

**Letter of Notification for  
the Red Run Station,  
Howard-Fostoria 138 kV  
Cut-in, and Red Run-  
Sycamore Creek Solar 138  
kV Transmission Line  
Project**



An **AEP** Company

PUCO Case No. 24- 0586-EL-BLN

Submitted to:

The Ohio Power Siting Board

Pursuant to Ohio Administrative Code Section  
4906-6-05

Submitted by:

AEP Ohio Transmission Company, Inc.

June 11, 2024

**Letter of Notification for the Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138 kV Transmission Line Project**

**Letter of Notification**

**AEP Ohio Transmission Company, Inc.  
Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138  
kV Transmission Line Project**

**4906-6-05**

AEP Ohio Transmission Company, Inc. (the “Company”) provides the following information to the Ohio Power Siting Board (“OPSB”) pursuant to Ohio Administrative Code Section 4906-6-05.

**4906-6-5(B) General Information**

**B(1) Project Description**

**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.**

The Company proposes to construct the Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138 kV Transmission Line Project (the “Project”) in Cranberry Township, Crawford County Ohio. The purpose of the Project is to provide a 138 kV interconnection to the Sycamore Creek Solar facility (OPSB Case Number 20-1762-EL-BGN), proposed by Sycamore Creek Solar, L.L.C., an Independent Power Producer (IPP). The PJM Queue Position is AC2-015. The Red Run Station will be approximately 1.1 acres and receive looped service from the Howard-Fostoria 138 kV transmission line located immediately south of the station site. The cut-in line is approximately 0.1 miles. In addition, the Project will require a 138 kV generation tie line between the Red Run Station and the IPP’s station totaling less than 0.1 mile. The Project will be built entirely on land owned by a third party but under option to be purchased by the IPP. The land required for the Project is anticipated to be transferred to the Company prior to construction. The location of the Project is shown on Figure 1 and Figure 2 in Appendix A.

The Project meets the requirements for a LON because it is within the types of projects defined by item 3 of Ohio Administrative Code Section 4906-1-01 Appendix A of the Application Requirement Matrix for Election Power Transmission Lines. This Project also combines multiple components that would be included in a Construction Notice but are combined into the LON with the construction of a new station.

*(3) Construction of a new electric power transmission substation.*

The Project has been assigned PUCO Case No. 24- 0586-EL-BLN.

# Letter of Notification for the Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138 kV Transmission Line Project

## **B(2) Statement of Need**

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

First Solar LLC requested 138 kV service to build a new 117 MW solar generating facility in Crawford County, Ohio. The Company is required to connect transmission assets to the proposed solar facility, as part of the AC2-015 IPP Interconnection Service Agreement. To allow the IPPs connection, the Company will cut into the Chatfield -Howard 138 kV Transmission Line (Howard – West End Fostoria 138kV Circuit) and loop into the Company's Red Run Substation.

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 n5700. The Project was included in the Ohio Transmission Company's 2024 Supplemental Long Term Forecast Report on Pages 87, 88, and 134 (See Appendix B).

## **B(3) Project Location**

**The applicant shall 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 the existing transmission facilities is shown in Figure 1 of Appendix A.

## **B(4) Alternatives Considered**

**The applicant shall describe the alternatives considered and reasons why the proposed location or route is best suited for the proposed facility. The discussion shall include, but not be limited to, impacts associated with socioeconomic, ecological, construction, or engineering aspects of the project.**

The Project is located on land currently owned by a third party but under option to purchase by the IPP. The Project is anticipated to be located on property transferred to the Company and within the overall development of the solar generation facility. Transfer of the property to Company ownership is expected to occur prior to the construction. No impacts to streams or cultural resources or tree clearing are anticipated for the Project. No residences are located within 1,000 feet. Based on the IPP's proposed development and existing facilities in the area, the proposed location is the most suitable and least impactful for the Project. Other alternatives would require impacting neighboring properties and would add additional transmission length to the associated projects without any additional benefit. Therefore, this alternative represents the

## **Letter of Notification for the Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138 kV Transmission Line Project**

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**

**The applicant shall describe its public information program to inform affected property owners and tenants of the nature of the project and the proposed timeframe for project construction and restoration activities.**

The Company will inform the surrounding community including adjacent property owners and tenants about this Project through several different mediums. Within seven days of filing this LON, the Company will issue a public notice in a newspaper of general circulation in the Project area. The notice will comply with all requirements of Ohio Revised Code ("OAC") Section 4906-6-08(A)(1-6). Further, the Company will mail a letter, via first class mail, to affected landowners, tenants, and contiguous owners. The letter will comply with all requirements of OAC Section 4906-6-08(B). The Company maintains a website (<http://aeptransmission.com/ohio/>) which provides the public access to an electronic copy of this LON and the public notice of this LON. An electronic copy of the LON will be served to the public library in each political subdivision affected by this Project.

### **B(6) Construction Schedule**

**The applicant shall provide an anticipated construction schedule and proposed in-service date of the project.**

Construction of the Project is planned to begin in September 2024, and the anticipated in-service date will be May 2025.

### **B(7) Area Map**

**The applicant shall provide a map of at least 1:24,000 scale clearly depicting the facility with clearly marked streets, roads, and highways, and an aerial image.**

Figure 1 in Appendix A provides the proposed Project area on a map of 1:24,000-scale (1-inch equals 2,000 feet), showing the Project on the United States Geological Survey (USGS) 7.5-minute topographic map of the New Washington, Ohio quadrangle. Figure 2 in Appendix A shows the Project area on recent aerial photography, dated 2023, as provided by ESRI's World Imagery at a scale of 1:6,000 scale (1-inch equals 500 feet).

To visit the Project site from Columbus, Ohio, take I-71 North approximately 31.5 miles to Exit 140 toward Mt. Gilead/Cardington. Turn left onto State Route 61 North and continue for 11.8 miles. Turn right to stay on State Route 61 North/Main Street. After 12.1 miles, turn left onto Bloomingrove-New Winchester Road/Crawford Morrow County Line Road. Continue for 0.4 miles and turn right onto Biddle Road. After 1.7 miles, turn left onto OH-19 North. Continue for 2.2 miles and turn right onto OH-602 North. The Project

**Letter of Notification for the Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138 kV Transmission Line Project**

will be on the left after approximately 12.4 miles at the approximate address of 6292 OH-602, New Washington, Ohio 44854 at latitude 40.931712, longitude -82.862039.

**B(8) Property Agreements**

**The applicant shall 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.**

All work activities are proposed on Parcel 130002242001, which is currently owned by a private landowner. The IPP currently holds an option to purchase a portion of the property on which the Project will be situated. The portion of the property needed for the station and cut-in line is anticipated to be transferred to the Company prior to the construction.

**B(9) Technical Features**

**The applicant shall 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.**

The equipment and facilities anticipated to be installed for the Project include the following:

Red Run Station

- 1 - 27'x16' Drop In Control Module
- 3 - 138kV Circuit Breakers

Howard-Fostoria Cut-in

- Voltage: 138 kV
- Conductors: (3) 1033.5 KCM ACSR 54/7 (Curlew)
- Static Wire: (2) 7#8 Alumoweld
- Insulators: Polymer
- ROW Width: 100 feet
- Structure Type: (3) Single circuit, monopole deadend, custom concrete pier foundation

Red Run-Sycamore Creek Solar Transmission Line

- Voltage: 138 kV
- Conductors: (3) 795 KCM ACSR 26/7 (Drake)
- Static Wire: (2) 96-ct OPGW
- Insulators: Polymer
- ROW Width: 100 feet
- Structure Type: (1) Single Circuit, monopole deadend, custom concrete pier foundation

**Letter of Notification for the Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138 kV Transmission Line Project**

**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 \$16,300,000 using a Class 3 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 Characteristics**

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

Aerial photography of the Project vicinity is provided as Figure 2 in Appendix A. The Project is located in Cranberry Township, Crawford County, Ohio. Land use in the Project area consists of agricultural fields with the proposed solar facility occupying adjacent areas. No tree clearing is anticipated for the Project.

**B(10)(b) Agricultural Land Information**

**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, adjacent areas, and much of the surrounding vicinity are located on former agricultural land. Much of this area will be used for the approved IPP solar generation facility. On May 10, 2024, the Crawford County Auditor indicated that the parcel where the Project is located, is registered as Agricultural District Land. However, the portion of the parcel that will be transferred to the Company is expected to be withdrawn from the Agricultural District Land program.

**Letter of Notification for the Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138 kV Transmission Line Project**

**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.**

The IPP completed a Phase I Archaeological and Historic Architecture survey for the overall solar generation facility, which included the Project location. The investigation identified some cultural resources, but no archaeological sites are within the work areas of the Project and no architectural resources are in the immediate vicinity. The IPP and the Ohio Historic Preservation Office (“SHPO”) agreed to a Memorandum of Understanding (MOU) for the overall solar generation facility including the Project location. A copy of the June 3, 2021, MOU is provided in Appendix C.

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

**Provide a list of the local, state, and federal government 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 Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction stormwater discharges under General Permit OHC000006. The Company will implement and maintain best management practices as outlined in the Project-specific Storm Water Pollution Prevention Plan (“SWPPP”) to minimize erosion control sediment to protect surface water quality during storm events.

The IPP’s consultant conducted an ecological survey of over 900 acres for their solar facility, which included the Project location. A Jurisdictional Waters Delineation Report and an Ecological Assessment Report were prepared by the IPP’s consultant in January 2021 and February 2021, respectively. Relevant excerpts of the reports are included in Appendix D. One palustrine emergent (PEM) wetland was delineated on the overall Project property to the west of Red Run Substation during the 2020-21 investigations. No streams or open water features were identified on the Project property. The IPP requested a Jurisdictional Determination (JD) from the United States Army Corps of Engineers (USACE) for the wetlands delineated by their consultant. An Approved JD (LRB-2021-00280) was received on January 10, 2022. The PEM wetland to the west of Red Run Station was deemed non-jurisdictional by USACE as prior converted cropland. Email correspondence between the Ohio Environmental Protection Agency (OEPA) and the consultant confirmed the wetland is not regulated by OEPA as well. A copy of the approved JD and email correspondence is provided in Appendix D.

The FEMA Flood Insurance Rate Map was reviewed to identify any floodplains/flood hazard areas that have been mapped within the Project area (specifically, map number **39147C0600D**). Based on this mapping, no mapped FEMA floodplains are located in the Project area. Therefore, no floodplain permit will be required for this Project.

## Letter of Notification for the Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138 kV Transmission Line Project

There are no other known local, state, or federal requirements that must be met prior to the commencement of the proposed Project.

### **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, a coordination letter was submitted to the United States Fish and Wildlife Service ("USFWS") Ohio Ecological Services Field Office seeking technical assistance on the Project for potential impacts to threatened or endangered species. The January 5, 2021, response letter from the USFWS (see Appendix C) indicated that the federally endangered Indiana bat and federally threatened northern long-eared bat occur throughout Ohio. Since the time of the 2021 coordination, the status of the northern long-eared bat has been changed to federally endangered. USFWS recommended seasonal tree clearing, if necessary, between October 1 and March 31, and summer presence/absence survey if seasonal tree clearing restrictions are not possible. No tree clearing is anticipated as part of the Project. Due to the Project type, size, and location, USFWS does not anticipate adverse effects to any other federally endangered, threatened, or proposed species or proposed or designated critical habitat.

A coordination letter was submitted by the IPP's consultant to the Ohio Department of Natural Resources ("ODNR") Division of Wildlife ("DOW") Ohio Natural Heritage Program ("ONHP") and the ODNR - Office of Real Estate seeking an environmental review of the proposed Project for potential impacts on state-listed and federally-listed threatened or endangered species. Correspondence from ODNR's DOW/OHNP and the ODNR - Office of Real Estate was received on December 30, 2020 (see Appendix C).

According to the ODNR-DOW, the Project is within the range of the Indiana bat, northern long-eared bat, little brown bat, and tricolored bat. The ODNR recommends cutting between October 1 and March 31, if necessary. However, no tree clearing is anticipated for the Project. A review of potential winter bat hibernacula including underground mine openings and karst features was conducted within 0.25 miles of the Project. No potential hibernacula were identified. Therefore, no additional coordination with ODNR regarding bats is required.

ODNR recommended no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. The proposed design avoids impacts to perennial streams. Therefore, no impacts to mussel or fish species are anticipated.

The ODNR-DOW indicated that the Project is within the range of the eastern massassauga and smooth greensnake, state endangered snakes; and the Kirtland's snake, a state threatened species. ODNR stated that due to the location and type of habitat present, the Project is not likely to impact these species.

**Letter of Notification for the Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138 kV Transmission Line Project**

**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.**

Based on correspondence with ODNR, review of desktop GIS data, and a site reconnaissance, no unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, or other protected natural areas were identified within the Project area.

FEMA Flood Insurance Rate Maps were consulted to identify any floodplains/flood hazard areas that have been mapped in the Project area (specifically, map number **39147C0600D**). Based on these maps, no mapped FEMA floodplains are located in the Project area.

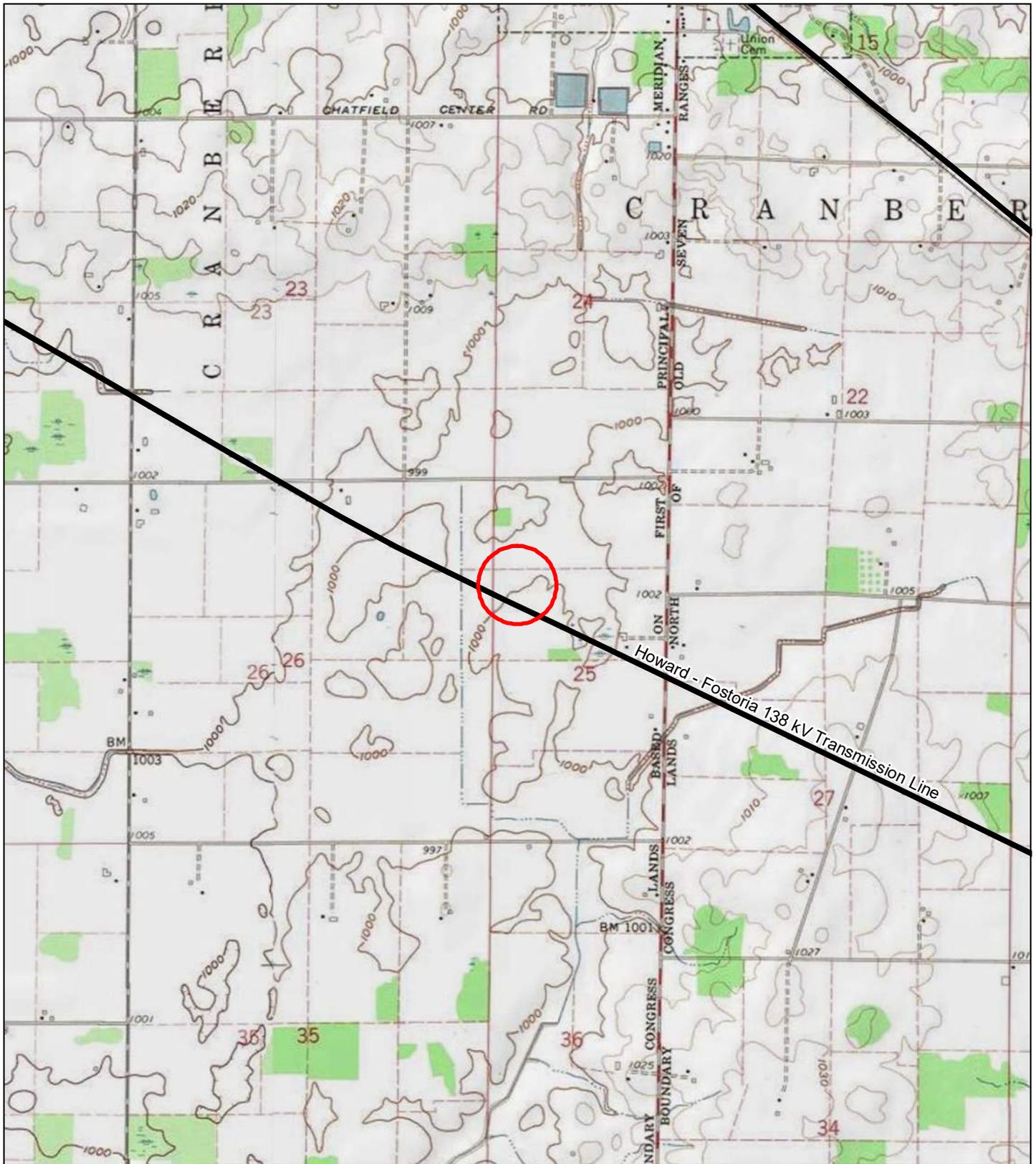
The IPP's consultant conducted an ecological survey of over 900 acres for their solar facility, which included the Project location. One PEM wetland was delineated on the overall Project property to the west of Red Run Substation. No streams or open water features were identified on the Project property. An Approved JD (LRB-2021-00280) was received on January 10, 2022. The PEM wetland to the west of Red Run Station was deemed non-jurisdictional by USACE and not regulated by OEPA. A copy of the approved JD and correspondence with the OEPA is provided in Appendix D.

**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

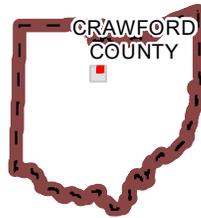
Data Sources: AEP, USGS 7.5' Topographic Quadrangle (New Washington, Ohio)

Ohio State Plane North NAD 1983



May 10, 2024

**PROJECT LOCATION**



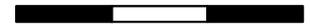
CRAWFORD COUNTY, OHIO

**FIGURE 1  
TOPOGRAPHIC OVERVIEW**



Red Run Station, Howard-Fostoria 138 kV Cut-in, and Red Run-Sycamore Creek Solar 138 kV Transmission Line Project

0 1,000 2,000 3,000



Feet



**Legend**

- ▭ Proposed Red Run Station Fence
- Proposed 138 kV Transmission Line
- Proposed IPP Station
- Existing Transmission Line
- Parcel Boundary

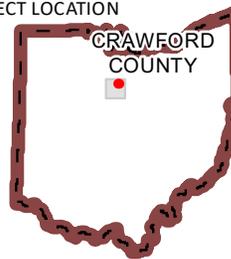
Data Sources: AEP,  
ESRI World Imagery, 2021

Ohio State Plane North  
NAD 1983



May 10, 2024

**PROJECT LOCATION**

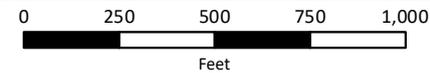


CRAWFORD COUNTY, OHIO

**FIGURE 2  
PROJECT AERIAL MAP**



Red Run Station, Howard-Fostoria  
138 kV Cut-in, and Red Run-  
Sycamore Creek Solar 138 kV  
Transmission Line Project



## **Appendix B PJM and Long-Term Forecast Report References**



## AEP Transmission Zone

<b>Upgrade Id</b>	<b>Project Description</b>	<b>Cost Estimate (\$M)</b>	<b>Driver</b>
n5678	Upgrade line protection and controls at the Corwin 138 kV substation to coordinate with the expanded Elk 138 kV substation.	0.25	AC1-194
n4057	Perform a sag study on the UnivPark - Olive 345 kV line	0.26	AC1-204
n5699	Build a new 138 kV Switching Station with required Protection and Controls	5.95	AC2-015
n5700	Construct Howard - Chatfield 138 kV T-Line Cut In	1	AC2-015
n5701	Install 138 kV Revenue Metering at the new AC2-015 substation	0.25	AC2-015
n5702	Upgrade line protection and controls at the Chatfield 138 kV substation to coordinate with the new 138 kV switching station.	0.25	AC2-015

PUCO Form FE-T9: Ohio Transmission Company  
Specifications of Planned Electric Transmission Lines

12	<b>CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION</b>	Unable to provide requested service to customer
13	<b>MISCELLANEOUS:</b>	
1	<b>LINE NAME AND NUMBER:</b>	Chatfield - Howard 138 kV (AC2-015 TP2019144)
2	<b>POINTS OF ORIGIN AND TERMINATION</b>	Chatfield - Howard INTERMEDIATE STATION - Red Run
3	<b>RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS</b>	16 miles / 100 ft / 1 circuit (~0.1 miles of line work)
4	<b>VOLTAGE: DESIGN / OPERATE</b>	138 kV / 138 kV
5	<b>APPLICATION FOR CERTIFICATE:</b>	2024
6	<b>CONSTRUCTION:</b>	2023-2024
7	<b>CAPITAL INVESTMENT:</b>	\$1.018 M
8	<b>PLANNED SUBSTATION:</b>	Red Run
9	<b>SUPPORTING STRUCTURES:</b>	Steel
10	<b>PARTICIPATION WITH OTHER UTILITIES</b>	N/A
11	<b>PURPOSE OF THE PLANNED TRANSMISSION LINE</b>	Provide service to new generation customer.
12	<b>CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION</b>	Unable to provide requested service to customer
13	<b>MISCELLANEOUS:</b>	
1	<b>LINE NAME AND NUMBER:</b>	Red Run - First Solar 138 kV (AC2-015 TP2019144)
2	<b>POINTS OF ORIGIN AND TERMINATION</b>	Red Run - First Solar INTERMEDIATE STATION - N/A

PUCO Form FE-T9: Ohio Transmission Company  
Specifications of Planned Electric Transmission Lines

3	<b>RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS</b>	0.1 miles / 100 ft / 1 circuit
4	<b>VOLTAGE: DESIGN / OPERATE</b>	138 kV / 138 kV
5	<b>APPLICATION FOR CERTIFICATE:</b>	2024
6	<b>CONSTRUCTION:</b>	2023 / 2024
7	<b>CAPITAL INVESTMENT:</b>	\$0.189 M
8	<b>PLANNED SUBSTATION:</b>	Red Run
9	<b>SUPPORTING STRUCTURES:</b>	Steel
10	<b>PARTICIPATION WITH OTHER UTILITIES</b>	N/A
11	<b>PURPOSE OF THE PLANNED TRANSMISSION LINE</b>	Provide service to new generation customer.
12	<b>CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION</b>	Unable to provide requested service to customer
13	<b>MISCELLANEOUS:</b>	
1	<b>LINE NAME AND NUMBER:</b>	Spickard - Dodson Creek 138 kV (AC2-061 TP2020137)
2	<b>POINTS OF ORIGIN AND TERMINATION</b>	Spickard - Dodson Creek INTERMEDIATE STATION - N/A
3	<b>RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS</b>	0.1 miles / 100 ft / 1 circuit
4	<b>VOLTAGE: DESIGN / OPERATE</b>	138 kV / 138 kV
5	<b>APPLICATION FOR CERTIFICATE:</b>	2023
6	<b>CONSTRUCTION:</b>	2023
7	<b>CAPITAL INVESTMENT:</b>	\$0.05 M
8	<b>PLANNED SUBSTATION:</b>	Spickard

PUCO Form FE-T10: Ohio Transmission Company  
Summary of Proposed Substations

Substation Name	Voltage(s) (kV)	Type Distribution (D) Transmission (T)	Timing	Line Association(s)	Line Existing or Proposed	Minimum Substation Site Acreage
Tarrapin (AC1-188 TP2018191)	138kV	T	2024 - 2025	Terrapin - Dixon Run 138 kV	P	Approx. 2
Red Run (AC2-015 TP2019144)	138 kV	T	2023 - 2024	Chatfield - Red Run 138 kV	P	Approx. 8
Red Run (AC2-015 TP2019144)	138kV	T	2023 - 2024	Howard - Red Run 138 kV	P	Approx. 8
Red Run (AC2-015 TP2019144)	138kV	T	2023 - 2024	Red Run - First Solar 138 kV	P	Approx. 8
Spickard (AC2-061 TP2020137)	138 kV	T	2023	Hillsboro - Spickard 138 kV	P	Approx. 8
Spickard (AC2-061 TP2020137)	138kV	T	2023	Clinton County (Duke) - Spickard 138 kV	P	Approx. 8
Spickard (AC2-061 TP2020137)	138kV	T	2023	Spickared - Dodson Creek 138 kV	P	Approx. 8
Rocky Ford (AE1-146 TP2020271)	138 kV	T	2023 - 2024	Ebersole - Rocky Ford 138 kV	P	Approx. 8
Rocky Ford (AE1-146 TP2020271)	138kV	T	2023 - 2024	Fostoria Central - Rocky Ford 138 kV	P	Approx. 8
Rocky Ford (AE1-146 TP2020271)	138kV	T	2023 - 2024	Rocky Ford - Arcadia 138 kV	P	Approx. 8
Cyprus (TP2022769)	138 / 345	T	2024	Beatty - Cyprus 345 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Bixby - Cyprus 345 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Cyprus - White Road 138 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Canal Street - Cyprus 138 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Cyprus - Fethers McGraw E 138 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Cyprus - Fethers McGraw F 138 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Cyprus - Chilly Willy C 138 kV	P	Station expansion
Cyprus (TP2022769)	138 / 345	T	2024	Cyprus - Chilly Willy D 138 kV	P	Station expansion
Innovation (TP2022055)	138 / 345 kV	T	2024	Corridor - Innovation 345 kV	E	Station expansion
Innovation (TP2022055)	138 / 345 kV	T	2024	Conesville - Innovation 345 kV	E	Station expansion
Innovation (TP2022055)	138 / 345 kV	T	2024	Innovation - Mordor 138 kV #1	P	Station expansion
Innovation (TP2022055)	138 / 345 kV	T	2024	Innovation - Mordor 138 kV #2	P	Station expansion
Bermuda (TP2023011)	345 kV	T	2025 - 2026	Bermuda - innovation 345 kV	P	Approx. 6
Bermuda (TP2023011)	345 kV	T	2025 - 2026	Bermuda - Corridor 345 kV	P	Approx. 6

**Appendix C Agency Coordination**

**MEMORANDUM OF UNDERSTANDING  
BETWEEN THE OHIO STATE HISTORIC PRESERVATION  
OFFICE AND SYCAMORE CREEK SOLAR, LLC REGARDING THE  
SYCAMORE CREEK SOLAR ENERGY PROJECT IN  
CRAWFORD COUNTY, OHIO**

**WHEREAS**, on February 12, 2021 Sycamore Creek Solar, LLC (“Sycamore Creek Solar”) submitted an application for a Certificate of Environmental Compatibility and Public Need in Case No. 20-1762-EL-BGN (“Certificate”) to the Ohio Power Siting Board (“OPSB”), and intends to operate the Sycamore Creek Solar Energy Project (“Project”), an up to 117 MW solar-powered electric generating facility to be located in Cranberry Township in Crawford County, Ohio.

**WHEREAS**, a Phase I Archaeological Reconnaissance Survey and Report and a Phase I History Architecture Reconnaissance Survey and Report were completed (collectively, the “Reports”);

**WHEREAS**, Sycamore Creek Solar and the Ohio State Historic Preservation Office (“SHPO”) established an Area of Potential Effects (“APE”) for the Survey to include the area of potential ground disturbance and any property that may be physically altered or destroyed by the Project, as well as a visual radius around the Project for visual impacts; and

**WHEREAS** the Reports identified cultural resources of archaeological or architectural significance;

**WHEREAS**, the archaeological sites 33CR1224 and 33CR1252 were identified within the boundaries of the Project and determined through SHPO consultation to be potentially eligible for the NRHP;

**WHEREAS**, three architectural resources were identified within the visual APE of the Project through the Survey (Ohio Historic Inventory Ref. Nos. CRA0013704, CRA0077404, and CRA0076704), which have been determined as individually eligible for listing in the National Register of Historic Places (“NRHP”);

**WHEREAS**, one of the three resources were preliminarily identified in the Phase I History Architecture Reconnaissance Survey and Report as having potential indirect adverse effects due to visual impacts from the Project (Ohio Historic Inventory Ref. No. CRA0077404);

**WHEREAS**, adverse impacts from the Project are not anticipated to resources CRA0013704 and CRA0076704 due to their distance from the Project, existing vegetation in the direct vicinity of these resources that assist with screening, existing vegetation at greater distances from the resources that help to obscure portions of the Project’s aboveground infrastructure from view, and the continued traditional agricultural use of the surrounding landscape;

**WHEREAS**, Sycamore Creek Solar utilized its currently proposed Landscape Mitigation Plan as submitted in their application to the OPSB to address visual impacts to resource CRA0077404 from the Project and propose strategies to mitigate adverse impacts, a copy of which is attached as **Exhibit A**;

**WHEREAS**, Effects and Mitigation Measures for the foregoing resources have been identified as **Exhibit B**.

# For Review

03/13/2024 12:39:46 PM

**NOW, THEREFORE**, the SHPO and Sycamore Creek Solar agree in this Memorandum of Understanding (“MOU”) as follows:

## **I. RECITALS**

The recitals set forth above are incorporated into and are made a part of this MOU.

## **II. STIPULATIONS**

- A. The SHPO agrees that the provisions of **Exhibit A** specific to the foregoing identified resources the associated resource specific mitigation measures adequately address the impacts to the resources identified in the recitals to this MOU.
- B. The SHPO and Sycamore Creek Solar agree that if the Project is constructed, the Project shall be implemented in accordance with the following stipulations to account for the effect of the Project on historic resources.
  1. Sycamore Creek Solar will avoid ground disturbance in the designated avoidance areas for archaeological sites 33CR1224 and 33CR1252 (**Exhibit B**). Construction fencing will be placed within the 25-foot buffer of these resources, near the buffer edge, prior to construction to physically demarcate the area from construction personnel, indicating avoidance. This fencing will be maintained in good condition throughout the duration of construction. Sycamore Creek Solar may revise the components of Exhibit B upon development of the Project’s final facility layout without affecting the protection measures of these resources.
  2. Subject to paragraph 3 below, Sycamore Creek Solar will implement a project-specific Landscape Mitigation Plan to mitigate for adverse effects.
  3. Sycamore Creek Solar may revise the Landscape Mitigation Plan upon development of the Project’s final facility layout subject to the following conditions:
    - a. National Grid shall maintain agreed upon vegetative screening for one architectural resource (Ohio Historic Inventory Ref. No. CRA0077404) for the life of the facility as defined in this agreement document, and shall replace any failed plantings so that, after five years, at least 90 percent of the vegetation has survived. National Grid shall maintain all perimeter project fencing in proximity to that resource for the term of the Project and shall promptly repair any damage as needed. Lighting will be down lit, and switch and motion activated to the extent practicable.
    - b. Changes to the Landscape Mitigation Plan that do not impact views to the resources identified in paragraph (a) above are not subject to SHPO review.
    - c. Any reduction in screening between aboveground project components and the resources identified in paragraph (a) above shall not occur unless an amendment to this MOU is executed pursuant to Section IV of this MOU.

### **III. POST-REVIEW DISCOVERIES**

1. In the event that Sycamore Creek Solar discovers a previously unidentified site within the APE that may be eligible for listing in the NRHP that would be affected by the Project, Sycamore Creek Solar shall promptly stop work in the immediate area of the unidentified site and notify the SHPO within 48 hours of the discovery. If Sycamore Creek Solar and SHPO concur that the discovered resource is eligible for listing in the NRHP, Sycamore Creek Solar will consult with the SHPO to evaluate measures that will avoid, minimize, and/or mitigate adverse effects. Upon agreement between Sycamore Creek Solar and SHPO regarding such measures, Sycamore Creek Solar shall implement the measures and notify the OPSB through its Staff of the implementation of the measures.
2. If Sycamore Creek Solar discovers any human or burial remains during implementation of the Project, Sycamore Creek Solar shall cease work immediately in the surrounding area, notify the SHPO and the OPSB's Staff and adhere to applicable state and federal laws regarding the treatment of human or burial remains.

### **IV. AMENDMENTS**

This MOU may be amended upon the written agreement of the SHPO and Sycamore Creek Solar. The amendment will be effective on the date a copy is signed by all parties unless otherwise stated and agreed to in the amendment.

### **V. TERMINATION**

If Sycamore Creek Solar determines that the terms of this MOU will not or cannot be carried out, they shall immediately consult with the SHPO to attempt to develop an amendment per Section IV of this MOU. If terms of an amendment cannot be reached within thirty days, the MOU may be terminated upon written notification to the SHPO.

Should the OPSB deny Sycamore Creek Solar's application for a Certificate and such order of the OPSB becomes final and non-appealable, then either party may terminate this MOU at its discretion by providing written notice to the other party.

### **VI. DURATION**

This MOU is effective upon its execution by both the SHPO and Sycamore Creek Solar and shall remain in effect leading up to and upon receipt of a Certificate issued by the OPSB to Sycamore Creek Solar or any subsequent transferee. Thereafter, this MOU shall remain in effect until expiration of the Certificate.

**VII. EXECUTION IN COUNTERPARTS**

This MOU may be executed in counterparts, with a separate page for each signatory, each of which shall constitute an original, and all of which shall constitute one and the same agreement.

**Ohio History Connection  
State Historic Preservation Office**

**Diana Welling**

Digitally signed by Diana Welling  
DN: cn=Diana Welling, o=Ohio History Connection,  
ou=State Historic Preservation Office,  
email=dwelling@ohiohistory.org, c=US  
Date: 2021.06.03 12:56:21 -0400

6/3/2021

Diana Welling, Department Head &  
Deputy State Historic  
Preservation Officer for  
Resource Protection &  
Review

Date

Contact:

800 East 17th Avenue Columbus, OH 43215  
614-298-2000  
[dwelling@ohiohistory.org](mailto:dwelling@ohiohistory.org)

**Sycamore Creek Solar, LLC**



5/28/2021

---

Melissa Schmit, Director, Permitting  
Authorized Signatory Sycamore Creek Solar, LLC

Date

Contact:

8400 Normandale Lake Blvd Suite 1200,  
Bloomington, MN 55437

[melissa@nationalgridrenewables.com](mailto:melissa@nationalgridrenewables.com)



# Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

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

December 30, 2020

Justin Pitts  
TRC  
781 Science Boulevard, Suite 200  
Gahanna, Ohio 43230

**Re:** 20-1041; Sycamore Solar Project

**Project:** The proposed project involves the construction of a solar facility on approximately 971 acres.

**Location:** The proposed project is located in Chatfield and Cranberry Townships, Crawford County, Ohio.

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

**Natural Heritage Database:** The Natural Heritage Database has no records at or within a one-mile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

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

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

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

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

Recommended low-growing grasses and forbs may include:

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

The entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these species of bats predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. If trees are present within the project area, and trees must be cut, the DOW recommends cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH  $\geq 20$  if possible. If trees are present within the project area, and trees must be cut during the summer months, the DOW recommends a mist net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting.

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

The DOW also recommends that a desktop habitat assessment, followed by a field assessment if needed, is conducted to determine if there are potential hibernaculum(a) present within the project area. Information about how to conduct habitat assessments can be found in the current USFWS “Range-wide Indiana Bat Survey Guidelines.” If a habitat assessment finds that potential hibernacula are present within 0.25 miles of the project area, please send this information to Sarah Stankavich, [sarah.stankavich@dnr.state.oh.us](mailto:sarah.stankavich@dnr.state.oh.us) 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 DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

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

The project is within the range of the eastern massasauga (*Sistrurus catenatus*), a state endangered and a federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as adjacent drier upland habitat. Due to the location, and the type of habitat within the project area, this project is not likely to impact this species.

The project is within the range of the smooth greensnake (*Opheodrys vernalis*), a state endangered species. This species is primarily a prairie inhabitant, but also found in marshy meadows and roadside ditches. Due to the location, and the type of habitat within the project area, this project is not likely to impact this species.

The project is within the range of the Kirtland’s snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet fields and meadows. Due to the location, and the type of habitat within the project area, this project is not likely to impact this species.

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

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

### **Physiographic Region**

The proposed project area is in Cranberry Township, Crawford County. This area is in the Central Ohio Clayey Till Plain physiographic region. This region is characterized by well-defined moraines as well as flat-lying ground moraines. Intermorainal lake basins filled with silt, clay and till are present. There are few large streams and limited sand and gravel outwash. A high-lime Wisconsinan-age till covers Lower Paleozoic-age carbonate rocks and shales (Ohio Department of Natural Resources, Division of Geological Survey, 1998).

### **Surficial/Glacial Geology**

The project area lies within the glaciated margin of the state and includes several Wisconsin-aged glacial features. The northern portion of the project area is covered by the hummocky New Washington Moraine. The southern portion of the project area is laminated lacustrine clay deposited in the calm water of the Tabor School Glacial Lake (Pavey et al, 1999 and Totten, 1983). Glacial drift throughout most of the study area is between 57 and 130 feet thick. Drift is thinnest in the southern portion of the study area and thickest in the north (Powers and Swinford, 2004).

### **Bedrock Geology**

The uppermost bedrock unit in the project area is the Ohio Shale. This unit underlies the project area. This unit consists of three members in descending order: the Cleveland Member is characterized by a black shale, the Chagrin Member is characterized by a gray to greenish gray shale, siltstone, and very-fine grained sandstone, the Huron Member is characterized by a mostly black carbonaceous shale. It should be noted that bedrock is not exposed at the surface within the boundaries of the project area due to significant glacial drift (Slucher et al, 2006).

### **Oil, Gas and Mining**

ODNR has record of four oil and gas wells within one mile of the proposed project area. Most of these wells are listed as dry and abandoned. The nearest oil and gas well is located 0.4 miles southwest of the project area and is listed as dry (Ohio Department of Natural Resources, Division of Oil and Gas, *Ohio Oil and Gas Wells Locator*).

ODNR does not have record of any mining operations within the project area. The nearest mine is the active Bloomville Site operated by Hanson Aggregates Davon, LLC. The quarry is located 8.6 miles to the northwest of the project area (Ohio Department of Natural Resources, Division of Mineral Resources, *Mines of Ohio*).

### **Seismic Activity**

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

Date	Magnitude	Distance to Site Boundary	County	Township
January 12, 1995	3.3	12.3 miles	Richland	Springfield
July 26, 2001	2.7	16.3 miles	Huron	Ripley
November 25, 1998	3.2	16.8 miles	Huron	Ripley

### **Karst**

Karst features usually form in areas that are covered by thin or no glacial drift and the bedrock is limestone or dolomite. There are no sinkholes within the bounds of the project area. The nearest verified sinkhole is 9 miles to the northwest of the project area (Ohio Department of Natural Resources, Division of Geological Survey, *Ohio Karst*).

### **Soils**

According to the USDA Web Soil Survey, the project area consists primarily of soils derived from glacial till, loess, lacustrine deposits and glaciolacustrine deposits. Lenawee, Bono, and Luray are the most common soil series found within the boundaries of the project area. Together

these soils cover over 59% of the project area and have a silty clay loam soil texture. The remaining soils have a silt loam texture (USDA Web Soil Survey).

There is a moderate risk of shrink-swell potential in these soils. Slope is variable, with slope seldom exceeding a 6% grade. Steepest slopes are on the moraine ridge (Steiger et al., 1979 and USDA Web Soil Survey).

## **Groundwater**

Groundwater resources are moderate in the project area. Bedrock groundwater yields are limited throughout the project area. Wells developed in the bedrock are likely to yield up to 5 gallons per minute (Schmidt, 1981 and Ohio Department of Natural Resources, Division of Water, *Bedrock Aquifer Map*, 2000). Unconsolidated aquifer yields are moderate throughout project area. Wells developed in glacial material are likely to yield 5 to 25 gallons per minute. Higher groundwater yields typically reflect larger diameter, properly developed and screened wells (Ohio Department of Natural Resources, Division of Water, *Statewide Unconsolidated Aquifer Map*, 2000).

ODNR has record of 81 water wells drilled within one mile of the project area. These wells range in depth from 23 to 305 feet deep, with an average depth of 83 feet. The most common aquifer listed is sand and gravel. 56 wells list sand and gravel as the aquifer. The remaining 25 wells list shale as the aquifer. A sustainable yield of 5 to 50 gallons per minute is expected from wells drilled in this area based on well log records. The average sustainable yield from these records within one mile was 15 gallons per minute. This is based on records from 11 wells within one mile of the project area that contain sustainable yield data (Ohio Department of Natural Resources, Division of Water, *Ohio Water Wells*).

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

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

[http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List\\_8\\_16.pdf](http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf)

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

Mike Pettegrew  
Environmental Services Administrator (Acting)

## References:

- Ohio Department of Natural Resources, Division of Geological Survey, *Ohio Earthquake Epicenters*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=earthquakes>
- Ohio Department of Natural Resources, Division of Geological Survey, *Ohio Karst*, online interactive map, [https://gis.ohiodnr.gov/website/dgs/karst\\_interactivemap/](https://gis.ohiodnr.gov/website/dgs/karst_interactivemap/)
- Ohio Department of Natural Resources, Division of Geological Survey, (1998). *Physiographic Regions of Ohio*. Ohio Department of Natural Resources, Ohio Department of Natural Resources, Division of Geological Survey, map with text, 2 p., scale 1:2,100,000.
- Ohio Department of Natural Resources, Division of Geological Survey, (In progress). *Statewide Surficial Geology Map*. GIS coverage.
- Ohio Department of Natural Resources, Division of Mineral Resources, *Mines of Ohio*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=OhioMines>.
- Ohio Department of Natural Resources, Division of Oil and Gas, *Ohio Oil and Gas Wells Locator*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=oilgaswells>.
- Ohio Department of Natural Resources, Division of Water, *Ohio Water Wells*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=waterwells>.
- Ohio Department of Natural Resources, Division of Water, (2000). *Statewide Bedrock Aquifer Map*, GIS coverage.
- Ohio Department of Natural Resources, Division of Water, (2000). *Statewide Unconsolidated Aquifer Map*, GIS coverage.
- Pavey, R., Goldthwait, R., Brockman, C.S. Hull, D., Swinford, E.M., and Van Horn, R. (1999). *Quaternary Geology of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:500,000.
- Powers, D.M., and Swinford, E.M. (2004). *Shaded drift-thickness map of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:500,000.
- Schmidt, J.J. (1981). *Groundwater Resources of Crawford County*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:62,500.
- Slucher, E., Swinford, E., Larsen, G., Schumacher, G., Shrake, D., Rice, C., Caudill, M., Rea, R. and Powers, D. (2006). *Bedrock Geologic Map of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:500,000.
- Steiger, J.R., Burg, W.H., Parkinson, R.J., LeMaster, D.D., Plunkett, M.K. (1979) *Soil Survey of Crawford County, Ohio*. United States Department of Agriculture, Natural Resources Conservation Science. Retrieved from [nrcs.usda.gov](http://nrcs.usda.gov).
- Totten, S.M., (1983). *Glacial Geology of Crawford County, Ohio*. Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:62,500.
- USDA Web Soil Survey, (Last modified 2019). *Web Soil Survey Interactive Map*, United States Department of Agriculture, National Resources Conservation Service, online interactive map, <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.

## Schimmoeller, Stacy

---

**From:** Pitts, Justin  
**Sent:** Tuesday, January 5, 2021 12:23 PM  
**To:** Ray, Matthew  
**Cc:** Schimmoeller, Stacy  
**Subject:** FW: [EXTERNAL] Additional Acreage Project Review for Sycamore Creek Solar Project, Crawford County Ohio  
**Attachments:** Ohio Solar Site Pollinator Habitat Planning and Assessment Form v.9 FINAL\_5\_3\_2018.pdf

Regards,

**Justin R. Pitts**  
Ecological Project Manager



781 Science Boulevard, Suite 200, Gahanna, Ohio 43230  
D 614.423.6353 | C 614.301.0609  
LinkedIn | Twitter | Blog | TRCcompanies.com

Please note that our address has changed.

---

**From:** Ohio, FW3 <ohio@fws.gov>  
**Sent:** Friday, December 11, 2020 3:10 PM  
**To:** Pitts, Justin <JPitts@trccompanies.com>  
**Cc:** nathan.reardon@dnr.state.oh.us; Parsons, Kate <kate.parsons@dnr.state.oh.us>; mretterer@pheasantsforever.org; Stevenson, Lori <lori\_stevenson@fws.gov>; Jakovljevic, Lindsey <LJakovljevic@trccompanies.com>; William Risse <wrisse@nationalgridrenewables.com>; Lindsey Hesch <lhesch@nationalgridrenewables.com>  
**Subject:** [EXTERNAL] Additional Acreage Project Review for Sycamore Creek Solar Project, Crawford County Ohio

This is an **EXTERNAL** email. Do not click links or open attachments unless you validate the sender and know the content is safe.



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



TAILS# 03E15000-2020-TA-2449

Dear Mr. Pitts,

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  $\geq 3$  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.

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

If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats. If Indiana bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

#### 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 ([mretterer@pheasantsforever.org](mailto:mretterer@pheasantsforever.org)) [for](#) further information on solar power facility pollinator plantings.

Recommended low-growing grasses and forbs may include:

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

**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.

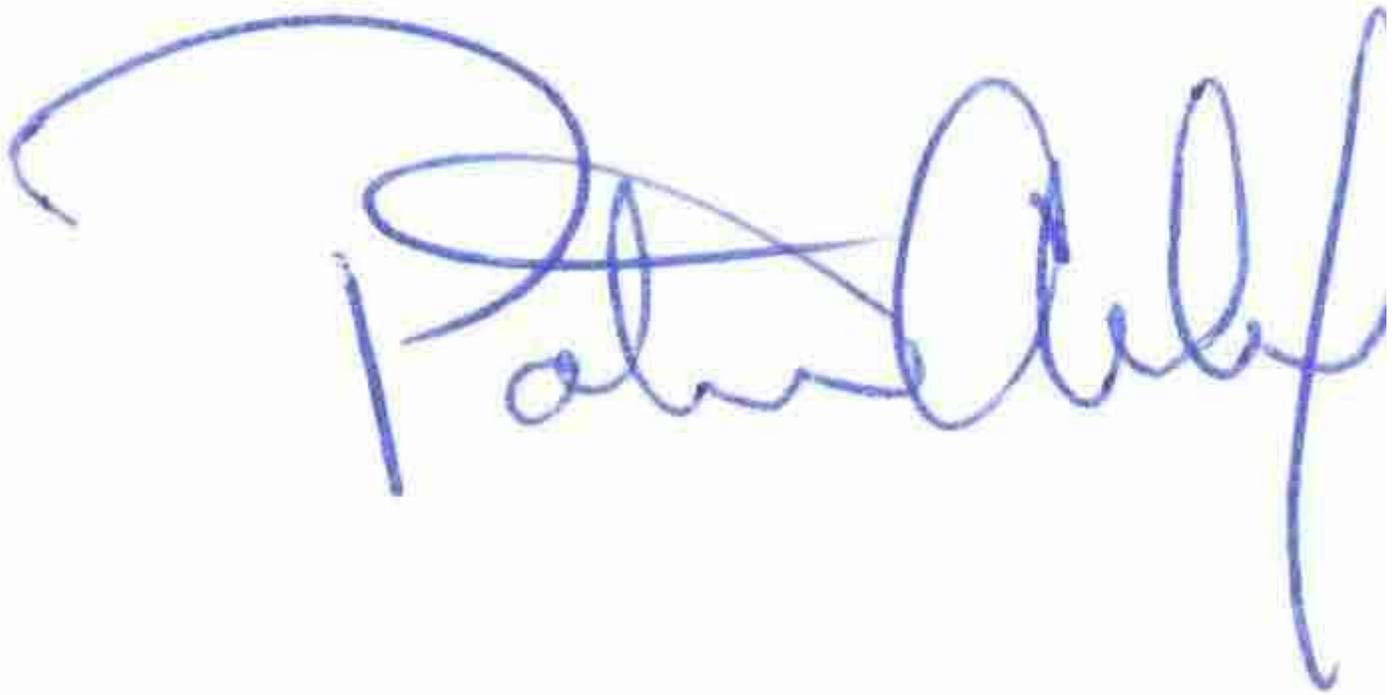
**Stream and Wetland Avoidance:** Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio ([https://epa.ohio.gov/portals/47/facts/ohio\\_wetlands.pdf](https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf)). 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.

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](mailto:mike.pettegrew@dnr.state.oh.us).

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrice Ashfield". The signature is highly stylized and cursive, with a large initial "P" and a long, sweeping underline.

Patrice Ashfield  
Field Office Supervisor

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

## **Appendix D Environmental Survey Report Summary**

# JURISDICTIONAL WATERS DELINEATION REPORT

**Sycamore Creek Solar, LLC**

**Crawford County, Ohio**

**January 2021**

TRC Project No. 410581.0000.0000



Prepared For:

Sycamore Creek Solar, LLC  
8400 Normandale Lake Boulevard,  
Suite 1200  
Bloomington, MN 55437  
Phone: 952.988.9000

Prepared By:

TRC Environmental Corporation  
781 Science Boulevard, Suite 200  
Gahanna, OH 43230  
Phone: 614.423.6353

---

**Justin Pitts**  
Project Manager

---

**Matthew Ray**  
Wetland Scientist



**CONFIDENTIAL BUSINESS INFORMATION**

The Study Area was investigated for other WOTUS that are considered “open water” by the USACE. By definition, open water was “an area that, during a year with normal patterns of precipitation, has standing or flowing water for sufficient duration to establish an OHWM, where aquatic vegetation is either non-emergent, sparse, or absent” (USACE, 2019). When identified, the derived open water (pond) boundaries were surveyed through the use of a GPS receiver capable of sub-meter accuracy (Trimble R1 Receiver). No open waters were identified during investigations of the Study Area.

### 3.0 RESULTS

During the investigations identified within this Report, six (6) wetlands and eight (8) streams were identified and delineated within the Study Area (Tables 3.1, 3.2.1, and 3.2.2). All features have been preliminarily determined to be jurisdictional; however, are not considered final until verified by the USACE.

**Table 3.1 Potential Wetlands and Other Waters of the United States Investigated and Jurisdictional Determinations within the Study Area**

Resource ID	Field Survey Date	Location (Latitude, Longitude)	Jurisdictional Determination <sup>1</sup> and Feature Type	Acreage (Hectares) of Jurisdictional Waters in Study Area and Cowardin Classification <sup>2</sup>
W-MRR-1	10/26/2020	40.9320, -82.8629	Waters of the U.S., Wetland	0.49 (0.20)/PEM
W-MRR-2	10/26/2020	40.9349, -82.8502	Waters of the U.S., Wetland	0.69 (0.28)/PFO
W-MRR-4	10/26/2020	40.9472, -82.8589	Waters of the U.S., Wetland	0.04 (0.02)/PEM
W-MRR-5	10/26/2020	40.9574, -82.8709	Waters of the U.S., Wetland	0.46 (0.19)/PFO
W-MRR-6	10/26/2020	40.9572, -82.8717	Waters of the U.S., Wetland	0.11 (0.04)/PFO
W-MRR-7	10/26/2020	40.9577, -82.8700	Waters of the U.S., Wetland	0.03 (0.01)/PEM
S-MRR-1	10/26/2020	40.9231, -82.8622	Waters of the U.S., Stream	1.19 (0.48)/R5
S-MRR-2 (Red Run)	10/26/2020	40.9241, -82.8564	Waters of the U.S., Stream	0.29 (0.12)/R5

## 3.2 Field Delineations

TRC performed wetland and other WOTUS identification and delineation on October 26, 2020 and December 9, 2020. Weather conditions were relatively cold, ranging between 40-45 degrees Fahrenheit (4.4 to 7.2 degrees Celsius) with rain. Native herbaceous vegetation and non-native cultivated crops were observed within the Study Area. The presence of hydrologic and hydric soil indicators, as well as identifiable plant species within the wetland areas allowed for positive wetland determinations. The USACE maintains the final authority that determines jurisdiction; therefore, statements about jurisdiction within this Report are preliminary and subject to final determination by the USACE and Ohio EPA.

### 3.2.1 Wetlands

During the course of this investigation, six (6) wetlands were identified and delineated within the Study Area. All features have been preliminarily determined to be jurisdictional; however, are not considered final until verified by the USACE. Each wetland is listed in Table 3.2.1, described below and shown in Appendix A on Figure 6. The completed USACE Wetland Determination Data Forms-Midwest Region are presented in Appendix C.

**Table 3.2.1 Wetlands Delineated within the Study Area**

Wetland ID	Vegetation Class <sup>1</sup>	Continues Offsite?	Acres (Hectares) <sup>2</sup>	ORAM Score <sup>3</sup>	ORAM Category <sup>3</sup>	Jurisdictional Status <sup>4</sup>
W-MRR-1	PEM	No	0.49 (0.20)	19	Category 1	Jurisdictional
W-MRR-2	PFO	Yes	0.69 (0.28)	21	Category 1	Jurisdictional
W-MRR-4	PEM	No	0.04 (0.02)	12	Category 1	Jurisdictional
W-MRR-5	PFO	No	0.46 (0.19)	37	Modified Category 2	Jurisdictional
W-MRR-6	PFO	No	0.11 (0.04)	33.5	Modified Category 2	Jurisdictional
W-MRR-7	PEM	No	0.03 (0.01)	21	Category 1	Jurisdictional

- 
- 1 PEM = palustrine emergent  
 PFO = palustrine forested  
 2 Represents delineated acreage within Study Area  
 3 Preliminarily assigned; not considered final until verified by Ohio EPA  
 4 Preliminarily assigned; not considered final until verified by the USACE

Much of the Study Area is maintained active, rotational agriculture (primarily corn and soy beans). Wetlands mostly occurred in the saturated unplanted agricultural areas and forested portions of the Study Area. Historic and recent tiling is prevalent within the Study Area for the purpose of creating useable farmland. All wetlands within the Study Area have been considered potentially jurisdictional; however, are preliminary until the USACE makes the final determination.

Wetland W-MRR-1

Wetland W-MRR-1 is a 0.49-acre (0.20 hectare) PEM wetland dominated by chufa (*Cyperus esculentus*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 19, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use, and poor habitat development.

Wetland W-MRR-2

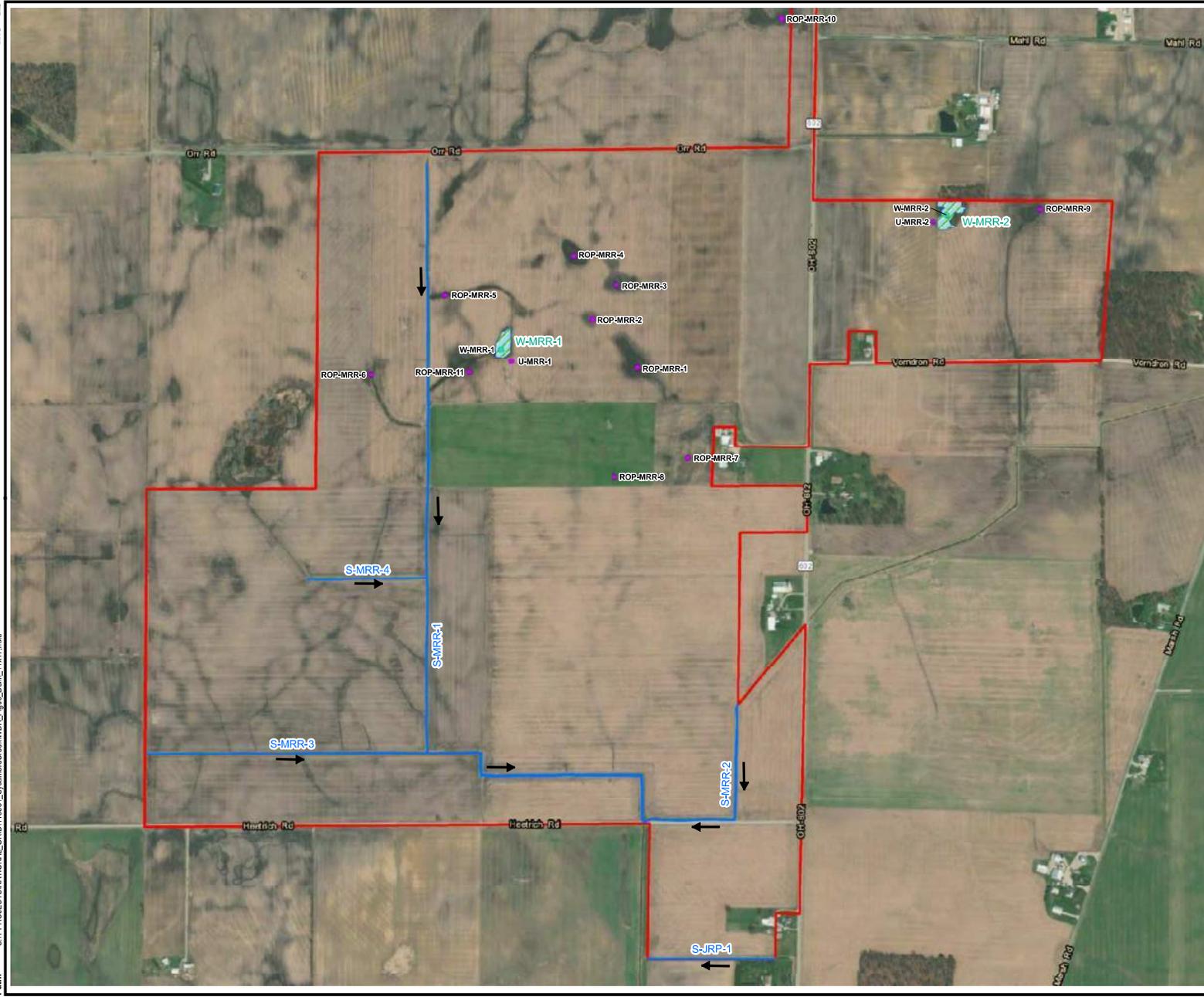
Wetland W-MRR-2 is a 0.69-acre (0.28 hectare) PFO wetland dominated by pin oak (*Quercus palustris*) in the tree stratum and reed canary grass (*Phalaris arundinacea*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 21, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, filling/grading, selective cutting, and farming). The score was limited by very narrow buffer width, high intensity of surrounding land use, poor to fair habitat development and moderate coverage of invasive species (reed canary grass).

Wetland W-MRR-4

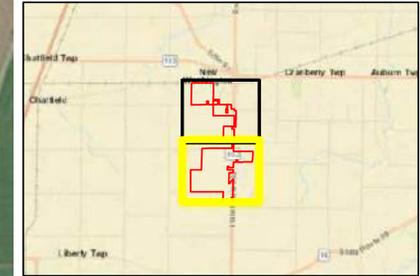
Wetland W-MRR-4 is a 0.04-acre (0.02 hectare) PEM wetland dominated by reed canary grass in the herb stratum. The wetland is preliminarily assigned an ORAM score of 12, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. ditch, tile, filling/grading, farming, and nutrient enrichment). The score was limited by small size, very narrow buffer width, high intensity of surrounding land use, poor habitat development and extensive coverage of invasive species.

Wetland W-MRR-5

Wetland W-MRR-5 is a 0.46-acre (0.19 hectare) PFO wetland dominated by pin oak and black cherry (*Prunus serotina*) in the tree stratum, pin oak and sugar maple (*Acer saccharum*) in the



- STUDY AREA
- STREAM
- STREAM FLOW
- WETLAND
- WETLAND DATA POINT
- UPLAND DATA POINT



<b>PROJECT:</b>	
<b>SYCAMORE CREEK SOLAR, LLC</b>	
<b>TITLE:</b>	
<b>DELINEATED FEATURES MAP</b>	
DRAWN BY:	M. OPEL
CHECKED BY:	M. RAY
APPROVED BY:	J. PITTS
DATE:	DECEMBER 2020
PROJ. NO.:	410581
<b>FIGURE 6</b>	
<b>PAGE 2 OF 2</b>	
FILE NO.:	WDR_Fig06_Delin_11x17.mxd
781 Science Blvd, Suite 200 Gahanna, OH 43230 Phone: 614.423.6334 www.trcsolutions.com	



**PHOTOGRAPHIC RECORD**  
**Sycamore Creek Solar Energy Center**  
**Project**

<b>Client Name:</b> Sycamore Creek Solar, LLC	<b>Site Location:</b> Cranberry Township, Crawford County, Ohio	<b>Project No.</b> 410581.0000.0000
--	--	--

<b>Photo No. 1.</b>	
<b>Date:</b> October 26, 2020	
<b>Description:</b> Looking toward Wetland W-MRR-1, facing north.	

<b>Photo No. 2.</b>	
<b>Date:</b> October 26, 2020	
<b>Description:</b> Looking toward Wetland W-MRR-1, facing east.	

<b>Client Name:</b> Sycamore Creek Solar, LLC	<b>Site Location:</b> Cranberry Township, Crawford County, Ohio	<b>Project No.</b> 410581.0000.0000
--	--	--

<b>Photo No. 3.</b>
<b>Date:</b> October 26, 2020
<b>Description:</b>  Looking toward Wetland W-MRR-1, facing south.



<b>Photo No. 4.</b>
<b>Date:</b> October 26, 2020
<b>Description:</b>  Looking toward Wetland W-MRR-1, facing west.



**U.S. Army Corps of Engineers**  
**WETLAND DETERMINATION DATA SHEET – Midwest Region**  
 See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

**Requirement Control Symbol**  
**EXEMPT**  
 (Authority: AR 335-15, paragraph 5-2a)

Project/Site: Sycamore Creek Salar City/County: Crawford Sampling Date: 10/26/20  
 Applicant/Owner: National Grid Renewables State: OH Sampling Point: W-MR-1  
 Investigator(s): Matthew Roy Section, Township, Range: Section 25, T 4 S, R 17 E  
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave  
 Slope (%): 0.5 Lat: 40.431985 Long: -82.862878 Datum: WGS 1984  
 : Running Bone silty clay loam (Bw) NWI classification: PFM  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks: 3 of 3 criteria have been met. Area is a wetland

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: 30ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>N/A</u>				
2.				
3.				
4.				
5.				
=Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <u>1</u> x 1 = <u>1</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>1</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>0</u>
Sapling/Shrub Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>N/A</u>				
2.				
3.				
4.				
5.				
=Total Cover				
Herb Stratum (Plot size: 5ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Cyperus esculentus</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
<u>100</u> =Total Cover				
Woody Vine Stratum (Plot size: 30ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>N/A</u>				
2.				
=Total Cover				

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No

Remarks: (Include photo numbers here or on a separate sheet.)  
Vegetation Criterion has been met.

**SOIL**

Sampling Point: W-MAR-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-22	7.5YR <sup>2</sup> /1	95	7.5YR <sup>4</sup> /6	5	C	M	clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: Name  
Depth (inches):     

Hydric Soil Present? Yes  No

**Remarks:**

Hydric soil criterion has been met.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (minimum of two required)

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

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

**Remarks:**

Hydrology criteria has been met.

**U.S. Army Corps of Engineers**  
**WETLAND DETERMINATION DATA SHEET - Midwest Region**  
 See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

**Requirement Control Symbol**  
**EXEMPT**  
 (Authority: AR 335-15, paragraph 5-2a)

Project/Site: Sycamore Creek Solar City/County: Crawford Sampling Date: 10/26/20  
 Applicant/Owner: National Grid Renewables State: OH Sampling Point: VPL-MK2-1  
 Investigator(s): Matthew Ray Section, Township, Range: Section 25, T1S, R17E  
 Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): Convex  
 Slope (%): 1.0 Lat: 40.931722 Long: -82.862593 Datum: WGS 1984  
 : Running Bank silty clay loam (BW) NWI classification: None  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No       
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>    </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u>    </u> Wetland Hydrology Present? Yes <u>    </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u>    </u> No <u>X</u>
Remarks: <u>1 of 3 criteria have been met. Area is Not a Wetland</u>	

**VEGETATION - Use scientific names of plants.**

Tree Stratum	(Plot size: 30ft radius )	Absolute % Cover	Dominant Species?	Indicator Status	
1.	<u>N/A</u>				
2.					
3.					
4.					
5.					
=Total Cover					
Sapling/Shrub Stratum	(Plot size: 15ft radius )				
1.	<u>N/A</u>				
2.					
3.					
4.					
5.					
=Total Cover					
Herb Stratum	(Plot size: 5ft radius )				
1.	<u>Zea mays</u>	<u>100</u>	<u>Y</u>	<u>UPL</u>	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
<u>100</u> =Total Cover					
Woody Vine Stratum	(Plot size: 30ft radius )				
1.	<u>N/A</u>				
2.					
=Total Cover					

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
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:**

     1 - Rapid Test for Hydrophytic Vegetation

     2 - Dominance Test is >50%

     3 - Prevalence Index is ≤3.0'

     4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes      No X

Remarks: (Include photo numbers here or on a separate sheet.) Vegetation criteria has not been met.

**SOIL**

Sampling Point: VPL-MRR-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-22	10YR <sup>2</sup> /1	98	7.5YR <sup>4</sup> /6	2	C	M	Clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Red Parent Material (F21) <input type="checkbox"/> Very Shallow Dark Surface (F22) <input type="checkbox"/> Other (Explain in Remarks)
---	---	--

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**  
 Type: None  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**      Yes       No

Remarks: Hydric soil criterion has been met.

**HYDROLOGY**

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

**Field Observations:**

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

**Wetland Hydrology Present?**      Yes       No

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

Remarks: Hydrology criteria has not been met.

Site: *Sycamore Creek Solar* Rater(s): *M. Ray* Date: *10/26/2020*

**2** **2**  
max 6 pts subtotal

**Metric 1. Wetland Area (size).**

Size: *0.49*  
Type: *PEM*  
Connectivity: *Adjacent*

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

**1** **3**  
max 14 pts subtotal

**Metric 2. Upland buffers and surrounding land use.**

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

**9** **12**  
max 30 pts subtotal

**Metric 3. Hydrology.**

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- None or none apparent (12)
  - Recovered (7)
  - Recovering (3)
  - Recent or no recovery (1)
- Check all disturbances observed

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

**6** **18**  
max 20 pts subtotal

**Metric 4. Habitat Alteration and Development.**

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- None or none apparent (9)
  - Recovered (6)
  - Recovering (3)
  - Recent or no recovery (1)
- Check all disturbances observed

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

**18**  
subtotal this page

Site: Sycamore Creek Solar Rater(s): M. Ray Date: 10/20/2020

18  
subtotal first page

0 18  
max 10 pts subtotal

**Metric 5. Special Wetlands.**

Check all that apply and score as indicated.

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

1 19  
max 20 pts subtotal

**Metric 6. Plant communities, interspersions, microtopography.**

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- 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

Invasives Observed:  
Phalaris arundinacea

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

6d. Microtopography.

Score all present using 0 to 3 scale.

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

**Vegetation Community Cover Scale**

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

**Narrative Description of Vegetation Quality**

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

**Mudflat and Open Water Class Quality**

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

**Microtopography Cover Scale**

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

19

Provisional ORAM Category: 1

**End of Quantitative Rating. Complete Categorization Worksheets.**

# ECOLOGICAL ASSESSMENT REPORT

**Proposed Solar Facility  
Sycamore Creek Solar, LLC  
Crawford County, Ohio  
February 2021**

TRC Project No. 410581.0000.0000



Prepared For:

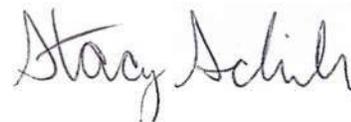
Sycamore Creek Solar, LLC  
8400 Normandale Lake Boulevard,  
Suite 1200  
Bloomington, MN 55437  
Phone: 312.224.1400



**Justin Pitts**  
Ecological Project Manager

Prepared By:

TRC Environmental Corporation  
781 Science Boulevard, Suite 200  
Gahanna, OH 43230  
Phone: 614.423.6353



**Stacy Schimmoller**  
Ecologist



CONFIDENTIAL BUSINESS INFORMATION

**Table 3.2.3 Other Waters of the U.S. Delineated within the Field Survey Area**

Stream Type	Number of Features	Length ft. (m) <sup>1</sup>
Ephemeral	1	940 (286.51)
Intermittent	2	848 (258.47)
Perennial	5	14,681 (4,474.77)
<b>Total</b>	<b>8</b>	<b>16,469 (5019.75)</b>

<sup>1</sup> Represents delineated length, in feet, and meters within Field Survey Area

### 3.3 HABITAT DESCRIPTION

Habitat diversity within the Field Survey Area is low; the area is comprised primarily of agricultural fields with a corn (*Zea mays*), winter wheat (*Triticum aestivum*), and soybean (*Glycine max*) monoculture that provides minimal habitat for foraging and nesting. The Field Survey Area lacks large areas of remnant forests; however, there are several small areas of early successional to second growth deciduous woodlots and tree lines, emergent and forested wetlands, and streams that offer some habitat variability for terrestrial and aquatic wildlife (Figures 3 and 4).

Areas of early successional to mature deciduous forests contain typical Ohio hardwoods, including but not limited to, the American elm (*Ulmus americana*), American basswood, eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sugar maple, green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shagbark hickory (*Carya ovata*), red oak (*Quercus rubra*) and white oak (*Quercus alba*). The understory of forested wetland areas identified during field reconnaissance were comprised primarily of pin oak (*Quercus palustris*), sugar maple, bladder sedge (*Carex intumescens*); poison ivy (*Toxicodendron radicans*), and yellow avens (*Geum aleppicum*) while the understory of the upland forested areas was dominated by American Beech and Virginia creeper (*Parthenocissus quinquefolia*). A complete list of vegetation, including herbaceous, scrub/shrub and trees, is documented in Table 3.4.4.

Overall, wetland habitat within the Field Survey Area occurred within the agricultural fields, tree lines, grass swales, and forested depressions. Vegetation and shallow water levels in these wetland habitats benefit plant and animal species by providing them with a source of food and water, shelter, social interactions, breeding, and nesting.

Field tiles, which drain hydrology from the agricultural fields for the purpose of creating manageable farmland, traverse the Field Survey Area creating a network of channelized streams. Stream substrates were comprised of sand, clay/hardpan, silt, and gravel and instream cover (i.e., shallows, overhanging vegetation, large woody debris, and boulders) was minimal throughout the

Field Survey Area. Vegetation along the streams and ditches was dominated by reed canary grass and Japanese foxtail. These modified streams exhibit an ordinary high water mark (OHWM) and possess a defined channel within the Field Survey Area; however, drainage from the drain tiles have influenced the channel morphology, increased embeddedness, reduced sinuosity, and affected the overall water quality of the streams.

According to the ODNR and USFWS mussel survey protocol, streams not listed by name within the protocol with drainage areas less than five square miles are not expected to contain habitat for federally listed mussels (ODNR and USFWS, 2020). None of the eight streams within the Field Survey Area are named within the protocol and all have drainage areas less than five square miles. Therefore, they would not be considered to contain mussel habitat.

Desktop assessments completed within the Field Survey Area confirmed USFWS and ODNR results; no federal wilderness areas, wildlife refuges, and dedicated, unique, sensitive or critical habitats are present within the Field Survey Area (USFWS, 2020) (ODNR, 2020). In addition, field survey results are consistent with the land use data, indicating that minimal habitat diversity exists within the Field Survey Area.

### **3.4 WILDLIFE SPECIES**

According to ODNR and USFWS, there are no records of sensitive species within or in the vicinity of the Field Survey Area; however, there were sensitive species with ranges that overlap the Field Survey Area (ODNR, 2020) (USFWS, 2020). Consultation correspondence with the ODNR indicated the Project is within the range of the Indiana bat, a state endangered and federally endangered species; the northern long-eared bat, a state endangered and federally threatened species; the little brown bat (*Myotis lucifugus*), a state endangered species; the tri-colored bat (*Perimyotis subflavus*), a state endangered species; eastern massasauga (*Sistrurus catenatus*), a state endangered and federal threatened snake species; the smooth greensnake (*Opheodrys vernalis*) a state endangered species; and the Kirtland's snake (*Clonophis kirtlandii*), a state threatened species (ODNR, 2020). Consultation with the USFWS indicated the Project is within the range of the federally endangered Indiana bat and the federally threatened northern long-eared bat (USFWS, 2020).

The USFWS IPaC resource indicates the Indiana bat and northern long-eared bat species have ranges that overlap the Field Survey Area (USFWS, 2021).

The USFWS County Distribution of Federally-Listed Endangered, Threatened, and Proposed Species identified the federally endangered Indiana bat and the federally threatened northern long-eared bat and eastern massasauga rattlesnake as having the potential to occur within Crawford County, Ohio (USFWS, 2018).

The following sections and Table 3.4. outline the seasonal habitat requirements and potential for sensitive species to occur in the Field Survey Area (McCormac & Kennedy, 2004) (ODNR, 2012) (USFWS, 2018) (Cornell University, 2020). For the purposes of this report, sensitive species include state and federally-listed species (endangered or threatened), or those species with recreational or commercial value.

**Table 3.4 State and Federally Endangered or Threatened Species and Species with Recreational or Commercial Value Information**

Wildlife Type / Common Name	Scientific Name	Status <sup>1</sup>	Habitat	Seasons of Potential Occurrence and Likelihood of Occurrence in the Field Survey Area <sup>2</sup>			
				Spring	Summer	Fall	Winter
<b>REPTILES</b>							
Eastern massasauga rattlesnake	<i>Sistrurus catenatus</i>	SE, FT	Wet areas, including wet prairies, marshes and low-lying areas along rivers and lakes; adjacent uplands	N	N	N	N
Smooth greensnake	<i>Opheodrys vernalis</i>	SE	Mesic sites with thick grass, wet meadows, and wetlands within forests.	L	L	L	L
Kirtland's snake	<i>Clonophis kirtlandii</i>	ST	Prefers wet meadows, moist open meadows, wet grasslands, and less commonly in woodlands with pools, streams, and bogs. All areas have crayfish burrows.	L	L	L	L
<b>BIRDS</b>							
Bald eagle	<i>Haliaeetus leucocephalus</i>	FSC	Bald eagle nesting season occurs in January through the end of August, and roosting season begins in mid-October and ends mid-March. Outside the breeding season, eagles of all ages typically perch and forage near open water where food and tall trees for perching are available.	L	L	L	L
Golden eagle	<i>Aquila chrysaetos</i>	FSC	Inhabits the mountainous and hilly areas of western North America and winters as far as the southern Great Plains. During migration or over winter months, eagles are known to inhabit the Great Lakes region.	L	L	L	L

**Table 3.4 State and Federally Endangered or Threatened Species and Species with Recreational or Commercial Value Information**

Wildlife Type / Common Name	Scientific Name	Status <sup>1</sup>	Habitat	Seasons of Potential Occurrence and Likelihood of Occurrence in the Field Survey Area <sup>2</sup>			
				Spring	Summer	Fall	Winter
<b>MAMMALS</b>							
Indiana bat	<i>Myotis sodalis</i>	FE	Summer roosting in trees with loose bark over 9.0 inches (22.9 centimeters) in diameter; winters in caves.	L	L	L	N
Northern long-eared bat	<i>Myotis septentrionalis</i>	FT	Summer roosting in trees with loose bark over 3.0 inches (7.6 centimeters) in diameter; winters in caves.	L	L	L	N

<sup>1</sup> FE = Federal-endangered, FT = Federal-threatened, FC=Federal Candidate, SE = State-endangered, ST=State-threatened, FSC = Federal Species of Concern

<sup>2</sup> Likelihood of occurrence Key: H = High potential; M = Moderate potential; L = Low potential and N = No potential; C = Confirmed sighting

**Table 4.0 Potential Land Cover Changes within the Field Survey Area**

Cover Type	Existing		Temporary Impacts (Construction)		Permanent Impacts (Operation)		Total Impacts <sup>1</sup>	
	Acres	Percent <sup>2</sup>	Acres <sup>3</sup>	Percent <sup>2</sup>	Acres <sup>4</sup>	Percent <sup>2</sup>	Acres <sup>3,4</sup>	Percent <sup>2</sup>
Cultivated Crops	874.80	95.40%	695.4	75.83%	17.9	1.95%	681.4	74.31%
Developed, Open Space	29.56	3.22%	-	-	-	-	-	-
Developed, Low Intensity	6.15	0.67%	0.2	0.02%	0.1	0.01%	0.3	0.03%
Upland Deciduous Forest	4.18	0.46%	-	-	-	-	-	-
Forested Wetland	1.26	0.14%	-	-	-	-	-	-
Emergent Wetland	0.55	0.06%	-	-	-	-	-	-
Hay/Pasture	0.51	0.06%	-	-	-	-	-	-
<b>Total</b>	<b>917.01</b>	<b>100%</b>	<b>695.6</b>	<b>75.85%</b>	<b>18.0</b>	<b>1.96%</b>	<b>681.7</b>	<b>74.34%</b>

<sup>1</sup> Temporary and permanent impact areas do not overlap.

<sup>2</sup> Percent of total Field Survey Area.

<sup>3</sup> Includes area for laydown yards and construction limits for the installation of collection line circuits, construction roads, inverter pads, substation, weather stations, photovoltaic panel arrays, operations and maintenance building, roads, and parking lot.

<sup>4</sup> Includes area permanently impacted by proposed inverter pads, substation, weather stations, array piles, operations and maintenance building, roads, and parking lot.

## 4.1 LAND COVER

As shown in Table 4.0, the Field Survey Area currently consists of approximately 95.4 percent cultivated crops with the other 4.6 percent consisting of developed open space, low intensity development (rural residences and farms with mowed lawns), upland deciduous forest, forested and emergent wetland, and hay/pasture (Table 3.1 in Section 3.1). The Project proposes to develop solar arrays with native plantings under them on what is now cultivated cropland in the Field Survey Area. The proposed changes would lower the amount of land available for cultivated crops in Crawford County by 0.3 percent, leaving 214,096 acres of cropland (USDA, 2017). No residences or hay/pasture land will be impacted by the project and the amount of grassland within the will increase.

## 4.2 WETLANDS AND OTHER WATERS

The Field Survey Area contains six wetlands and eight streams, which are proposed to be avoided as much as possible. No wetlands are proposed to be impacted and to avoid stream impacts, the use of horizontal directional drilling would be used to install collection line circuits under streams where not co-located with an access road, as noted in Table 4.2 below. Unavoidable impacts to streams are due to access road installation which will be below the thresholds for Pre-Construction Notification to the USACE for Nationwide Permitting and includes temporary impacts required for construction (Table 4.2). Minimal clearing of the mowed herbaceous area along the

three streams will be necessary for road crossing installation. Temporary impacts to waters will also be minimized as much as possible during construction through implementing a Stormwater Pollution Prevention Plan (SWPPP) prior to construction and monitoring of Best Management Practices (BMPs) once a week and following 1 inch or greater rainfall within 24 hours. The reduction of seasonal soil disturbance (plowing, tilling, cultivating, etc.) and runoff through native grassland plantings would also improve water quality in streams and wetlands in the area.

**Table 4.2 Impacts to Waters of the U.S. Delineated within the Field Survey Area**

Stream Identification	Linear Feet within Field Survey Area <sup>1</sup>	Temporary (Construction) Impact (Linear Feet)	Permanent (Operation) Impact Linear Feet	Total Impact (Linear Feet)	Facility Component Crossing <sup>3</sup>
S-MRR-1	6,846	0	0	0	Collection Line <sup>2</sup>
		65.8	106.4	172.2	Access Roads
S-MRR-2 (Red Run)	1,619	0	0	0	Collection Line <sup>2</sup>
		19.0	33.0	52.0	Access Roads
S-MRR-4	940	9.0	16.0	25.0	Access Road
S-MRR-6	3,165	0	0	0	Collection Line <sup>2</sup>
<b>Total</b>	<b>12,570</b>	<b>93.8</b>	<b>155.4</b>	<b>249.2</b>	<b>-</b>

<sup>1</sup> Represents amount of delineated features within the Field Survey Area in feet for streams and acreage for wetlands (TRC Environmental Corporation, 2021).

<sup>2</sup> Collection line stream crossings are provided for reference only as no impacts are expected due to the use of horizontal directional drilling.

<sup>3</sup> Co-located access roads and collection lines are anticipated to be open cut. A collection line may be installed by horizontal directional drilling to reduce impacts when impacts are not necessary for culvert installation.

### 4.3 HABITATS

The Field Survey Area is comprised of five different habitat types: cropland, developed space, deciduous forest, wetland, and hay/pasture and was sited to avoid impacts to the most beneficial habitat types (i.e. hay/pasture, wetland and deciduous forest). No impacts are proposed to the hay/pasture and wetland, while minimal, if any, tree clearing is expected. Although not as useful to wildlife, impacts to developed space (mowed areas) are expected to be only 0.3 acres. The largest habitat impact is expected to occur to the cropland habitat which comprises 95.40% of the Field Survey Area. This plant monoculture provides low amount of food, water, and cover sources for plants and wildlife as shown by the low number of species in the Species Observations in Table 3.4.4. It is expected that wildlife potentially using the cropland habitat would move to similar habitat located all around the proposed Facility.

The Project is expected to have positive habitat impacts through the addition of grassland habitat which would add a new habitat type to the area and increase native food sources, plant diversity,

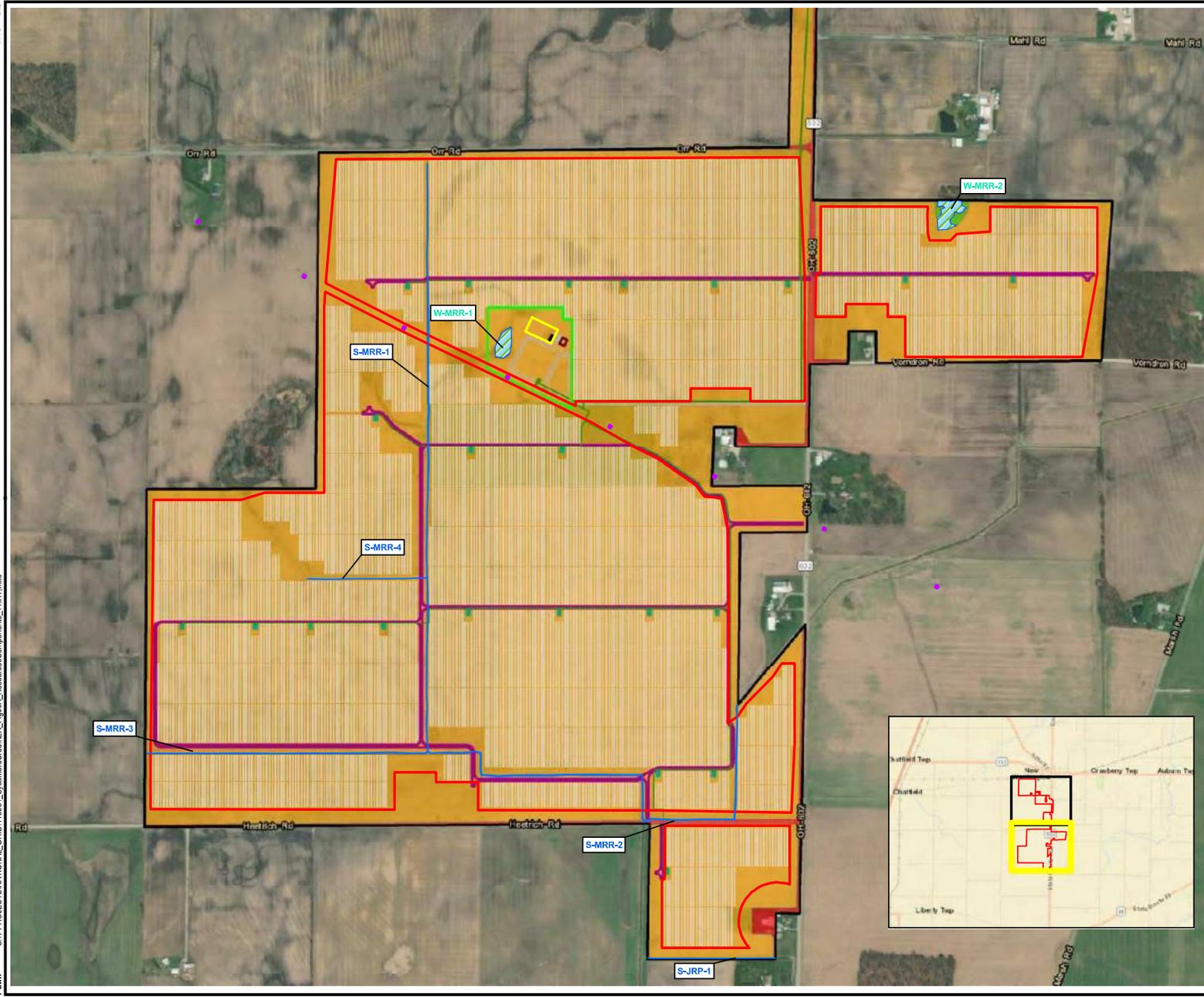
and cover, breeding, and migratory stop options. The reduction of seasonal soil disturbance (plowing, tilling, cultivating, etc.) and runoff as well as the soil now being covered in native plant species year-round would improve soil health and water quality in the area.

#### **4.4 WILDLIFE SPECIES**

The Project has been sited within an existing agricultural plant monoculture to avoid and minimize impacts to sensitive species, as cropland provides a low diversity of habitat for foraging, breeding, migratory stops, and shelter for wildlife. This correlates to the low number of common species seen within the Field Survey Area (Table 3.4.4). There is a very low potential for incidental impacts to occur during construction when heavy machinery will be most active and it is expected that wildlife will vacate the construction area for the abundance of similar habitat throughout Crawford County.

Although minimal tree cutting is anticipated, that cutting shall occur between October 1 and March 31, to further reduce the potential for impact to endangered bat species, as requested by USFWS and ODNR (USFWS, 2020) (ODNR, 2020). Due to the described avoidance measures, lack of wildlife within the Field Survey Area, and the ability of wildlife to vacate the construction area, the Project is not expected to negatively impact wildlife.

The Facility is expected to positively impact wildlife diversity and provide additional native food sources. The proposed Project will noticeably increase the diversity of plants through native grassland plantings around and under the solar arrays. This will add food sources, shelter, and grassland habitat for wildlife day to day, migration, and breeding use, which will attract a greater variety and higher number of wildlife species such as insects, reptiles, birds, small mammals, birds of prey, etc. No post-construction wildlife monitoring is necessary based on the results of this assessment.



FIELD SURVEY AREA
<b>FIELD VERIFIED</b>
CULTIVATED CROPS
DEVELOPED LOW INTENSITY
OPEN WATER/STREAM
UPLAND FOREST
WETLAND
STREAM
<b>PROPOSED FACILITY COMPONENTS</b>
LAYDOWN YARD
FACILITY BOUNDARY
SUBSTATION BOUNDARY
OPERATIONS & MAINTENANCE BUILDING
OPERATIONS & MAINTENANCE PARKING LOT
ARRAY PANELS
UNDERGROUND CIRCUITS
INVERTER PADS
SITE ROADS
20FT WIDE ROAD
EXISTING TRANSMISSION LINE TOWER

0 750 1,500  
 1" = 750'  
 19,000

PROJECT:  
**SYCAMORE CREEK SOLAR, LLC**

TITLE:  
**EXISTING RESOURCES AND PROPOSED FACILITY COMPONENTS**

DRAWN BY: M. OPEL	PROJ. NO.: 410581
CHECKED BY: M. RAY	
APPROVED BY: J. PITTS	
DATE: JANUARY 2021	

**FIGURE 6A**  
**PAGE 2 OF 2**

**TRC**

781 Science Blvd, Suite 200  
 Gahanna, OH 43230  
 Phone: 614.423.6334  
 www.trcsolutions.com

FILE NO.: ER\_Fig16A\_ResourcesComponents\_11x17.mxd



# Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

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

December 30, 2020

Justin Pitts  
TRC  
781 Science Boulevard, Suite 200  
Gahanna, Ohio 43230

**Re:** 20-1041; Sycamore Solar Project

**Project:** The proposed project involves the construction of a solar facility on approximately 971 acres.

**Location:** The proposed project is located in Chatfield and Cranberry Townships, Crawford County, Ohio.

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

**Natural Heritage Database:** The Natural Heritage Database has no records at or within a one-mile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

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

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

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

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

Recommended low-growing grasses and forbs may include:

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

The entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these species of bats predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. If trees are present within the project area, and trees must be cut, the DOW recommends cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH  $\geq 20$  if possible. If trees are present within the project area, and trees must be cut during the summer months, the DOW recommends a mist net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting.

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

The DOW also recommends that a desktop habitat assessment, followed by a field assessment if needed, is conducted to determine if there are potential hibernaculum(a) present within the project area. Information about how to conduct habitat assessments can be found in the current USFWS “Range-wide Indiana Bat Survey Guidelines.” If a habitat assessment finds that potential hibernacula are present within 0.25 miles of the project area, please send this information to Sarah Stankavich, [sarah.stankavich@dnr.state.oh.us](mailto:sarah.stankavich@dnr.state.oh.us) 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 DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

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

The project is within the range of the eastern massasauga (*Sistrurus catenatus*), a state endangered and a federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as adjacent drier upland habitat. Due to the location, and the type of habitat within the project area, this project is not likely to impact this species.

The project is within the range of the smooth greensnake (*Opheodrys vernalis*), a state endangered species. This species is primarily a prairie inhabitant, but also found in marshy meadows and roadside ditches. Due to the location, and the type of habitat within the project area, this project is not likely to impact this species.

The project is within the range of the Kirtland’s snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet fields and meadows. Due to the location, and the type of habitat within the project area, this project is not likely to impact this species.

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

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

### **Physiographic Region**

The proposed project area is in Cranberry Township, Crawford County. This area is in the Central Ohio Clayey Till Plain physiographic region. This region is characterized by well-defined moraines as well as flat-lying ground moraines. Intermorainal lake basins filled with silt, clay and till are present. There are few large streams and limited sand and gravel outwash. A high-lime Wisconsinan-age till covers Lower Paleozoic-age carbonate rocks and shales (Ohio Department of Natural Resources, Division of Geological Survey, 1998).

### **Surficial/Glacial Geology**

The project area lies within the glaciated margin of the state and includes several Wisconsin-aged glacial features. The northern portion of the project area is covered by the hummocky New Washington Moraine. The southern portion of the project area is laminated lacustrine clay deposited in the calm water of the Tabor School Glacial Lake (Pavey et al, 1999 and Totten, 1983). Glacial drift throughout most of the study area is between 57 and 130 feet thick. Drift is thinnest in the southern portion of the study area and thickest in the north (Powers and Swinford, 2004).

### **Bedrock Geology**

The uppermost bedrock unit in the project area is the Ohio Shale. This unit underlies the project area. This unit consists of three members in descending order: the Cleveland Member is characterized by a black shale, the Chagrin Member is characterized by a gray to greenish gray shale, siltstone, and very-fine grained sandstone, the Huron Member is characterized by a mostly black carbonaceous shale. It should be noted that bedrock is not exposed at the surface within the boundaries of the project area due to significant glacial drift (Slucher et al, 2006).

### **Oil, Gas and Mining**

ODNR has record of four oil and gas wells within one mile of the proposed project area. Most of these wells are listed as dry and abandoned. The nearest oil and gas well is located 0.4 miles southwest of the project area and is listed as dry (Ohio Department of Natural Resources, Division of Oil and Gas, *Ohio Oil and Gas Wells Locator*).

ODNR does not have record of any mining operations within the project area. The nearest mine is the active Bloomville Site operated by Hanson Aggregates Davon, LLC. The quarry is located 8.6 miles to the northwest of the project area (Ohio Department of Natural Resources, Division of Mineral Resources, *Mines of Ohio*).

### **Seismic Activity**

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

Date	Magnitude	Distance to Site Boundary	County	Township
January 12, 1995	3.3	12.3 miles	Richland	Springfield
July 26, 2001	2.7	16.3 miles	Huron	Ripley
November 25, 1998	3.2	16.8 miles	Huron	Ripley

### **Karst**

Karst features usually form in areas that are covered by thin or no glacial drift and the bedrock is limestone or dolomite. There are no sinkholes within the bounds of the project area. The nearest verified sinkhole is 9 miles to the northwest of the project area (Ohio Department of Natural Resources, Division of Geological Survey, *Ohio Karst*).

### **Soils**

According to the USDA Web Soil Survey, the project area consists primarily of soils derived from glacial till, loess, lacustrine deposits and glaciolacustrine deposits. Lenawee, Bono, and Luray are the most common soil series found within the boundaries of the project area. Together

these soils cover over 59% of the project area and have a silty clay loam soil texture. The remaining soils have a silt loam texture (USDA Web Soil Survey).

There is a moderate risk of shrink-swell potential in these soils. Slope is variable, with slope seldom exceeding a 6% grade. Steepest slopes are on the moraine ridge (Steiger et al., 1979 and USDA Web Soil Survey).

## **Groundwater**

Groundwater resources are moderate in the project area. Bedrock groundwater yields are limited throughout the project area. Wells developed in the bedrock are likely to yield up to 5 gallons per minute (Schmidt, 1981 and Ohio Department of Natural Resources, Division of Water, *Bedrock Aquifer Map*, 2000). Unconsolidated aquifer yields are moderate throughout project area. Wells developed in glacial material are likely to yield 5 to 25 gallons per minute. Higher groundwater yields typically reflect larger diameter, properly developed and screened wells (Ohio Department of Natural Resources, Division of Water, *Statewide Unconsolidated Aquifer Map*, 2000).

ODNR has record of 81 water wells drilled within one mile of the project area. These wells range in depth from 23 to 305 feet deep, with an average depth of 83 feet. The most common aquifer listed is sand and gravel. 56 wells list sand and gravel as the aquifer. The remaining 25 wells list shale as the aquifer. A sustainable yield of 5 to 50 gallons per minute is expected from wells drilled in this area based on well log records. The average sustainable yield from these records within one mile was 15 gallons per minute. This is based on records from 11 wells within one mile of the project area that contain sustainable yield data (Ohio Department of Natural Resources, Division of Water, *Ohio Water Wells*).

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

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

[http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List\\_8\\_16.pdf](http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf)

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

Mike Pettegrew  
Environmental Services Administrator (Acting)

## References:

- Ohio Department of Natural Resources, Division of Geological Survey, *Ohio Earthquake Epicenters*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=earthquakes>
- Ohio Department of Natural Resources, Division of Geological Survey, *Ohio Karst*, online interactive map, [https://gis.ohiodnr.gov/website/dgs/karst\\_interactivemap/](https://gis.ohiodnr.gov/website/dgs/karst_interactivemap/)
- Ohio Department of Natural Resources, Division of Geological Survey, (1998). *Physiographic Regions of Ohio*. Ohio Department of Natural Resources, Ohio Department of Natural Resources, Division of Geological Survey, map with text, 2 p., scale 1:2,100,000.
- Ohio Department of Natural Resources, Division of Geological Survey, (In progress). *Statewide Surficial Geology Map*. GIS coverage.
- Ohio Department of Natural Resources, Division of Mineral Resources, *Mines of Ohio*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=OhioMines>.
- Ohio Department of Natural Resources, Division of Oil and Gas, *Ohio Oil and Gas Wells Locator*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=oilgaswells>.
- Ohio Department of Natural Resources, Division of Water, *Ohio Water Wells*, online interactive map, <https://gis.ohiodnr.gov/MapView/?config=waterwells>.
- Ohio Department of Natural Resources, Division of Water, (2000). *Statewide Bedrock Aquifer Map*, GIS coverage.
- Ohio Department of Natural Resources, Division of Water, (2000). *Statewide Unconsolidated Aquifer Map*, GIS coverage.
- Pavey, R., Goldthwait, R., Brockman, C.S. Hull, D., Swinford, E.M., and Van Horn, R. (1999). *Quaternary Geology of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:500,000.
- Powers, D.M., and Swinford, E.M. (2004). *Shaded drift-thickness map of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:500,000.
- Schmidt, J.J. (1981). *Groundwater Resources of Crawford County*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:62,500.
- Slucher, E., Swinford, E., Larsen, G., Schumacher, G., Shrake, D., Rice, C., Caudill, M., Rea, R. and Powers, D. (2006). *Bedrock Geologic Map of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:500,000.
- Steiger, J.R., Burg, W.H., Parkinson, R.J., LeMaster, D.D., Plunkett, M.K. (1979) *Soil Survey of Crawford County, Ohio*. United States Department of Agriculture, Natural Resources Conservation Science. Retrieved from [nrcs.usda.gov](http://nrcs.usda.gov).
- Totten, S.M., (1983). *Glacial Geology of Crawford County, Ohio*. Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:62,500.
- USDA Web Soil Survey, (Last modified 2019). *Web Soil Survey Interactive Map*, United States Department of Agriculture, National Resources Conservation Service, online interactive map, <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.

## Schimmoeller, Stacy

---

**From:** Pitts, Justin  
**Sent:** Tuesday, January 5, 2021 12:23 PM  
**To:** Ray, Matthew  
**Cc:** Schimmoeller, Stacy  
**Subject:** FW: [EXTERNAL] Additional Acreage Project Review for Sycamore Creek Solar Project, Crawford County Ohio  
**Attachments:** Ohio Solar Site Pollinator Habitat Planning and Assessment Form v.9 FINAL\_5\_3\_2018.pdf

Regards,

**Justin R. Pitts**  
Ecological Project Manager



781 Science Boulevard, Suite 200, Gahanna, Ohio 43230  
D 614.423.6353 | C 614.301.0609  
LinkedIn | Twitter | Blog | TRCcompanies.com

Please note that our address has changed.

---

**From:** Ohio, FW3 <ohio@fws.gov>  
**Sent:** Friday, December 11, 2020 3:10 PM  
**To:** Pitts, Justin <JPitts@trccompanies.com>  
**Cc:** nathan.reardon@dnr.state.oh.us; Parsons, Kate <kate.parsons@dnr.state.oh.us>; mretterer@pheasantsforever.org; Stevenson, Lori <lori\_stevenson@fws.gov>; Jakovljevic, Lindsey <LJakovljevic@trccompanies.com>; William Risse <wrisse@nationalgridrenewables.com>; Lindsey Hesch <lhesch@nationalgridrenewables.com>  
**Subject:** [EXTERNAL] Additional Acreage Project Review for Sycamore Creek Solar Project, Crawford County Ohio

This is an **EXTERNAL** email. Do not click links or open attachments unless you validate the sender and know the content is safe.



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



TAILS# 03E15000-2020-TA-2449

Dear Mr. Pitts,

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  $\geq 3$  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.

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

If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats. If Indiana bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

#### 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 ([mretterer@pheasantsforever.org](mailto:mretterer@pheasantsforever.org)) [for](#) further information on solar power facility pollinator plantings.

Recommended low-growing grasses and forbs may include:

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

**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.

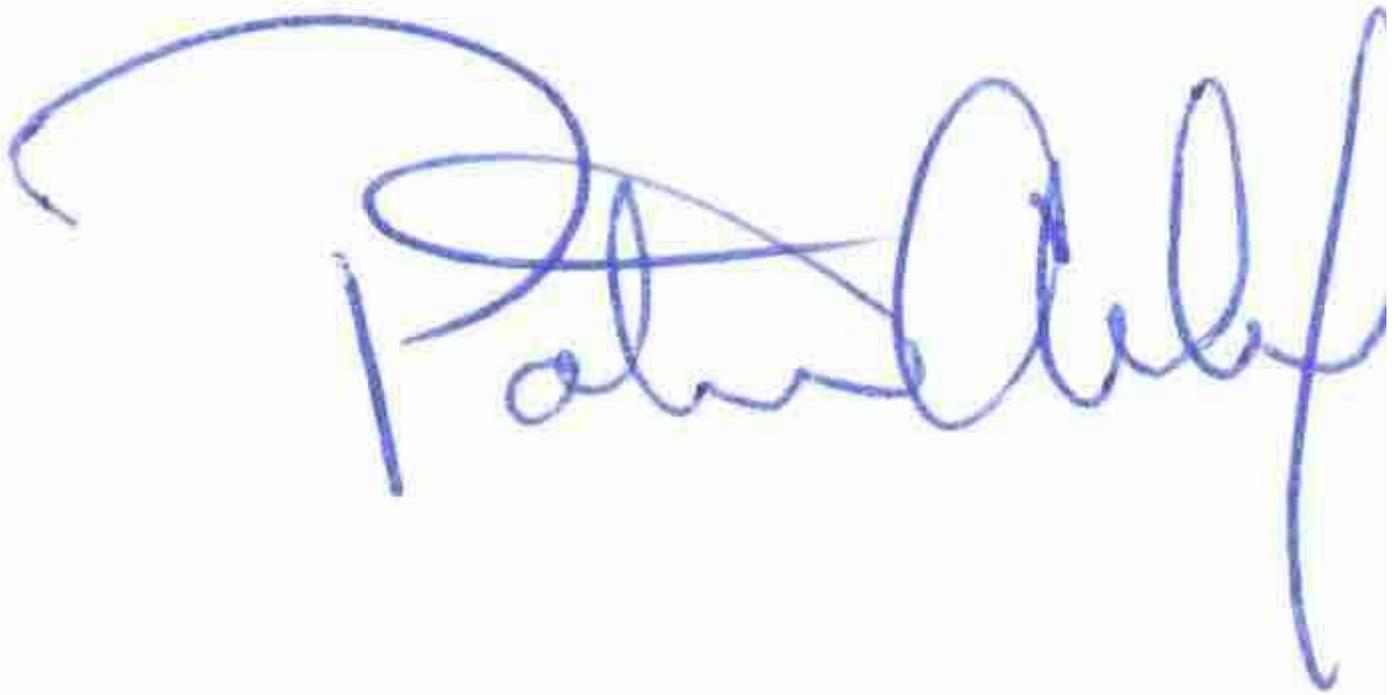
**Stream and Wetland Avoidance:** Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio ([https://epa.ohio.gov/portals/47/facts/ohio\\_wetlands.pdf](https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf)). 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.

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](mailto:mike.pettegrew@dnr.state.oh.us).

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrice Ashfield". The signature is fluid and cursive, with a large initial "P" and "A".

Patrice Ashfield  
Field Office Supervisor

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



**DEPARTMENT OF THE ARMY**  
**BUFFALO DISTRICT, CORPS OF ENGINEERS**  
**1776 NIAGARA STREET**  
**BUFFALO, NEW YORK 14207-3199**

January 10, 2022

Regulatory Branch

**SUBJECT: Approved Jurisdictional Determination and Delineation Verification for Department of the Army Processing No. LRB-LRB-2021-00280**

Lindsey Hesch  
National Grid Renewables  
8400 Normandale Lake Blvd, Suite 1200  
Minneapolis, Minnesota 55437

Dear Ms. Hesch:

I have reviewed your request for an approved jurisdictional determination (JD) for the approximate 950-acre review area located in Cranberry Township, Crawford County, Ohio (Sheets 1 of 3).

I have determined that the location and extent of all aquatic resources shown on the attached map(s) accurately represent the review area conditions.

Enclosed is an approved JD which verifies the limits of waters of the U.S. within the review area as depicted on Sheets 2 of 5. This approved JD will remain valid for a period of five (5) years from the date of this correspondence unless new information warrants revision of the approved JD before the expiration date. At the end of this period, a new aquatic resource delineation will be required to support any request for a new JD.

I have determined that the following aquatic resources are waters of the U.S. regulated under Section 404 of the Clean Water Act as noted on the attached Approved Jurisdictional Determination Forms 1, 3, 4, 5, 6, 7 and 8: Streams: S-MMR-1; S-MMR-3; S-MRR 1/3, S-MRR-4; SMMR-6; S-MRR-6a; S-MRR-7; S-MRR-8; and S-JRP-1 and Wetlands: W-MRR-5, W-MRR-6 and W-MRR-7. Department of the Army authorization is required if you propose a discharge of dredged or fill material in these waters of the U.S.

I have determined that the following aquatic resources are not waters of the U.S. as noted on the attached Approved Jurisdictional Determination Form 2: W-MRR-2; W-MRR-4; W-MRR-1(Prior Converted Cropland (PCC); W-MRR-10 PCC; W-MRR-11 PCC; W-MRR-12 PCC; W-MRR-13 PCC; W-MRR-14 PCC; W-MRR-15 PCC; W-MRR-16 PCC; W-MRR-17 PCC; W-MRR-18 PCC; W-MRR-19 PCC; W-MRR-20 PCC; W-MRR-21 PCC; W-MRR-22 PCC; W-MRR-23 PCC; W-MRR-24 PCC; W-MRR-25 PCC; W-MRR-26 PCC; W-MRR-27 PCC; W-MRR-28 PCC; W-MRR-29 PCC; W-MRR-30 PCC; W-MRR-31 PCC; and W-MRR-32 PCC. Therefore, these aquatic resources are not regulated under Section 404 of the Clean Water Act or

Regulatory Branch

SUBJECT: Approved Jurisdictional Determination and Delineation Verification for Department of the Army Processing No. LRB- LRB-LRB-2021-00280

Section 10 of the Rivers and Harbors Act of 1899. Department of the Army authorization is not required if you propose work, installation of structures, or a discharge of dredged or fill material in these aquatic resources.

Further, the delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries and/or the jurisdictional status of aquatic resources for purposes of the Clean Water Act for the review area identified in this request. This delineation and/or jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal the above JD, you must submit a completed RFA form within 60 days of the date on this letter to the Great Lakes/Ohio River Division Office at the following address:

Katherine McCafferty  
Regulatory Appeals Review Officer  
US Army Corps of Engineers  
Great Lakes and Ohio River Division  
550 Main Street, Room 10524  
Cincinnati, Ohio 45202-3222  
Phone: 513-684-2699 Fax: 513-684-2460

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete; that it meets the criteria for appeal under 33 C.F.R. part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by March 10, 2022

It is not necessary to submit an RFA to the Division office if you do not object to the determination in this letter.

Copies of this letter has been forwarded via e-mail to the Ohio Environmental Protection Agency and to Mr. Justin Pitts of TRC.

Regulatory Branch

SUBJECT: Approved Jurisdictional Determination and Delineation Verification for Department of the Army Processing No. LRB- LRB-LRB-2021-00280

Questions pertaining to this matter should be directed to me at (419) 898-3491 or (716) 879-6333 by writing to the following address: U.S. Army Corps of Engineers Regulatory Branch Oak Harbor Field Office, 240 Lake Street, Unit D, Oak Harbor, Ohio 43449 or by e-mail at: [Brian.P.Swartz@usace.army.mil](mailto:Brian.P.Swartz@usace.army.mil)

Sincerely,

A handwritten signature in black ink that reads "Brian Swartz". The signature is written in a cursive, slightly slanted style.

Brian Swartz  
Biologist

Enclosures

## Aaron Geckle

---

**From:** Pitts, Justin  
**Sent:** Monday, December 18, 2023 11:52 AM  
**To:** Courtney Whitworth  
**Cc:** Van Nort, Erin; Falkinburg, Brad  
**Subject:** RE: [EXTERNAL] Sycamore Creek Wetland KMZ

Hi Courtney,

Based on conversations with our permitting team, the determination made by the USACE and Ohio EPA would be grandfathered, and the determination (PCC; not wetland) would still be valid.

Regards,

Justin Pitts  
Ecological Project Manager



781 Science Boulevard, Suite 200, Gahanna, Ohio 43230  
D 614.423.6353 | C 614.301.0609  
[LinkedIn](#) | [Twitter](#) | [Blog](#) | [TRCcompanies.com](#)

---

**From:** Courtney Whitworth <cwhitworth@nationalgridrenewables.com>  
**Sent:** Monday, December 18, 2023 11:03 AM  
**To:** Pitts, Justin <JPitts@trccompanies.com>  
**Subject:** RE: [EXTERNAL] Sycamore Creek Wetland KMZ

This is an **External** email. Do not click links or open attachments unless you validate the sender and know the content is safe.

**ALWAYS** hover over the link to preview the actual URL/site and confirm its legitimacy.

Justin,

Does that email still apply given this article from Feb 2023? [Prior Converted Cropland Under the Clean Water Act \(congress.gov\)](#)

Thanks,  
Courtney



952.988.9000

Courtney Whitworth  
Senior Permitting Specialist

P 952.358.5693



---

**From:** Pitts, Justin <[JPitts@trccompanies.com](mailto:JPitts@trccompanies.com)>  
**Sent:** Friday, December 8, 2023 10:36 AM  
**To:** Courtney Whitworth <[cwhitworth@nationalgridrenewables.com](mailto:cwhitworth@nationalgridrenewables.com)>  
**Subject:** RE: [EXTERNAL] Sycamore Creek Wetland KMZ

Hi Courtney,

Attached is an email from the OEPA to NGR on March 8, 2022, following the issuance of the AJD.

Hi Lindsay,  
Thanks for following up on this. Sorry that this email was missed.

Based on the Corps JD that was issued a few of the wetlands were determined to be isolated and non-jurisdictional for the Corps. Those wetlands are regulated by Ohio EPA under the Isolated wetland statute. Wetlands that were determined to non-jurisdictional by the Corps due to the fact they are PCC would not be regulated by Ohio EPA.

I've attached an email from Brian Swartz, that maybe better clarifies which wetlands are isolated vs. PCC.

Let me know if you have any other questions.

Thanks,

Jeff Boyles  
401/Wetland Supervisor  
Ohio EPA - DSW  
(614) 644-2494

Regards,

Justin Pitts  
Ecological Project Manager



781 Science Boulevard, Suite 200, Gahanna, Ohio 43230  
D 614.423.6353 | C 614.301.0609  
[LinkedIn](#) | [Twitter](#) | [Blog](#) | [TRCcompanies.com](http://TRCcompanies.com)

---

**From:** Courtney Whitworth <[cwhitworth@nationalgridrenewables.com](mailto:cwhitworth@nationalgridrenewables.com)>  
**Sent:** Friday, December 8, 2023 10:31 AM  
**To:** Pitts, Justin <[JPitts@trccompanies.com](mailto:JPitts@trccompanies.com)>  
**Subject:** RE: [EXTERNAL] Sycamore Creek Wetland KMZ

This is an **External** email. Do not click links or open attachments unless you validate the sender and know the content is safe.

**This foregoing document was electronically filed with the Public Utilities  
Commission of Ohio Docketing Information System on**

**6/11/2024 3:37:50 PM**

**in**

**Case No(s). 24-0586-EL-BLN**

Summary: Letter of Notification Red Run Station electronically filed by Hector Garcia-Santana on behalf of AEP Ohio Transmission Company, Inc..