Construction Notice for the Gunn Road-Scioto Ridge Solar 345 kV Generation Tie Line Project

PUCO Case No. 25-0155-EL-BNR

Submitted to:
The Ohio Power Siting Board
Pursuant to Ohio Administrative Code
Section 4906-6-05

Submitted by:
AEP Ohio Transmission Company, Inc.

April 28, 2025

CONSTRUCTION NOTICE

AEP Ohio Transmission Company, Inc.

Gunn Road-Scioto Ridge Solar 345 kV Generation Tie Line

4906-6-05 Accelerated Application Requirements

AEP Ohio Transmission Company, Inc. (the Company) provides the following information to the Ohio Power Siting Board (OPSB) in accordance with the accelerated application requirements of Ohio Administrative Code Section 4906-6-05.

4906-6-05(B) General Information

B(1) Project Description

Provide the name of the project and applicant's reference number, names and reference number(s) of resulting circuits, a brief description of the project, and why the project meets the requirements for a letter of notification or construction notice application.

The Company proposes to construct the Gunn Road-Scioto Ridge Solar 345 kV Generation Tie Line Project (the "Project") in Lynn Township, Hardin County Ohio. The purpose of the Project is to provide a 345 kV interconnection to the Scioto Ridge Solar facility (OPSB Case Number 23-0146-EL-BGN), proposed by Scioto Ridge Solar, L.L.C., an Independent Power Producer (IPP). The PJM Queue Position is AE2-306. One span of 345 kV transmission line will be constructed between the Company's existing Gunn Road Station to a point of interconnection with the IPP transmission line located just outside the station fence. The length of the Project transmission line is approximately 220 feet. The Project will be built entirely on land owned by the Company. The location of the Project is shown on **Figure 1** and **Figure 2** in **Appendix A**.

The Project meets the requirements for a Construction Notice (CN) as defined by Item 1(d)(i) of Appendix A to Ohio Administrative Code Section 4906-1-01, *Application Requirement Matrix for Electric Power Transmission Lines*:

> *(1) New construction, extension, or relocation of single or multiple circuit electric power transmission line(s), or upgrading existing transmission or distribution line(s) for operation at a higher transmission voltage, as follows:*
>
> *(d) Line(s) primarily needed to attract or meet the requirements of a specific customer or customers, as follows:*
>
> *(i) The line is completely on property owned by the specific customer or the applicant.*

The Project has been assigned Case No. 25-0155-EL-BNR.

B(2) Statement of Need

If the proposed project is an electric power transmission line or gas pipeline, the applicant provide a statement explaining the need for the proposed facility.

Scioto Ridge Solar, L.L.C, an IPP, plans to build a 30 MW Maximum Facility Output (MFO) (18 MW Capacity) solar generating facility in Hardin County, Ohio. As part of the AE2-306 IPP Interconnection Service Agreement, the Company must connect transmission facilities to the proposed solar generating facility. As a result, the Company will build the Gunn Road–Scioto Ridge Solar 345 kV Generation Tie Line, which will connect the existing Gunn Road Station to the IPP's transmission line and Scioto Ridge Solar Station.

Failure to move forward with the proposed Project will result in the Company's inability to serve the customer's generation interconnection request, thereby jeopardizing the customer's required in-service date per the FERC approved Interconnection Service Agreement.

The Project has been assigned a PJM network upgrade number of n7469. The Project was included in the Ohio Power Company's 2024 Long Term Forecast Report on Page 102 (See **Appendix B**).

B(3) Project Location

Provide the location of the project in relation to existing or proposed lines and substations shown on an area system map of sufficient scale and size to show existing and proposed transmission facilities in the project area.

The location of the Project in relation to existing transmission lines and substations is shown on **Figure 1** in **Appendix A**.

B(4) Alternatives Considered

Describe the alternatives considered and reasons why the proposed location or route is best suited for the proposed facility, including but not be limited to, impacts associated with socioeconomic, ecological, construction, or engineering aspects of the project.

The Project is a single 345 kV transmission line span from the Company's Gunn Road Station to interconnect with an IPP solar facility. Based on the IPP's proposed development and existing facilities in the area, the proposed location is the most suitable and least impactful route for the Project. Other alternatives would require impacting neighboring properties, as opposed to remaining entirely on the Company's property, and would add additional transmission length to the associated projects without any additional benefit. The proposed Project will result in no impacts to wetlands, streams, or known cultural resource areas eligible for the National Register of Historic Places (NRHP). Therefore, this alternative represents the most suitable location and is the most appropriate solution for meeting the Company and IPP's needs in the area.

B(5) Public Information Program

Describe its public information program to inform affected property owners and residents of the nature of the project and the proposed timeframe for project construction and restoration activities.

The Project will be located entirely within property owned by the Company, with no additional property owners or tenants affected. The Company maintains a website (http://aeptransmission.com/ohio/) on which an electronic copy of this CN is available. An electronic copy of the CN will be served to the public library in each political subdivision affected by this Project.

B(6) Construction Schedule

Provide an anticipated construction schedule and proposed in-service date of the project.

Construction of the Project is planned to begin in September 2025 with an anticipated in-service date of March 2026.

B(7) Area Map

Provide a map of at least 1:24,000 scale clearly depicting the facility and proposed limits of disturbance with clearly marked streets, roads, and highways, and an aerial image.

Figure 1 in Appendix A, identifies the location of the Project area on the Silver Creek, Ohio United States Geological Survey 1:24,000 quadrangle map. **Appendix A, Figure 2** displays the Project components on a 2023 aerial photograph.

B(8) Property Agreements

Provide a list of properties for which the applicant has obtained easements, options, and/or land use agreements necessary to construct and operate the facility and a list of the additional properties for which such agreements have not been obtained.

A list of properties required for the Project are provided in **Table 1**, below.

Table 1 – Property Agreements

Property Parcel Number	Agreement Type	Easement or Option Obtained (Yes/No)
261700040000	Company Owned	N/A

B(9) Technical Features

Describe the following information regarding the technical features of the project:

B(9)(a) Operating characteristics, estimated number and types of structures required, and right-of-way and/or land requirements.

Transmission Lines

The transmission line is estimated to include the following:

Voltage: 345kV
Conductors: (6) 954 kcmil 54/7 CARDINAL ACSR
Static Wire: (2) DNO-11843 96F OPGW
Insulators: Polymer
ROW Width: 150 feet
Structure Type: One (1) single circuit, steel monopole vertical dead-end

B(9)(b) Electric and Magnetic Fields

For electric power transmission lines that are within one hundred feet of an occupied residence or institution, the production of electric and magnetic fields during the operation of the proposed electric power transmission line.

No occupied residences or institutions are located within 100 feet of the Project.

B(9)(c) Project Cost

The estimated capital cost of the project.

The cost estimate for the proposed Project, which is comprised of applicable tangible and capital costs, is approximately $1,160,000 using a Class 4 estimate. The costs for this Project will be recovered through total reimbursement by the IPP.

B(10) Social and Ecological Impacts

The applicant shall describe the social and ecological impacts of the project:

B(10)(a) Land Use

Provide a brief, general description of land use within the vicinity of the proposed project, including a list of municipalities, townships, and counties affected.

The Project location is part of the existing Gunn Road Station property with the span of proposed transmission line predominantly crossing the station pad to a proposed transmission structure just beyond the fence in an area of turf grass. An aerial photograph of the Project vicinity is provided as **Figure 2**. The Project is mapped within Lynn Township in Hardin County. The Project vicinity is currently rural in nature and is comprised primarily of agricultural land used for row crops with wind turbines scattered in adjacent fields. A solar generation facility is also planned on adjacent properties

and beyond. Scattered residences are also located in the vicinity. No tree clearing is proposed as part of the Project.

B(10)(b) Agricultural Land

Provide the acreage and a general description of all agricultural land, and separately all agricultural district land, existing at least sixty days prior to submission of the application within the potential disturbance area of the project.

The Project Area is characterized by the existing Gunn Road Station property surrounded by agricultural land use partially developed with wind turbines and a planned solar generation facility. The dominant agricultural use appears to be row crops (i.e. soybeans and corn). No agricultural land is within the potential disturbance area of the Project.

Based on data received from the Hardin County Auditor's office on April 22, 2025, there are no agricultural district parcels within the potential disturbance area of the Project. The Project parcel is not part of an Ohio Department of Agriculture easement.

B(10)(c) Archaeological and Cultural Resources

Provide a description of the applicant's investigation concerning the presence or absence of significant archaeological or cultural resources that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

A cultural resource review and report were conducted by the Company's consultant for the Project in February 2025. Correspondence from the State Historic Preservation Office ("SHPO") was received in March 2025, see **Appendix C**. The SHPO stated that that the Project will have no adverse effect on historic properties and that no further archaeological work is necessary.

B(10)(d) Local, State, and Federal Agency Correspondence

Provide a list of the local, state, and federal governmental agencies known to have requirements that must be met in connection with the construction of the project, and a list of documents that have been or are being filed with those agencies in connection with siting and constructing the project.

A summary of anticipated permits and authorizations for the Project is provided in **Table 2**, below. There are no other known local, state, or federal requirements that must be met prior to commencement of the Project.

Table 2 – Anticipated Permits

Permit/Authorization/Coordination	Agency	Date
Storm Water Pollution Prevention Plan	Ohio Environmental Protection Agency	Not Applicable
Notice Criteria	Federal Aviation Administration	Submitted through Criteria Tool on 1/3/2025, no further action required
Clean Water Act Section 404/401	United States Army Corps of Engineers	No impacts to streams or wetlands proposed. Not applicable.
	Ohio Environmental Protection Agency	
Archaeology/Architectural	Ohio Historic Preservation Office	Coordination complete 3/4/2025, no additional work required
Threatened and Endangered Species	United States Fish and Wildlife Service	Consultation complete 9/6/2022
Threatened and Endangered Species	Ohio Department of Natural Resources	Consultation complete 9/16/2022

B(10)(e) Threatened, Endangered, and Rare Species

Provide a description of the applicant's investigation concerning the presence or absence of federal and state designated species (including endangered species, threatened species, rare species, species proposed for listing, species under review for listing, and species of special interest) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

As part of the ecological study completed for the IPP's solar generation facility, coordination letters were submitted to the United State Fish and Wildlife Service (USFWS) and the Ohio Department of Natural Resources (ODNR) Ohio Natural Heritage Program (ONHP) and Division of Wildlife (DOW), seeking an environmental review of the Project for potential impacts to state and/or federally protected species. USFWS and ODNR provided responses on September 6, 2022 and September 16, 2022, respectively. Copies of the agencies' responses are presented in **Appendix C**.

Table 3 lists the federal and state threatened or endangered species in the Project area.

Table 3 – Threatened, Endangered, and Rare Species Summary

Name	Status	Agency Comments	Avoidance Dates	Potential Impacts
Bats				
Indiana Bat (*Myotis sodalis*)	State and Federal Endangered	If trees are present and must be cut, cutting should occur from October 1 to March 31. A desktop assessment should be conducted, followed by a field assessment if needed, to determine potential hibernacula present within 0.25 miles of the Project.	April 1 – September 30 without additional coordination and surveys.	No tree clearing is proposed for the Project. No potential hibernacula were observed within the Project area. No impacts to bat species are proposed.
Northern Long-eared Bat (*Myotis septentrionalis*)	State and Federal Endangered (Federal Threatened at time of coordination)			
Little Brown Bat (*Myotis lucifugus*)	State Endangered			
Tri-colored Bat (*Perimyotis subflavus*)	State Endangered; Federal Proposed Endangered			
Birds				
Northern Harrier (*Circus hudsonis*)	State Endangered	If habitat consisting of large marshes or grasslands will be impacted, construction should be avoided during nesting period.	April 15 – July 31	None – No suitable habitat.
Upland Sandpiper (*Bartramia longicauda*)	State Endangered	If habitat consisting of dry grasslands, seeded grassland, grazed and ungrazed pasture, hayfields, and grasslands established through CRP will be impacted, construction should be avoided during the nesting period.		
Mussel Species				
Rayed Bean (*Vilosa fabalis*)	State and Federal Endangered	The Project is within the range of these species. If no in-water work is proposed, impacts to these species are not likely.	Not Applicable	None – No streams on Project property and no in-water work proposed.
Purple Lilliput (*Taxolasma livius)*	State Endangered			
Clubshell (*Pleurobema clava*)	State and Federal Endangered			
Pondhorn (*Uniomerus tetralasmus*)	State Threatened			

Table 6 in **Appendix D** provides the full evaluation of the federal and state threatened or endangered species for the solar facility, which includes the Project area.

Based on the nature of the proposed Project activities and habitat characteristics of the surrounding vicinity, construction impacts to protected species are not anticipated.

B(10)(f) Areas of Ecological Concern

Provide a description of the applicant's investigation concerning the presence or absence of areas of ecological concern (including national and state forests and parks, floodplains, wetlands, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, and wildlife sanctuaries) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

The IPP's consultant conducted an ecological survey of over 2,000 acres for their solar facility, which included the Project location in June 2022. The IPP's consultant delineated four palustrine emergent (PEM) wetlands on the overall Project property to the southeast, southwest, and northwest of the Gunn Station fence as shown on Figure 5 (Sheet 8 of 12) of the Ecological Resources Report. Relevant excerpts of the report are provided in **Appendix D**. The wetlands were classified as Category 1 and range in size from 0.01 to 0.18 acres and are not mapped in the location of the proposed gen tie line. A temporary construction access road will be necessary for the Project, however, it is anticipated that the access road will avoid impacts to these low-quality delineated wetlands.

Based on a review of the Protected Areas Database of the United States as well as the Conservation Easement Database, there are no state or national parks, forests, wildlife areas or mapped conservation easements in the vicinity of the Project.

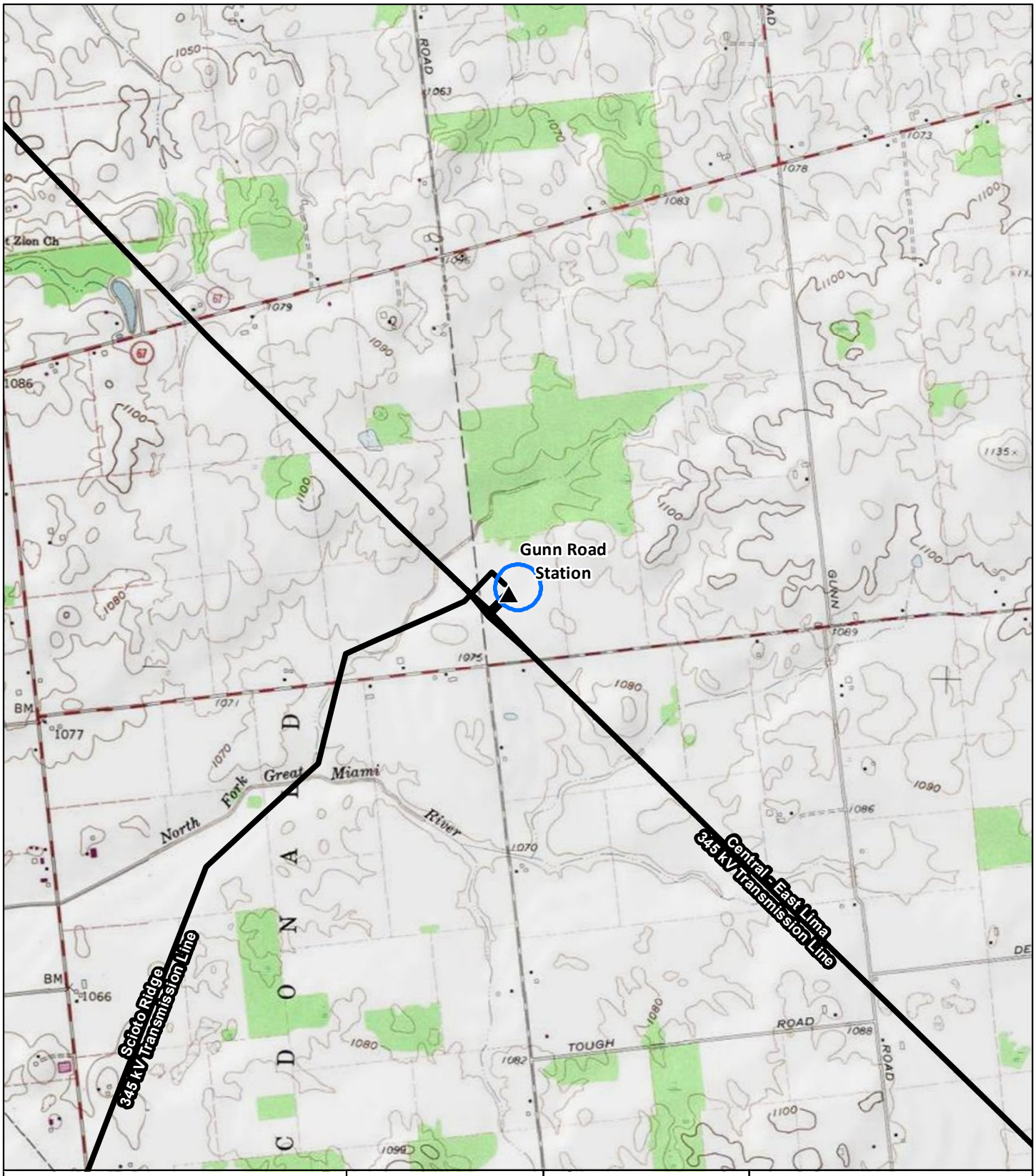
The FEMA Flood Insurance Rate Map ("FIRM") was reviewed to identify any floodplains/flood hazard areas that have been mapped within the Project Area (specifically, map number 39065C0325D). Based on this mapping, no FEMA-designated 100-year floodplains are crossed by the proposed alignment. Local floodplain permitting is unnecessary for the Project.

B(10)(g) Unusual Conditions

Provide any known additional information that will describe any unusual conditions resulting in significant environmental, social, health, or safety impacts.

To the best of the Company's knowledge, no unusual conditions exist that would result in significant environmental, social, health, or safety impacts.

Appendix A Project Maps



Legend:

- Project Area
- Existing Transmission Line
- Existing Station

Data Sources: AEP, USGS 7.5' Topographic Quadrangle (Silver Creek, Ohio)

Ohio State Plane North
NAD 1983

February 06, 2025

PROJECT LOCATION

HARDIN COUNTY, OHIO

FIGURE 1
TOPOGRAPHIC OVERVIEW

AEP OHIO TRANSMISSION COMPANY

Gunn Road-Scioto Ridge Solar
345 kV Generation Tie Line

0 1,000 2,000 3,000

Feet

Legend:

- Proposed Transmission Line
- Proposed 150-foot ROW
- Proposed 300-foot Route Corridor
- Proposed IPP 345 kV Transmission Line
- Existing Transmission Line
- Proposed IPP Station
- Parcel Boundary

Data Sources: AEP, ESRI World Imagery (2023)

Ohio State Plane North
NAD 1983

February 06, 2025

PROJECT LOCATION

HARDIN COUNTY, OHIO

FIGURE 2
PROJECT AERIAL MAP

AEP OHIO TRANSMISSION COMPANY

Gunn Road-Scioto Ridge Solar
345 kV Generation Tie Line

0 250 500 750

Feet

Appendix B Long Term Forecast Report

12	**CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION**	Generation deliverability limitation
13	**MISCELLANEOUS:**	
1	**LINE NAME AND NUMBER:**	Lammer – Richland (FE) 138kV (AE2-072 TP2020176)
2	**POINTS OF ORIGIN AND TERMINATION**	Lammer – Richland INTERMEDIATE STATION - N/A
3	**RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS**	15.8 mi / 150 ft / 1 circuit (0.1 mi of line work)
4	**VOLTAGE: DESIGN / OPERATE**	138 kV / 138 kV
5	**APPLICATION FOR CERTIFICATE:**	2024
6	**CONSTRUCTION:**	2022
7	**CAPITAL INVESTMENT:**	$0.36M (reimbursable)
8	**PLANNED SUBSTATION:**	Lammer
9	**SUPPORTING STRUCTURES:**	Steel
10	**PARTICIPATION WITH OTHER UTILITIES**	First Energy
11	**PURPOSE OF THE PLANNED TRANSMISSION LINE**	Connect and serve new generation customer
12	**CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION**	Generation deliverability limitation
13	**MISCELLANEOUS:**	
1	**LINE NAME AND NUMBER:**	Gunn Rd – Scioto Solar IPP 345 kV (AE2-306 TP2020204)
2	**POINTS OF ORIGIN AND TERMINATION**	Gunn Rd – Scioto Solar INTERMEDIATE STATION - N/A
3	**RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS**	0.1 mi / 150 ft / 1 circuit (0.1 mi of line work)
4	**VOLTAGE: DESIGN / OPERATE**	345 kV / 345 kV
5	**APPLICATION FOR CERTIFICATE:**	2022
6	**CONSTRUCTION:**	2022
7	**CAPITAL INVESTMENT:**	$0.62M (reimbursable)
8	**PLANNED SUBSTATION:**	N/A
9	**SUPPORTING STRUCTURES:**	Steel
10	**PARTICIPATION WITH OTHER UTILITIES**	N/A
11	**PURPOSE OF THE PLANNED TRANSMISSION LINE**	Connect and serve new generation customer
12	**CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION**	Generation deliverability limitation
13	**MISCELLANEOUS:**	
1	**LINE NAME AND NUMBER:**	Lockwood Road – Cepheus 138kV (AF1-063 TP2020269)
2	**POINTS OF ORIGIN AND TERMINATION**	Lockwood Road – Cepheus INTERMEDIATE STATION - N/A
3	**RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS**	0.1 mi / 100 ft / 1 circuit
4	**VOLTAGE: DESIGN / OPERATE**	138 kV / 138 kV
5	**APPLICATION FOR CERTIFICATE:**	2022
6	**CONSTRUCTION:**	2022 - 2023
7	**CAPITAL INVESTMENT:**	$0.58M (reimbursable)
8	**PLANNED SUBSTATION:**	Lockwood Road (Rebuild)
9	**SUPPORTING STRUCTURES:**	Steel
10	**PARTICIPATION WITH OTHER UTILITIES**	N/A
11	**PURPOSE OF THE PLANNED TRANSMISSION LINE**	Connect and serve new generation customer
12	**CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION**	Generation deliverability limitation
13	**MISCELLANEOUS:**	
1	**LINE NAME AND NUMBER:**	Lockwood Road – Richland (FE) 138kV (AF1-063 TP2020269)
2	**POINTS OF ORIGIN AND TERMINATION**	Lockwood Road – Richland INTERMEDIATE STATION - N/A
3	**RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS**	10 mi / 100 ft / 1 circuit (0.1 miles of line work)
4	**VOLTAGE: DESIGN / OPERATE**	138 kV / 138 kV
5	**APPLICATION FOR CERTIFICATE:**	2022
6	**CONSTRUCTION:**	2022 - 2023
7	**CAPITAL INVESTMENT:**	$0.5M (reimbursable)
8	**PLANNED SUBSTATION:**	Lockwood Road (Rebuild)
9	**SUPPORTING STRUCTURES:**	Steel
10	**PARTICIPATION WITH OTHER UTILITIES**	N/A
11	**PURPOSE OF THE PLANNED TRANSMISSION LINE**	Connect and serve new generation customer

Appendix C Agency Correspondence

In reply refer to:
2023-HAR-58428

March 4, 2025

Ryan Weller
Principal Investigator
Weller & Associates, Inc.
1395 West Fifth Avenue
Columbus, Ohio 43212
Email: rweller@wellercrm.com

RE: Section 106 Review: Gunn Road-Scioto Solar Ridge Project, Lynn Township, Hardin County, Ohio

Dear Mr. Weller:

This letter is in response to the receipt on February 3, 2025, of *Cultural Resource Management Review for the Gunn Road-Scioto Solar Ridge Project in, Lynn Township, Hardin County, Ohio* by Weller & Associates, Inc. (2025). The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code requesting cooperation among state agencies in the preservation of historic properties, Ohio Administrative Code Chapters 4906-04 and 4906-05. The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

According to the information submitted, the project will involve a small Gen-Tie Line within an existing substation. The Area of Potential Effect (APE) has been defined as an irregular-shaped parcel totaling 14.6-acres. The APE is located within previously surveyed areas associated with an energy development. No previously documented historic properties, districts, or archaeological sites are recorded within the APE. Based on this information, it is the SHPO's opinion that the project, as proposed, will have no effect on historic properties. Furthermore, we agree that no additional cultural resource studies are warranted for the current project. No further coordination is required for this project unless the scope of work changes or archaeological remains are discovered during the course of the project. In such a situation, this office should be contacted. If you have any questions concerning this review, please contact me by email at sbiehl@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Stephen M. Biehl

Stephen M. Biehl, Project Reviews Manager-Archaeology
Resource Protection and Review
State Historic Preservation Office

RPR Serial No. 1107219

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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

September 6, 2022

Ms. Courtney Dohoney
Stantec Consulting Services, Inc.
3001 Washington Blvd., Suite 500
Arlington, VA 22201

Project Code: 2022-0072474

Re: Proposed Scioto Solar Project; Hardin County, Ohio

Dear Ms. Dohoney:

The U.S Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

The proposed project is within the vicinity of multiple records of both the Indiana bat and northern long-eared bat. We recommend minimizing tree clearing to the maximum extent possible and avoiding clearing of any woodlots. At this time we are unable to fully assess the potential impact of the project on federally listed bats as project layout has not been determined. Therefore, we recommend additional coordination with this office regarding project siting in order for us to provide project-specific conservation recommendations for federally listed bats.

Please provide additional information on the extent and location of tree clearing proposed. We will then evaluate the potential impact to Indiana bats to determine if a level of use survey is

warranted, in addition to seasonal clearing (removal of trees between October 1 and March 31) to avoid take.

If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are also warranted. Portal surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Pollinator Comments: The Service is working closely with our partners at Ohio Pollinator Habitat Initiative (OPHI) to create and enhance pollinator habitat at solar power installations. Attached for your use is the Ohio Solar Site Pollinator Habitat Planning and Assessment Form. This form was developed by the OPHI Solar Pollinator Program Advisory Team. We recommend that the areas between the solar panels be planted with legumes and wildflowers (i.e. forbs) that are beneficial to pollinators and other wildlife instead of non-native grass. Pollinators are beneficial to agricultural communities like the project area because they pollinate many varieties of fruits and vegetables. The recommended legumes and forbs are short (low-growing) so as not to cast shadows on the solar panels and would only require one to two mowings a year for maintenance, which should allow the project proponent to minimize maintenance costs. For other areas of the installation where vegetation does not have to be low-growing, alternative pollinator mixes are available with a more diverse array of flowering plants. This perennial vegetation will provide beneficial foraging habitat to songbirds and pollinators (e.g., monarch butterfly and the federally listed rusty patched bumblebee) while reducing storm water runoff, standing water, and erosion. Native plants can act as host plants for insect larva while flowering plants provide nectar sources for adult butterflies as well as other pollinators such as hummingbirds. Seeds from these plants can also provide food for a wide variety of bird species. Please contact the Ohio Pollinator Habitat Initiative (http://www.ophi.info/, and specifically

Mike Retterer mrettere@pheasantsforever.org) for further information on solar power facility pollinator plantings.

Recommended low-growing grasses and forbs may include:

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

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

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.state.oh.us

If you have questions, or if we can be of further assistance in this matter, please contact Jenny Finfera at jennifer_finfera@fws.gov.

Sincerely,

Patrice Ashfield
Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Michael Retter, OPHI
Donnie Knight, USFWS

Enclosure: Ohio Solar Site Pollinator Habitat Planning and Assessment Form

Office of Real Estate
John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6621
Fax: (614) 267-4764

September 16, 2022

Courtney Dohoney
Stantec
3001 Washington Blvd, Suite 500
Arlington, VA 22201

Re: 22-0857; Scioto Solar Project

Project: The proposed project involves constructing a 110-megawatt (MW) alternating current utility-scale photovoltaic solar energy project and a 20 MW battery energy storage system (BESS) facility.

Location: The proposed project is located in Lynn, McDonald, and Taylor Creek Townships, Hardin County, Ohio.

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

Real Estate and Land Management: The Office of Real Estate and Land Management (REALM) has the following comments.

The Ohio Department of Natural Resources (ODNR) Guidance for Proposed Solar Energy Facilities in Ohio should be incorporated into the project design and site development plan. This guidance document was developed by multiple Divisions within the Ohio Department of Natural Resources. The guidance document is non-exhaustive and project recommendations are made on a site-specific basis and may include additional considerations. The incorporation of these conditions will help ensure that the project will result in the minimum adverse environmental impact.

Natural Heritage Database: A review of the Ohio Natural Heritage Database indicates there are no records of state or federally listed plants or animals within one mile of the specified project area. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

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

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

The project is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

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

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS "*RANGE-WIDE INDIANA BAT & NORTHERN LONG-EARED BAT SURVEY GUIDELINES*." If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the purple lilliput (*Toxolasma lividus*), a state endangered mussel, and the pondhorn (*Uniomerus tetralasmus*), a state threatened mussel. This project must not have an impact on native mussels. This applies to both listed and non-listed species, as all species of mussel are protected in Ohio. Per the Ohio Mussel Survey Protocol (2022), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, the DOW recommends a professional malacologist collect and relocate the mussels

to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. If there is no in-water work proposed, impacts to mussels are not likely.

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

The project is within the range of the northern harrier (*Circus hudsonis*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the project is not likely to impact this species.

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

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

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

Impacts on Public and Private Water Supplies
The proposed project area is in Lynn, McDonald, and Taylor Creek townships, Hardin County. The construction of the facility is not expected to have significant impacts on public or private well yields. The Groundwater Vulnerability Index for this project area ranges from 110 to 124 (Nelson and Others, 2022). The construction of the facility is not expected to pose a significant groundwater contamination risk.

Groundwater Inventory
Wells developed in limestone bedrock are likely to yield over 100 gallons per minute (Schmidt, 1983 and Ohio Department of Natural Resources, Division of Water, Bedrock Aquifer Map, 2000). ODNR has record of 87 water wells drilled within one mile of the project area the majority of which are completed in the limestone bedrock. Sustainable yields of 5 to 30 gallons per minute have been reported for wells within one mile of the project area (Ohio Department of Natural Resources, Division of Geological Survey, Ohio Water Wells).

Oil, Gas and Mining
ODNR has record of three oil and gas wells within one mile of the proposed project area. Most of these wells are listed as historic wells with an unknown status. There are no known oil and gas wells within the bounds of the project area (Ohio Department of Natural Resources, Division of Oil and Gas, Ohio Oil and Gas Wells Locator).
ODNR does not have record of any mining operations within one mile of the project area.

Geohazards
While the underlying limestone is susceptible to sinkhole formation, the nearest sinkhole is over five miles away and the thickness of glacial drift (27-140 ft.) makes sinkhole formation unlikely (Ohio Department of Natural Resources, Division of Geological Survey, Ohio Karst).
Several small earthquakes have historically been recorded near the site. Events within 15-miles of the site are listed in the chart below (Ohio Department of Natural Resources, Division of Geological Survey, Ohio Earthquake Epicenters):

Date	Magnitude	Distance to Site Boundary	County	Township
June 30, 2020	2.0	6.0	Hardin	Marion
March 3, 1937	3.2	13.0	Allen	Auglaize
January 27, 1956	3.7	13.5	Logan	Stokes
April 27, 1937	3.1	14.4	Allen	Auglaize
June 26, 1930	3.2	14.4	Auglaize	Clay
May 2, 1937	3.1	14.8	Allen	Perry

Soils
The project area consists primarily of soils derived from till. Blount, Pewamo, and Glynwood are the most common soil series found within the boundaries of the project area. There is a moderate risk of shrink-swell potential in these soils. The Pewamo soil, which makes up over 28% of the project area, is a hydric soil which is frequently ponded from November to May. Hydric soils produce an anerobic environment which may speed up the corrosion of certain materials. Slope does exceed a 12% grade in portions of the project area. (Miller and Robbins, 1994 and USDA Web Soil Survey). Areas with high grade are more susceptible to erosion and slumping.

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

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator

Appendix D Ecological Survey Report

Scioto Ridge Solar Project

Ecological Resources Report

June 28, 2023

Prepared for:

Scioto Ridge Solar LLC
251 Little Falls Drive
Wilmington, DE 19808

Prepared by:

Stantec Consulting Services Inc.
1500 Lake Shore Drive, Suite 100
Columbus, Ohio 43204

Figure No.
5

Title
Field Collected Data

Client/Project
Scioto Ridge Solar, LLC
Scioto Ridge Solar Project

2028113342

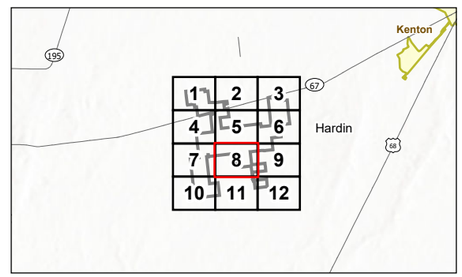
Project Location
Hardin County, OH

Prepared by ST on 2023-06-12
TR by MK on 2022-12-04
IR by CA on 2022-12-08

N

0 300 600 Feet
(At original document size of 11x17)
1:6,000

Legend
- Project Boundary
- Sample Point
- Photo Location
- Existing Culvert
- Existing Storm Drain
- Upland Drainage Feature
- Field Delineated Waterway
- Field Delineated Open Water
- Field Delineated Emergent Wetland
- Field Delineated Forested Wetland
- Field Delineated Scrub Shrub Wetland



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources: Stantec, Scioto Ridge Solar, LLC, NADS, USGS
3. Background: NAIP 2021

Stantec

stratum, green ash (FACW) in the sapling/shrub stratum, and hop sedge (*Carex lupulina,* OBL) in the herbaceous stratum.

Wetland 8

Wetland 8 is a PFO wetland approximately 2.74 acres in size. The functional assessment (ORAM) of Wetland 8 yielded a score of 35 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "fair - moderate" quality. Wetland 8 is potentially isolated due to lack of connection to other jurisdictional waterbodies. The first soil horizon on the WDF (SP23) was 21 inches of clay loam with a low chroma matrix of 10YR 3/2 and redox concentrations of 10YR 4/6 in the matrix, meeting the Redox Dark Surface (F6) hydric soil indicator. The primary hydrological indicator was an algal mat or crust. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including green ash (FACW) and American elm (*Ulmus americana,* FACW) in the tree stratum, spicebush (FACW) and awl-fruited sedge (*Carex stipata*, OBL) in the sapling/shrub stratum, and poison ivy (FAC) in the herbaceous stratum.

Wetland 9

Wetland 9 is a PEM wetland approximately 1.31 acres in size. The functional assessment (ORAM) of Wetland 9 yielded a score of 52 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "moderate" quality. Wetland 9 is potentially jurisdictional due to the close proximity to Stream 3. The first soil horizon on the WDF (SP26) was 5 inches of clay loam with a low chroma matrix of 10YR 3/2 and redox concentrations of 7.5YR 3/4 in the matrix, meeting the Redox Dark Surface (F6) hydric soil indicator. The primary hydrological indicator was saturation. Vegetation identified within the sample plot was dominated by hydrophytic herbaceous vegetation including spotted touch-me-not (*Impatiens capensis,* FACW) and white cutgrass (*Leersia virginica*, FACW).

Wetland 10

Wetland 10 is a PEM wetland approximately 0.09 acre in size. The functional assessment (ORAM) of Wetland 10 yielded a score of 45 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "moderate" quality. Wetland 10 is potentially jurisdictional due to the close proximity to Stream 3. The first soil horizon on the WDF (SP27) was 8 inches of clay loam with a low chroma matrix of 10YR 2/2 and redox concentrations of 7.5YR 4/4 in the pore linings, meeting the Redox Dark Surface (F6) hydric soil indicator. The primary hydrological indicator was oxidized rhizospheres on living roots. Vegetation identified within the sample plot was dominated by hydrophytic herbaceous vegetation including Gray's sedge (*Carex grayi,* FACW), limestone meadow sedge (*Carex granularis*, FACW), and Canada wood nettle (*Laporte canadensis*, FACW).

Wetland 11

Wetland 11 is a PEM wetland approximately 0.01 acre in size. The functional assessment (ORAM) of Wetland 11 yielded a score of 23 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 11 is potentially jurisdictional due to the close proximity to Stream 3. The first soil horizon on the WDF (SP30) was 21 inches of clay loam with a low chroma matrix of 2.5Y 3/2 and redox concentrations of 10YR 6/6 in the matrix, meeting the Redox Dark

Surface (F6) hydric soil indicator. Primary hydrological indicators included surface water and saturation. Vegetation identified within the sample plot was dominated by hydrophytic herbaceous vegetation including reed canary grass (FACW).

Wetland 12

Wetland 12 is a PEM wetland approximately 0.05 acre in size. The functional assessment (ORAM) of Wetland 12 yielded a score of 18 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 12 is potentially jurisdictional due to the close proximity to Stream 3. The first soil horizon on the WDF (SP31) was 15 inches of clay loam with a low chroma matrix of 10YR 4/2 and redox concentrations of 10YR 4/6 in the matrix, meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included a high water table, saturation, and surface water. Vegetation identified within the sample plot was dominated by hydrophytic herbaceous vegetation including rice cutgrass (*Leersia oryzoides,* OBL) and narrow leaf cattail (*Typha angustifolia,* OBL).

Wetland 13

Wetland 13 is a PEM wetland approximately 0.18 acre in size. The functional assessment (ORAM) of Wetland 13 yielded a score of 28 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 13 is potentially jurisdictional due to the close proximity to Stream 3. The first soil horizon on the WDF (SP34) was 21 inches of clay loam with a low chroma matrix of 10YR 4/2 and redox concentrations of 10YR 5/6 in the matrix, meeting the Depleted Matrix (F3) hydric soil indicator. The primary hydrological indicator was saturation. Vegetation identified within the sample plot was dominated by hydrophytic herbaceous vegetation, including narrow leaf cattail (OBL).

Wetland 14

Wetland 14 is a PEM wetland approximately 0.01 acre in size. The functional assessment (ORAM) of Wetland 14 yielded a score of 19 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 14 is potentially jurisdictional due to the close proximity to Stream 3. The first soil horizon on the WDF (SP35) was 21 inches of Gley 3/N, meeting the Loamy Gleyed Matrix (F2) hydric soil indicator. Primary hydrological indicators included a high water table, saturation, and surface water. Vegetation identified within the sample plot was dominated by hydrophytic herbaceous vegetation, including reed canary grass (FACW).

Wetland 15

Wetland 15 is a PFO wetland approximately 0.15 acre in size. The functional assessment (ORAM) of Wetland 15 yielded a score of 43 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "fair - moderate" quality. Wetland 15 is potentially isolated due to lack of connection to other jurisdictional waterbodies. The first soil horizon on the WDF (SP43) was 7 inches of clay loam with a low chroma matrix of 10YR 2/2 and redox concentrations of 2.5YR 4/6 in the matrix, meeting the Depleted Matrix (F3) hydric soil indicator. Secondary hydrological indicators included surface soil cracks, geomorphic position, and FAC-neutral test. Vegetation identified within the

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Scioto Solar Project | City/County: Hardin | Sampling Date: 06/14/2022

Applicant/Owner: RWE Solar Development, LLC | State: Ohio | Sampling Point: SP30

Investigator(s): M Kearns, S Heitzenrater | Section, Township, Range: N/A

Landform (hillside, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope %: 1

Subregion (LRR or MLRA): | Lat: 40.58652 | Long: -83.732448 | Datum: WGS84

Soil Map Unit Name: Blount silt loam, ground moraine, 2 to 4 percent slopes | NWI classification: N/A

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 within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland 11, PEM

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Phalaris arundinacea	20	Yes	FACW
2. Packera glabella	5	No	FACW
3. Typha angustifolia	5	No	OBL
4. Salix nigra	5	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X 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.)
65% open ground

SOIL

Sampling Point: SP30

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
0-21	2.5Y 3/2	93	10YR 6/6	7	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ 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)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

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)
- 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present	Yes	X	No		Depth (inches): 1
Water Table Present	Yes		No	X	Depth (inches):
Saturation Present (includes capillary fringe)	Yes	X	No		Depth (inches): 0

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: Scioto Solar Project | City/County: Hardin | Sampling Date: 06/14/2022

Applicant/Owner: RWE Solar Development, LLC | State: Ohio | Sampling Point: SP31

Investigator(s): M Kearns, S Heitzenrater | Section, Township, Range: N/A

Landform (hillside, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope %: 1

Subregion (LRR or MLRA): | Lat: 40.585856 | Long: -83.731999 | Datum: WGS84

Soil Map Unit Name: Blount silt loam, ground moraine, 2 to 4 percent slopes | NWI classification: N/A

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 within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland 12, PEM

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Leersia oryzoides	50	Yes	OBL
2. Typha angustifolia	20	Yes	OBL
3. Typha latifolia	15	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft)			
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:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

X 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.)
15% open ground

SOIL

Sampling Point: SP31

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
0-15	10YR 4/2	95	10YR 4/6	5	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ 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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

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)
- 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)
- ___ 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present	Yes X	No ___	Depth (inches):	2
Water Table Present	Yes X	No ___	Depth (inches):	0
Saturation Present (includes capillary fringe)	Yes X	No ___	Depth (inches):	0

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: Scioto Solar Project | City/County: Hardin | Sampling Date: 06/14/2022

Applicant/Owner: RWE Solar Development, LLC | State: Ohio | Sampling Point: SP34

Investigator(s): M Kearns, S Heitzenrater | Section, Township, Range: N/A

Landform (hillside, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope %: 1

Subregion (LRR or MLRA): | Lat: 40.585289 | Long: -83.732149 | Datum: WGS84

Soil Map Unit Name: Pewamo silty clay loam, 0 to 1 percent slopes | NWI classification: N/A

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 within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland 13, PEM

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Typha angustifolia	90	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X 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.)
10% open ground

SOIL

Sampling Point: SP34

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
0-21	10YR 4/2	93	10YR 5/6	7	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ 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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

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)
- 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)
- ___ 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): ___
Water Table Present	Yes	___	No	X	Depth (inches): ___
Saturation Present (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

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: Scioto Solar Project City/County: Hardin Sampling Date: 06/14/2022

Applicant/Owner: RWE Solar Development, LLC State: Ohio Sampling Point: SP35

Investigator(s): M Kearns, S Heitzenrater Section, Township, Range: N/A

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: 1

Subregion (LRR or MLRA): Lat: 40.586158 Long: -83.730975 Datum: WGS84

Soil Map Unit Name: Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: N/A

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 within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland 14, PEM

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Phalaris arundinacea	35	Yes	FACW
2. Festuca rubra	15	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	50 (A)		130 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 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.)
50% open ground

SOIL

Sampling Point: SP35

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
0-21	Gley3/N	100					Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ 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)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

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)
- 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present	Yes X	No ___	Depth (inches): 1	
Water Table Present	Yes X	No ___	Depth (inches): 0	
Saturation Present (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Site: Wetland 11	**Rater(s):** Michelle Kearns	**Date:** 06/14/2022

Metric 1. Wetland Area (size).

0 (max 6 pts.) | 0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

4 (max 14 pts.) | 4 (subtotal)

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [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), shrub land, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

7 (max 30 pts.) | 11 (subtotal)

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

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

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

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

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

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] 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
- [x] other: substation

Metric 4. Habitat Alteration and Development.

15 (max 20 pts.) | 26 (subtotal)

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)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] 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

26 (subtotal this page)

last revised 1 February 2001 jjm

Site: Wetland 11	**Rater(s):** Michelle Kearns	**Date:** 06/14/2022

26
subtotal first page

Metric 5. Special Wetlands.

0 (max 10 pts.) | 26 (subtotal)

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)

Metric 6. Plant communities, interspersion, microtopography.

-3 (max 20 pts.) | 23 (subtotal)

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

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

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

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

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

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

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

- [0] Vegetated hummucks/tussucks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

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End of Quantitative Rating. Complete Categorization Worksheets.

Site: Wetland 12	**Rater(s):** Michelle Kearns	**Date:** 06/14/2022

Metric 1. Wetland Area (size).

0 (max 6 pts.) | 0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

4 (max 14 pts.) | 4 (subtotal)

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [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), shrub land, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

7 (max 30 pts.) | 11 (subtotal)

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

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

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

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

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

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] 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
- [x] other: substation

Metric 4. Habitat Alteration and Development.

8 (max 20 pts.) | 19 (subtotal)

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

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

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

Check all disturbances observed

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

19 (subtotal this page)

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Site: Wetland 12	**Rater(s):** Michelle Kearns	**Date:** 06/14/2022

19
subtotal first page

Metric 5. Special Wetlands.

0 max 10 pts. | 19 subtotal

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)

Metric 6. Plant communities, interspersion, microtopography.

-1 max 20 pts. | 18 subtotal

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

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

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

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

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

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

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

- [0] Vegetated hummucks/tussucks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

18

End of Quantitative Rating. Complete Categorization Worksheets.

Site: Wetland 13	**Rater(s):** Michelle Kearns	**Date:** 06/14/2022

Metric 1. Wetland Area (size).

1 (max 6 pts.) | 1 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [x] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

5 (max 14 pts.) | 6 (subtotal)

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [x] 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)
- [x] LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

11 (max 30 pts.) | 17 (subtotal)

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

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

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

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

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] 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
- [x] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

14 (max 20 pts.) | 31 (subtotal)

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

31 (subtotal this page)

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Site: Wetland 13	**Rater(s):** Michelle Kearns	**Date:** 06/14/2022

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subtotal first page

Metric 5. Special Wetlands.

0 max 10 pts. | 31 subtotal

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)

Metric 6. Plant communities, interspersion, microtopography.

-3 max 20 pts. | 28 subtotal

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

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

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

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

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

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

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

- [0] Vegetated hummucks/tussucks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

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End of Quantitative Rating. Complete Categorization Worksheets.

Site: Wetland 14	**Rater(s):** Michelle Kearns	**Date:** 06/14/2022

Metric 1. Wetland Area (size).

0 (max 6 pts.) | 0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

4 (max 14 pts.) | 4 (subtotal)

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

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [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), shrub land, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

7 (max 30 pts.) | 11 (subtotal)

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

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

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

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

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

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] 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
- [x] Other: Substation

Metric 4. Habitat Alteration and Development.

9 (max 20 pts.) | 20 (subtotal)

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

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

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

Check all disturbances observed

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

20 (subtotal this page)

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Site: Wetland 14	**Rater(s):** Michelle Kearns	**Date:** 06/14/2022

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subtotal first page

Metric 5. Special Wetlands.

0 max 10 pts. | 20 subtotal

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)

Metric 6. Plant communities, interspersion, microtopography.

-1 max 20 pts. | 19 subtotal

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

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

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

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

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

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

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

- [0] Vegetated hummucks/tussucks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

19

End of Quantitative Rating. Complete Categorization Worksheets.

Photo Location 71. View of wetland determination sample point (SP30; PEM). Photograph taken facing south.

Photo Location 71. View of wetland determination sample point (SP30; PEM), soil profile.

Photo Location 72. View of Wetland 11 (PEM). Photograph taken facing north.

Photo Location 72. View of Wetland 11 (PEM). Photograph taken facing east.

Photo Location 72. View of Wetland 11 (PEM). Photograph taken facing south.

Photo Location 72. View of Wetland 11 (PEM). Photograph taken facing west.

Photo Location 74. View of wetland determination sample point (SP31; PEM). Photograph taken facing southeast.

Photo Location 74. View of wetland determination sample point (SP31; PEM), soil profile.

Photo Location 75. View of Wetland 12 (PEM). Photograph taken facing north.

Photo Location 75. View of Wetland 12 (PEM). Photograph taken facing east.

Photo Location 75. View of Wetland 12 (PEM). Photograph taken facing south.

Photo Location 75. View of Wetland 12 (PEM). Photograph taken facing west.

Photo Location 80. View of wetland determination sample point (SP34; PEM). Photograph taken facing northeast.

Photo Location 80. View of wetland determination sample point (SP34; PEM), soil profile.

Photo Location 81. View of Wetland 13 (PEM). Photograph taken facing north.

Photo Location 81. View of Wetland 13 (PEM). Photograph taken facing east.

Photo Location 81. View of Wetland 13 (PEM). Photograph taken facing south.

Photo Location 81. View of Wetland 13 (PEM). Photograph taken facing west.

Photo Location 82. View of wetland determination sample point (SP35; PEM). Photograph taken facing south.

Photo Location 82. View of wetland determination sample point (SP35; PEM), soil profile.

Photo Location 84. View of Wetland 14 (PEM). Photograph taken facing north.

Photo Location 84. View of Wetland 14 (PEM). Photograph taken facing east.

Photo Location 84. View of Wetland 14 (PEM). Photograph taken facing south.

Photo Location 84. View of Wetland 14 (PEM). Photograph taken facing west.

Table 6. Summary of Potential Federal and State-Listed Species within the Scioto Ridge Solar Project Area, Hardin County, Ohio

Common Name (Scientific Name)	Federal/State Listing*	Typical Habitat	Habitat Observed	Agency Comment ** (Appendix B)	Potential Impacts and Avoidance Dates
Freshwater Mussels					
Rayed Bean (*Villosa fabalis*)	FE/SE	It is generally known from smaller headwater creeks, but records exist in larger rivers. They are usually found in or near shoal or riffle areas, and in the shallow wave-washed areas of glacial lakes, including Lake Erie (NatureServe 2023).	Potentially suitable habitat (perennial stream; N. Fork Great Miami) was observed within the Project area.	**ODNR –** The Project is within the range of this species. If no in-water work is proposed in a Group 1, 2, 3, or 4 stream or an unlisted stream with a watershed of 5 square miles or greater, the Project is not likely to impact this species. If in-water work is planned in any stream that meets this criteria, the ODNR DOW recommends the applicant provide information to indicate no mussel impacts will occur. If there is no in-water work proposed, impacts to this species is not likely. **USFWS –** No comments received.	Potentially suitable habitat was observed within the Project area. However, impacts to the N. Fork Great Miami River have been avoided by Project infrastructure, therefore, no impacts tot his species are anticipated.
Purple Lilliput (*Toxolasma lividus*)	SE	Habitat for this species includes fine-particle substrates and also sand, gravel, or cobbles and boulders in riffles or flats immediately above riffles. This species is reported from the headwaters of small to medium sized rivers (NatureServe 2023).	Potentially suitable habitat (perennial stream; N. Fork Great Miami) was observed within the Project area.	**ODNR –** The Project is within the range of this species. If no in-water work is proposed in a Group 1, 2, 3, or 4 stream or an unlisted stream with a watershed of 5 square miles or greater, the Project is not likely to impact this species. If in-water work is planned in any stream that meets this criteria, the ODNR DOW recommends the applicant provide information to indicate no mussel impacts will occur. If there is no in-water work proposed, impacts to this species is not likely. **USFWS –** No comments received.	Potentially suitable habitat was observed within the Project area. However, impacts to the N. Fork Great Miami River have been avoided by therefore, no impacts tot his species are anticipated.
Clubshell (*Pleurobema clava*)	FE/SE	Small to medium-sized rivers and streams. It is found mostly in sand and fine gravel, and it deeply buried. This species is generally found in clean, coarse sand gravel in runs, often just downstream of a riffle, and cannot tolerate mud or slackwater conditions (NatureServe 2023).	Potentially suitable habitat (perennial stream; N. Fork Great Miami) was observed within the Project area.	**ODNR –** The Project is within the range of this species. If no in-water work is proposed in a Group 1, 2, 3, or 4 stream or an unlisted stream with a watershed of 5 square miles or greater, the Project is not likely to impact this species. If in-water work is planned in any stream that meets this criteria, the ODNR DOW recommends the applicant provide information to indicate no mussel impacts will occur. If there is no in-water work proposed, impacts to this species is not likely. **USFWS –** No comments received.	Potentially suitable habitat was observed within the Project area. However, impacts to the N. Fork Great Miami River have been avoided by Project infrastructure therefore, no impacts tot his species are anticipated.
Pondhorn (*Uniomerus tetralasmus*)	ST	This species occurs in both large and medium-sized rivers at normal depths varying from less than three feet up to 15 to 18 feet in big rivers such as the Tennessee. A substrate of either sand or mud is suitable and although it is typically found in moderate current, it can adapt to a lake or embayment environment lacking current (NatureServe, 2023).	Potentially suitable habitat (perennial stream; N. Fork Great Miami) was observed within the Project area.	**ODNR –** The Project is within the range of this species. If no in-water work is proposed in a Group 1, 2, 3, or 4 stream or an unlisted stream with a watershed of 5 square miles or greater, the Project is not likely to impact this species. If in-water work is planned in any stream that meets this criteria, the ODNR DOW recommends the applicant provide information to indicate no mussel impacts will occur. If there is no in-water work proposed, impacts to this species is not likely. **USFWS –** No comments received.	Potentially suitable habitat was observed within the Project area. However, impacts to the N. Fork Great Miami River have been avoided by Project infrastructure therefore, no impacts tot his species are anticipated.
Mammals					
Indiana Bat *(Myotis sodalis*)	FE/SE	The Indiana bat is likely distributed over the entire state of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Brack et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important factors for roost trees include relative location to other trees, a permanent water source and foraging areas. Dead trees are preferred as maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007; USFWS 2023). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Primarily use caves for hibernacula, although are also known to hibernate in abandoned underground mines (Brack et al. 2010).	No potentially suitable winter hibernacula were observed within the Project area. However, potentially suitable summer roosting and foraging habitat (second growth deciduous forest) was observed within the Project area.	**ODNR –** The Project is within the vicinity of records for the Indiana bat. Because presence of this state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. Limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with diameter at breast height (dbh) ≥ 20 inches if possible. In addition, the DOW recommends a desktop habitat assessment, followed by a field assessment if needed, to determine if there are potential hibernacula present within the Project area. **USFWS –** The Project is in the vicinity of one or more confirmed records of the Indiana bat. Should the proposed Project site contain trees ≥3 inches dbh, USFWS recommends avoiding tree removal whenever possible. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, USFWS recommends removal only occur between October 1 and March 31. Please note that, because Indiana bat presence has already been confirmed in the Project vicinity, any additional summer surveys would not constitute presence/absence surveys for this species.	Potential suitable roosting and foraging habitat was observed within the Project area. Scioto Ridge Solar will determine if any tree clearing is necessary in areas containing suitable habitat and will proceed in accordance with agency requirements. Any clearing will be completed between October 1 and March 31.

Common Name (Scientific Name)	Federal/State Listing*	Typical Habitat	Habitat Observed	Agency Comment ** (Appendix B)	Potential Impacts and Avoidance Dates
Northern Long-eared Bat (*Myotis septentrionalis*)	FT/SE	The northern long-eared bat is found throughout Ohio. This species generally forages in forested habitat and openings in forested habitat and utilizes cracks, cavities, and loose bark within live and dead trees, as well as buildings as roosting habitat (Brack et al. 2010; USFWS 2020). The species utilizes caves and abandoned mines as winter hibernacula. Various sized caves are used providing they have a constant temperature, high humidity, and little to no air current (Brack et al. 2010).	No potentially suitable winter hibernacula were observed within the Project area. However, potentially suitable summer roosting and foraging habitat (second growth deciduous forest) was observed within the Project area.	**ODNR –** The Project is within the vicinity of records for the northern long-eared bat. Because presence of this state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. Limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with diameter at breast height (dbh) ≥ 20 inches if possible. In addition, the DOW recommends a desktop habitat assessment, followed by a field assessment if needed, to determine if there are potential hibernacula present within the Project area. **USFWS –** The Project is in the vicinity of one or more confirmed records of the northern long-eared bat. Should the proposed Project site contain trees ≥3 inches dbh, USFWS recommends avoiding tree removal whenever possible. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, USFWS recommends removal only occur between October 1 and March 31. Please note that, because northern long-eared bat presence has already been confirmed in the Project vicinity, any additional summer surveys would not constitute presence/absence surveys for this species.	Potential suitable roosting and foraging habitat was observed within the Project area. Scioto Ridge Solar will determine if any tree clearing is necessary in areas containing suitable habitat and will proceed in accordance with agency requirements. Any clearing will be completed between October 1 and March 31.
Little Brown Bat (*Myotis lucifugus)*	SE	This bat uses a wide range of habitats and man-made structures for roosting, including buildings and attics. Less frequently, they use hollows of trees. Winter hibernation sites typically consist of caves, tunnels, abandoned mines. Foraging habitat for this species generally occurs over water, along the edges of lakes and stream or in woodlands near waterbodies (NatureServe 2023).	No potentially suitable winter hibernacula were observed within the Project area. However, potentially suitable summer roosting and foraging habitat (second growth deciduous forest) was observed within the Project area.	**ODNR –** This Project lies within the range of the little brown bat. Therefore, ODNR DOW recommends that habitat be conserved wherever possible. If suitable habitat occurs within the Project area and trees need to be cut, the ODNR DOW recommends cutting occur between October 1 and March 31. In addition, the DOW recommends a desktop habitat assessment, followed by a field assessment if needed, to determine if there are potential hibernacula present within the Project area. **USFWS –** No comments received.	Potential suitable roosting and foraging habitat was observed within the Project area. Scioto Ridge Solar will determine if any tree clearing is necessary in areas containing suitable habitat and will proceed in accordance with agency requirements. Any clearing will be completed between October 1 and March 31.
Tricolored Bat (*Perimyotis subflavus*)	FPE/SE	This bat is associated with forested landscapes, where they forage near trees and along waterways. Maternity and summer roosts usually occur in dead or live tree foliage, or in the south, in clumps of Spanish moss. Maternity colonies may also use tree cavities or man-made structures, such as buildings or bridges. Caves, mines, and rock crevices may be used as night roosts between foraging (NatureServe 2023).	No potentially suitable winter hibernacula were observed within the Project area. However, potentially suitable summer roosting and foraging habitat (second growth deciduous forest) was observed within the Project area.	**ODNR –** This Project lies within the range of the tricolored bat. Therefore, ODNR DOW recommends that habitat be conserved wherever possible. If suitable habitat occurs within the Project area and trees need to be cut, the ODNR DOW recommends cutting occur between October 1 and March 31. In addition, the DOW recommends a desktop habitat assessment, followed by a field assessment if needed, to determine if there are potential hibernacula present within the Project area. **USFWS –** No comments received.	Potential suitable roosting and foraging habitat was observed within the Project area. Scioto Ridge Solar will determine if any tree clearing is necessary in areas containing suitable habitat and will proceed in accordance with agency requirements. Any clearing will be completed between October 1 and March 31.
Birds					
Northern Harrier (*Circus hudsonis*)	SE	Harriers hunt low over grasslands, with wings held in a distinctive dihedral (V-shape). This is a common migrant and winter species; nesters are much rarer, although they occasionally breed in large marshes and grasslands (ODNR Division of Wildlife 2020).	No suitable nesting habitat was observed within the Project area.	**ODNR –** If habitat, consisting of large marshes or grasslands, will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the Project is not likely to impact this species. **USFWS –** No comments received	No suitable nesting habitat was observed within the Project area; therefore, no impacts are anticipated.
Upland Sandpiper (*Bartramia longicauda*)	SE	This species is found in extensive, open tracts of short grassland habitat. This species nests in dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through Conservation Reserve Program (ODNR DOW 2020).	No suitable nesting habitat was observed within the Project area.	**ODNR –** If habitat, consisting of dry grasslands including native grasslands, seeded grassland, grazed and ungrazed pasture, hayfields, and grasslands established through CRP, will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this type of habitat will not be impacted, this Project is not likely to impact this species. **USFWS –** No comments received.	No suitable nesting habitat was observed within the Project area; therefore, no impacts are anticipated.

* Status Key: FE = Federally-listed Endangered; FT = Federally-listed Threatened; Federally-listed Proposed Endangered; SE = State-listed Endangered; ST = State-listed Threatened
** The information is based on the literature review response information from ODNR and USFWS and is Project area/Project specific.

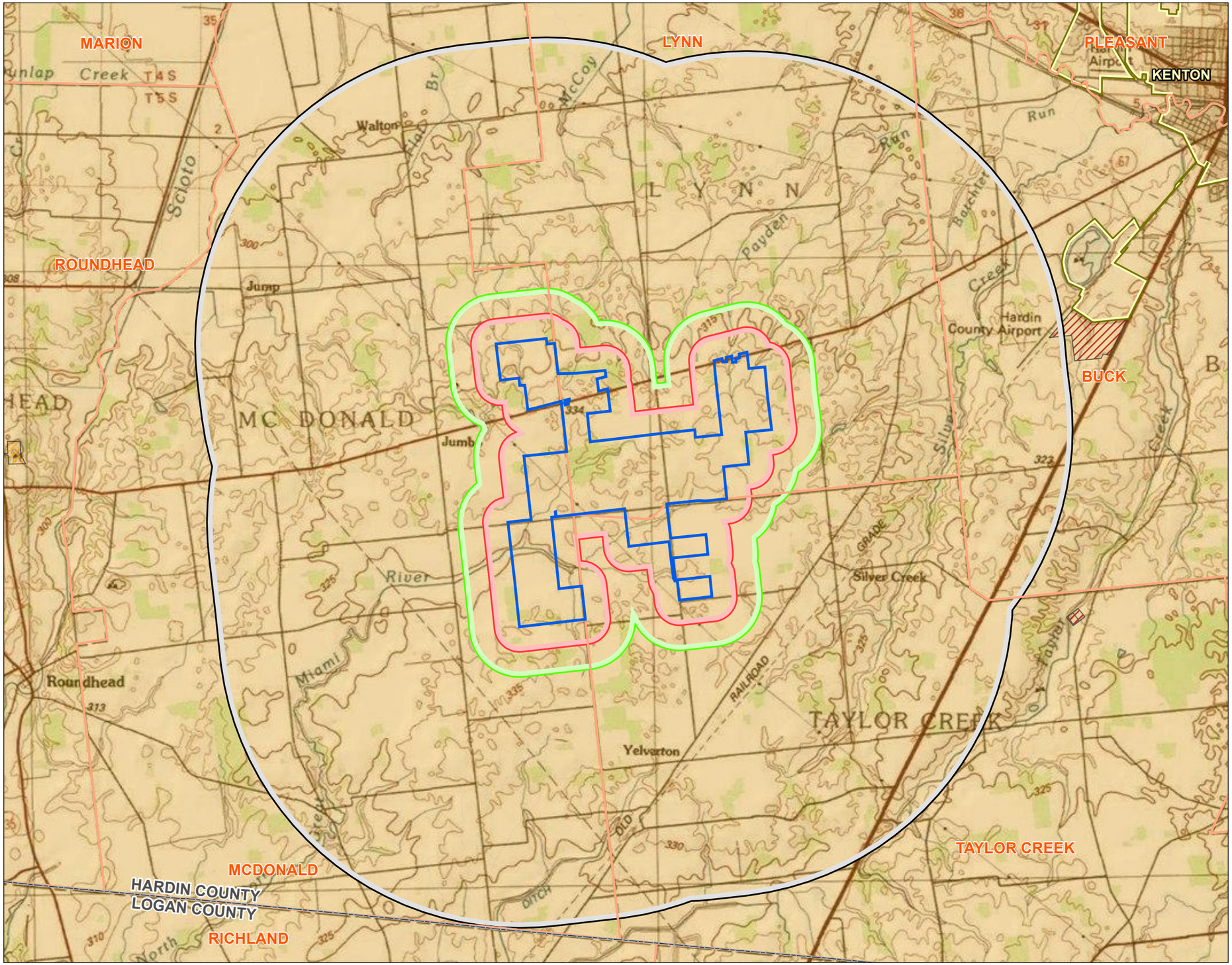


Figure No.
7

DRAFT

Title
Bat Hibernacula Desktop Study Map

Client/Project
Scioto Ridge Solar LLC
Scioto Ridge Solar Project

2028113342

Project Location
Hardin County, OH

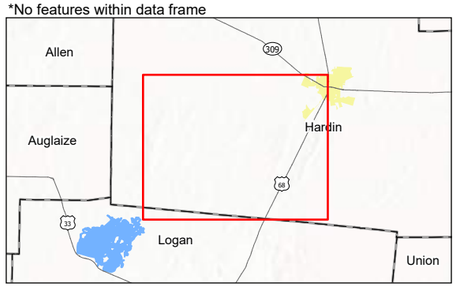
Prepared by ST on 2023-06-12
TR by MZ on 2023-06-12
IR by XX on 2023-XX-XX

N

0 0.5 1 Miles
(At original document size of 11x17)
1:63,360

Legend
- Project Area
- 0.25-Mile Project Area Buffer
- 0.5-Mile Project Area Buffer
- 3-Mile Project Area Buffer
- Abandoned Underground Mine*
- Inactive Mine*
- Active Surface Mine*
- Abandoned Surface Mine Area*
- Abandoned Underground Mine Area*
- Inactive Surface Mine Area
- Active Surface Mine Area
- Surface Mine Area (Unknown Status)*
- Karst Feature*
- Area of Karst Geology

*No features within data frame



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources: Stantec, Scioto Ridge Solar LLC, USGS, ODNR, NADS
3. Background: USGS 7.5' Topographic Quadrangles

Stantec

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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

September 6, 2022

Ms. Courtney Dohoney
Stantec Consulting Services, Inc.
3001 Washington Blvd., Suite 500
Arlington, VA 22201

Project Code: 2022-0072474

Re: Proposed Scioto Solar Project; Hardin County, Ohio

Dear Ms. Dohoney:

The U.S Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

The proposed project is within the vicinity of multiple records of both the Indiana bat and northern long-eared bat. We recommend minimizing tree clearing to the maximum extent possible and avoiding clearing of any woodlots. At this time we are unable to fully assess the potential impact of the project on federally listed bats as project layout has not been determined. Therefore, we recommend additional coordination with this office regarding project siting in order for us to provide project-specific conservation recommendations for federally listed bats.

Please provide additional information on the extent and location of tree clearing proposed. We will then evaluate the potential impact to Indiana bats to determine if a level of use survey is

warranted, in addition to seasonal clearing (removal of trees between October 1 and March 31) to avoid take.

If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are also warranted. Portal surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Pollinator Comments: The Service is working closely with our partners at Ohio Pollinator Habitat Initiative (OPHI) to create and enhance pollinator habitat at solar power installations. Attached for your use is the Ohio Solar Site Pollinator Habitat Planning and Assessment Form. This form was developed by the OPHI Solar Pollinator Program Advisory Team. We recommend that the areas between the solar panels be planted with legumes and wildflowers (i.e. forbs) that are beneficial to pollinators and other wildlife instead of non-native grass. Pollinators are beneficial to agricultural communities like the project area because they pollinate many varieties of fruits and vegetables. The recommended legumes and forbs are short (low-growing) so as not to cast shadows on the solar panels and would only require one to two mowings a year for maintenance, which should allow the project proponent to minimize maintenance costs. For other areas of the installation where vegetation does not have to be low-growing, alternative pollinator mixes are available with a more diverse array of flowering plants. This perennial vegetation will provide beneficial foraging habitat to songbirds and pollinators (e.g., monarch butterfly and the federally listed rusty patched bumblebee) while reducing storm water runoff, standing water, and erosion. Native plants can act as host plants for insect larva while flowering plants provide nectar sources for adult butterflies as well as other pollinators such as hummingbirds. Seeds from these plants can also provide food for a wide variety of bird species. Please contact the Ohio Pollinator Habitat Initiative (http://www.ophi.info/, and specifically

Mike Retterer mrettere@pheasantsforever.org) for further information on solar power facility pollinator plantings.

Recommended low-growing grasses and forbs may include:

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

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

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.state.oh.us

If you have questions, or if we can be of further assistance in this matter, please contact Jenny Finfera at jennifer_finfera@fws.gov.

Sincerely,

Patrice Ashfield
Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Michael Retter, OPHI
Donnie Knight, USFWS

Enclosure: Ohio Solar Site Pollinator Habitat Planning and Assessment Form

Office of Real Estate
John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6621
Fax: (614) 267-4764

September 16, 2022

Courtney Dohoney
Stantec
3001 Washington Blvd, Suite 500
Arlington, VA 22201

Re: 22-0857; Scioto Solar Project

Project: The proposed project involves constructing a 110-megawatt (MW) alternating current utility-scale photovoltaic solar energy project and a 20 MW battery energy storage system (BESS) facility.

Location: The proposed project is located in Lynn, McDonald, and Taylor Creek Townships, Hardin County, Ohio.

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

Real Estate and Land Management: The Office of Real Estate and Land Management (REALM) has the following comments.

The Ohio Department of Natural Resources (ODNR) Guidance for Proposed Solar Energy Facilities in Ohio should be incorporated into the project design and site development plan. This guidance document was developed by multiple Divisions within the Ohio Department of Natural Resources. The guidance document is non-exhaustive and project recommendations are made on a site-specific basis and may include additional considerations. The incorporation of these conditions will help ensure that the project will result in the minimum adverse environmental impact.

Natural Heritage Database: A review of the Ohio Natural Heritage Database indicates there are no records of state or federally listed plants or animals within one mile of the specified project area. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

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

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

The project is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

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

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS "*RANGE-WIDE INDIANA BAT & NORTHERN LONG-EARED BAT SURVEY GUIDELINES*." If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the purple lilliput (*Toxolasma lividus*), a state endangered mussel, and the pondhorn (*Uniomerus tetralasmus*), a state threatened mussel. This project must not have an impact on native mussels. This applies to both listed and non-listed species, as all species of mussel are protected in Ohio. Per the Ohio Mussel Survey Protocol (2022), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, the DOW recommends a professional malacologist collect and relocate the mussels

to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. If there is no in-water work proposed, impacts to mussels are not likely.

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

The project is within the range of the northern harrier (*Circus hudsonis*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the project is not likely to impact this species.

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

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

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

Impacts on Public and Private Water Supplies
The proposed project area is in Lynn, McDonald, and Taylor Creek townships, Hardin County. The construction of the facility is not expected to have significant impacts on public or private well yields. The Groundwater Vulnerability Index for this project area ranges from 110 to 124 (Nelson and Others, 2022). The construction of the facility is not expected to pose a significant groundwater contamination risk.

Groundwater Inventory
Wells developed in limestone bedrock are likely to yield over 100 gallons per minute (Schmidt, 1983 and Ohio Department of Natural Resources, Division of Water, Bedrock Aquifer Map, 2000). ODNR has record of 87 water wells drilled within one mile of the project area the majority of which are completed in the limestone bedrock. Sustainable yields of 5 to 30 gallons per minute have been reported for wells within one mile of the project area (Ohio Department of Natural Resources, Division of Geological Survey, Ohio Water Wells).

Oil, Gas and Mining
ODNR has record of three oil and gas wells within one mile of the proposed project area. Most of these wells are listed as historic wells with an unknown status. There are no known oil and gas wells within the bounds of the project area (Ohio Department of Natural Resources, Division of Oil and Gas, Ohio Oil and Gas Wells Locator).
ODNR does not have record of any mining operations within one mile of the project area.

Geohazards
While the underlying limestone is susceptible to sinkhole formation, the nearest sinkhole is over five miles away and the thickness of glacial drift (27-140 ft.) makes sinkhole formation unlikely (Ohio Department of Natural Resources, Division of Geological Survey, Ohio Karst).
Several small earthquakes have historically been recorded near the site. Events within 15-miles of the site are listed in the chart below (Ohio Department of Natural Resources, Division of Geological Survey, Ohio Earthquake Epicenters):

Date	Magnitude	Distance to Site Boundary	County	Township
June 30, 2020	2.0	6.0	Hardin	Marion
March 3, 1937	3.2	13.0	Allen	Auglaize
January 27, 1956	3.7	13.5	Logan	Stokes
April 27, 1937	3.1	14.4	Allen	Auglaize
June 26, 1930	3.2	14.4	Auglaize	Clay
May 2, 1937	3.1	14.8	Allen	Perry

Soils
The project area consists primarily of soils derived from till. Blount, Pewamo, and Glynwood are the most common soil series found within the boundaries of the project area. There is a moderate risk of shrink-swell potential in these soils. The Pewamo soil, which makes up over 28% of the project area, is a hydric soil which is frequently ponded from November to May. Hydric soils produce an anerobic environment which may speed up the corrosion of certain materials. Slope does exceed a 12% grade in portions of the project area. (Miller and Robbins, 1994 and USDA Web Soil Survey). Areas with high grade are more susceptible to erosion and slumping.

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

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator