered jurisdictional. For clarity, any features identified as jurisdictional will be referred to as jurisdictional for the purposes of this wetland delineation report. However, final determinations of jurisdiction are the responsibility of the USACE. Any determination made by the USACE would be binding and modifications to a feature's jurisdictional status that varies from Cardno's would have to be honored.

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 becomes 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.

3 Desktop Assessment Results

Multiple sources were reviewed prior to field investigations to identify potential resources as part of a preliminary desktop assessment. The findings of the desktop assessment were also verified during the field surveys.

3.1 National Land Cover Database Review

Based on a review of available aerial imagery, the Survey Area appeared to generally occur in cultivated crop areas. Review of the 2011 NLCD (Homer et al. 2015) confirmed this assessment, which showed that cultivated crops accounted for approximately 99% of the total acreage in the Survey Area. The second most prominent land use within the Survey Area was classified as "Developed, Open Space" which accounted for less than 1% of the acreage. The classification "Developed, Open Space" refers to "areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses" (Homer et al. 2015). Deciduous Forest and Woody Wetlands each accounted for less than 1% of the Survey Area. The deciduous forests were observed to occur as isolated woodlots between agricultural areas. A summary is provided in Table 3-1 below.

Table 3-1 Land Use within the Survey Area

Type	Survey Area (acres)	Survey Area (%)
Cultivated Crops	1,174.64	98.8%
Developed, Open Space	11.81	1.0%
Deciduous Forest	2.19	<1%
Woody Wetlands	0.33	<1%
Developed, Low Intensity	0.33	<1%
Grassland/Herbaceous	0.06	<1%
TOTAL	***1,189.36****	***100%***

Compiled from USDI 2011, amended 2014.

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

The field team observed that the land use in the Survey Area closely matched the remote land use data described above.

3.2 Geology

The Survey Area is located within the Southern Ohio Loamy Till Plain Physiographic Regions of Ohio. The Southern Ohio Loamy Till Plain has a surface of loamy till, end and recessional moraines between relatively flat-laying ground moraine, cut by steep-valleyed large streams. Stream valleys filled with outwash and alternate between broad floodplains and narrows; buried valleys common. Elevation 530'-1,150' with moderate relief (200') (ODNR-ODGS, 1998).

3.3 Soils & Hydric Ratings

Cardno reviewed soil types for the Survey Area using the Web Soil Survey, an application of the NRCS (USDA-NRCS 2018). Based upon Table 3-2, below, there were 16 soil types identified. Four hydric soils were identified in the Survey Area that have a hydric rating above 80, and comprise a total of 598.9 acres

or 50.4% of the Survey Area. The poor draining qualities of hydric soils combined with local flat or bowl-shaped topography can make locations predisposed to wetlands.

Table 3-2 Soils within the Survey Area

Type	Map Unit Description	Hydric Rating	Acreage	Percentage of Survey Area
Bs	Brookston silty clay loam, fine texture, 0 to 2 percent slopes	90	0.05	0.0%
BsA	Brookston silty clay loam, fine texture, 0 to 2 percent slopes	90	588.24	49.5%
BsB	Brookston silty clay loam, 2 to 6 percent slopes	100	9.12	0.8%
CnB	Celina silt loam, 2 to 6 percent slopes	10	56.09	4.7%
CnC2	Celina silt loam, 6 to 12 percent slopes, moderately eroded	5	2.40	0.2%
CrA	Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	5	369.65	31.1%
CrB	Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	5	107.33	9.0%
MlB	Miami silt loam, 2 to 6 percent slopes	5	24.29	2.0%
MlC2	Miami silt loam, 6 to 12 percent slopes, moderately eroded	5	11.25	0.9%
MnB	Miamian silt loam, 2 to 6 percent slopes	5	13.48	1.1%
MnC2	Miamian silt loam, 6 to 12 percent slopes, moderately eroded	0	3.41	0.3%
Pa	Patton silty clay loam, 0 to 2 percent slopes	80	1.48	0.1%
Sh	Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	4	2.58	0.2%
TOTAL			**1,189.36***	**100%**

*The total acreage used in these calculations differs slightly from the project area due to tiny differences inherent to the level of precision of the NRCS Soils database.

3.4 Navigable Waters

The Survey Area is located within the Indian Creek watershed (Hydrologic Unit Code (HUC)-12), which is located within the larger Great Miami River drainage basin, which ultimately drains southwest into the Ohio River. No navigable waterways are located within the Survey Area. Indian Creek is identified as warm water habitat (WWH) in the Water Quality Standards.[2]

3.5 Remote Wetland and Waterbody Identification

Prior to site investigations, the Survey Area was screened using the FWS NWI, ODNR, and USGS NHD remote data for potential wetlands and waterbodies in the vicinity of the Project. The NWI and ODNR data shows remotely identified wetlands, which may be based on previous aerial imagery interpretation and soils surveys, while the NHD uses digital stream information to identify potential waterways.

[2] https://epa.ohio.gov/portals/35/documents/Upper_GMR_TSD_2008.pdf

Few wetlands and one waterbody were identified within the Survey Area, with some additional streams and wetlands occurring in the vicinity of the Survey Area. The water body identified appeared to be a headwater tributary to the Great Miami River. Most of the wetlands identified by ODNR occurred in isolated woodlots, with moderate overlap with NWI features.

3.6 Desktop Review Summary

The desktop review indicated potential for wetlands to be located in multiple woodlots in the Survey Area. The area also included one stream that runs between crop areas. It is not uncommon for the NHD set to indicate features that are no longer present due to landowner activities, such as rerouting the channel or moving it underground via tiles. Much of the Survey Area, however, is cultivated crop area that limits the development of wetlands. The remotely identified features and land use information were expected given the region's heavy, historic manipulation of land use to accommodate and maintain farming operations.

4 Field Survey Results

The following is a discussion of the results of field surveys conducted in October 2019 and April 2020 within the Survey Area. Climatic conditions were considered normal during the survey periods. Appendix A contains representative photographic documentation of the delineated wetland and waterbody features. Appendix B contains maps depicting the delineated wetlands and waterbodies. Appendix C contains the completed routine wetland data and assessment forms from the field efforts, and Appendix D contains stream assessment forms.

4.1 General Land Use within the Survey Area

The data obtained during the desktop review was found to be generally consistent with the results of the field surveys. As identified in Table 3-1, the predominant land use in the Survey Area is agricultural (crops).

The agricultural fields were observed to be primarily a mix of remnants from the previous growing season for soybean and corn crops. It is likely that the type of crop changes seasonally, but the general extent of the cultivated area remains roughly the same. Vegetation in the narrow woodlots was characterized by intrusion of weedy species from nearby crop edges including: Canada goldenrod (*Solidago canadensis*), pokeweed (*Phytolacca americana*), Queen Anne's lace (*Daucus carota*), common teasel (*Dipsacus fullonum*), and purple deadnettle (*Lamium purpureum*). Where limited woody vegetation and shrub growth was observed, species included black locust (*Robinia pseudoacacia*), black walnut (*Juglans nigra*), honey locust (*Gleditsia triacanthos*), and sycamores (*Platanus occidentalis*).

The wooded areas of the Survey Area occur as isolated woodlots between cultivated fields and along roads. Aggressive weedy species such as pokeweed, blackberry (*Rubus sp*.), and poison ivy (*Toxicodendron radicans*) often occur along the woodlot edges. The interiors of woodlots were comprised predominately of: walnuts (*Juglans* spp.), oaks (*Quercus* spp.), cherries (*Prunus* spp.), pawpaw (*Asimina triloba*), American beech (*Fagus grandifolia*), Osage orange (*Maclura pomifera*) and a few shagbark hickories (*Carya ovata*).

4.2 Description of the Delineated Wetlands in the Survey Area

A total of two wetlands were delineated during field surveys, for a total of 0.66 acres of wetland within the Survey Area. All of the delineated wetlands accounted for less than 1 acre. Both wetlands were palustrine forested wetlands and are Category 2. Cardno anticipates that one wetland could be jurisdictional, based on potential hydrologic connectivity to a potential WOTUS. Final verification of their boundaries for regulatory purposes can only be completed through a Jurisdictional Determination (JD) review by the USACE or its duly appointed representative. Table 4-1 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 Survey Area.

4.2.1 Category 1 Wetlands

No Category 1 wetlands were delineated within the Survey Area.

4.2.2 Category 2 Wetlands

Both of the wetlands were identified as Category 2 (or Modified 2) wetlands using the ORAM metrics. Wetland 1 (W01) was a small forested wetland adjacent to Indian Creek. This wetland should be considered potentially jurisdictional. Wetland 2 (W02) was an isolated forested wetland that extended beyond the study area.

4.2.3 Category 3 Wetlands

No Category 3 wetlands were delineated within the Survey Area.

Table 4-1 Wetlands Delineated in the Survey Area

Wetland ID	Latitude of Center Point	Longitude of Center Point	Acres within Survey Area	Wetland Type	ORAM Score	Wetland Category	Anticipated WOTUS?	Drainage Basin
W01	40.263863	-84.983421	0.05	PFO	32	2	Yes	Indian Creek
W02	40.258408	-84.005570	0.61	PFO	59	2	No	Indian Creek
Total Acreage			**0.66**					

Notes:
PFO – Palustrine Forested Wetland
ORAM – Ohio Rapid Assessment Method

4.3 Description of the Delineated Waterbodies in the Survey Area

The waterbody delineation results are summarized in Table 4-2. Representative photographs of typical waterbodies can also be found in Appendix A.

One stream was identified and was flowing at the time of the survey, with slightly elevated turbidity, which was attributed to runoff from nearby ditches, clearing activities, and cultivated areas during recent rains. A majority of the stream had a vegetated riparian buffer along the banks and pools of water with some areas of forested buffer, which might support wildlife.

The OEPA's HHEI forms were completed for each stream and ditch in order 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 2.2.2 above.

A total of one waterbody was delineated in the Survey Area. The perennial stream (S01, Indian Creek) a natural, USGS blue line stream, was classified as a modified warm water habitat (MWH)

4.3.1 Class I Waterbodies

No streams were considered Class III waterbodies.

4.3.2 Class II Waterbodies

Indian Creek (S01) was classified as a warm water habitat and contained a natural channel that had some level of modification, but still exhibited ecological function. Indian Creek is considered jurisdictional.

4.3.3 Class III Waterbodies

No streams were considered Class III waterbodies.

Table 4-2 Waterbodies Delineated in the Survey Area

Stream ID	Type	Linear Feet in Survey Area	HHEI Score	QHEI Score	PHWH Class Designation	Flow Regime	Drainage Basin	Stream Name	Anticipated WOTUS?	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR
S01	Stream	8,051	N/A	47.50	N/A	Perennial	Indian Creek	Indian Creek	Yes				X					X	X		X	
Total Linear Feet		**8,051**																				

Notes:
HHEI – Headwater Habitat Evaluation Index
n/a – No QHEI performed
PHWH – Primary Headwater Habitat Stream
QHEI – Qualitative Habitat Evaluation Index

QHEI – Scoring

< 32: Limited Resource Water (LRW)
32 to 60: Modified Warmwater Habitat (MWH)
60 to 75: Warmwater Habitat (WWH)
> 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
N/A – Not Applicable
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

PWS - Public Water Supply
AWS – Agricultural Water Supply
IWS – Industrial Water Supply
BW - Bathing Waters
PCR – Primary Contact Recreations
SCR – Secondary Contact Recreation
UNT – Unnamed Tributary
HHEI – Headwater Habitat Evaluation Index
QHEI – Qualitative Habitat Evaluation Index

5 Conclusions

The Survey Area is dominated by cultivated crops and contained some small areas of isolated woods. The history of land conversion for farming and other landscape manipulation to support farming operations has reduced the land available for wetlands to develop.

In summary, Cardno delineated one waterbody (Stream 1) that is expected to be a waters of the United States due to the perennial status and designation as a USGS blue line stream. An additional two wetlands were delineated with one potential waters of the United States (accounting for 0.61 acre). Final verification of wetland and waterbody boundaries for regulatory purposes can only be completed through a JD review by the USACE or its duly appointed representative.

The findings of this investigation represent a study of the Survey Area for non-tidal wetlands and waterbodies. The findings depend on the season, the conditions at that time of year, site-specific influences (e.g. anthropogenic disturbance), and individual professional judgment. This report represents a professional estimate of the Survey Area wetlands and waterbodies based upon available information and techniques. Final verification of their boundaries for regulatory purposes can only be completed through a JD review by the USACE or its duly appointed representative.

6 References

Homer, C.G., Dewitz, J.A., Yang, L., Jin, S., Danielson, P., Xian, G., Coulston, J., Herold, N.D., Wickham, J.D., and Megown, K., 2015, Completion of the 2011 National Land Cover Database for the conterminous United States-Representing a decade of land cover change information. Photogrammetric Engineering and Remote Sensing, v. 81, no. 5, p. 345-354.

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APPENDIX A

PHOTOGRAPHS OF SURVEY AREA AND VICINITY

DP01, View Looking North

DP01, View Looking South

DP02, View Looking North

DP02, View Looking South

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DP03, View Looking North

DP03, View Looking South

DP04, View Looking North

DP04, View Looking South

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DP05, View Looking North

DP05, View Looking South

DP06, View Looking North

DP06, View Looking South

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DP07, View Looking North

DP07, View Looking South

DP08, View Looking North

DP08, View Looking South

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DP09, View Looking North

DP09, View Looking South

DP10, View Looking North

DP10, View Looking South

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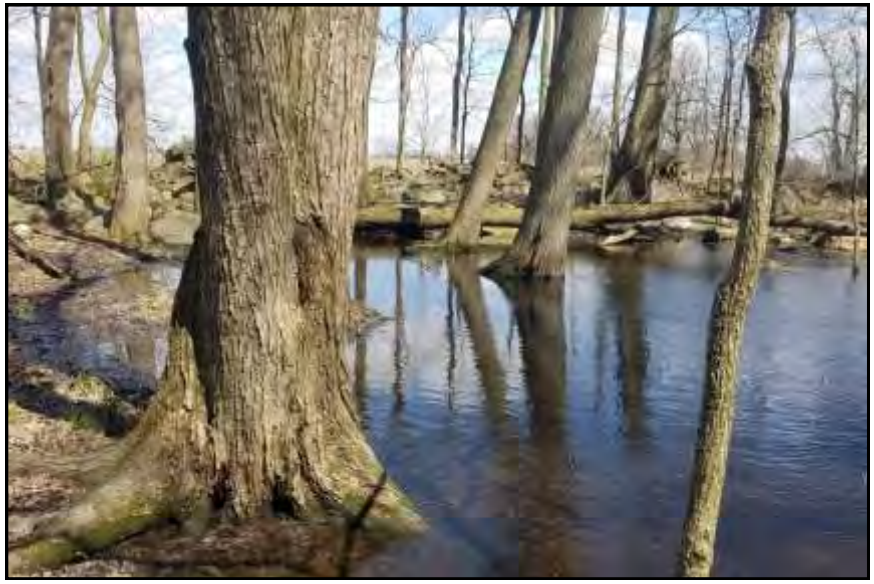

DP11, View Looking North

DP11, View Looking South

DP12, View Looking North

DP12, View Looking South

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S01, View Looking Upstream

S01, View Looking Downstream

S01, View Looking Upstream

S01, View Looking Downstream

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APPENDIX B

WETLAND AND WATERBODY MAPS

C-4

LOGAN SHELBY

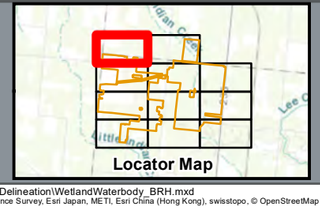
C-3 LOGAN CHAMPAIGN

CHAMPAIGN-LOGAN-SHELBY

JOHNSTON

Legend

- Upland Datapoint
- Wetland Datapoint
- Field Delineated Stream
- Field Delineted Wetland
- Local Road
- State Road
- US Highway
- NWI Wetlands
- ODNR Wetland
- Survey Area



Wetland and Waterbody Maps
(Sheet 1 of 11)
Clearview Project
Champaign, Logan, and Shelby Counties, Ohio

0 100 200 400 Feet

0 20 40 60 80 Meters

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dp08

C-68

C-3

SNAPPTOWN

LOGAN CHAMPAIGN

T-3

Legend

- Upland Datapoint
- Wetland Datapoint
- Field Delineated Stream
- Field Delineted Wetland
- Local Road
- State Road
- US Highway
- NWI Wetlands
- ODNR Wetland
- Survey Area

Locator Map

Wetland and Waterbody Maps
(Sheet 2 of 11)
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CHAMPAIGN-LOGAN-SHELBY
LOGAN SHELBY

DP03

DP04

N

Legend

- Upland Datapoint
- Wetland Datapoint
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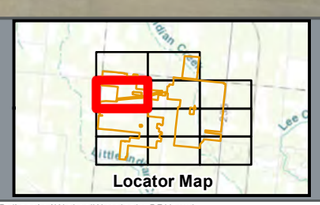
- Field Delineted Wetland
- Local Road
- State Road
- US Highway
- NWI Wetlands
- ODNR Wetland
- Survey Area



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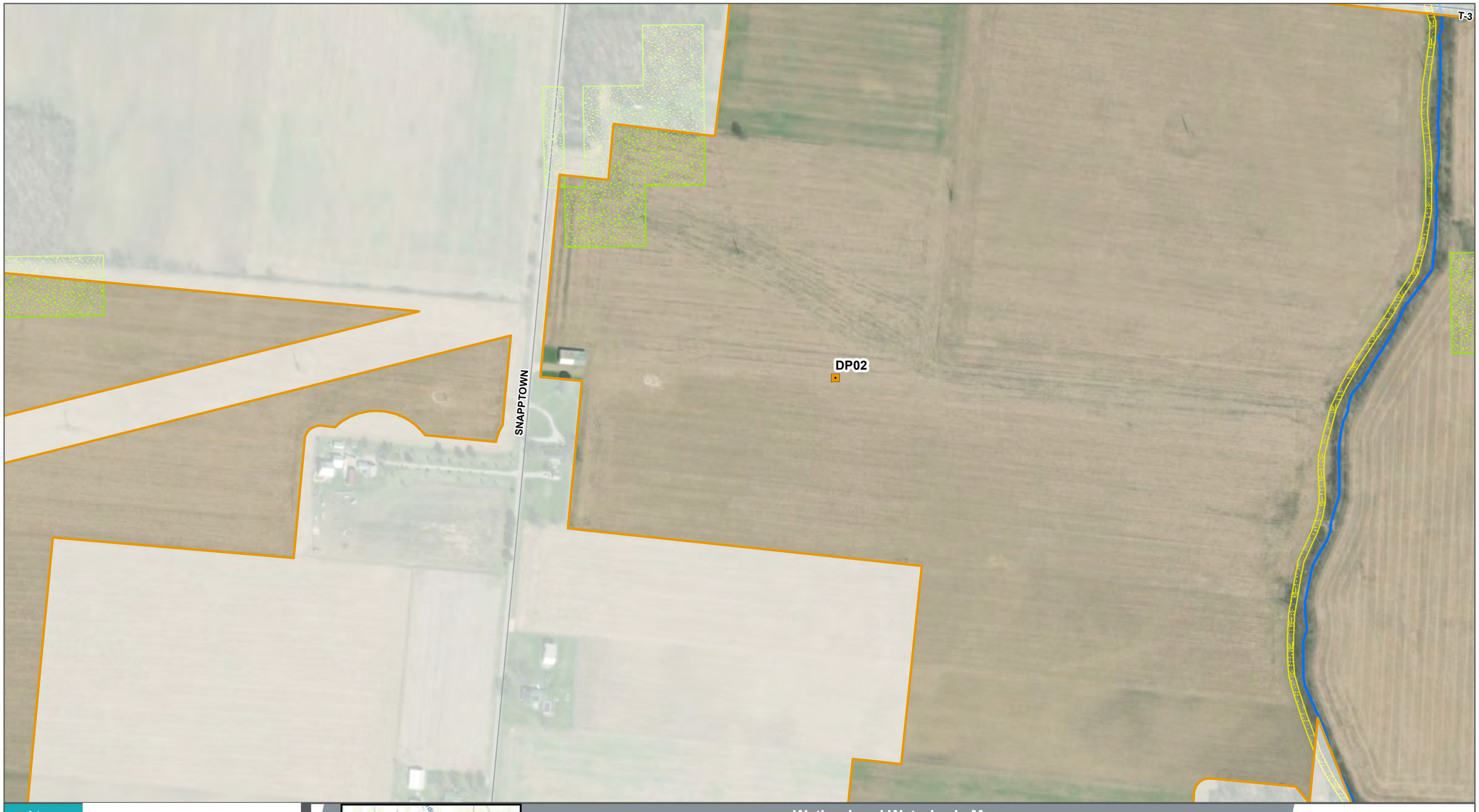

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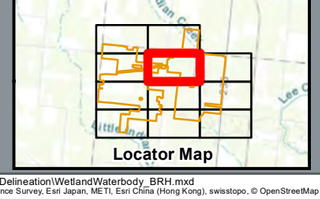
- Field Delineated Stream
- Field Delineted Wetland
- Local Road
- State Road
- US Highway
- NWI Wetlands
- ODNR Wetland
- Survey Area



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LOGAN CHAMPAIGN

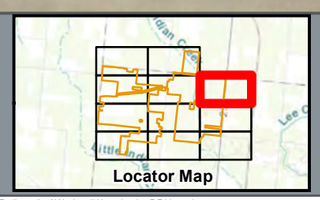
T-3

SR-235

N

Legend

- Upland Datapoint
- Wetland Datapoint
- Field Delineated Stream
- Field Delineted Wetland
- Local Road
- State Road
- US Highway
- NWI Wetlands
- ODNR Wetland
- Survey Area



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DP04

CHAMPAIGN-LOGAN-SHELBY
LOGAN SHELBY

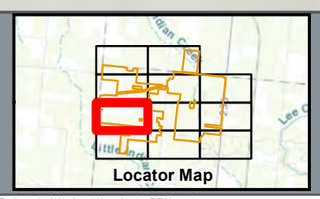
dp11
dp12

DP01

N

Legend

- Upland Datapoint
- Wetland Datapoint
- Field Delineated Stream
- Field Delineated Wetland
- Local Road
- State Road
- US Highway
- NWI Wetlands
- ODNR Wetland
- Survey Area



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Legend

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- US Highway
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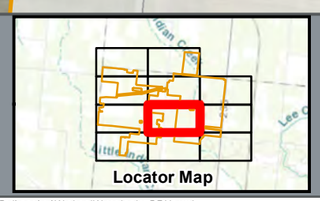
- ODNR Wetland
- Survey Area



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Legend

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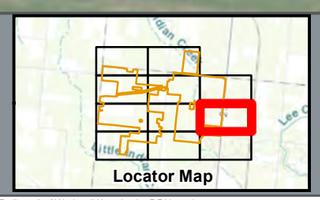

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LOGAN SHELBY

CHAMPAIGN-LOGAN-SHELBY

DP06

DP05

ELM TREE

N

Legend

- Upland Datapoint
- Wetland Datapoint
- Field Delineated Stream
- Field Delineted Wetland
- Local Road
- State Road
- US Highway
- NWI Wetlands
- ODNR Wetland
- Survey Area

Locator Map

Wetland and Waterbody Maps
(Sheet 9 of 11)
Clearview Project
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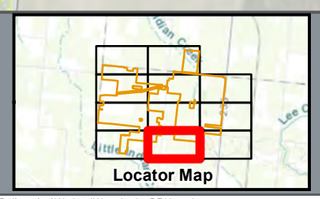

Wetland and Waterbody Maps
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Clearview Project
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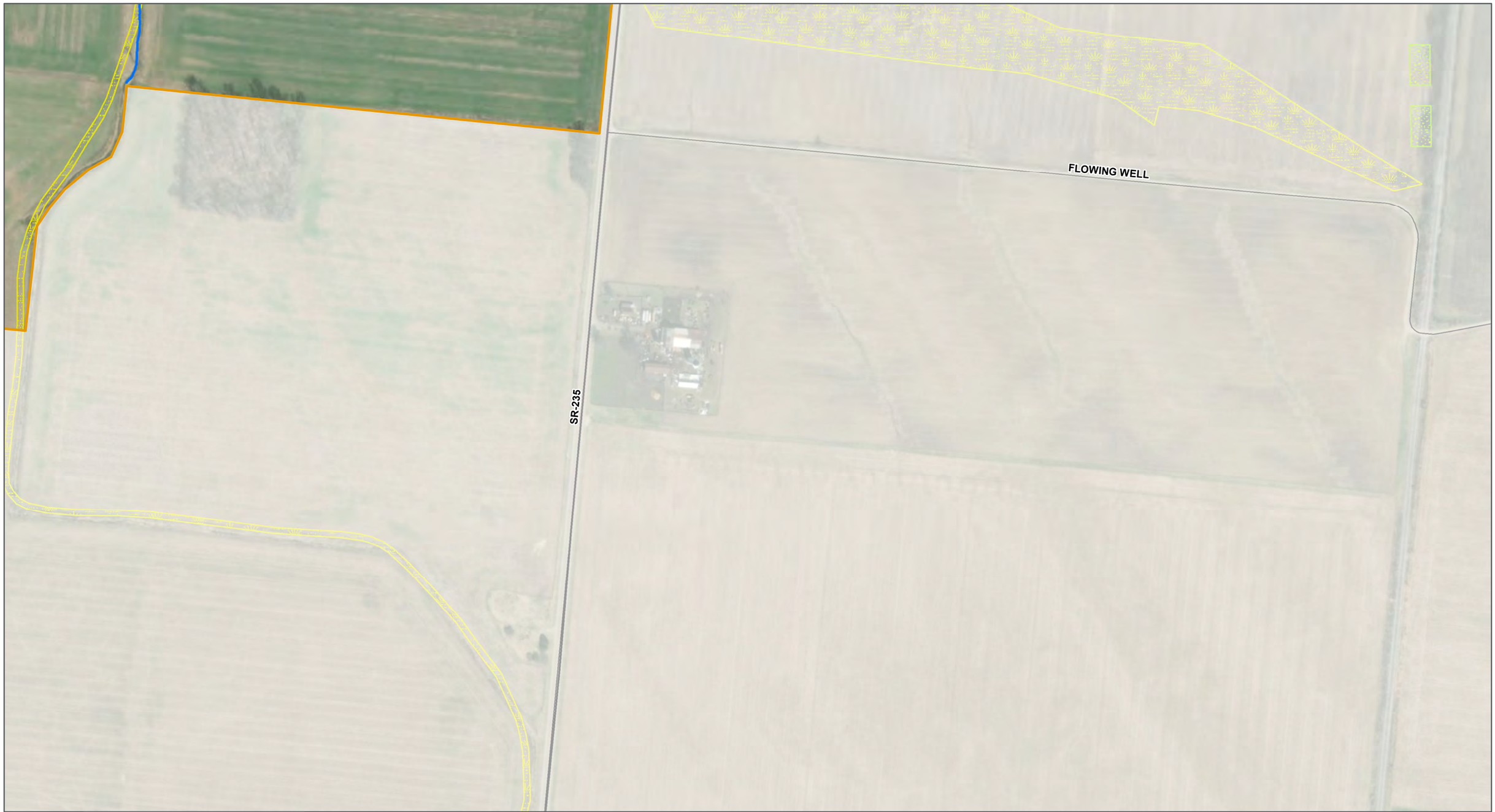

Legend

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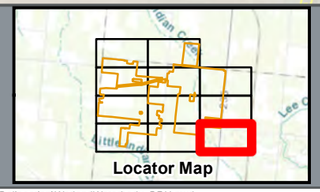

Wetland and Waterbody Maps
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Clearview Project
Champaign, Logan, and Shelby Counties, Ohio

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Clearview Solar Project

APPENDIX C

WETLAND DELINEATION AND ASSESSMENT FORMS

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clearview Solar | City/County: Quincy/Champaign | Sampling Date: 4/16/2020

Applicant/Owner: OpenRoad | State: OH | Sampling Point: dp08

Investigator(s): Ben Hess & Kaitlin Hillier | Section, Township, Range: S28T3ER13N

Landform (hillslope, terrace, etc.): Stream Terrace | Local relief (concave, convex, none): concave

Slope (%): 0% | Lat: 40.27557699 | Long: -83.98793994 | Datum: NAD83 UTM16N

Soil Map Unit Name: Brookston silty clay loam, fine texture, 0 to 2 percent slopes (BsA) | 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 X	**Is the Sampled Area**	
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	Yes ____ No ____
Wetland Hydrology Present?	Yes X	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.			
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: 5' radius)			
1. *Carex frankii*	35%	Yes	OBL
2. *Conium maculatum*	15%	No	FACW
3. *Setaria faberi*	40%	Yes	FACU
4. *Taraxacum officinale*	5%	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	95%	= 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of: That Are OBL, FACW, or FAC:		Multiply by: A/B	
OBL species	35%	x1 =	0.35
FACW species	15%	x2 =	0.30
FAC species		x3 =	
FACU species	45%	x4 =	1.80
UPL species		x5 =	
Column Totals:	95% (A)		2.45 (B)

Prevalence Index = B/A = 2.58

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.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: dp08

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/2	100					Silty Clay Loam	

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

Hydric Soil Indicators[3]:

- ___ 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)

[3]The 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

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

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: Clearview Solar | City/County: Quincy/Champaign | Sampling Date: 4/16/2020

Applicant/Owner: OpenRoad | State: OH | Sampling Point: dp09

Investigator(s): Ben Hess & Kaitlin Hillier | Section, Township, Range: S27T3ER13N

Landform (hillslope, terrace, etc.): Stream Terrace | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.26414706 | Long: -83.98378585 | Datum: NAD83 UTM16N

Soil Map Unit Name: Brookston silty clay loam, fine texture, 0 to 2 percent slopes (BsA) | 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 X	No ____	**Is the Sampled Area**	
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	Yes ____ No ____
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Gleditsia triacanthos*	35%	Yes	FACU
2. *Robinia pseudoacacia*	10%	No	FACU
3. *Platanus occidentalis*	10%	No	FACW
4. *Juglans nigra*	20%	Yes	FACU
5.			
	75%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Fraxinus pennsylvanica*	10%	Yes	FACW
2. *Aesculus glabra*	5%	Yes	FAC
3.			
4.			
5.			
	15%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Elymus virginicus*	35%	Yes	FACW
2. *Schedonorus arundinaceus*	10%	No	FACU
3. *Carex blanda*	25%	Yes	FAC
4. *Taraxacum officinale*	5%	No	FACU
5. *Rubus occidentalis*	5%	No	UPL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	80%	= 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: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (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	55%	x2 =	1.10
FAC species	30%	x3 =	0.90
FACU species	80%	x4 =	3.20
UPL species	5%	x5 =	0.25
Column Totals:	170% (A)		5.45 (B)

Prevalence Index = B/A = 3.21

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

X 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 X No ____

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

SOIL

Sampling Point: dp09

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/2	100					Silty Clay Loam	

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

Hydric Soil Indicators[3]:

- ___ 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)

[3]The 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):	>18"
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	>18"

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: Clearview Solar | City/County: Quincy/Champaign | Sampling Date: 4/16/2020

Applicant/Owner: OpenRoad | State: OH | Sampling Point: dp10

Investigator(s): Ben Hess & Kaitlin Hillier | Section, Township, Range: S27T3ER13N

Landform (hillslope, terrace, etc.): Stream Terrace | Local relief (concave, convex, none): concave

Slope (%): 0% | Lat: 40.26385564 | Long: -83.98341622 | Datum: NAD83 UTM16N

Soil Map Unit Name: Brookston silty clay loam, fine texture, 0 to 2 percent slopes (BsA) | 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 X	No ____	**Is the Sampled Area**	
Hydric Soil Present?	Yes X	No ____	**within a Wetland?**	Yes X No ____
Wetland Hydrology Present?	Yes X	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. *Cornus racemosa*	35%	Yes	FAC
2. *Ulmus americana*	5%	No	FACW
3.			
4.			
5.			
	40%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Cicuta maculata*	5%	No	OBL
2. *Carex cristatella*	25%	Yes	FACW
3. *Apocynum cannabinum*	10%	Yes	FAC
4. *Symphyotrichum lanceolatum*	5%	No	FAC
5. *Boehmeria cylindrica*	5%	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	50%	= 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: 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: That Are OBL, FACW, or FAC:		Multiply by: A/B	
OBL species	10%	x1 =	0.10
FACW species	30%	x2 =	0.60
FAC species	50%	x3 =	1.50
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	90% (A)		2.20 (B)

Prevalence Index = B/A = 2.44

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

X 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 X No ____

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

SOIL

Sampling Point: dp10

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/1	90	10YR 3/6	10	C	M	Silt Loam	

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

Hydric Soil Indicators[3]:

- ___ 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Test Indicators of Hydric Soils:

- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]The 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** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	N/A
Water Table Present?	Yes X No ___	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	surface

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: Clearview Solar | City/County: Quincy/Champaign | Sampling Date: 4/16/2020

Applicant/Owner: OpenRoad | State: OH | Sampling Point: dp11

Investigator(s): Ben Hess & Kaitlin Hillier | Section, Township, Range: S33T3ER13N

Landform (hillslope, terrace, etc.): Summit | Local relief (concave, convex, none): concave

Slope (%): 0% | Lat: 40.25842072 | Long: -84.00582772 | Datum: NAD83 UTM16N

Soil Map Unit Name: Brookston silty clay loam, fine texture, 0 to 2 percent slopes (BsA) | 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 X	No ____	**Is the Sampled Area**	
Hydric Soil Present?	Yes X	No ____	**within a Wetland?**	Yes X No ____
Wetland Hydrology Present?	Yes X	No ____		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	90%	Yes	FACW
2.			
3.			
4.			
5.			
	90%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Ulmus americana*	5%	Yes	FACW
2.			
3.			
4.			
5.			
	5%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
		= 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of: That Are OBL, FACW, or FAC:		Multiply by: A/B	
OBL species		x1 =	
FACW species	95%	x2 =	1.90
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	95% (A)		1.90 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- X 1-Rapid Test for Hydrophytic Vegetation
- X 2-Dominance Test is >50%
- X 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 X No ____

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

SOIL

Sampling Point: dp11

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/1	95	10YR 4/6	5	C	M	Silt Loam	

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

Hydric Soil Indicators[3]:

- ___ 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Test Indicators of Hydric Soils:

- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]The 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** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X No ___	Depth (inches):	12"
Water Table Present?	Yes ___ No X	Depth (inches):	NA
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	NA

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: Clearview Solar | City/County: Quincy/Champaign | Sampling Date: 4/16/2020

Applicant/Owner: OpenRoad | State: OH | Sampling Point: dp12

Investigator(s): Ben Hess & Kaitlin Hillier | Section, Township, Range: S33T3ER13N

Landform (hillslope, terrace, etc.): Summit | Local relief (concave, convex, none): none

Slope (%): 1% | Lat: 40.25838104 | Long: -84.00587799 | Datum: NAD83 UTM16N

Soil Map Unit Name: Brookston silty clay loam, fine texture, 0 to 2 percent slopes (BsA) | 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 ____	No X	**Is the Sampled Area**	
Hydric Soil Present?	Yes X	No ____	**within a Wetland?**	Yes ____ No ____
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	65%	Yes	FACU
2. *Tilia americana*	30%	Yes	FACU
3.			
4.			
5.			
	95%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Dicentra cucullaria*	10%	No	UPL
2. *Geranium maculatum*	5%	No	FACU
3. *Lilium michiganense*	30%	Yes	FACW
4. *Claytonia virginica*	5%	No	FACU
5. *Alliaria petiolata*	5%	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	55%	= 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	30%	x2 =	0.60
FAC species	5%	x3 =	0.15
FACU species	105%	x4 =	4.20
UPL species	10%	x5 =	0.50
Column Totals:	150% (A)		5.45 (B)

Prevalence Index = B/A = 3.63

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.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: dp12

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR 2/1	100					Silt Loam	
6-20"	10YR 3/1	95	10YR 4/6	5	C	M	Silt Loam	

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

Hydric Soil Indicators[3]:

- ___ 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)
- X 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)

[3]The 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** X **No** _____

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):	NA
Water Table Present?	Yes ___ No X	Depth (inches):	>20"
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	>20"

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

Site: W01	Rater(s): Ben Hess	Date: April 16, 2020

Project: Clearview Solar

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)
- [X] <0.1 acres (0.04ha) (0 pts)

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)
- [X] 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	19
max 30 pts.	subtotal

Metric 3. Hydrology

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

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

3b. Connectivity. Score all that apply.

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

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

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [X] <0.4m (<15.7in) (1)

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

- [ ] Semi- to permanently inundated/saturated (4)
- [X] 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)
- [X] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [X] dredging
- [ ] other

12	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)
- [X] 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)
- [X] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average

- [ ] None or none apparent (9)
- [X] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [X] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [X] farming
- [ ] nutrient enrichment

31
subtotal this page

Site: W01	Rater(s): Ben Hess	Date: April 16, 2020

1	subtotal this page

Site: Clearview Solar

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, interspersion, microtopograhy.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [0] Emergent
- [0] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

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

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

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

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummocks/tussocks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [0] Amphibian breading 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 smal 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 no 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:

Site: W02	Rater(s): Ben Hess	Date: April 16, 2020

Project: Clearview Solar

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)
- [X] 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)

7	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

- [X] 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	24
max 30 pts.	subtotal

Metric 3. Hydrology

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

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

3b. Connectivity. Score all that apply.

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

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

- [ ] >0.7 (27.6in) (3)
- [X] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [ ] <0.4m (<15.7in) (1)

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

- [X] 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)
- [X] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other

18	42
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

- [X] 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)
- [X] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average

- [X] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

42
subtotal this page

Site: W02	Rater(s): Ben Hess	Date: April 16, 2020

17	subtotal this page

Site: Clearview Solar

5	5	max 10 pts	subtotal

Metric 5. Special Wetlands

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [x] 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)

12	17	max 20 pts	subtotal

Metric 6. Plant communities, interspersion, microtopograhy.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [1] Shrub
- [2] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

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

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

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

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummocks/tussocks
- [2] Coarse woody debris >15cm (6in)
- [2] Standing dead >25cm (10in) dbh
- [2] Amphibian breading 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 smal 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 no 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

59	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:

Clearview Solar Project

APPENDIX D

STREAM ASSESSMENT FORMS

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 47.50

Stream & Location: S01_QHEI **RM:** **Date:** 4/16/2020

Kaitlin Hillier & Ben Hess **Scorers Full Name & Affiliation:** Cardno

River Code: - - **STORET #:** **Lat/ Long:** 40.2667 / -83.9837 Office verified 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	
	BLDR /SLABS [10]				HARDPAN [4]			LIMESTONE [1]	HEAVY [-2]	
	BOULDER [9]		5		DETRITUS [3]			X TILLS [1]	MODERATE [-1]	SILT
	COBBLE [8]		15		MUCK [2]			WETLANDS [0]	X NORMAL [0]	
X	GRAVEL [7]		40	X	SILT [2]	25		HARDPAN [0]	FREE [1]	
	SAND [6]	15			ARTIFICIAL [0]			SANDSTONE [0]	EXTENSIVE [-2]	EMBEDDEDNESS
	BEDROCK [5]							RIP/RAP [0]	MODERATE [-1]	
								LACUSTURINE [0]	X NORMAL [0]	
								SHALE [-1]	NONE [1]	
								COAL FINES [-2]		

NUMBER OF BEST TYPES: X **4 or more [2]** ☐ **3 or less [0]**

(Score natural substrates; ignore sludge from point-sources)

Substrate **12.0** *Maximum 20*

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 developed rootwad in deep / fast water, or deep, well-defined, functional pools.

1	UNDERCUT BANKS [1]				
1	OVERHANGING VEGETATION [1]	1	POOLS > 70cm [2]		OXBOWS, BACKWATERS [1]
	SHALLOWS (IN SLOW WATER) [1]		ROOTWADS [1]		AQUATIC MACROPHYTES [1]
	ROOTMATS [1]	1	BOULDERS [1]		LOGS OR WOODY DEBRIS [1]

AMOUNT Check ONE (*Or 2 & average*)

- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☐ SPARSE 5-<25% [3]
- X NEARLY ABSENT <5% [1]

Cover *Maximum 20* **6.0**

Comments

3] CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	X MODERATE [2]
X LOW [2]	☐ FAIR [3]	X RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	X POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Channel *Maximum 20* **8.0**

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	EROSION	L	R	RIPARIAN WIDTH	L	R	FLOOD PLAIN QUALITY	L	R	
X	X	NONE / LITTLE [3]			WIDE > 50m [4]			FOREST, SWAMP [3]			CONSERVATION TILLAGE [1]
		MODERATE [2]			MODERATE 10-50m [3]			SHRUB OR OLD FIELD [2]			URBAN OR INDUSTRIAL [0]
		HEAVY / SEVERE [1]			NARROW 5-10m [2]			RESIDENTIAL, PARK, NEW FIELD [1]			MINING / CONSTRUCTION [0]
			X	X	VERY NARROW < 5m [1]			FENCED PASTURE [1]			
			X	X	NONE [0]	X	X	OPEN PASTURE, ROWCROP [0]			

Indicate predominant land use(s) past 100m riparian.

Riparian *Maximum 10* **3.5**

Comments

5] *POOL / GLIDE AND RIFFLE / RUN QUALITY*

MAXIMUM DEPTH Check **ONE** *(ONLY!)*

- ☐ > 1m [6]
- ☐ 0.7-<1m [4]
- X 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH Check ONE (*Or 2 & average*)

- X POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY Check ALL that apply

☐ TORRENTIAL [-1]	☐ SLOW [1]
☐ VERY FAST [1]	☐ INTERSTITIAL [-1]
X FAST [1]	☐ INTERMITTENT [-2]
X MODERATE [1]	☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact ☐
Secondary Contact X
(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
X BEST AREAS > 10cm [2]	X MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	X MOD. STABLE (e.g., Large Gravel) [1]	X LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Riffle / Run *Maximum 8* **6.0**

Comments

6] *GRADIENT*

DRAINAGE AREA (9.0 **ft/mi**) (4.060 **mi²**)

- ☐ VERY LOW - LOW [2-4]
- X MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL:	25%	**%GLIDE:**	
%RUN:	50%	**%RIFFLE:**	25%

Gradient *Maximum 10* **6.0**

A] SAMPLED REACH

Check ALL that apply

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

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%
- [X] 30% - <55%
- [ ] 10% - <30%
- [ ] <10% - CLOSED

B] AESTHETICS

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

C] RECREATION

	AREA	DEPTH
POOL:	[ ] >100ft2	[ ] >3ft

Circle some & COMMENT

D] MAINTENANCE

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

E] 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

F] MEASUREMENTS

8'	$\bar{x}$ width
2'	$\bar{x}$ depth max. depth
12'	$\bar{x}$ bankfull width
2.5'	bankfull $\bar{x}$ depth
5	W/D ratio
3'	bankfull max. depth
	floodprone x^2 width
	entrench. ratio

Legacy Tree:

Stream Drawing:

Summary: Application - Part 19 of 31 Ex. O Water Delineation Report electronically filed by Christine M.T. Pirik on behalf of Clearview Solar I, LLC