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February 12, 2021

Ms. Tanowa Troupe, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3797

Re: Application
Case No. 20-1605-EL-BGN
In the Matter of the Application of Birch Solar 1, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Allen and Auglaize Counties, Ohio.

Dear Ms. Troupe:

Accompanying this letter is an application by Birch Solar 1, LLC ("Applicant") for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Allen and Auglaize Counties, Ohio. The original application was electronically filed, and the required number of copies both in hard copy and electronic have been provided to the Docketing Division.

The Applicant notes that the information presented in the preapplication notification letter filed on November 3, 2020, has been revised as follows. The Applicant, Birch Solar 1, LLC, is proposing to construct a solar-powered electric generation Facility of up to 300 megawatts alternating current that will be sited on approximately 1,410 acres, referred to as the "Facility Area" (which is a reduction of 1,190 acres from the acreage stated in the preapplication letter and presented at the public information meetings in November 2020). With this reduction, the Project Area will no longer include Duchouquet Township in Auglaize County. In addition, it is currently anticipated that construction of the Project will begin as early as the first quarter in 2022, with commercial operations beginning in the second quarter of 2023. All other information in the preapplication notification letter remains unchanged.

In accordance with O.A.C. Rule 4906-2-04, we make the following declarations:

Name of the Applicant:

Birch Solar 1, LLC
(wholly-owned subsidiary of Lightsource US)
400 Montgomery Street, 8th Floor
San Francisco, California 94104

Name and location of the Facility:

Birch Solar 1, LLC
Shawnee Township, Allen County, Ohio
Logan Township, Auglaize County, Ohio

Name of authorized representative:

Christine M.T. Pirik
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, Ohio, 43215
(614) 591-5461
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Notarized Statement:

See attached Affidavit of Kevin Smith,
Chief Executive Officer, Birch Solar 1, LLC

Respectfully submitted,

/s/ *Christine M.T. Pirik*
Christine M.T. Pirik (0029759)
(Counsel of Record)
Terrence O'Donnell (0074213)
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Attorneys for Birch Solar 1, LLC

Enclosures

4822-0525-3595 v2 [92234-1]

BEFORE THE
OHIO POWER SITING BOARD

In the Matter of the Application of Birch Solar 1, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Allen and Auglaize Counties, Ohio.	)))))	Case No: 20-1605-EL-BGN

OFFICER'S AFFIDAVIT FOR
BIRCH SOLAR 1, LLC

STATE OF California :
: ss
COUNTY OF Marin :

I, Kevin Smith, being duly sworn and cautioned, state that I am over 18 years of age and competent to testify to the matters stated in this affidavit and further state the following based on my personal knowledge:

1. I am the Chief Executive Officer of Birch Solar 1, LLC, the Applicant under this Application, and a wholly-owned subsidiary of Lightsource Renewable Energy Development, LLC.

2. I have reviewed Birch Solar 1, LLC's Application for a Certificate to Construct a Solar-Powered Electric Generation Facility in Shawnee Township, Allen County, Ohio, and Logan Townships, Auglaize County, Ohio.

3. To the best of my knowledge, information, and belief, the information and materials contained in the above-referenced Application are true and accurate.

4. To the best of my knowledge, information, and belief, the above-referenced Application is complete.

Kevin Smith, CEO
Birch Solar 1, LLC

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF California)
) ss.
COUNTY OF Marin)

On 2-9 20 21 before me Timothy PATRICK Solomon, Notary Public personally appeared Kevin Smith, who proved to me on the basis of satisfactory evidence to be the person(s), whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Timothy PATRICK Solomon
Notary Public

(seal)

TIMOTHY PATRICK SOLOMON
COMM. #2187127
Notary Public - California
Marin County
My Comm. Expires Mar. 19, 2021

Application to the Ohio Power Siting Board for a Certificate of Environmental Compatibility and Public Need for Birch Solar 1, LLC

Case Number: 20-1605-EL-BGN

February 2021

Prepared for:

Birch Solar 1, LLC

Prepared by:

Stantec Consulting Services, Inc.

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Abbreviations and Acronyms

AC	alternating current
ANSI	American National Standards Institute
APE	Area of Potential Effect
Applicant	Birch Solar 1, LLC
Certificate	Certificate of Environmental Compatibility and Public Need
CWA	Clean Water Act
dBA	A-weighted decibels
DC	direct current
EMF	electromagnetic field
EPC	engineering, procurement, and construction
Frac Out Plan	HDD Construction Inadvertent Return Control Plan
gen-tie	generation tie-line
HDD	Horizontal directional drilling
HHEI	Headwater Habitat Evaluation Index
IEEE	Institute of Electrical and Electronics Engineers
IPaC	Information for Planning and Consultation
JEDI	Jobs and Economic Development Impact Model
KOP	Key Observation Points
kV	kilovolt
kWAC	kilowatt alternating current
L_{eq}	equivalent sound level
Lightsource bp	Lightsource bp Renewable Energy Investments Limited
Lightsource US	Lightsource Renewable Energy US, LLC
MET	meteorological
mG	milliguass
mm	millimeter
Modules	solar panels
mph	miles per hour
MV	medium voltage
MVA	mega volt ampere
MW	megawatt

NAAQS	National Ambient Air Quality Standards
NEC	National Electrical Code
NESC	National Electrical Safety Code
NPDES	National Pollutant Discharge Elimination System
NREL	U.S. Department of Energy, National Renewable Energy Laboratory
NRHP	National Register of Historic Places
OAC	Ohio Administrative Code
ODNR	Ohio Department of Natural Resources
ODOT	Ohio Department of Transportation
OEPA	Ohio Environmental Protection Agency
O&M	operations and maintenance
OPSB	Ohio Power Siting Board
ORAM	Ohio Rapid Assessment Method for Wetlands
PILOT	payment in lieu of taxes
PIM	Public Information Meeting
PJM	PJM Interconnection, LLC
POI	point of interconnection
Project	Birch Solar 1 Project
PV	photovoltaic
QHEI	Qualitative Habitat Evaluation Index
SEIA	Solar Energy Industries Association
SHPO	State Historic Preservation Office
SPCC	Spill Prevention, Control, and Countermeasure
SR	State Route
Stantec	Stantec Consulting Services
SWPPP	Stormwater Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
UL	Underwriters Laboratories
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
W	watt
WOUS	Waters of the U.S.

EXECUTIVE SUMMARY

Birch Solar 1, LLC, a wholly-owned subsidiary of Lightsource US, is developing the 300-megawatt alternating current (MW_{AC}) Birch Solar 1 Project in Allen and Auglaize Counties, Ohio (Project). Lightsource US's model is to build, own and operate solar projects, including managing the design and construction of the projects, operating the projects throughout their useful lives, and making a substantial financial investment in the projects. The Project Area will encompass approximately 2,345 acres of land, with the area needed for Project infrastructure including solar modules, trackers, inverters, internal access roads, and a Project substation totaling approximately 1,410 acres. The land for the Project is leased from local farmers, and will be returned to the farmers at the end of Project operations with all equipment removed. Throughout this application, the Applicant has balanced the desire of local farmers to use their farmland for a solar project, the goals of the state of Ohio for additional clean energy development and infrastructure, and the requests of the community surrounding the Project to screen, offset the Project from major roads, and reduce changes to the current environment of the Project Area. Birch Solar's approach is to work with the local community and neighbors to ensure that it develops and constructs the Project as a good neighbor and long-term member of the local community.

The development of the Project was typical of most generation projects. After initial interconnection screenings, Birch Solar began speaking with the area farmers. Over approximately one year, an initial Project boundary was created and at that time Birch Solar began speaking with the greater community, local officials and other government agencies introducing the Project. During the pre-application period, the Birch Solar met with the local community in a public setting (virtual and in person) on four separate occasions. During those meetings, questions or concerns were documented and incorporated into the Project as much as possible. As part of the Project design considerations, and with the consideration of the significant input received in the community outreach, the Applicant is implementing the following:

- 300-foot panel setbacks from Breese Road and panel setbacks starting at 300 feet from homes, in addition to evergreen screening;
- Neighboring Landowner Financial Benefit program for any home within 500 feet of the solar panels with the benefits ranging from $10,000 to $50,000 depending on proximity, and a Home Value Agreement for homes most affected by the Project. Neither of these landowner benefit programs require endorsement, confidentiality or support of the Project by the landowner;
- Discreet 6-foot cedar post farm fence around the Project to match the aesthetic of the surrounding area;
- Planting of evergreen trees and shrubs around the Project in external facing areas that will protect residents' viewsheds, eliminating or limiting Project visibility;
- Maintaining the natural environment of the area and conserving habitats by not removing wooded areas or wetlands, with generous setbacks from any wetland areas to ensure they are undisturbed; and

- Optimizing the Project engineering to maintain 300MW capacity while reducing the land needed for the Facility to 1,410 acres, which remains inside the original planned pre-application boundary. This is a reduction of 1,190 acres from the acreage presented at the public information meetings in November 2020.

The Applicant's customary best project practices, that are beyond industry standards or permit requirements, address other community concerns:

- Commitment to recycling all solar panels, which includes any panels damaged during construction, operations, and all panels left at the end of life/decommissioning;
- Creation of pollinator habitat to boost local biodiversity and foster wildlife habitat and a sheep grazing program, if acceptable to the local community and nearby landowners; and
- A $500,000 community fund for Allen and Auglaize Counties.

The Applicant has continued community engagement by updating its website (www.birchsolarfarm.com) with 3D video simulations of the Project Area once built along with Frequently Asked Questions and educational information about solar energy and the Project. In addition, the Applicant has continued to communicate with local government officials and other community stakeholders.

In this application, the Applicant has balanced the right of the farmers to maximize the use of their land with the desires of the local community and the state of Ohio's goals of additional economic development and infrastructure.

4906-4-01 PURPOSE AND SCOPE

(A) GENERAL

This application is intended to satisfy the requirements of the Ohio Administrative Code (OAC) Chapter 4906-4 for issuance by the Ohio Power Siting Board (OPSB) for a Certificate of Environmental Compatibility and Public Need (Certificate) for the Birch Solar 1 Project (Project) as submitted by Birch Solar 1, LLC (Applicant).

(B) WAIVERS

The Applicant is not requesting any waivers at this time.

4906-4-02 PROJECT SUMMARY AND APPLICANT INFORMATION

(A) PROJECT SUMMARY AND APPLICANT INFORMATION

The Project, located in Allen and Auglaize counties, Ohio, is a utility-scale solar-powered electric generation facility that will have a nameplate capacity of 300 megawatts (MW) alternating current (AC) 375 MW direct current (DC). The Project will be constructed and operated by the Applicant, a wholly owned subsidiary of Lightsource Renewable Energy US, LLC, a Delaware limited liability company (Lightsource US), and will operate for a period of 35 years.

(1) General Purpose of the Facility

The purpose of the Project is to provide 300 MWac/375 MWdc (referred to herein as 300 MW) of cost effective, clean and renewable energy to the PJM Interconnection, LLC (PJM) transmission grid. The Project will add generation diversity to the electrical grid creating a more robust grid. Electricity from the Project will use virtually no fuels or water and emit zero air emissions. The Project is in line with Ohio's legislative desires for economic benefit, jobs, and the infrastructure investment that clean energy brings.

(2) General Location, Size, and Operating Characteristics of the Proposed Facility

The Project is located in Shawnee Township in Allen County and Logan Township in Auglaize County, Ohio, southwest of Lima, Ohio. The Project will be located entirely on privately owned parcels and the Project has secured long-term leases with area landowners. The initial boundary of the Project included land north of Breese Road, west of Bowsher Road, and south of National Road. The Project boundary depicted within the Project's OPSB Public Information Meeting (PIM) reflected this initial larger boundary, however based on public feedback and ongoing conversations with landowners, the Applicant adjusted the Project boundary to reflect a smaller and more condensed Project site design. This new Project Area, represented within this application, removed parcels north of Breese Road and includes a 300-foot setback from Breese Road, reducing proximity to homes and also limiting the boundary to the area east of Bowsher Road and north of National Road. The new Project Area is 2,345 acres of private land.

The Applicant is proposing to permit the entirety of the Project Area. Based on the current Project design, the Facility, which is composed of all components and infrastructure necessary for solar energy generation, will occupy approximately 1,410 acres of the Project Area. The Applicant has made considerable effort to depict the Facility layout in its final form to the extent possible at this stage of development. However, the exact placement of the Facility is subject to change prior to construction. Any adjustments in the Project's design will be within the Project Area represented in this application.

The Project will have a generating capacity of 300 MW and will consist of photovoltaic (PV) solar panels (modules) mounted on a racking system, inverters, collector lines, a substation, and internal access roads, all of which is encompassed by security fencing. Driveways located outside of the security fencing will allow access to the public roadways. The modules are mounted on a rack that rotates throughout the day to maximize the solar energy capture and electric generation of the array. Electricity generated by groups of modules are collected and sent to inverters located throughout the array to convert the electricity from DC to AC. Collector lines, a series of medium voltage (MV; 34.5 kilovolt [kV]) underground lines will transfer the electricity from the inverters to a Project substation. Electricity will be delivered from the Project substation to the point of interconnection (POI) existing substation that connects to the regional PJM transmission grid, through a short generation tie-line (gen-tie). A detailed description of each Project component can be found in Section 4906-4-03(B) in this application.

(3) Suitability of the Site for the Proposed Facility

The Applicant has determined the Project Area to be suitable for utility-scale solar facility development based on the following factors: proximity to available transmission capacity which reduced the need for additional long distance transmission lines or gen-tie lines, landowner and farmer interest, environmental site suitability, and economic analysis. A detailed description of the Project Area's suitability and the Facility siting process is included in Section 4906-4-04(B) of this application.

(4) Project Schedule

The Applicant has been developing the Project since 2019. Development began with interconnection studies and applications into PJM and conversations with local farmers and landowners. Since 2019, environmental, cultural, sound, engineering and geotechnical studies have been completed. Community outreach has been ongoing throughout the development of the Project. In accordance with OAC Rule 4906-3-03, the Applicant held two virtual PIMs in November 2020. The PIM presentation was made available on the Project website on November 24, 2020. Frequently asked questions from the PIMs were posted onto the Project's website with responses on December 2, 2020. In addition, the Applicant held an in-person Open House in October 2020 at the Ohio Means Jobs Building providing an overview of the Project. In November 2020 the Applicant also provided a public in-person presentation on Project updates at the Apollo Career Center, which included a question-and-answer session with the community. Project construction is expected to begin as early as the first quarter of 2022, with commercial operations beginning in the second quarter of 2023. Additional information regarding the Project schedule can be found in Section 4906-4-03(C) of this application.

(B) FUTURE PLANS FOR ADDITIONAL GENERATION UNITS OR FACILITIES IN THE REGION

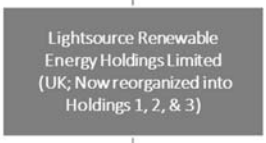
(1) Description of any plans for future additions of electric power generation units

The Applicant is seeking an OPSB Certificate to construct a 300 MW solar energy project located within the Project Area specified in this application. There are no plans to add additional electric power generation units to this Project at this time.

(2) Description of the Applicant's history, affiliate relationships and current operations

Birch Solar 1, LLC, the Applicant, is a wholly owned subsidiary of Lightsource US. The ultimate parent of Lightsource US is Lightsource bp Renewable Energy Investments Limited, a company registered under the laws of the Countries of England and Wales (Lightsource bp). Lightsource bp is a fully integrated solar asset company that operates and invests across the full solar project lifecycle and performing all activities in-house and operates 1,291 MW of assets worldwide.

The diagram to the right reflects key entities that own and actively manage North America functions for the Lightsource US platform. Primary activities flow up through Lightsource Holdings 1, 2 and 3, which prior to 2018, were organized in a single entity, Renewable Energy Holdings Limited. In 2017, Lightsource agreed to a strategic partnership with bp to accelerate delivery of this mission worldwide.



Ownership and control of the top-level entity, Lightsource bp Renewable Energy Investments Limited, is allocated as follows since January 31, 2019:

- 49.97% bp PLC (Moody's A1 rating)
- 27% Nick Boyle, Lightsource bp Co-founder & CEO
- 22% Lightsource bp management and employees

Lightsource US has a leading global solar and storage development platform with North American headquarters in San Francisco and development offices in Denver and Philadelphia. Lightsource US currently has 9 gigawatts of assets under development in the U.S. that includes 2,385.2 MW of contracted assets. Lightsource US is focused with a singular mission to develop cost-effective, large-scale projects using proven technologies and tier-1 equipment.

A list of Lightsource US's publicly announced contracted assets in the U.S., developed in the last five years, is provided in Table 2-1 below.

Table 2-1 Lightsource US Contracted Assets in the U.S.

Project Name	Project Location	Size (MWdc)	Project Status	Commercial Operation Date
CDEC Portfolio	Cibola County, NM	9	Operating	Dec 2019
Nittany 1-3 Solar	Franklin County, PA	72.2	Operating	Mar & Sept 2020
Johnson Corner Solar	Stanton County, KS	27.5	Operating	Apr 2020
Impact Solar	Lamar County, TX	260	Operating	October 2020
Wildflower Solar	Sacramento County, CA	16.5	Operating	Dec 2020
Bighorn Solar	Pueblo County, CO	300	Under Construction	Anticipated Nov 2021
Elk Hill 1-2 Solar	Franklin County, PA	43.5	Under Construction	Anticipated Dec 2021
Briar Creek Solar	Navarro County, TX	153.5	Under Construction	Anticipated Oct 2021
Elm Branch Solar	Ellis County, TX	163	Under Construction	Anticipated Dec 2022
Black Bear Solar	Montgomery County, AL	130	Contracted	Anticipated Dec 2022
Happy Solar	White County, AR	132	Contracted	Anticipated Dec 2022
Bellflower Solar	Henry County, IN	190	Contracted	Anticipated Sept 2022

4906-4-03 PROJECT DESCRIPTION IN DETAIL AND PROJECT SCHEDULE IN DETAIL

(A) DESCRIPTION OF THE PROJECT AREA'S GEOGRAPHY, TOPOGRAPHY, POPULATION CENTERS, MAJOR INDUSTRIES, AND LANDMARKS

(1) Project Area Map

Figure 3-1 shows the geographic features of the proposed Project Area, at a scale of 1:24,000, as well as those features within a 2-mile radius. The proposed features specifically include:

(a) The proposed Facility;

(b) Population centers and administrative boundaries;

(c) Transportation routes and gas and electric transmission corridors;

(d) Named rivers, streams, lakes, and reservoirs; and

(e) Major institutions, parks, cemeteries, and recreational areas.

The Facility layout depicted in Figure 3-1, and all subsequent figures, represents the current panel, civil and electrical design for the Project. The Applicant made considerable effort to depict the layout in its final form to the extent possible at this stage of development. Exact placement of the Facility is subject to change prior to construction including, but not limited to, specific road locations, panel configurations and laydown staging areas. All infrastructure will remain within the limits of the Project Area represented and the modules will remain as represented in Section 4906-4-03(B)(1)(a) of this application. Final civil and electrical engineering of the Project will depend on various considerations including site refinement through identification of additional constraints like cultural resources, final engineering, procurement, and construction (EPC) contractor input, labor plans, and continued conversations with the community regarding screening and fencing.

The Project Area has been studied for all environmental, engineering, and visual impacts. The only resource for which the entire Project Area was not evaluated was for archaeology surveys which focused on the location of the Facility where ground disturbance will occur, rather than the larger Project Area. This survey extent was agreed to in consultation with the State Historic Preservation Office (SHPO). Therefore, any changes beyond the current location of the Facility would result in additional cultural resource surveys before construction. Any final adjustments to the location of the Facility will not cause additional impacts beyond what is discussed in this application. The final location of the Facility will be provided to OPSB no later than 30 days prior to the start of construction.

(2) Project Area, in acres, of all Owned and Leased Properties

The Project Area consists of 2,345 acres of private land secured under long term lease agreements with the current landowners. The Facility, which includes all Project infrastructure and proposed areas of ground disturbance, will occupy approximately 1,410 acres within the Project Area. Beginning in the very early stages of development, the Applicant had originally notified the community of a larger Project Area (3,529 acres) and had based the notification for the public information meetings on that larger Project Area. The Applicant reduced the Project Area to the proposed 2,345 acres based on discussions with the community and from feedback at the four public meetings. The location of the Facility is considerably smaller than the Project Area due to the Applicant's development approach and proactive siting considerations, incorporating avoidance of sensitive resources and minimizing the impact to nearby residences and communities. Avoidance of streams, wetlands, wooded areas, and other natural resources allow these features to remain unaffected within the Project Area and help to maintain the existing landscape. In addition, module setbacks from highly traveled roads and homes were incorporated to screen the Project and reduce impacts on the neighboring community.

(B) DESCRIPTION OF THE GENERATION FACILITY

The Project is a 300 MW solar generation facility connecting into the PJM regional grid by way of the existing AEP Southwest Lima Substation. Solar modules convert sunlight into DC electricity which is then converted to AC electricity by inverters, which are located throughout the Facility. Transformers, located close to the substation, step up the AC electricity to a higher voltage which allows the electricity to transfer to the substation and then dispense throughout the regional power grid, operated by PJM.

Project components include PV solar modules mounted on tracked, following the sun, racking systems supported by steel posts and pilings. Electrical Facility components include: junction boxes, combiner boxes, inverters, high voltage transformers, DC and AC electrical collection systems, a Project substation and a 345 kV gen-tie line between the Project substation and the existing AEP substation. Additionally, the Facility will include meteorological (MET) towers, internal access roads, and a perimeter fence. The Project may have an on-site operations and maintenance (O&M) building; however the location is not finalized in the Facility design. Should one be necessary, it will be included in the final Facility design. If a O&M building is constructed, it will be located on land within the Project Area, likely adjacent to the Project substation. Project components are discussed in more detail in Section 4906-4-03(B)(1) in the application and are depicted in the preliminary site plan included as Exhibit A.

During construction, multiple temporary staging areas will be used to stage construction equipment and Facility equipment. Up to three laydown yards will be utilized during construction and will be graveled. These gravel areas will be restored per the Project's Decommissioning Plan (see Exhibit B) so that they can be returned to agricultural production at the end of the life of the Project, unless the landowner requests that the gravel be left in place. Both staging areas and laydown yards are used to assist with efficient construction. Construction of the Project will also include temporary construction management trailers and stormwater management features.

Access roads will be constructed throughout the Facility to allow for O&M access. Approximately 118,600 linear feet of access road will be constructed for the Project. Access roads will be no more than 20 feet wide with turning radii which will not exceed 55 feet in radius. Access roads will be constructed with at least 6 inches of gravel.

The Facility will be secured with approximately 220,900 linear feet of perimeter fence. Incorporating

community feedback, cedar farm fencing will be used along public facing portions of the Facility to better blend into the natural surroundings of the Project Area. The cedar farm fence will not be more than seven feet tall. Internal areas and areas around the substation may include seven-foot chain link fencing where necessary.

PV solar modules will be mounted on a tracked system, oriented in rows running north to south. Tracked equipment will allow for the modules to tilt toward the sun and capture more sunlight. The Project will use Array Technologies, single axis low profile trackers. These trackers are located close to the ground to minimize viewshed impacts. The trackers tilt the panels to the east in the morning and follow the sun throughout the day to maximize the amount of energy produced, rotating approximately +/- 52 degrees. The trackers will be supported by approximately 142,000 steel posts that will be installed using a pile-driving machine. The trackers have a height of approximately 4 feet above the ground. With the modules attached to the tracker and the modules tilted to their maximum angle, the total height of the structure will be no more than 10 feet above the ground. The modules will be connected electrically by approximately 409,048 linear feet of DC cabling, hung over the racking system.

Approximately 95 inverters will be installed to convert the 1,500 volt DC energy collection system to AC power. Approximately 832,200 linear feet of below ground DC collection line will be installed for the Project. The depth of the installed DC cables will be a minimum of 36 inches. The AC collection system will be comprised of MV cable that will transfer electricity to the Project substation. The AC system is currently planned to have buried collection lines and will total approximately 183,432 linear feet. In the event that the final location of the Facility cannot accommodate underground AC collection lines for an environmental or siting reason, the Applicant will utilize a limited length of AC overhead collection lines.

The Project substation will have two 165 mega volt ampere (MVA) transformers and all necessary equipment to step up incoming MV electricity to the high voltage electricity necessary to interconnect via a gen-tie line into a new 345 kV three ring bus POI at the existing substation owned and operated by AEP. The gen-tie line will be approximately 1,000 feet in length and will be hung on poles not to exceed 39 feet (12 meters) in height.

All Project equipment will be compliant with applicable Underwriters Laboratories (UL), Institute of Electrical and Electronics Engineers (IEEE), National Electrical Code (NEC), National Electrical Safety Code (NESC), and American National Standards Institute (ANSI) listings.

(1) Description of the Generation Equipment

Generation equipment included as part of the Facility consists of PV solar modules that will convert sunlight directly to electricity. Bi-facial modules are being considered for this Project that will convert both direct sunlight and reflected sunlight to electrical power. The remaining Project generation equipment either transmits, converts, or transforms electricity generated by the solar modules, including inverters, an AC and DC collection system, a Project substation, and a gen-tie line.

(a) Type, Number of Units, Estimated Net Demonstrated Capacity, Heat Rate, Annual Capacity Factor, and Hours of Annual Generation

The site design for the Project anticipates utilizing 590 watt (W), monocrystalline modules from Trina Solar (Model TSM-590DEG20C.20). If an alternative model or manufacturer is selected it will be comparable to the anticipated modules and is not expected to increase potential impacts. Trina is a Tier 1 module supplier. It is estimated that approximately 635,584 modules will be utilized to generate the 300-MW nameplate capacity of the Project. The modules are approximately 4.25 feet wide by 7.1 feet tall and are approximately 1.6 inches deep. The manufacturer's specifications for the modules are provided in Exhibit C. If an alternate module is selected, the Applicant will provide a copy of the manufacturer's specifications to the OPSB prior to construction.

The Applicant will only utilize Tier 1 equipment suppliers and requires solar panels to pass Toxicity Characteristic Leaching Procedure (TCLP) testing regulated by the U.S. Environmental Protection Agency (USEPA) to ensure they are not hazardous to people or the environment. To pass the TCLP test a solar panel, when broken into pieces, must not leach harmful amounts of any hazardous materials at levels defined by the USEPA to ensure it is safe for people and the environment. The Applicant requires the panels to have passed the TCLP testing as part of equipment supplier contract obligations. Solar panels that pass the TCLP and can be used for the Project are therefore non-hazardous under federal law and could be disposed of in regular landfills just like household garbage. However, the Applicant is committed to recycling all solar panels from the Project, which includes any panels damaged during construction, operations, and all panels at the end of life/decommissioning. Lightsource US is a board member of the Solar Energy Industries Association (SEIA), an organization whose members are dedicated to responsible end-of-life management and are proactively developing recycling processes for the solar industry as a whole. SEIA has created a national solar panel recycling member-based program that aggregates the services offered by recycling vendors here in the U.S. Already SEIA's recycling

partners have processed mor than 4 million pounds of PV modules and related equipment since the program launched.

The Applicant has selected inverters made by Power Electronics (model PE 3350) for the Project. If an alternative model or manufacturer is selected it will be comparable to the anticipated inverters and is not expected to increase potential impacts. Manufacturer specifications for the Power Electronics inverters are included in Exhibit C. If an alternate inverter is selected, the Applicant will provide a copy of the manufacturer's specifications to the OPSB prior to construction.

Array Technologies DuraTrack HZv3 trackers will be used for the Project (manufacturer specifications are provided in Exhibit C). If an alternative model or manufacturer is selected it will be comparable to the anticipated tracker and is not expected to increase potential impacts. If an alternate tracker is selected, the Applicant will provide a copy of the manufacturer's specifications to the OPSB prior to construction.

The annual capacity factor for the Project is estimated to be 0.234 and the hours of generation are approximately 615,319 MW hours. The heat rate is not applicable to a solar facility.

(b) For Wind Farms, Turbine Size

This section is not applicable for solar facilities.

(c) Fuel Quantity and Quality

Fuel quantity and quality are not applicable for solar facilities.

(d) Pollutant Emissions and Estimated Quantities

Electricity generation from solar facilities, such as the Project, generates electricity without producing pollutant emissions. Therefore, this section is not applicable to solar facilities.

(e) Water Volume Requirement, Source, Treatment, and Discharge

The Project, due to its generation type, does not require any cooling water during operation and, therefore, will not need to treat or discharge water. As part of the O&M of the Project, panels may require occasional cleaning. Water needed for cleaning can be obtained on-site or may be brought in from off site. If an O&M building is included in the final Facility design, it will require a water source and sanitary sewer capacity. The Project will either connect to the public sanitary sewer or a septic system will be installed onsite. The Project will obtain all necessary permits prior to construction and coordinate with local authorities to determine the availability of public utility infrastructure in the vicinity of the Project.

The Applicant may incorporate sheep grazing into the operational phase of the Project. Sheep grazing is used in conjunction with native grass planting to provide additional agricultural opportunity on the land. An onsite water source will also be required if sheep grazing is implemented.

(2) Construction Method, Site Preparation and Reclamation Method, Materials, Color and Texture of Surfaces, and Dimensions of Facility Components

The Project construction begins by securing the area and constructing laydown and assembly areas. Installation of stormwater and erosion controls are a top priority as minor clearing of vegetation from the existing cropland and grading begin. The Project will install temporary power and access roads. Further detail on each component is provided below.

(a) Electric power generation plant

Solar modules are installed on steel posts that are approximately 6 inches by 7 inches (15.2 by 17.8 centimeters). Posts are typically 10 to 15 feet (3.0 to 4.6 meters) long and are driven 7 to 11 feet (2.1 to 3.4 meters) below grade. The preliminary geotechnical work at the site recommended that the posts be driven to a minimum depth of 7.5 feet. Posts will be primarily installed by pile drivers. The Project, in its current form, will require installing approximately 142,000 posts. Steel frame racking mechanisms support the modules, connecting the modules to the posts. The racking system will be delivered by forklifts from the staging areas to their final locations. Racking mechanisms will be installed primarily by hand. Modules are bolted to the frame and secured.

(b) Fuel, waste, water, and other storage facilities

The Project will not require any fuel storage during operations. During construction, diesel fuel for construction vehicles and equipment will be stored in appropriate containment in the laydown yard locations, away from streams or wetlands.

Water storage on site may be necessary during operations for the sheep grazing operation and will be held in standard-sized agricultural troughs.

On site solid waste generated during construction and operations will be collected and contained in waste containers and disposed of in a timely manner.

(c) Fuel, waste, water, and other processing facilities

There will be no fuel, waste, water or other processing facilities associated with the Project.

(d) Water supply, effluent, and sewage lines

Water supply and sewage lines are being evaluated both from a private well and/or by accessing the public system. If included in the final design, the Project O&M building will require both a water source and sewage. Additionally, sheep grazing will require a water source as is standard with agricultural grazing. The Applicant will coordinate with local entities to determine the availability of public utility infrastructure and will obtain all necessary permits prior to construction.

(e) Associated electric transmission and distribution lines and gas pipelines.

The Project will require construction of one short gen-tie line to transfer electricity from the Project substation to the new POI substation which connects to the greater PJM grid. The O&M building will require a distribution line to deliver power to the building. That local distribution line will be completed in conjunction with the local power distribution company, as required. No new gas pipelines will be needed for the Project.

(f) Electric collection lines

AC and DC lines will be installed during construction. The DC collection lines which will be hung over the racking systems using a messenger cable system which feeds from the module string harnesses to the load break disconnect switches. This will comprise approximately 409,048 linear feet of above grade DC collection lines. Underground DC feeders (1,500 volt) will connect the load break disconnect switches to the inverters and will be comprised of approximately 832,200 linear feet of below grade DC feeders.

AC collection lines connect the inverters to the Project substation. The collection lines are 34.5kV and circuits are loaded up to a range of 27.7 MW to 31.1 MW. The final number and loading of circuits will be determined by electrical and equipment parameters, in coordination with the utility. AC collection lines will be installed underground~~,~~ 36 inches deep, and are plowed or trenched into place. Overhead lines will be avoided, however in the rare occasion that they need to be used, they will be installed with self-supporting or guyed poles at some locations. Horizontal directional drilling (HDD) will be used when necessary to install collection lines. Approximately 183,432 linear feet of AC collection lines will be installed.

(g) Substations, switching substations, and transformers

The Project's preliminary design includes one Project substation to be located adjacent to the existing Southwest Lima Substation, owned by AEP. The Project substation will have two 165 MVA transformers and all necessary equipment to step up incoming MV electricity to the high voltage electricity necessary to interconnect via a gen-tie line into a new 345 kV three ring bus at the existing POI substation owned and operated by AEP. The location of the Project substation is depicted on all Facility mapping.

Each collection feeder will contain one 34.5 kV collection system bus with an individual 34.5 kV feeder breaker. Disconnect switches will be applied according to industry practices at all breakers. A common control enclosure will be installed on site which will house the data acquisition equipment, supervisory control, communication and protection equipment necessary to safely operate the substation. The Project substation and POI substation will be located adjacent to each other. The Project substation will total less than seven acres and will be fenced in and protected according to the NESC. The substation will be fenced with chain-link fence.

(h) Temporary and permanent meteorological towers

The Project, once operational, will include up to 14 MET towers. Towers will be up to 12 feet tall on an H-frame or tubular structure. The MET stations consist of a pyranometer to measure the solar irradiance, an anemometer to measure wind speed and direction and a thermometer. The final locations of the MET stations will be determined during the final site design.

(i) Transportation facilities, access roads, and crane paths

Approximately 118,600 linear feet of gravel access road will be constructed for the Project to facilitate movement around the site during O&M. The access roads will be approximately 20 feet wide and are anticipated to be composed of 6 inches of gravel, based on the preliminary findings of the geotechnical investigations.

There are no crane paths as part of the Project as installation of Facility equipment does not require large cranes. A larger crane may be necessary for construction of the Project substation, however given the location of the substation within the Facility and proximity to the existing roadway, a dedicated crane path is not anticipated.

(j) Construction laydown areas

Approximately three graveled construction laydown areas will be created during construction of the Project with one main laydown area, adjacent to the substation, being used for a construction management trailer. At landowner request the graveled areas could remain in place after the life of the Project. The laydown areas will be restored to grassland or agricultural land. Additional temporary staging areas may be used during construction.

(k) Security, operations, and maintenance facilities or buildings

The Facility will be enclosed by approximately 220,900 linear feet of fencing to secure the Project during operation. The fencing will have a height of no more than 7 feet. Based on community feedback the Applicant will utilize cedar posts and agricultural fencing on the external facing portions of the Project.

(l) Other pertinent installations

There are no additional pertinent installations related to the Project.

(3) New Electric Transmission Line

A gen-tie line will be constructed to connect the Project substation to the existing AEP substation. The length of the gen-tie line will not exceed 1,000 feet. The line will be hung on poles with a height of approximately 39 feet (12 meters) above ground.

(4) Project Area Aerial Map

Figure 3-2 depicts the proposed Facility and its nearby roads and property lines at a scale of at least 1:12,000 and includes the following features:

(a) An aerial photograph;
(b) The proposed Facility, including all components listed in paragraph (B)(2) of this rule;
(c) Road names; and
(d) Property lines.

(C) PROJECT SCHEDULE

(1) Project Schedule in Gantt Format

The Project schedule is provided in Figure 3-3 and includes the following milestones:

(a) Acquisition of land and land rights

The Applicant began development efforts in the first quarter of 2020, starting outreach to private landowners about the potential for executing long-term land leases for the Project. The Applicant has continued to work with landowners and continued to execute land leases through the fourth quarter of 2020.

(b) Wildlife, environmental, and cultural surveys/studies

Wildlife, environmental, and cultural surveys/studies began in August 2019 and have continued through the first quarter of 2021. The results of these studies are incorporated into the application and discussed in greater detail in Sections 4906-4-06, -07, and -08 of this application.

(c) Receipt of grid interconnection studies and other critical path milestones for project construction

Interconnection studies for the Project began in the third quarter of 2019 and are continuing through the fourth quarter of 2021 when the interconnection agreement is expected to be signed.

(d) Preparation of the application

Development of the application commenced in the fourth quarter of 2020 and has been ongoing since then.

(e) Submittal of the application for certificate

The application will be submitted in the first quarter of 2021.

(f) Issuance of the certificate

The Applicant anticipates that the Certificate will be issued late in fourth quarter 2021 or early in the first quarter of 2022.

(g) Preparation of the final design

The Applicant anticipates that preparation of the final design will commence in the fourth quarter of 2021 and be completed during the first quarter of 2022.

(h) Construction of the facility

Construction of the Facility is expected to commence as soon as the first quarter of 2022 and be completed by the second quarter of 2023.

(i) Placement of the facility in service

The Applicant anticipates that the Project will be in service no later than the second quarter of 2023.

(2) Proposed Construction Sequence

An EPC contractor will be retained by the Applicant prior to the start of construction to manage the construction and delivery process for the Applicant. The EPC contractor will work with the Applicant to finalize the site design and ensure that all applicable permits and approvals have been obtained for the Project before construction commences. Construction of the Project will begin with mobilization of construction staff and equipment to the site to begin clearing of the Project site, installation of the erosion and sediment control measures, followed by any necessary grading and smoothing of the ground. The construction laydown areas will be prepared followed by construction of the access roads. Facility equipment including the trackers, modules, collection system, and inverters will be installed on a rolling basis across the site. As portions of the site are complete, the temporary laydown areas will be restored and stabilized per the vegetation management plan (Exhibit D). Electrical equipment will be commissioned in order to allow the Facility to be placed in service. Once construction across the entire site is complete, all temporary features like the construction trailer, remaining laydown areas, etc. will be removed.

After the Facility is fully constructed, access roads will be dressed to ensure their stability during the life of the Project and final grading of the site to restore the natural contours will be completed as well as seeding of all disturbed areas.

(3) Impact of Critical Delays on the In-Service Date

Delays to the in-service date of the Project could have deleterious effects to the Project and could affect financing, equipment procurement, seasonal construction windows, etc. The potential financial impact of a delayed in-service date is discussed in Section 4906-4-06(D) of this application. The economic benefits to the community would also be delayed if the Project in-service date is delayed. Economic benefits of the Project are discussed in Section 4906-4-06(E) of this application.

4906-4-04 PROJECT AREA SELECTION AND SITE DESIGN

(A) SELECTION OF THE PROJECT AREA

(1) Description of the Study Area or Geographic Boundaries of the Area Considered for Development and Rationale for Selection

The Project is located in Shawnee Township in Allen County and Logan Township in Auglaize County, Ohio, just southwest of the city of Lima, Ohio. The Applicant used four main criteria when proposing the location of this Project: transmission access, agricultural environment, landowner support, and market opportunity. The area for development has been continuously refined from the early stages of development through the pre-application stage as identification of environmental features, existing infrastructure, equipment, and Project efficiency were incorporated into the Facility design. Community feedback also played a crucial role in the area considered for development; the Project Area and location of the Facility have been shifted and reduced, including implementation of larger setbacks to homes and roads, to lessen any community impact.

(2) Map of the Study Area and General Sites Evaluated

The map of the Project Area is provided as Figure 3-2. The Applicant evaluated the Project Area and other parcels within the vicinity of the current Project Area in Allen and Auglaize County to determine the site was suitable for solar development. The initial boundary of the Project included land north of Breese Road, west of Bowsher Road, and south of National Road. The Project boundary depicted within the Project's OPSB PIM materials reflected this initial larger boundary, however based on public feedback and ongoing conversations with landowners, the Applicant adjusted the Project boundary to reflect a smaller and more condensed Project site design. This new Project Area, represented within this application, removed parcels north of Breese Road and includes a 300-foot setback from Breese Road, reducing proximity to homes and also limiting the boundary to the area east of Bowsher Road and north of National Road.

(3) Qualitative and Quantitative Siting Criteria Utilized

The Applicant used four main criteria when proposing the location of this Project: transmission access, agricultural environment, landowner support, and market opportunity. Transmission access allows the Project to bring the electrons produced by the Project onto the PJM grid with minimal need for long gen-tie lines or expensive interconnection upgrades. Agricultural environments are ideal for solar generation

facilities as they are already disturbed and are located on typically flat ground. There was significant interest from local landowners to sign long term leases for the Project. In fact, more landowners with viable land were interested in signing long term lease agreements than was needed for the Project. The market opportunity for solar energy generation exists within Ohio through the interest in execution of power purchase agreements with both private commercial companies as well as utilities.

(4) Description of the Process and how the Siting Criteria were Utilized

The siting process begins by identifying, then analyzing, transmission access points. The Applicant reviews transmission capacity, access, cost and geographic location. Once a POI is chosen, the area around the point is analyzed to ensure the natural environment fits with solar development. Agricultural land, which is already disturbed and plowed, is often an ideal choice because it provides flat ground which will not be further disturbed by a solar project. The Applicant then begins to look at sensitive environmental features on specific parcels as landowner support and interest increases. Sensitive species or habitat are identified early, along with any existing infrastructure already built that would constrain development. When land control is obtained on target parcels and risks are properly assessed, the Applicant begins speaking with local community officials and stakeholders about the project. In addition, at this time a project will also be marketed for an offtake agreement with a private commercial or public utility company.

(5) Description of the Project Area(s) Selected for Evaluation

Through independent third party study and the PJM interconnection process, the Southwest Lima substation was identified as a valuable interconnection point for the Project. The interconnection decision narrowed the Applicant's land focus area. Environmental features, habitat and geotechnical features were then assessed, first by desktop analysis and then by on-site evaluation. Ultimately, the transmission area focus, environmental assessments, landowner interest and community feedback created what is now the Project Area.

(B) DESIGNING THE FACILITY LAYOUT

(1) Constraint Map

Figure 4-1 presents a map of the Project Area with the environmental, residential, and infrastructure setbacks and other constraints.

(2) Criteria Used to Determine the Facility Layout and Site Design

Throughout the early and mid-stages of development and during the public outreach, the Applicant presented a larger project area. This larger area reflected landowner interest and environmental studies which were incomplete at that time. During this time, four public meetings were held with the local community both virtually and in-person. After receiving public comments, the Applicant adjusted the Project Area, optimizing the Project engineering to maintain 300 MW capacity while reducing the area needed for the Facility to 1,410 acres. This new Project Area remained inside the Applicant's original planned pre-application boundary. In addition, the Applicant made the following additional changes to the Project Area:

- Panels will be setback at least 300 feet from: residences; Breese Road; and portions of Wapakoneta Road;
- Adding evergreen vegetative screening to minimize visibility of the Project;
- Removed Project Area north of Breese Road; and
- Maintaining the natural environment of the area and conserving habitats by not removing wooded areas or disturbing streams or wetlands.

To further blend the Project into the naturally surrounding area, the Applicant included a seven foot discreet cedar post farm fence around the Facility to match the aesthetic and evergreen trees and shrubs around the Project in external facing areas that will protect residents' viewsheds, eliminating or limiting Project visibility.

The location of the Facility within the Project Area was designed based on many constraints identified through desktop and field environmental, engineering, and hydrology surveys. Table 4-1 provides a summary of all the constraints avoided or buffered as part of the Facility layout.

Table 4-1 Birch Solar Facility Layout Constraints and Buffers

Constraint	Buffer
Telephone lines	3 meters
United Telephone easement	Avoidance
Pipelines	30 meters
Oil well locations and gathering pipelines	50 feet
Ohio DOT drainage easements	Avoidance
Ohio Power transmission easements	Avoidance
Allen County sanitary mains	30 meters

Table 4-1 Birch Solar Facility Layout Constraints and Buffers

Constraint	Buffer
City of Lima underground water lines	15 meters
AEP electric distribution line easements	30 meters
AEP and Midwest Electric overhead lines	25 feet
Access easements	Avoidance
Lake Erie and Louisville Railroad	Right-of-way
Litel communications easements	Avoidance
Public road right-of-ways	Avoidance
Breese Road	300 feet
Non-residential buildings	15 meters
Residential buildings	300 – 500 feet
100-year floodplain	Avoidance
Flood depth areas ≥ 24 inches	Avoidance
Project boundary	14 meters
Wetlands, streams, and waterbodies	15 meters
Forested areas	Avoidance

(3) Description of Number and Type of Comments Received

The Project completed two local in-person, socially-distanced meetings, October 27, 2020 at the Ohio Means Jobs Building in Lima, Ohio and November 18, 2020 at the Apollo Career Center in Lima, Ohio. The formal PIM meetings for the OPSB Certificate process were completed virtually November 20, 2020 and November 23, 2020. Additionally, the Applicant created a contact form on its website and an email address to solicit feedback on the Project.

Throughout the two virtual PIMs approximately 110 - 170 attendees joined through the web link each session and approximately 100 joined by phone each session. Questions could be asked over the phone or in a chat feature. Live questions were answered by the Applicant and the OPSB representative for approximately three hours each evening. For any questions that could not be addressed within the timeframe of the meeting, the remaining questions and a summary of the answered questions were addressed on the Applicant's website (https://www.lightsourcebp.com/us/projects/birch-solar-project/faqs/) on a Frequently Asked Questions page. The full set of questions and answers are provided in Exhibit E.

After the four Project meetings, the Applicant has continued to update local Allen and Auglaize County officials with Project updates and next steps. The Applicant has continued to use the online contact form and email address to address any additional questions or take comments.

Additionally, the Applicant has sent a letter to adjacent landowners to offer a Neighboring Landowner Financial Benefit for any home, within 500 feet of the Project, that ranges from $10,000 to $50,000 depending on proximity, and a Home Value Agreement for homes in closest proximity to the Project - neither of which require endorsement, confidentiality or support of the Project by the landowner.

4906-4-05 ELECTRIC GRID INTERCONNECTION

(A) CONNECTION TO THE REGIONAL ELECTRIC GRID

The Project intends to interconnect to the regional electric grid via the existing AEP Southwest Lima 345 kV substation. The existing AEP Southwest Lima substation is part of the PJM grid which serves as the Regional Transmission Operator. PJM coordinates the movement of wholesale electricity throughout 13 states and the District of Columbia in the Midwest and Mid-Atlantic, including Ohio.

(B) INFORMATION ON INTERCONNECTION OF THE FACILITY TO THE REGIONAL ELECTRIC POWER GRID

(1) Generation Interconnection Request Information

The Applicant submitted an interconnection request to PJM on September 20, 2019 and was assigned the Queue Number AF1-164 for injection of 300 MW of electricity to the grid. The website for the Project interconnection request is: https://pjm.com/planning/services-requests/interconnection-queues.

(2) System Studies on Generation Interconnection Request

The Feasibility Study for the Project was received on January 31, 2020 and the subsequent System Impact Study Report from PJM was received August 2020. An Interconnection Service Agreement will be executed upon completion of the Facilities Studies (anticipated August 2021) and is anticipated to be executed in fourth quarter of 2021. Copies of both the Feasibility Study and the System Impact Study are provided in Exhibit F. The Feasibility Study determined that the extension of the 345 kV bus, installation of one 345 kV circuit breaker, and installation of protection and control equipment (345 kV line risers, a supervisory control and data acquisition system, and 345 kV revenue metering) will be necessary to accommodate the interconnection of the Project at the AEP substation. The costs for these upgrades were estimated to total $2,850,000, which would be paid for by the Applicant. The System Impact Study

confirmed the expansions specified in the Feasibility Study and updated the anticipated total interconnection cost for the Project to $3,544,000.

4906-4-06 ECONOMIC IMPACT AND PUBLIC INTERACTION

(A) CURRENT AND PROPOSED OWNERSHIP OF THE PROPOSED FACILITY

The Project will be owned and operated by Birch Solar 1, LLC. Birch Solar 1, LLC will secure a power purchase agreement to contract for the electricity produced by the Project.

The parcels comprising the Project Area are all secured with landowner leases held by the Applicant, however this does not change the ownership of the properties. The complete list of parcels within the Project Area is provided in Table 6-1, along with the parcel acreage, the acreage within the Project Area, and the acreage within the Facility.

Table 6-1 Birch Solar Project Participating Landowners

Parcel Number	Owner	Status	Parcel Size (Acres)	Acreage within Project Area	Acreage within Facility
F1602400401	NEFF, PAUL E.	Leased	78.8	78.8	47.1
F1602500300	LACY, EVERETT	Leased	57.3	57.3	28.0
F1924100300	NEFF FARMS INC.	Leased	41.2	40.2	30.5
F1602500100	MAYER, MARK & KEVIN	Leased	143.1	142.9	103.1
F1602400600	NEFF FARMS INC.	Leased	120.8	120.7	79.6
F1602400501	NEFF, WILLIAM G. (TRUSTEE)	Leased	119.1	119.1	81.5
46190002001000	NEFF EUGENE LEWIS & JOSEPHINE S TRUSTEES	Leased	120.2	120.1	74.5
46190003001002	NEFF FARMS INC	Leased	69.4	69.1	38.1
46190003002000	MAYER KEVIN D ET AL	Leased	38.5	38.2	9.0
46190004001000	NEFF FARMS INC	Leased	115.4	115.4	88.7
46190004002000	NEFF FARMS INC	Leased	72.8	72.7	19.1
46200001002000	MAYER MARK A & KIM R & KEVIN D & CONNIE S	Leased	57.9	57.9	35.1
46200001004000	COWAN BOWSHER FARM LLC	Leased	79.9	79.9	48.6

Table 6-1 Birch Solar Project Participating Landowners

Parcel Number	Owner	Status	Parcel Size (Acres)	Acreage within Project Area	Acreage within Facility
46200003002000	NEFF EUGENE LEWIS & JOSEPHINE S TRUSTEES	Leased	229.9	229.6	107.3
46200004001000	NEFF EUGENE LEWIS & JOSEPHINE S TRUSTEES	Leased	117.4	117.3	82.2
46200004003000	MAYER ROBERT W & BARBARA M TRUSTEES	Leased	16.0	15.7	0.0
46210002004000	MAYER MARK A & KIM R & KEVIN D & CONNIE S	Leased	60.4	60.4	52.2
46210004001001	LIMA RESCUE HOME	Leased	57.7	2.8	0.0
46210004005000	MAYER KEVIN D & CONNIE S & MARK A & KIM R	Leased	22.8	22.4	10.8
46280001005000	MAYER KEVIN D & CONNIE S & MARK A & KIM R	Leased	109.0	108.9	56.7
46280001008000	HUTCHISON JOYCE I	Leased	2.8	2.8	1.4
46280001009000	HUTCHISON JOYCE IRENE	Leased	26.8	26.8	22.8
46280002001000	MAYER KEVIN D & CONNIE S & MARK A & KIM R	Leased	69.3	69.2	42.3
46280002003000	FEIGH BARRETT DAVID SR	Leased	41.0	41.0	27.9
46290001001001	NEFF FARMS INC	Leased	68.9	68.9	33.2
46290002002000	NEFF FARMS INC	Leased	41.1	40.8	17.7
46290002002001	NEFF FARMS INC	Leased	20.8	20.7	18.2
46290004001000	FEIGH BARRETT DAVID SR	Leased	79.7	79.7	44.4
46300002001001	MAYER KEVIN D & MARK A	Leased	33.7	33.6	18.8
46300002001002	MAYER KEVIN D & MARK A	Leased	45.0	44.8	27.6
46300002002000	MAYER KEVIN D ET AL	Leased	83.4	83.4	40.3
46300003001000	NEFF PAUL E	Leased	121.5	121.2	94.5
46300003002000	NEFF PAUL E	Leased	32.3	32.2	28.7
TOTAL			**2,394**	**2,334**	**1,410**

Note: Due to rounding, acres for each parcel do not sum to the totals provided

(B) CAPITAL AND INTANGIBLE COSTS

(1) Estimates of Capital and Intangible Costs for the Various Alternatives

Based on experience constructing solar energy facilities in the U.S. the Applicant estimates that the capital costs for the Project will total between approximately $314 million and $360 million. Of this total, it is estimated that construction costs will total approximately between $250 million and $310 million for materials and labor, while other costs associated with intangible costs like permitting, business overhead, and other costs are estimated to range between $50 million and $64 million.

Alternative project areas were not evaluated, as explained in Section 4906-4-04, prior to conducting the detailed cost analyses so no capital and intangible cost estimates are provided.

(2) Cost Comparison with Similar Facilities

Based on the expected range of construction costs, the Project's current estimated cost is between $1,050 - $1,200/kilowatt AC (kWAC). This range of costs is consistent with costs for other solar facilities in the Midwest and with others developed by Lightsource US. The U.S. Energy Information Administration (USEIA) provides cost data for solar energy facilities installed during 2018, which is the most recent year available. Installed costs for solar across the U.S. are estimated at $1,848/kWAC, although this estimate includes projects of varying sizes, technologies, and location (USEIA 2020). Costs for this Project are much less than that average.

(3) Present value and Annualized Cost for Capital Costs

Capital costs will be incurred through construction, which is anticipated to begin in the first quarter of 2022. Because of the short timeline to the Project's start of construction and COD, the present value and annualized capital costs will be similar to the costs presented above.

Alternative project areas were not evaluated, so no additional present value or annualized cost estimates for capital costs are provided.

(C) OPERATION AND MAINTENANCE EXPENSES

(1) Estimated Annual Operation and Maintenance Expenses

The annual O&M costs for the Project are estimated to be approximately $3.5 million to $5 million per year. Over the first two years of the Project the O&M costs will total between approximately $7 million and $10 million.

(2) Operation and Maintenance Cost Comparison

Using the estimated annual O&M costs for the Project, the Project's cost per kilowatt per year (kWAC/year) is between approximately $11.67 and $16.67 kWAC/year. When comparing the Project's O&M cost to publicly available data provided by the U.S. Department of Energy, National Renewable Energy Laboratory (NREL), the annual O&M cost for utility-scale, fixed-tilt PV solar was approximately $9.10 per kWAC/year and $10.40 per kWAC/year when using tracking systems of installed solar energy. These annual costs are based on data from Projects constructed across the U.S. during the first quarter of 2018 (NREL 2018). These costs exclude inverter replacements. Based on this national average, the Project is above the national average cost for annual O&M costs but does include equipment replacements.

(3) Present value and Annualized Expenditures for Operating and Maintenance Costs

The present value of the total annual O&M costs over the life of the Project, assuming annual costs between $3.5 and $5 million, is between $46 and $65 million. This assumes a 9% discount rate and a 2% escalation rate over the 35-year life of the Project.

(D) ESTIMATED COST FOR A DELAY

Project delays that result in a late in-service date can have substantial financial costs as Project financing, equipment availability, and power purchase agreement milestones can be negatively affected. It is estimated that for this Project, power purchase agreement requirements and delay damages are based on industry standards and range from $20 to $27 million in damages if the Project does not move forward by the end of 2023. In addition to the financial penalties, delay of the Project would also result in a delay of the economic benefits of the Project to the community, counties, townships, and school districts.

(E) ECONOMIC IMPACT OF THE PROJECT

Construction and operation of a solar energy facility has the potential to create both short- and long-term jobs and economic benefits to the local community as well as the state overall. The purchase of materials and equipment, as well as employment of construction workers, will create demand for local business through the duration of construction, generating revenue within the regional economy. Long-term O&M of the solar facility will continue to generate economic benefits through the employment of O&M staff, contracted maintenance services, purchase of replacement parts and maintenance activities, and through the payment in lieu of taxes (PILOT) payments to local jurisdictions through the lifetime of the Project or other tax structure.

The Jobs and Economic Development Impact Model (JEDI) PV model (PV12.23.16), developed by NREL, was utilized to quantify the number of jobs and overall economic benefits from construction and operation of the Project. The complete Economic Impact Report is provided in Exhibit G. The model parameters were updated to reflect the Applicant's calculated installed system cost and annual O&M costs, as well as with recent publicly available labor costs, industry-wide information on PV solar equipment, construction, and operational costs.

JEDI-PV is an input-output model that uses state-specific data to predict employment, income, and economic output of solar facilities based on the anticipated wattage of a project. The model is based on the assumption that expenditures in an industry usually result in demands for goods and services in other industries. The direct expenditures from purchases like aggregate, fencing, etc. can create indirect impacts to the entire supply chain, such as employment created in supplemental industries like those producing and transporting the solar modules from the manufacturers. Induced impacts result from the increase in construction workers and indirect employees' income and household spending in the region. An example of this induced impact is at local restaurants which need to hire additional staff to accommodate construction laborers spending their wages on meals.

In this analysis, impacts are based on additional spending infused into an economy due to construction expenditures. The expenditures are new dollars spent in the economy because of construction only and exclude the cost of land and the purchase of solar modules, which are likely to be purchased outside the affected area.

(1) Annual Total and Present value of Construction and Operation Payroll

The JEDI model predicts that construction of the Project will result in a payroll of between approximately $32 million and $39 million during the 12-18 month construction window. The payroll includes on-site labor and related services. Construction payroll costs will be incurred through construction, which is anticipated to begin in the first quarter of 2022. Because of the short timeline to the Project's start of construction and COD, the present value and annualized capital costs will be similar to the costs presented above.

During the 35-year operational life of the Project, payroll related to operations is expected to total between approximately $350,000 to $700,000 annually. The present value of the total payroll from operations, assuming a 9% discount rate and 2% escalation rate is between approximately $4.6 and $9.2 million.

(2) Construction and Operation Employment and Estimates

Construction and operation of the Project will result in on-site jobs and related services, in addition to jobs created from supply chain impacts and induced impacts. Lightsource US's experience constructing solar energy facilities estimates that approximately 400-500 jobs will be created during construction both onsite and with related services and 5-10 jobs during the O&M stage.

The Applicant intends to utilize local labor whenever possible with a goal of 80% of construction jobs to be Ohio-domiciled workers in accordance with the PILOT. On other projects developed by Lightsource US, local labor has comprised up to 85% of the work force. Many positions can be filled utilizing local labor, such as equipment operators, truck drivers, laborers, and electricians. There will be some specialized skilled positions required for construction of the Project that may require workers from outside of the region with solar energy facility construction experience. The exact distribution of local and non-regional workers cannot be estimated at this stage of the Project.

It is anticipated that the local housing market and community infrastructure would not be impacted during construction of the Project as most of the construction positions will be filled by laborers from the region and for those construction workers not from the region, they would only temporarily relocate to the area during the limited construction period.

(3) Estimated County, Township, and Municipal Tax Revenue

The Applicant anticipates entering into a PILOT in Allen and Auglaize Counties, whereby real property and tangible personal property taxes will be based on a fixed payment to be made based on the nameplate capacity of the Project. Benefits of the PILOT include a consistent annual payment, not subject to depreciation. PILOT payments for the Project are estimated to be approximately $2.1 to $2.7 million annually and approximately $73.5 million to $94.5 million throughout the life of the Project. The PILOT payment is split between school districts (54%), townships (24%), Allen and Auglaize Counties (17%) and the local JVS (5%). Under a non-PILOT the Utility Tax the annual payment will vary based on the depreciation of the Project. Distribution of funds from a Utility Tax are subject to local county millage rates.

(4) Estimated Economic Impact of the Proposed Facility on Local Commercial and Industrial Activities

In addition to the jobs and corresponding salaries created from construction and then operation and maintenance of the Project, the economic impact on local, state, and national economies are significant. As described, there are direct, indirect, and induced multiplier effects as a result of construction and operation of the Project. The JEDI model predicts that an additional approximately 225 to 300 jobs could be created within the supply chain and induced job markets during construction, in addition to the 400-500 direct construction jobs. During operations JEDI predicts that between approximately 18 and 25 supply chain and induced jobs could be created from O&M activities, in addition to the direct on-site jobs.

Based on direct, indirect, and induced jobs for the Project and associated multiplier effects during construction, the JEDI model predicts that the Project will have an economic output of between approximately $70 million and $90 million. During the O&M phase of the Project, the total annual economic benefit would be between approximately $3.8 and $5.5 million. The assumptions used to generate these job and economic impacts are detailed in the Economic Impact Report provided in Exhibit G.

The Project also has the opportunity to economically benefit the residents in proximity to the Project through the Applicant's Neighboring Landowner Financial Benefit where any home within 500 feet of the Project will receive a payment ranging from $10,000 to $50,000 depending on proximity. Further, the Applicant will be instituting a Home Value Agreement for homes in closest proximity to the Project. Neither of the adjacent landowner programs require endorsement, confidentiality or support of the Project

by the landowner. The Applicant has also committed to a $500,000 community development fund to be used at the community's discretion with the involvement of community stakeholders.

(F) PUBLIC RESPONSIBILITY

(1) Public Interaction

The Project has been under development since 2019. Over the course of development, Project representatives have met with multiple landowners and residents to discuss the Project. Representatives for the Applicant have held meetings with the local government and the general public to provide information regarding the Project. An in-person Open House was held in October 2020 at the Ohio Means Jobs Building providing an overview of the Project and in November 2020 the Applicant also provided a public in-person presentation on Project updates at the Apollo Career Center, which included a question-and-answer session with the community. These meetings have also afforded the public a forum to voice their concerns and to provide suggestions to be integrated into the development, design, construction, and operation of the Project to the extent possible. Two virtual PIMs were held by the Applicant, the first on November 20, 2020, and the second on November 24, 2020. A recorded video of the PIM was also posted to the Project website for members of the public who could not join either meeting.

The Applicant created a Project website to engage the public, provide Project information, answer questions, and solicit feedback from the local community. The website hosts a recording of the OPSB PIM presentation, FAQs and fact sheets about the Project, and an email address where the public can receive answers to questions within five business days.

No less than seven days prior to commencing construction, the Applicant will mail a copy of the Project's Complaint Resolution Plan to all affected property owners and tenants via first class mail in order to notify them of the start of construction and to outline several avenues for registering complaints about the Project during both the construction and operational phase. A copy of the Complaint Resolution Plan and the notification letter are included in Exhibit H. While the final contact details will be worked out closer to construction, the Applicant will establish a 24 hour a day, seven day a week "hot line" for emergency and complaint notices and will also provide directions for filing online complaints or providing written complaints. The Complaint Resolution Plan will also outline the process that the Applicant will use for logging the complaints, investigating the compliant, and remedying the complaint, if possible. The Applicant intends to submit quarterly (January, April, July, and October) complaint summary reports to the OPSB annually for the first five years of operation.

(2) Insurance

Liability insurance will be maintained at all times during development, construction, and operation of the Project. The Applicant, a wholly owned subsidiary of Lightsource Renewable Energy US, LLC, a Delaware limited liability company, has general liability and excess liability policies on the development phase of the Project.

All solar modules will be installed on property which will be leased by the Applicant. Terms of the leases include requirements for the Applicant to pay annual rent; to pay for all tax-related payments resulting from the solar installation; and to remove the solar modules upon termination of the land agreement. In addition, the terms of the leases require the Applicant to provide insurance for all Project components and to indemnify the landowner and other third parties from liability claims resulting from any gross negligence, willful misconduct or breach of the lease agreement by the Applicant or its agents during construction and operation of the Project. The Applicant will carry insurance during development, construction, operation, and decommissioning that will ensure proper indemnification for the landowner and other third parties and for the interests of the Applicant.

A Certificate of Liability Insurance is provided as Exhibit I.

(3) Road and Bridge Impacts

Stantec Consulting Services, Inc. (Stantec) prepared a construction route study and road condition report, reviewing available traffic data and performing visual inspections on public roadways and infrastructure. Stantec evaluated roadways within the Project Area and along access routes to the Project Area and then assessed the suitability of that infrastructure to support the expected construction traffic as well as activity for O&M vehicles throughout the life of the Project. The findings of Stantec's report are summarized below, and the complete report is contained in Exhibit J.

Stantec identified State Route (SR) 501 as the north-south backbone of access in and around the Project Area and that W. Breese Road should be utilized as the main connection to Interstate-75 from the Project. The report evaluated preliminary driveway access points from existing roadways to the Facility that would be utilized during construction. Construction equipment, supplies, and general construction traffic will enter the Facility along those driveway entryways.

Stantec obtained Annual Average Daily Traffic volumes for the state and county roads along the construction routes, combined with field observations, it was determined that the roadways have adequate sight distance and do not carry high traffic volumes.

The field survey found one load rated bridge along the construction routes, between Zerkle Road and Hume Road along S. Kemp Road. It was determined that the bridge could limit traffic flow between nearby sites during construction, and construction travel and routes should account for the location of the bridge. All roads are undivided two lane roads with minimal lane widths for each direction. Generally, all roads are in good to fair condition and are not anticipated to cause any major issues during construction or operation.

No concerns related to overhead vehicle clearance were identified. At the intersection of National Road and SR 198, the location of utility poles near two corners of the intersection may require a review of the turning radius and offset of the poles. Significant culvert damage is not expected based on the existing condition of the infrastructure and the small number of heavy vehicles expected for this Project. Pavement damage is not expected to be extensive, but a small amount can be anticipated, especially near construction entrances on roads that are currently in compromised condition. Over the next year the Applicant is committed to working with Allen and Auglaize Counties along with the townships to execute a Road Use Agreement, for which this baseline report will be a starting point. The agreement will specify any updates, repairs and transportation routes are in coordination with the local entities and up to their standards of repair.

(4) Transportation Permits

The jurisdictions associated with the public roads proposed to be used during construction of the Project are as follows:

- Allen County – Breese Road, Fort Amanda (east of Kemp Road), and Shawnee Road;
- Auglaize County – National Road, Zerkle Road, Bowsher Road;
- Shawnee Township – Hume Road, Bowsher Road (east of SR 501), Sellers Road, Beeler Road, Zurmehly Road, Fort Amanda (west of Kemp Road), and S. Kemp Road; and
- Ohio Department of Transportation (ODOT) – SR 501 (S. Wapakoneta Road).

All required permits will be obtained from the applicable entities at least 30 days prior to the start of construction. Access permits will be obtained from the respective County's Engineer Office and permits for permanent access drives will be obtained from each of the respective jurisdictions above. When a construction entrance is required along SR 501, permits obtained from ODOT and a Traffic Control Plan will be developed in accordance with the Manual on Uniform Traffic Control Devices. No special hauling permits are anticipated for the Project with the exception of an overweight permit that will be required for delivery of the substation transformers.

All necessary traffic controls will be implemented in accordance with ODOT standards and specifications.

(5) Decommissioning

At the end of the life of the Project, expected to be 35 years, the Applicant will decommission the Project. The process by which the Applicant will decommission the Project is provided in the Preliminary Decommissioning Plan prepared by Stantec for the Project and included in Exhibit B. All aboveground features and buried structures will be removed and disposed of offsite. The only materials that may be left in place at the Facility are access roads or laydown yards if requested by landowners and substation, interconnection facilities, and similar utility facilities that are not owned by the Applicant. Project restoration efforts will return the land substantially its original topography. Restoration shall include returning the soil to its pre-development state, including decompaction of soil, to allow any prior agricultural use to resume if the landowner so chooses.

Decommissioning costs for the Project, based on the final site design and selected equipment, will be recalculated prior to commencing construction. If the decommissioning cost exceeds the salvage value of the solar components and therefore, the Net Decommissioning Cost is a positive value, then the Applicant will post decommissioning funds in the form of a performance bond. The Applicant will be listed as the Principal, the insurance company as the Surety, and the OPSB as the Obligee.

4906-4-07 COMPLIANCE WITH AIR, WATER, SOLID WASTE, AND AVIATION REGULATIONS

(A) REGULATION CONTEXT

All federal, state, and local regulations for air and water pollution, solid and hazardous wastes, and aviation will be followed during the construction and operation of the Project.

(B) AIR QUALITY REGULATIONS

(1) Preconstruction Air Quality and Permits

(a) Ambient Air Quality of the Proposed Project Area

Under the Clean Air Act, the USEPA sets National Ambient Air Quality Standards (NAAQS) for six common air pollutants (also known as criteria air pollutants): particulate matter <10 µm and <2.5 µm (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxide (NO_2) and ozone (O_3) (USEPA 2016). The USEPA also administers the Regional Haze Program, the purpose of which is to improve visibility in 156 national parks and wilderness areas. No areas in the state of Ohio are protected by the Regional Haze Program as listed under 40 CFR § 51.300 (OEPA 2015).

The Ohio Environmental Protection Agency (OEPA) Division of Air Pollution Control monitors criteria air pollutants at 135 monitoring sites within the state of Ohio. In order to characterize the air quality within the Project Area, data from the closest available monitoring sites were reviewed in the OEPA's most recent Annual Air Quality Report (OEPA 2019a). Table 7-1 provides mean and maximum measurements of criteria air pollutants at the closest available OEPA monitoring site to the Project Area, including the City of Lima in Allen County (approximately 5 miles from the Project Area), New Paris in Preble County (approximately 65 miles from the Project Area), and Columbus in Franklin County (approximately 75 miles from the Project Area) (OEPA 2019a). The most recent documented levels of all six criteria air pollutants nearest to the Project Area are below the limits established within the NAAQS and are therefore classified as "in attainment".

(b) Air Pollution Control Equipment for the Proposed Facility

There are no air pollutant emissions associated with the operation of the Project. Therefore, no air pollution control equipment for the Project is necessary.

(c) Applicable Federal and/or Ohio Air Quality Standards and Limitations

No emissions are associated with the operation of the Project. Therefore, there are no federal or state air quality standards and limitations that are applicable to the Project.

Table 7-1 Criteria Pollutant Measurements at Monitoring Sites Nearest to the Project

Pollutant	Closest Monitoring Site ID	City/ County, State	Averaging Period	NAAQS Standard[1]	Mean	Highest Maximum Reading
PM_{10}	39-049-0024	Columbus/Franklin	24-hour	150 µg/m^3	21.9	49
$PM_{2.5}$*	39-003-0009	Lima/Allen	24-hour	35 µg/m^3	4.97	18.6
SO_2	39-003-0009	Lima/Allen	1-hour	75 ppb	0.04	1.0
CO	39-135-1001	New Paris/ Preble	8-hour	9 ppm	NR	0.4
			1-hour	35 ppm	NR	0.5
NO_2	39-049-0038	Columbus/ Franklin	1-hour	100 ppb	10.28	49.0
O_3**	39-003-0009	Lima/Allen	8-hour	0.070 ppm	0.070***	0.076

[1]USEPA 2016

* Violation only occurs when the 98th percentile, averaged over 3 years exceeds the standard.

**Violation only occurs when the annual 4th highest daily maximum 8-hour concentration averaged over three years exceeds the standard.

***Annual 4th highest daily maximum 8-hour concentration averaged over three years.

Source: OEPA 2019a.

Key:

µg/m^3 = micrograms per cubic meter

ppb = Parts per billion

ppm = Parts per million.

NR = Not Reported

(d) Required Permits to Install and Operate Air Pollution Sources

There are no air pollutants associated with the operation of the Project. Therefore, no permits to install and operate air pollution sources are necessary.

(e) Air Monitoring Station Locations and Major Pollution Point Sources

There are no air pollutants associated with the operation of the Project. Therefore, the location of air monitoring stations and other pollution point source locations are not provided.

(f) Compliance with Permits and Standards

No air pollutant emissions are associated with the operation of the Project. Therefore, there are no permits or standards required for Project compliance.

(2) Plan for Emissions and Fugitive Dust Control During Construction

Some particulate emissions from engine exhaust and fugitive dust generation are expected from the operation of heavy construction equipment and travel of vehicles on unpaved roads during construction. Such situations will be temporary and limited to active areas of construction and therefore will not significantly impact air quality.

Fugitive dust emissions during site preparation and construction will be mitigated using best management practices, including using water to wet down bare soil surfaces. This method will be implemented during periods of high heat and when the soil is dry enough that it will not reach saturation during normal travel.

(3) Air Quality for the Operation of the Proposed Facility

(a) Ambient Air Quality Monitoring Plans

There are no air pollutants associated with the operation of the Project. Therefore, no air quality monitoring plan is necessary.

(b) Map of Estimated Concentrations in Excess of Significant Emission Rates

There are no emissions associated with the operation of the Project, therefore, a map of the estimated concentrations in excess of the USEPA “Significant Emission Rates” is not necessary.

(c) Air Pollution Control Equipment Failure

There are no air pollutant emissions associated with the operation of the Project. Therefore, no air pollution control equipment is necessary, and there is no potential for equipment failure.

(C) WATER QUALITY

(1) Preconstruction Water Permits

(a) List of Water Permits

Any large construction project that disturbs more than 1 acre of land is required to obtain an Ohio National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit, OEPA Permit No. OHC000005. This is the only water permit that is anticipated to be needed by the Project. The Applicant will obtain the permit prior to the start of Project construction.

The Project as currently designed has avoided all impacts to streams and wetlands, therefore it is not anticipated that permits related to stream and wetland impacts will be necessary. However, if the final site design were to change and wetland or stream impacts are anticipated, the following permits would be obtained:

- A United States Army Corps of Engineers (USACE) permit under Section 404 of the Clean Water Act (CWA) for disturbances to waters of the United States.
- OEPA Water Quality Certification under Section 401 of the CWA. All streams within the Project Area are within areas eligible for coverage under Nationwide Permits; therefore, a Director's Authorization would not be necessary.
- An OEPA Isolated Wetland/Ephemeral Stream Permit under Section 6111.021 and 6111.03 (J) of the Ohio Revised Code.

(b) Map of Water Monitoring and Gauging Stations

There is no point source water discharge from the Facility; therefore, no map of water monitoring and gauging stations is provided.

(c) Monitoring and Gauging Station Information

There is no point source water discharge from the Facility; therefore, no monitoring and gauging station information is provided.

(d) Existing Water Quality of the Receiving Stream

No point source water discharge into streams or waterbodies is associated with the Facility; therefore, there will be no receiving streams and no water quality information is provided for those streams.

(e) Water Discharge Permit Application Data

There is no point source water discharge from the Facility; therefore, no data for a water discharge permit is provided.

(2) Water During Construction of the Facility

(a) Map of Water Monitoring and Gauging Stations

There is no point source water discharge from the Facility; therefore, no mapping of U.S. Geological Survey or OEPA monitoring and gauging stations is provided.

(b) Estimated Aquatic Discharges

Point source aquatic discharges to streams or wetlands will not occur during construction of the Project. To minimize the potential for accidental spills during construction, a Spill Prevention, Control, and Countermeasure (SPCC) Plan will be developed to manage the storage of hazardous materials on site, which consists solely of diesel fuel for construction trucks and equipment. The SPCC Plan will describe the proper methods to contain and mitigate a spill, and the agencies to notify, in the rare event that a spill occurs. The Applicant will implement the measures described in the SPCC Plan and monitor for aquatic discharges during construction.

The Applicant will implement a Stormwater Pollution Prevention Plan (SWPPP) during construction of the Project. Through this process the Applicant will implement best management practices (BMPs) to reduce erosion and sedimentation. By implementing the SWPPP, which includes required monitoring and maintenance of the BMPs to ensure their effectiveness over the construction period, it guarantees that Project related construction activities will not negatively impact water resources, including surface and groundwater. If there is any runoff to neighboring properties created by the Project that causes any negative impacts, the Applicant would need to correct any issues and can be fined for violations.

(c) Mitigation Plans

To protect water quality during construction and maintain the natural occurring environment around the Project Area, the Applicant designed the Facility to avoid placement of infrastructure in all streams and wetlands identified within the Project Area. In addition to avoiding direct impacts to streams and wetlands, there are no point source aquatic discharges anticipated during the Project's construction, and any non-point source stormwater impacts would only be temporary. While aquatic discharges are not anticipated, the Applicant is still taking measures to ensure water quality protection consistent with applicable federal and state requirements, including development of a SWPPP, SPCC Plan, and Frac-out Plan. The SWPPP and SPCC plan will be provided to the OPSB no later than 30 days prior to construction. The preliminary Frac-out Plan is attached as Exhibit L to this application, and the final Frac-out plan will be provided to OPSB once final design of the Facility is determined and no later than 30 days prior to construction.

The SPCC Plan is required by the USEPA and details methods to prevent the potential release of hazardous substances during construction of the Project. The only hazardous materials expected to be stored onsite are diesel fuel for construction trucks and equipment, similar to fuel used for other large

equipment. The SPCC Plan will also describe the proper methods to address the spill and agencies to notify should any inadvertent spills occur during construction. Hazardous materials stored on site during construction will be stored in accordance with the SPCC Plan to prevent spills. In the unlikely event that a spill does occur during construction and inadvertently reaches a waterway, it is expected to be of minimal quantity and duration as there are not large volumes of hazardous materials onsite during construction.

The SWPPP is required by OEPA as part of the NPDES Construction Storm Water General Permit Number OHC000005. The SWPPP will detail the use of sediment and erosion control measures and BMPs during construction to implement storm water pollution prevention measures, including prevention of excess storm water runoff. Storm water at the construction site will be managed through implementation of the SWPPP and permitted through the NPDES Construction Storm Water General Permit, OEPA Permit Number OHC000005.

Post-construction runoff control will be implemented with BMPs, as required, in order to ensure that the Project does not generate more storm water runoff than existed during pre-construction conditions. The vegetation planted under the solar panels, coupled with the spacing of the trackers and gaps in between the solar modules creates a pervious surface that allows storm water to infiltrate back into the ground rather than creating sheet flow as can occur from impervious surfaces like paved roads or parking lots. As an additional measure to ensure operational storm water does not create excess runoff, the Applicant will implement storm water management methods as specified in the OEPA Guidance on Post-Construction Storm Water Controls for Solar Panel Arrays to ensure that storm water runoff is minimized during operation of the Project.

Direct impacts to streams and wetlands within the Project Area have been avoided and appropriate erosion and sediment control measures (e.g., silt fences or straw bale dikes or other storm water control measures) will be used to limit the impact to surface waters. Further, the construction corridors and any clearing of vegetation in or near these features will be minimized to reduce potential impacts. Vegetation clearing has been minimized and a 15 meter setback from wetlands and avoidance of forested areas with the site design have further reduced potential impacts to vegetation. The SWPPP, once it is developed, will outline these measures in more detail.

In addition to controlling surface water runoff, the SWPPP BMPs will also minimize groundwater impacts from the Project. Groundwater was observed in 14 geotechnical soil test borings and two of ten test pit explorations conducted by Kleinfelder as part of the geotechnical investigations for the Project. The depth

of the groundwater was approximately 3.5 to 18 feet below ground surface (see Exhibit K). If shallow groundwater is encountered during excavation, it may be pumped out and discharged into a designated upland area (approved by the landowner) to temporarily retain the water until it can infiltrate back into the ground. The SWPPP will include specific details relating to the pumping of groundwater from an excavation area. The Applicant will use temporary sediment traps or the controlled release of water over vegetated upland areas during construction to intercept and manage runoff from any dewatering activities that are necessary. This method will allow sediment to settle out of the water.

The current Facility layout includes the usage of HDD in multiple areas, including under roads and wetlands. The HDDs will be conducted in adherence to federal, state, and local codes. A Standard HDD Construction Inadvertent Return Control Plan (Frac-out Plan; Exhibit L) will be implemented should an inadvertent drilling fluid release occur during the HDD crossings during construction. All erosion and sedimentation controls included in the SWPPP will be installed and inspected by a qualified environmental inspector prior to any drilling operations. Before any HDD construction activity on the Project, the provisions of the Frac-out Plan, the location of sensitive environmental resources at the site, drilling procedures for release prevention, site-specific monitoring requirements, the location and operation of release control equipment and materials, and protocols for reporting an observed inadvertent return will be reviewed by the team completing the HDD.

The above-described mitigation measures and use of HDD techniques will reduce visibility of the Project to the local community while avoiding impacts to wetlands. This will ensure avoidance or minimization of impacts to groundwater, surface waters, and wetlands during the construction of the Project to the maximum extent practicable.

(d) Changes in Flow Patterns and Erosion

The current Project design avoids any impacts to streams and wetlands and minimizes the potential for flow pattern changes and erosion. Implementation of the BMPs and mitigation measures described in the SWPPP is expected to prevent any significant changes in flow patterns in the Project Area.

The majority of the Project is located on relatively flat agricultural land, requiring little clearing and grading during construction, which minimizes the potential for erosion. Drain tile locations have been located where possible and avoided in the site design in order to limit potential impacts to existing onsite drainage. If drain tiles are inadvertently damaged during construction, the Applicant will work with the landowner to repair the drain tiles and implement measures to prevent water flow to adjacent landowners'

properties. The BMPs described in the SWPPP and implemented during construction would also serve to control water flow and erosion if a drain tile were to be damaged.

(e) Equipment Proposed for Control of Effluents

No point source water effluent is associated with construction of the Project; therefore, no equipment is necessary for the control of effluent discharge.

(3) Water During Operation of the Facility

(a) Map of Water Monitoring and Gauging Stations

There is no point source water discharge from operation of the Facility; therefore, no water monitoring and gauging station information is provided.

(b) Water Pollution Control Equipment and Treatment Processes

There is no point source water discharge associated with operation of the Facility; therefore, there is no water pollution control equipment or treatment processes needed for operation of the Project.

(c) Schedule for Receipt of NPDES Permit

There is no point source water discharge associated with the operation of the Project; therefore, no NPDES permits will be necessary for operations. While there is no NPDES permit needed for operation of the Project, the applicant will still implement OEPA Guidance on Post-Construction Storm Water Controls for Solar Panel Arrays to minimize storm water runoff during operation of the Project, as described above for the construction phase.

(d) Flow Diagram for Water and Water-borne Wastes

No water or water-borne waste discharge is associated with the Project; therefore, a flow diagram is not provided.

(e) Water Conservation Practices

The only water used during operation of the Project will be for limited cleaning of the solar modules. Due to the temperate climate of the Project, it is anticipated that rain is sufficient to keep the solar modules clean, however if cleaning of the modules is necessary, the Applicant will work with O&M staff to arrange for a water truck to provide water for the cleaning effort. Due to the low volume of water consumed by Project operations, water conservation practices will not be necessary.

Water use and storage on site may be necessary during operations for the sheep grazing operation and will be held in standard-sized agricultural troughs.

(D) SOLID WASTE

(1) Preconstruction Solid Waste

(a) Nature and Amount of Debris and Solid Waste

No existing structures will be removed during the construction of the Project. The pre-construction site clearing and grubbing activities [described in Section 4906-4-03(B)(2) of this application] may produce small amounts of woody vegetation debris.

(b) Plans to Deal with Waste

Woody vegetation debris generated by the pre-construction site clearing and grubbing activities will be chipped and either used or composted within the Project Area. If this is not feasible, a private contractor will be hired to properly dispose of the debris at an authorized solid waste disposal facility.

(2) Solid Waste During Construction

(a) Nature and Amounts of Debris and Solid Waste Generated During Construction

The Project will generate minimal non-hazardous solid waste during construction activities. This waste will consist primarily of plastic, wood, cardboard, metal packing/packaging materials, construction scrap, and general refuse.

(b) Storage and Disposal of Waste

Any solid waste generated at the Project's construction sites and other work areas will be collected and disposed of in dumpsters located at the construction laydown areas. Dumpsters will be placed at construction office trailers, restrooms, and parking areas during construction. A private contractor will be hired to empty the dumpsters and dispose of the waste at an authorized solid waste disposal facility as needed.

(3) Solid Waste During Operation

(a) Amount, nature, and composition of Solid Waste Generated During Operation

Operation of the Project will generate small amounts of non-hazardous waste such as cardboard, plastic packaging, etc. as part of standard O&M efforts. The waste will be recycled or disposed of properly by the contracted O&M staff.

(b) Storage, Treatment, Transport, and Disposal of Solid Waste

There will be no on-site storage of solid waste during operation of the Project. Waste generated during O&M activities will be collected by the contracted staff and recycled or disposed of properly offsite. The Applicant will only utilize Tier 1 equipment suppliers to ensure the solar modules are not hazardous to people or the environment. The Applicant requires the panels to have passed TCLP testing to ensure the modules are categorized as non-hazardous under federal law and could be disposed of in regular landfills just like household garbage. However, the Applicant is committed to recycling all solar panels from the Project, which includes any panels damaged during construction, operations, and all panels at the end of life/decommissioning. Lightsource US is a board member of SEIA, an organization whose members are dedicated to responsible end-of-life management and are proactively developing recycling processes for the solar industry as a whole. SEIA has created a national solar panel recycling member-based program that aggregates the services offered by recycling vendors here in the U.S. Already SEIA's recycling partners have processed mor than 4 million pounds of PV modules and related equipment since the program launched.

(4) Waste Permits

No licenses or permits for the generation, storage, treatment, transportation, and/or disposal of waste will be required for the operation of the Project.

(E) AVIATION

(1) Aviation Facilities

There are no aviation facilities located within a 5-mile radius of the Project Area.

(2) FAA Filing Status

Stantec completed a glare analysis study to evaluate potential Project impacts to residents and activities in the vicinity of the Project. The analysis predicted no impacts of glare from the Project to aviation, roads,

railroads, and nearby residents. The FAA Notice Criteria Tool indicated that the Project did not need to be filed with the FAA. The glare analysis report and FAA Notice Criteria Tool reports are provided in Exhibits N and M, respectively.

4906-4-08 HEALTH AND SAFETY, LAND USE AND ECOLOGICAL INFORMATION

(A) HEALTH AND SAFETY

The Applicant has developed the Project to be in compliance with all applicable health and safety regulations as specified in OAC Rule 4906-4-08(A).

(1) Safety and Reliability of Equipment

(a) Major Public Safety Equipment

Solar energy facilities are safe and do not pose safety or health risks to the community. However, to prevent unauthorized site entry and unsafe activities, the Applicant will implement measures to ensure the Facility is secure and does not pose a public safety risk to the public during construction and operation.

There are no air emissions from the Project and no point-source water discharge from the Project. The minimal amount of electromagnetic fields (EMFs) generated by the Project is comparable to the EMF generated by home appliances, which does not result in negative health impacts. The average individual in the U.S. is exposed to approximately 1 milliguass (mG; measurement of magnetic field strength) daily, with exposure within approximately three feet of a household refrigerator registering approximately 6 mG and 50 mG from a microwave. A study completed in Massachusetts at a solar PV facility found that magnetic fields were highest near the inverters and were measured at 0.5 mG or less and generally were less than the background levels of 0.2 mG at distances of 150 feet from the inverters (MDER, MDEP, and MCEC 2015). As part of the final site layout, the nearest non-participating residence will be more than 300 feet from the nearest solar module, and even further from the nearest inverter, negating any EMF exposure to residents.

The Applicant will only utilize Tier 1 equipment suppliers and will require solar panels to pass TCLP testing regulated by the USEPA to ensure they are not hazardous to people or the environment. To pass the TCLP test a solar panel, when broken into pieces, must not leach harmful amounts of any hazardous materials at levels defined by the USEPA to ensure it is safe for people and the environment. The

Applicant requires the panels to have passed the TCLP testing as part of equipment supplier contract obligations. Solar panels that pass the TCLP and can be used for the Project are therefore non-hazardous under federal law and could be disposed of in regular landfills just like household garbage.

(b) Equipment Reliability

The solar panels are constructed to achieve long-term field durability to withstand harsh environmental conditions for 35 years or more. The solar arrays will meet all UL, IEEE, NEC, NESC and ANSI listings. The electrical system design will be certified by a licensed professional engineer. Regular inspections of all equipment components will be completed to ensure that all equipment is safe and operating properly.

(c) Generation Equipment Manufacturer's Safety Standards

The Applicant utilizes tier-one equipment suppliers and requires solar panels to pass USEPA TCLP toxicity testing. The glass that encases the solar arrays is tempered glass that is designed and tested to withstand hail, the effects of panel aging, and are resistant to breakage. Solar panels are mostly glass, aluminum, silicon, and semi-conducting material, with more than 80% of the panel composed of glass and aluminum. Because the solar panels pass the toxicity testing, they are determined to be non-hazardous by the USEPA and can be disposed of in regular landfills just like household garbage. While they are safe for disposal in normal landfills, the Applicant has committed to recycling all decommissioned panels or panels that need replacement during operations as part of its corporate sustainability initiatives. All Project equipment is expected to meet all UL, IEE, NEC, NESC and ANSI listings.

Once the EPC contractor is selected, engineering plans are finalized based on procured equipment, the Applicant will provide the manufacturer’s safety manuals to the OPSB prior to the start of construction.

(d) Measures to Restrict Public Access

Perimeter fencing will be constructed that complies with NESC listings around the substation. The fencing around the substation and interior portions of the Facility will consist of chain link fence. All exterior facing portions of the Facility will have cedar farm fencing, standing 7 feet to restrict access to the public. Gates will be placed at entrance points to control access for operation and maintenance workers.

(e) Fire Protection, Safety, and Medical Emergency Plan(s)

The Applicant will prepare an Emergency Response Plan for the Project so that on-site staff and first responders are able to navigate potential emergencies at the site. Equipment will be available to construction and maintenance personnel, who have undergone training to deal with emergency situations

that could occur at the Facility. Local emergency responders will also be trained prior to commissioning of the Project on how to respond to any emergencies related to the Project.

(2) Impact of Air Pollution Control Equipment Failure

No air pollutants are associate with the operation of the Project; therefore, no onsite air pollution control equipment will be necessary.

(3) Sound from Construction and Operation of the Facility

(a) Construction Sound Levels at the Nearest Property Boundary

Stantec completed a sound assessment analysis that documents existing sound levels within the Project Area and models the predicted operational sound generated by the Project using International Organization for Standardization (ISO) 9613-2 standard sound propagation modeling methods. This report is provided as Exhibit X in the application. In addition, Stantec has utilized the Federal Highway Administration's Roadway Construction Noise methods and formulas to predict sound levels associated with the construction of the Project. The summary of predicted sound levels for the construction and O&M of the Project area are provided below.

(i) Blasting Activities

There are no blasting activities needed for construction or operation of the Project so there will be no sound impacts related to blasting.

(ii) Operation of Earth Moving Equipment

During construction of the Project it is anticipated that dump trucks, bulldozers, and backhoes will be utilized for the limited clearing and grading of the land. These equipment types could result in sound levels of 85 A-weighted decibels (dBA) at a distance of approximately 50 feet. This sound can be compared to standard tractor noise during planting and harvest which is the current use of the Facility Area. Using the same methods for calculation as the construction equipment, a tractor generates sound levels of approximately 84 dBA at 50 feet. The sound for Project construction equipment is diminished to approximately 69 dBA at 300 feet from the source. The sound generated by this equipment will be short-term in nature and reflects the maximum sound levels anticipated. Because the use of earth moving equipment will not be continuous over the site during the construction period and activities will be limited to the daytime hours between 7 a.m. to 7 p.m. when ambient when sound levels are higher, coupled with

the Project setbacks from residences and roadways, it is not expected that earth moving equipment used during construction of the Project will be significant.

(iii) Driving of Piles, Rock Breaking or Hammering, and Horizontal Directional Drilling

Installation of the trackers for the Project will be completed using pile-driving as previously described. The impact pile driver used to install the posts of the trackers will result in sound levels ranging from 90 dBA to 74 dBA at distances of 50 feet to 300 feet. The sound generated by this equipment will be short-term in nature and reflects the maximum sound levels anticipated. Because the use of impact pile driver equipment will not be continuous over the site during the construction period and activities will be limited to the daytime hours between 7 a.m. to 7 p.m. when ambient when sound levels are higher, coupled with the Project setbacks from residences and roadways, it is not expected that impact pile driving used during construction of the Project will be significant.

(iv) Erection of Structures

Mobile cranes and flatbed trucks are the only equipment that is anticipated for use when installing the solar modules onto the trackers. Predicted maximum sound levels from this equipment are expected to range from 85 dBA to 69 dBA at distances of 50 feet to 300 feet. The sound generated by this equipment will be short-term in nature and reflects the maximum sound levels anticipated. Because the use of mobile cranes and flatbed trucks will not be continuous over the site during the construction period and activities will be limited to the daytime hours between 7 a.m. to 7 p.m. when ambient when sound levels are higher, coupled with the Project setbacks from residences and roadways, it is not expected that mobile cranes and flatbed trucks used during construction of the Project will be significant.

(v) Truck Traffic

The use of dump trucks and flatbed trucks and the predicted sound levels within the Facility during construction are outlined in the sections above. The sound generated by this equipment will be short-term in nature and reflects the maximum sound levels anticipated. Because equipment use will not be continuous over the site during the construction period and activities will be limited to the daytime hours between 7 a.m. to 7 p.m. when ambient when sound levels are higher, coupled with the Project setbacks from residences and roadways, it is not expected that truck traffic during construction of the Project will be significant.

(vi) Installation of Equipment

Installation of equipment for the Project will primarily be related to the use of mobile cranes and flatbed trucks as detailed in the erection of structures activities detailed above. Because the use of mobile cranes and flatbed trucks will not be continuous over the site during the construction period and activities will be limited to the daytime hours between 7 a.m. to 7 p.m. when ambient when sound levels are higher, coupled with the Project setbacks from residences and roadways, it is not expected that mobile cranes and flatbed trucks used during construction of the Project will be significant.

(b) Operational Sound Levels at the Nearest Property Boundary

Stantec completed a field-based survey to document baseline sound levels within the Project Area and then used sound modeling software, based on the proposed Project equipment, to predict sound levels resulting from operation of the Project.

Stantec completed baseline sound monitoring at five locations across the Project Area from November 13 – 20, 2020. Monitoring points chosen were near the proposed solar array in areas where residences were determined to potentially be most affected by the operation, while providing observations across the entire array. Figure 1 in Exhibit X provides the Project components relative to the monitoring site locations. Baseline sound levels (equivalent sound level [L_{eq}]) during the daytime within the Project Area ranged from 44.4 to 52.9 dBA. Nighttime L_{eq} sound levels ranged from 43.4 to 51.2 dBA.

For solar energy facilities there are no existing federal, state, or local sound regulations that would be applicable to the Project. However, the operational sound predicted for the Project was compared to the 5 dBA increase over baseline nighttime sound levels that is used by OPSB to evaluate wind farms. Using this comparison metric and documented baseline sound levels within the Project Area, sound levels from operation of the Project cannot exceed 51.6 dBA during any time of the day. Because the Project requires sun to generate electricity, the maximum sound levels for the Project generated by the inverters and substation, will be emitted during daylight hours so comparison to nighttime sounds levels represents a conservative approach. Based on the sound profile information provided within the manufacturer's specifications for the inverters and substation transformers, the predicted operational sound levels at the nearest non-participating residence are 44 dBA, which is at a residence approximately 450 feet from an inverter and 330 feet from a module. Including the ambient sound, the total sound expected at this receptor would be 48.5 dBA. This is below both the daytime and nighttime sound level thresholds, indicating operation of the Project would be below the 5 dBA over nighttime ambient threshold.

(i) Operational Sound from Generation Equipment

Stantec modeled the sound output from the Project's 95 inverters and two transformers at the Project substation. The broadband L_{eq} sound level produced by each inverter is assumed to be 79 dBA at one meter from the unit, based on manufacturer specifications. The sound specifications of the substation transformers indicate a sound level of approximately 85 dBA at one meter for each transformer. Sound predictions assume that both substation transformers are operating under normal conditions. Sound modelling was completed assuming that all inverters and transformers were operating simultaneously under conditions conducive to sound propagation (i.e., the worst-case sound levels associated with the Project). At all receptor locations using this worst-case scenario sound levels are predicted to be below the nighttime limit.

(ii) Processing Equipment

There is no processing equipment associated with the Project, therefore no sound impacts from processing equipment are provided.

(iii) Associated Road Traffic

Road traffic associated with vehicles accessing the Facility during operations will not significantly contribute to road traffic sound as O&M on-site staffing will be very limited (5-10 people) and will not be noticeable considering the existing traffic traversing the Project Area as discussed in Section 4906-4-06(F)(3) of this application.

(c) Sound-sensitive Areas within One Mile

There are 1,289 sensitive receptors identified within 1 mile of the Project Area. These receptors are depicted in Figure 8-1 and include 1,278 residences, four schools, six churches, and one cemetery. Based on the ambient sound levels documented within the Project Area and the modeled worst-case predicted sound levels, none of the sensitive receptors are expected to experience sound impacts during operation of the Project at sound levels above the 5 dBA increase over the average nighttime L_{eq}.

(d) Mitigation of Sound Emissions During Construction and Operation

The Project is not anticipated to have any sound impacts at any nearby residences or sensitive receptors during operation of the Project, therefore no sound mitigation is planned for operation of the Project. This has been achieved by the Applicant's site design efforts which include locating inverters within the interior

of the Project and incorporating 300-foot setbacks from non-participating residences. To limit construction impact sound, construction activity will be limited to the hours of 7 a.m. to 7 p.m., or dusk if sunset occurs after 7 p.m.

Should construction or operational noise be a concern, residents can report a noise complaint through the Applicant's Complaint Resolution Plan, as outlined in Exhibit H. The Applicant will work with the resident to document and address the complaint.

(e) Preconstruction Background Sound Study

Stantec completed a pre-construction background sound study to document the ambient sound levels within the Project Area. The results of the Study are provided in Exhibit X and discussed above in Section 4906-4-08(A)(3)(b).

(4) Water Impacts

Given the non-toxic nature of solar energy facilities and the low impact construction has on soil and groundwater features, there are no anticipated impacts to public or private water supplies.

(a) Impacts to Public and Private Water Supplies from Construction and Operation

OEPA groundwater well information was obtained for the Project Area and a one-mile radius; the locations of all groundwater wells are depicted in Figure 8-2 (ODNR 2021a). There are 338 water wells that occur within the one-mile radius of the Project Area and seven water wells that occur within the Project Area. The Project proposes minimal excavation and the installation of steel tracker posts are anticipated to be driven to a depth of 7.5 feet below grade.

There are three water source protection areas located within the one-mile radius of the Project Area (OEPA 2020a). They include Lima Rescue Mission/Camp Roberts, Winona Lake Waterpark and Campground, and St. Matthew Lutheran Church, and are depicted on Figure 8-2. The OEPA lists all three water source protection areas as having a water source protection plan under the "Drinking Water Source Protection Plan Checklists" (OEPA 2020b). A small portion of Winona Lake Waterpark and Campground sourcewater protection area overlaps with the Project Area but is not within the Facility limits. Because the Project is not expected to require excavation for construction, and posts for the trackers will only be installed to a depth of approximately 7.5 feet, it is not expected that groundwater resources will be impacted. In addition, SWPPP and SPCC plans will be in place during construction to minimize and

prevent the potential for discharge to surface waters. Given the distance to Lima Rescue Mission/Camp Roberts and St. Matthew Lutheran Church water source protection areas, it is not expected any construction activities for the Project will affect groundwater at these locations, however upon final Facility design, the Applicant will coordinate with OEPA's Division of Drinking and Groundwater to identify any potential notification requirements and additional measures that might need to be implemented during construction.

The Applicant will implement a SWPPP during construction of the Project. Through this process we will create BMPs to reduce erosion and sedimentation. By implementing the SWPPP it guarantees that Project related construction activities will not negatively impact water resources, including surface and groundwater. If there is any runoff to neighboring properties created by the Project that causes any negative impacts, the Applicant would take corrective action immediately.

(b) Impacts to Public and Private Water Supplies Due to Pollution Control Equipment Failures

No water pollutants are associated with the operation of the Project. Therefore, on-site water pollution control equipment is not necessary for the Project. The Project does not anticipate any impacts to public and private water supplies during the construction and operation of the Project.

(c) Aquifers, Water Wells, and Drinking Water

Figure 8-2 depicts three unconsolidated aquifers underlaying the Project Area, the Lima Complex Aquifer, Lima End Moraine Aquifer, and Lima Ground Moraine Aquifer. The Lima Thin Upland Aquifer, and the Teays River Valley Buried Valley Aquifer are also located within the one-mile radius of the Project Area (Ohio Department of Natural Resources [ODNR] 2000). Based on the data from OEPA related to groundwater wells, 338 water wells and three drinking water source protection areas are located within a one-mile radius of the Project Area. It is not expected that the Project will impact these water sources, however upon final Facility design, the Applicant will coordinate with OEPA's Division of Drinking and Groundwater to identify any potential notification requirements and additional measures that might need to be implemented during construction.

(d) Compliance with Drinking Water Source Protection Plans

The Project does not pose any compliance issues for the three water source protection areas found within a one-mile radius of the Project area, as described above. However, upon final Facility design, the

Applicant will coordinate with OEPA's Division of Drinking and Groundwater to identify any potential notification requirements and additional measures that might need to be implemented during construction.

(e) Flood Potential and Mitigation

Portions of the Project Area fall within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain, as depicted in Figure 8-2. However, all Project infrastructure is located outside the 100-year floodplain areas. Kleinfelder completed a Hydrology and Flood Inundation Report (see Exhibit O) for the Project Area, modeling the peak flow rates and runoff volumes of pre-development conditions under a variety of storm types. The 100-year 24-hour flood depths and velocities associated with pre-development conditions were also modeled.

(5) Geological Features, Topographic Contours, and Wells

Figure 8-3 depicts the proposed Project, geological features within the proposed Project Area, and topographic contours. There are existing oil and gas wells within the Project Area. However, all the wells within the Project Area are currently inactive historic production wells or plugged and abandoned wells. The Applicant has completed electromagnetic surveys to better understand the location of the wells and any potential associated infrastructure related to the wells in order to site Project facilities to avoid these buried features. A 50-foot panel setback from wells and gathering locations has been incorporated into the site design and are provided in the constraints discussed in Section 4906-4-04(B)(2) of this application.

(a) Site Geology Suitability

On behalf of the Applicant, Kleinfelder conducted a geotechnical investigation of the proposed Project Area. Kleinfelder's geotechnical investigation report can be found in Exhibit K and is summarized below.

The geotechnical investigation included subsurface exploration, laboratory resting, engineering analysis and pile load testing. Subsurface exploration consisted of 30 soil test borings, 10 test pits, 15 in-situ soil electrical resistivity tests and load testing of 78 piles between October 19 and November 4, 2020.

Based on Kleinfelder's field exploration and laboratory testing, the site appears to be geotechnically suitable for PV solar development.

(b) Site Soil Suitability

Kleinfelder's geotechnical investigation found soil conditions encountered at the site generally consisted of Glacial Till, comprised of medium stiff to hard lean clay, fat clay, and silt with various amounts of sand and gravel, overlaying medium dense to very dense silty sand, clayey sand, poorly-graded gravel, poorly-graded sand, and well-graded sand with varying amounts of gravel, clay and silt. These soils extended to the termination depth of each boring, ranging approximately 20 to 42 feet below ground surface; bedrock was not encountered at those depths. Based on Kleinfelder's geotechnical investigation, the site appears to have soils suitable for the proposed PV solar development.

(c) Test Borings

Kleinfelder conducted 30 soil test borings. All borings were completed in accordance with American Society for Testing and Materials (ASTM) standards and were analyzed at a qualified laboratory for moisture content, grain size distribution, Atterberg limits, standard proctor, thermal resistivity, and corrosion. Laboratory test results are shown on the boring logs included in Appendix A of Exhibit K.

(6) Wind Velocity

Wind velocity data from the Ohio State University (OSU) College of Food, Agriculture and Environmental Science was reviewed to determine wind speeds in the Project Area. A summary of the data describing the average daily wind speeds recorded in 2019 is provided in Table 8-1, which includes data from the closest weather station to the Project Area, located in Custar Ohio (OSU 2020).

Table 8-1 data indicates winds speeds on average are between 2 to 7.5 miles per hour (mph) consisting of 62% of the daily average wind speed within the Project Area. The Beaufort scale describes 2 to 7.5 mph wind speed to be a light to gentle breeze (NOAA 2021).

Final Project design will account for potential high wind velocity occurring within the Project Area. The solar panels are designed and tested to withstand hail and are constructed with tempered glass to resist breakage. The racking systems will be driven to a minimum depth of 7.5 feet below grade, and deeper in accordance with the recommendation based off the geotechnical study, to ensure the solar arrays are stable during high wind events. In addition, the solar arrays have the ability to adjust their tilt to reduce wind loading on the panels during high wind events. If wind is detected to reach a certain speed by the anemometers placed throughout the site, the panels will be adjusted to a safe angle. The panels will return to the optimal angle for collection of solar rays once wind speeds have decreased to acceptable speeds.

Table 8-1 Daily Average Wind Speeds in Custar, Ohio in 2019

Average Daily Wind Speed (mph)	Number of Days	Percent of Total Days
0 to 0.5	1	0.3%
0.6 to 1	0	0.0%
1.1 to 1.5	1	0.3%
1.6 to 2	6	1.6%
2 to 2.5	15	4.1%
2.6 to 3	19	5.2%
3.1 to 3.5	20	5.5%
3.6 to 4	18	4.9%
4.1 to 4.5	26	7.1%
4.6 to 5	25	6.8%
5.1 to 5.5	17	4.7%
5.6 to 6	21	5.8%
6.1 to 6.5	21	5.8%
6.6 to 7	19	5.2%
7.1 to 7.5	25	6.8%
7.6 to 8	11	3.0%
8.1 to 8.5	19	5.2%
8.6 to 9	14	3.8%
9.1 to 9.5	15	4.1%
9.6 to 10	13	3.6%
10.1 to 10.5	11	3.0%
10.6 to 11	9	2.5%
11.1+	39	10.7%
Total	**365**	**100.0%**

Source: OSU 2020
mph = miles per hour

(7) Blade Shear

The Project is a solar facility, therefore there will be no potential impact from blade shear from the Project.

(8) Ice Throw

The Project is a solar facility, therefore there will be no potential impact from ice throw from the Project.

(9) Shadow Flicker

The Project is a solar facility, therefore there will be no potential impact from shadow flicker from the Project.

(10) Radio and TV Reception

The maximum height of the solar modules will only be 10 feet (3.1 meters) so interference with radio and TV reception is not anticipated given the low profile of the Facility. In addition, the Project will only generate very weak EMFs that dissipate rapidly over short distances. Therefore, interference with radio and TV reception is not anticipated from the Project.

(11) Radar Interference

The maximum height of the solar modules will only be 10 feet (3.1 meters) so interference with radar is not anticipated given the low profile of the Facility. In addition, the Project will only generate very weak EMFs that dissipate rapidly over short distances. Therefore, interference with military or civilian radar systems are not anticipated by the Project.

(12) Navigable Airspace Interference

There are no public or private airports or heliports within five miles of the Project Area so no interference is anticipated. The Applicant also used the FAA Notice Criteria Tool to determine whether the Project was required to be filed with the FAA; the tool indicated that the Project did not need to be filed with the FAA. In addition, Stantec Consulting Services, Inc. conducted a glare analysis to identify any potential Project impacts to pilots at airports and heliports within 10 miles of the Project as well as, along roads, railroads, and nearby residents within the immediate vicinity of the Project. The findings of the analysis indicate that no glare from the Project is predicted to impact airports, heliports, railways, roads, or residences.

The FAA Notice Criteria Tool output and the Glare Hazard report are contained in Exhibits M and N.

(13) Communication Interference

The maximum height of the solar modules will be 10 feet (3.1 meters) so interference with any microwave communication paths or systems is not anticipated given the low profile of the Facility. In addition, the Project will only generate very weak EMFs that dissipate rapidly over short distances. Therefore, interference with microwave communication paths or systems is not anticipated from the Project.

(B) ECOLOGICAL RESOURCES

(1) Ecological Resources in the Project Area

(a) Ecological Resources Map

Figure 8-4 is a map at 1:24,000 scale of the Project Area and a 0.5-mile radius from the Project Area and contains the following information:

(i) The proposed Facility and Project Area;
(ii) Undeveloped or abandoned land such as wood lots or vacant fields;
(iii) Wildlife areas, nature preserves, and other conservation areas;
(iv) Surface bodies of water, including wetlands, ditches, streams, lakes, reservoirs, and ponds; and
(v) Highly erodible soils and slopes of twelve percent or greater.

(b) Field Survey Map of Vegetation and Surface Waters

Figure 8-5 provides a map at scale of 1:12,000 of the area within 100 feet (30.5 meters) of the potential construction impact area of the Project and all field-delineated features, including vegetation types, wetlands, and streams.

Stantec conducted a delineation of potential waters of the United States (WOUS), including wetlands, waterbodies, and potentially isolated wetlands within the Project Area totaling 2,345 acres. In conjunction with the delineation field surveys, habitat assessments were also conducted to determine the different habitat types found within the Project Area. Stantec conducted field surveys on August 3 – 6, September 3 – 4, and December 16 – 17, 2020 and results of the surveys are provided in the Wetland and Waterbody Delineation Report included in Exhibit P and the Threatened and Endangered Species Habitat Survey Report included in Exhibit Q.

Table 8-2 provides a summary of the acreage of vegetative communities delineated within the Project Area. Habitat within the Project Area is predominately composed of cultivated agricultural croplands totaling 2,132.5 acres, which is approximately 91.0% of the Project Area. Agricultural fields observed during the field surveys were planted with soybean (*Glycine max*), corn (*Zea mays*), and winter wheat (*Triticum aestvum*).

Second growth upland deciduous forest are present in discrete woodlots and along some riparian corridors within the Project Area totaling, 105.1 acres (4.5% of the Project Area). The forests are primarily composed of common hackberry (*Celtis occidentalis*), sugar maple (*Acer saccharum*), silver maple (*Acer saccharinum*), American elm (*Ulmus americana*), northern red oak (*Quercus rubra*) and pin oak (*Quercus palustris*) in the overstory with honeysuckle (*Lonicera maackii*), black raspberry (*Rubus idaeus*) and poison ivy (*Toxicodendron radicans*) in the shrub layer of the upland forest.

Areas of new field are present and total 70.8 acres, or approximately 3.0% of the Project Area. New field is composed of herbaceous vegetation dominated by red clover (*Trifolium pratense*), crab grass (*Digitaria sanguinalis*), barnyard grass (*Echinochola crus-galli*), yellow foxtail (*Setaria pumila*), English plantain (*Plantago lanceolata*), common dandelion (*Taraxacum officinale*), and Queen Anne's lace (*Daucus carota*).

Areas of existing roadway total 16.4 acres and compose 0.7% of the Project Area. Areas of developed, residential open space are present and are composed of several planted yard trees including silver maple, with an herbaceous layer dominated by Kentucky bluegrass (*Poa pratensis*), English plantain, fuller's teasel (*Dipsacus sativus*), and common dandelion. Developed residential open space totals 17.3 acres and composes 0.7% of the Project Area.

Old field habitat is present within the Project Area, totaling 1.3 acres and representing <0.1% of the Project Area. This habitat type is composed of herbaceous vegetation dominated by common teasel (*Dipsacus fullonum*), chicory (*Cichorium intybus*), common dandelion, Canada thistle (*Cirsium arvense*), common ragweed (*Ambrosia artemisiifolia*), Canada goldenrod (*Solidago canadensis*), tall fescue (*Festuca arundinacea*), and nodding foxtail (*Setaria faberi*).

Wetland habitat was identified within the Project Area and totals 0.5 acre (<0.1% of the Project Area). Within the Project Area wetland habitat is typically composed of overstory species, silver maple, American elm, and swamp white oak (*Quercus bicolor*), and a sapling-shrub species dominated by black willow (*Salix nigra*) and green ash (*Fraxinus pennsylvanica*) with herbaceous species dominated by reed canary grass (*Phalaris arundinaea*), Gray's sedge (*Carex* grayi), and sweet woodreed (*Cinna* arundinacea).

Three wetlands were delineated during the field surveys within the Project Area totaling approximately 0.5 acre. Figure 8-5 depicts the locations of the delineated wetlands and streams within the Project Area. The function and values of these wetlands were assessed using Ohio Rapid Assessment Method for Wetlands (ORAM). The categorization of wetlands was conducted in accordance with OAC Rule 3745-1-54. One wetland totaling 0.03 acre, a Category 1 palustrine scrub/shrub, was identified in the Project Area

and is potentially USACE jurisdictional. The remaining two wetlands delineated within the Project Area, totaling approximately 0.47 acre of Category 2 palustrine forested wetlands, are potentially isolated wetlands and may be under the jurisdiction of the OEPA. These wetlands have no direct connection and are not adjacent to other potentially jurisdictional WOUS features.

Table 8-2 Habitat Types Identified Within the Birch Solar Project Area

Habitat Category	Acres	Land Use (%)
Agriculture	2,132.5	91.0%
Second Growth Deciduous Forest	105.1	4.5%
New Field	70.8	3.0%
Developed Open Space - Residential	17.3	0.7%
Existing Roadway	16.4	0.7%
Old Field	1.3	<0.1%
Open Water	0.7	<0.1%
Wetlands	0.5	<0.1%
Total	**2,344.6**	**100.0%**

Fourteen streams were delineated within the Project Area, composed of six perennial streams totaling 17,310 linear feet, five intermittent streams totaling 4,935 linear feet, and three ephemeral streams totaling 4,762 linear feet. The functional assessment of the streams was completed using OEPA Headwater Habitat Evaluation Index (HHEI) and/or Qualitative Habitat Evaluation Index (QHEI) metrics. The classification of the streams (ephemeral, intermittent, or perennial) were determined per the definition in the 22250 Federal Register/Vol. 85, No. 77 (effective June 22, 2020). The eleven perennial and intermittent streams are potentially WOUS and therefore likely USACE jurisdictional streams. Stream 4, Stream 6, and Stream 7 were determined to have a potentially ephemeral flow regime. The ephemeral flow regime of these three streams means they may not be USACE jurisdictional and, therefore, would be regulated by OEPA.

(c) Literature Survey of Plant and Animal Life

Stantec completed a desktop analysis of threatened and endangered species located in Allen and Auglaize counties, Ohio using the ODNR Ohio State Listed Wildlife and Plant Species by County list (ODNR 2020a) and U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) (USFWS 2020) to determine if any federal or state-listed species might potentially be present within the Project Area (Exhibit Q).

The USFWS IPaC review identified one federally endangered species and two federally threatened species potentially occurring within the Project Area. In addition to the desktop review, consultation with

USFWS was completed on September 15 (Exhibit R), which only identified two federally listed species, listed in Table 8-3, as potentially occurring within the Project Area.

The ODNR County lists identified 10 state listed endangered and five state threatened species potentially occurring within the Project Area. Further correspondence with ODNR provided in a letter on September 30, 2020 reduced the potential state listed species occurring within the Project Area to nine state endangered and two state threatened species (Exhibit R). While not addressed in the USFWS letter, the ODNR response letter listed two additional federally listed species. Table 8-3 also lists the state-listed birds, fish, mussels, and mammal species listed in the correspondence letter from ODNR as potentially occurring within the Project Area.

Table 8-3 Potential Federal and State-listed Threatened and Endangered Species Within or Near the Project Area

Common Name	Scientific Name	Status[1]	Habitat
Birds			
Upland Sandpiper	*Bartramia longicauda*	SE	Extensive, open tracts of short grassland
Lark Sparrow	*Chondestes grammacus*	SE	Shortgrass, mixed-grass and tallgrass prairie with shrub components
Fish			
Pirate Perch	*Aphredoderus sayanus*	SE	Ponds, marshes, and backwaters of soft bottom and abundant plants or organic debris for cover
Greater Redhorse	*Moxostoma valenciennesi*	ST	Medium to large rivers with clean sand, gravel, or boulders
Mussels			
Northern Riffleshell	*Epioblasma torulosa rangiana*	FE/SE	Small to large streams with firmly packed substrates of fine to course gravel
Clubshell	*Pleurobema clava*	FE/SE	Small to medium rivers in clean, coarse sand and gravel runs.
Pondhorn	*Uniomerus tetralasmus*	ST	Slow-moving, shallow water of sloughs, borrow pits, ponds, ditches and meandering streams.
Mammals			
Indiana Bat	*Myotis sodalis*	FE/SE	Forests and riparian corridors during summer roosting and foraging
Northern Long-eared Bat	*Myotis septentrionalis*	FT/SE	Forests and riparian corridors during summer roosting and foraging

Common Name	Scientific Name	Status[1]	Habitat
Eastern Tri-colored Bat	*Perimyotis subflavus*	SE	Forests and riparian corridors and man-made structures during summer roosting and foraging
Little Brown Bat	*Myotis lucifugus*	SE	Foraging over waters and riparian corridors and roosting in Man-made structures

[1] FE- Federal Endangered; FT – Federal Threatened; SE – State Endangered; ST State Threatened
Sources: NatureServe Explorer 2021; ODNR 2021b

(d) Plant and Animal Field Survey Results

Stantec conducted field surveys within the Project Area for potentially suitable habitat for threatened and endangered species, detailed in Exhibit Q. The habitats identified during the field surveys were dominated by agriculture cultivated crops, (2,132.5 ac; 91.0%), followed by forest habitat (105.1 ac; 4.5%), new field (70.8 ac; 3.0%), old field (1.3 ac; <0.1%), wetlands (0.5 ac; <0.1%), existing roadway (16.4 ac; 0.7%) and residential habitats (17.3 ac; 0.7%). Field surveys observed potentially suitable habitat for state-listed and federally listed threatened and endangered species within the Project Area, including: lark sparrow, Indiana bat, northern long-eared bat, eastern tri-colored bat, little brown bat, pirate perch, greater redhorse, and state listed mussel species. Potentially suitable habitat for the upland sandpiper was not found within the Project Area due to the lack of extensive open tracts of grassland habitat within the Project Area.

(e) Additional Ecological Studies

Early during the development process, the Applicant completed a site screening assessment for the Project to identify via a desktop assessment potential biological, environmental, and permitting constraints for development of a solar energy facility.

(2) Evaluation of Impacts to Ecological Resources During Construction

(a) Construction Impacts on Ecological Resources

The Project has been developed to minimize impacts to ecological resources and is not likely to have adverse effects on state or federally listed species due to the site design avoiding potentially suitable habitat and construction outside seasonal windows designated for bird species.

The proposed Project design has avoided impacts to the state-listed endangered lark sparrow. Project infrastructure avoids the majority of the potentially suitable habitat for this species observed within the Project Area. In the limited areas where infrastructure is proposed to cross potentially suitable habitat, the

Applicant will ensure clearing of the potentially suitable breeding habitat for the species is done outside the nesting period of May 1 to June 30. Surveys did not document the species within the Project Area, only that potentially suitable habitat is present. Within ODNR's response letter (see Exhibit R) avoidance of clearing during the breeding season was specified as a suitable method for avoiding impacts to the species.

All infrastructure has been sited to avoid all streams and wetlands identified within the Project Area, therefore avoiding any potential impacts to the state-listed endangered pirate perch, state-listed threatened greater redhorse, and state-listed threatened pondhorn or any other freshwater mussel species.

Forested woodlots that could provide suitable summer roosting habitat for the federally and state-listed Indiana bat and northern long-eared bat, and state-listed eastern tri-colored bat and little brown bat have been avoided when developing the site design. As such, there will be no tree clearing necessary for construction or operation of the Project and no impacts to any of the federally and state-listed bat species. Correspondence with ODNR and USFWS in Exhibit R confirm that avoidance of forested habitat avoids impacts to the species.

Nearly all of the Facility will be located on land currently used for agriculture or developed land, which provides minimal habitat for wildlife and is not preferred habitat for any of the identified federal or state-listed T/E species.

(b) Mitigation Procedures for Construction Impacts

The Project design has been developed to minimize and avoid ecological resources to the extent possible. If impacts to ecological resources occur during construction, the Applicant will work to mitigate these impacts by restoration and stabilization of disturbed soils, implementation of a Frac-out Plan, delineation and marking of surface waters and wetlands to be avoided during construction, procedures for inspection and repair of erosion control measures, and methods to protect vegetation.

(i) Restoration and Stabilization of Disturbed Soils

The Applicant will develop a SWPPP to implement erosion and control methods for pre- and post-construction of the Project, meeting Ohio storm water standards (OEPA 2021). Immediately after construction the disturbed areas will be seeded to stabilize the Project site. The Project will be considered stabilized when soil disturbance is finished and uniform perennial vegetation cover with a density of 70% has been achieved in all portions of the Project Area where ground disturbance occurred and there is no

infrastructure. To the extent possible, the Applicant will implement the pollinator habitat recommendations provided by ODNR Division of Wildlife pertaining to the Ohio Pollinator Habitat Initiative. The Applicant also plans to implement rotational sheep grazing within the Facility. As such, the vegetative cover will consist of a curated seed mix that provides perennial cover that will be suitable for sheep, in addition to providing habitat to pollinators and other wildlife.

(ii) Frac-out Contingency Plan

In necessary areas, the Project will conduct HDD installation of underground electrical cables to cross under roads and wetlands. A Frac-out Plan, developed by Kleinfelder (Exhibit L), has been created for the Project. The plan provides specific procedures and steps for preventing, monitoring, detecting, and controlling releases of drilling fluid during the construction of the HDD crossings for the Project.

Drilling fluid is easily contained by standard erosion and sedimentation control measures such as hay bales and silt fence installed and maintained around the perimeter of the entry and exit drill sites. Within the boundaries of the worksites, drilling fluid would be controlled using pits at the crossing entry and exit points and typical fluid handling equipment. The SWPPP will include all recommended and required BMPs at any proposed HDD sites for the Project.

(iii) Demarcation of Surface Waters and Wetlands

Wetlands, streams, and open water perimeters will be field marked via flagging prior to the start of any construction. Additional marking and protection measures will be implemented as part of the SWPPP to prevent erosion and sedimentation into nearby waterbodies under OEPA's NPDES General Permit for Construction Activities.

(iv) Procedures for Inspection and Repair of Erosion Control Measures

The Applicant will prepare a SWPPP to be implemented during construction. The SWPPP will detail the type and location of erosion and sediment control BMPs to be implemented for the Project. Typical erosion control BMPs include silt fence, straw bales, check dams, erosion control blankets among other methods, to help protect runoff during and after construction until exposed areas are permanently stabilized with vegetation.

(v) Methods to Protect Vegetation

No tree clearing is proposed for the Project. In addition, other vegetation removal has been minimized to the maximum extent possible. No specific vegetation protection methods are needed for the Project as

field surveys conducted for vegetation and habitat type did not identify any sensitive vegetative communities to be disturbed as part of the Facility. In addition, a sheep grazing program will be implemented during the operations to provide long term vegetation management within and around the solar arrays.

(vi) Disposing of Downed Trees, Brush, and Other Vegetation

No tree clearing is proposed for the Project. Any other vegetation removed during construction will be disposed of off-site by a certified waste disposal service.

(vii) Avoidance Measures for State and Federally Listed and Protected Species and Habitat

The Project has been developed to minimize impacts to ecological resources and is not anticipated to have any adverse effects on state or federally listed species as a result of careful site design. There will be no clearing of trees that could serve as potential habitat for federal and state-listed bat species and no impacts to streams or wetlands that could provide habitat for federal and state-listed aquatic species. Project infrastructure avoids the majority of the areas identified as having potentially suitable habitat for the state-listed lark sparrow. In the limited areas where infrastructure is proposed to cross potentially suitable habitat, the Applicant will ensure clearing of the potentially suitable breeding habitat for the species is done outside the nesting period of May 1 to June 30, per the ODNR recommendations.

(3) Evaluation of Impacts to Ecological Resources During Operation and Maintenance

(a) Evaluation of the Impact of Operation and Maintenance on Undeveloped Areas and Animals

Operation and maintenance activities for the Project include site visits for equipment monitoring, fixing faulty equipment, cleaning solar modules, standard test procedures, vegetative maintenance, fencing maintenance, and security patrol. Transportation throughout the Facility will be on foot or light duty vehicle traveling along planted perennial vegetation and gravel access roads. Therefore, adverse impacts to undeveloped areas and animals are not anticipated for the Project.

As discussed, during operation of the Project, the Applicant intends to implement a sheep grazing program to provide long term vegetation management within and around the PV solar arrays. This effort aligns with the concept of “agrivoltaics”, which is a system where solar and agriculture are co-located for mutual benefit. Mechanical maintenance will be used to manage vegetation outside the perimeter fencing,

as well as to complement sheep grazing, if needed, throughout the Facility. The grazing program is a compatible land use with the solar energy facility, and the seed mix used to revegetate the site will be suitable for sheep as well as providing habitat for pollinator species and other wildlife. The Project is also partnering with Ohio State University, College of Food, Agricultural and Environmental Sciences on research relating to honey bee foraging in the Ohio agroecoystem. To facilitate this study, honey bee colonies (apiaries) will be established on the landscape through The Ohio State University and managed in collaboration with local beekeepers. Studies have shown that co-locating solar with pollinator friendly groundcover can expand habitat for the dwindling bee population and can also benefit local agriculture.

(b) Procedures to Avoid, Minimize, and Mitigate Impacts of Operation and Maintenance

During operation and maintenance of the Project, no additional impacts to wetlands, streams or other natural areas are expected. Discharge of water or wastewater into streams or water bodies or the use of water for cooling or other activities is not anticipated for the Project. Therefore, the quality and quantity of surrounding water will not be altered during the Project's operation and maintenance. Vegetation management during operations will largely be achieved through a sheep grazing program, which is a low impact way of managing vegetation onsite. Additionally, during the operational phase of the Project the Applicant has committed to pollinator habitat planting recommendations by ODNR Division of Wildlife pertaining to the Ohio Pollinator Habitat Initiative which will provide an ecological benefit to pollinator species. The Project has avoided the need to clear any trees, avoiding any impacts to bald eagles or other raptors that might nest within the trees. Because of the year round vegetation at the site, including pollinator species, the Project can increase the biodiversity of the Project Area by attracting pollinators including birds and other vertebrates. Further the year round vegetation provides habitat for small mammals and rodents that serve as the prey base for raptors.

(c) Post-construction Monitoring of Wildlife

Post-construction monitoring of wildlife is not anticipated as no adverse impacts to wildlife species are expected during construction or operation of the Facility.

Post-construction monitoring of the site will occur as a result of the Project's implementation of an environmental management plan that lays out a structure for reporting progress and success pertaining to the sheep grazing program and the research conducted by Ohio State University relating to honey bee foraging in the Ohio agroecosystems. The research and monitoring will commence following the

establishment of pollinator habitat and apiaries on site which will be tailored to the needs of honey bees and native pollinators, aiming to attract both generalist and specialist bees and butterflies.

(C) LAND USE AND COMMUNITY DEVELOPMENT

(1) Land Use in the Region and Potential Impacts of the Facility

(a) Land Use Map

Figure 8-6 is a 1:24,000 scale map depicting the following features within 1-mile of the Project Area:
(a) The proposed Project Area;
(b) Land use;
(c) Structures; and
(d) Incorporated areas and population centers.

(b) Structures Near the Facility

Tables 8-4 and 8-5 provide additional detail related to the proximity of identified structures to Project facilities, specifically:

(i) Structures within 1,500 feet (457.2 meters) of the generation equipment, the distance between the structure or property line and the equipment;
(ii) Structures within 250 feet (76.2 meters) of a collection line, access road, or other associated components, the distance between both the structure and the property line and the associated facility; and
(iii) Lease status of the property.

Two of residences are found within 250 feet of Facility equipment, one of which is on a leased property owner's land while the other is on unleased land (Table 8-4). The residence on unleased land was determined to be an occupied residence after the preliminary site design was created. Now that the unleased land has been determined to have an occupied residence on the property, the landowner has been offered the Neighboring Landowner Financial Benefit. The final site design will be modified to reflect a minimum 300-foot setback from non-participating residences as the Applicant has committed to. As the site design is refined, the Applicant will continue to verify the status of residences in the Project vicinity to ensure there are no additional undocumented residences.

Table 8-4 Structures Within 250 Feet of Project Facilities

Structure Type	Facility Equipment Type	Distance (Feet)	Lease Status
Residential - Home	Solar Array	144	Not Leased*
Residential - Home	Solar Array	87	Leased

There are 217 residences between 250 feet and 1,500 feet (475.2 meters) of Facility equipment (e.g., solar modules, inverters, or substations) as listed in Table 8-5.

Table 8-5 Structures Between 250 and 1,500 Feet of Project Facilities

Structure Type	Facility Equipment Type	Distance (Feet)	Lease Status
Residential - Home	Solar Array	1,511	Not Leased
Residential - Home	Solar Array	1,510	Not Leased
Residential - Home	Solar Array	1,505	Not Leased
Residential - Home	Solar Array	1,498	Not Leased
Residential - Home	Solar Array	1,485	Not Leased
Residential - Home	Solar Array	1,482	Not Leased
Residential - Home	Solar Array	1,464	Not Leased
Residential - Home	Solar Array	1,460	Not Leased
Residential - Home	Solar Array	1,451	Not Leased
Residential - Home	Solar Array	1,451	Not Leased
Residential - Home	Solar Array	1,450	Not Leased
Residential - Home	Solar Array	1,450	Not Leased
Residential - Home	Solar Array	1,444	Not Leased
Residential - Home	Solar Array	1,430	Not Leased
Residential - Home	Solar Array	1,428	Not Leased
Residential - Home	Solar Array	1,426	Not Leased
Residential - Home	Solar Array	1,414	Not Leased
Residential - Home	Solar Array	1,406	Not Leased
Residential - Home	Solar Array	1,393	Not Leased
Residential - Home	Solar Array	1,389	Not Leased
Residential - Home	Solar Array	1,387	Not Leased
Residential - Home	Solar Array	1,374	Not Leased
Residential - Home	Solar Array	1,360	Not Leased
Residential - Home	Solar Array	1,359	Not Leased
Residential - Home	Solar Array	1,356	Not Leased
Residential - Home	Solar Array	1,356	Not Leased
Residential - Home	Solar Array	1,354	Not Leased

Structure Type	Facility Equipment Type	Distance (Feet)	Lease Status
Residential - Home	Solar Array	1,348	Not Leased
Church - Hume United Methodist Church	Solar Array	1,346	Not Leased
Residential - Home	Solar Array	1,344	Not Leased
Residential - Home	Solar Array	1,341	Not Leased
Residential - Home	Solar Array	1,338	Not Leased
Residential - Home	Solar Array	1,334	Not Leased
Residential - Home	Solar Array	1,329	Not Leased
Residential - Home	Solar Array	1,323	Not Leased
Residential - Home	Solar Array	1,315	Not Leased
Residential - Home	Solar Array	1,313	Not Leased
Residential - Home	Solar Array	1,307	Not Leased
Residential - Home	Solar Array	1,306	Not Leased
Residential - Home	Solar Array	1,294	Not Leased
Residential - Home	Solar Array	1,290	Not Leased
Residential - Home	Solar Array	1,282	Not Leased
Residential - Home	Solar Array	1,280	Not Leased
Residential - Home	Solar Array	1,276	Not Leased
Residential - Home	Solar Array	1,274	Leased
Residential - Home	Solar Array	1,263	Not Leased
Residential - Home	Solar Array	1,261	Not Leased
Residential - Home	Solar Array	1,261	Not Leased
Residential - Home	Solar Array	1,258	Not Leased
Residential - Home	Solar Array	1,256	Not Leased
Residential - Home	Solar Array	1,254	Not Leased
Residential - Home	Solar Array	1,252	Not Leased
Residential - Home	Solar Array	1,244	Not Leased
Residential - Home	Solar Array	1,233	Not Leased
Residential - Home	Solar Array	1,229	Not Leased
Residential - Home	Solar Array	1,228	Not Leased
Residential - Home	Solar Array	1,226	Not Leased
Residential - Home	Solar Array	1,224	Not Leased
Residential - Home	Solar Array	1,215	Not Leased
Residential - Home	Solar Array	1,196	Not Leased
Residential - Home	Solar Array	1,194	Not Leased
Residential - Home	Solar Array	1,193	Not Leased
Residential - Home	Solar Array	1,185	Not Leased
Residential - Home	Solar Array	1,174	Not Leased

Structure Type	Facility Equipment Type	Distance (Feet)	Lease Status
Residential - Home	Solar Array	1,166	Not Leased
Residential - Home	Solar Array	1,163	Not Leased
Residential - Home	Solar Array	1,154	Not Leased
Residential - Home	Solar Array	1,147	Not Leased
Residential - Home	Solar Array	1,130	Not Leased
Residential - Home	Solar Array	1,115	Not Leased
Residential - Home	Solar Array	1,103	Not Leased
Residential - Home	Solar Array	1,100	Not Leased
Residential - Home	Solar Array	1,094	Not Leased
Residential - Home	Solar Array	1,083	Leased
Residential - Home	Solar Array	1,078	Not Leased
Residential - Multifamily	Solar Array	1,076	Not Leased
Residential - Multifamily	Solar Array	1,076	Not Leased
Residential - Home	Solar Array	1,069	Not Leased
Residential - Home	Solar Array	1,067	Not Leased
Residential - Home	Solar Array	1,064	Not Leased
Residential - Home	Solar Array	1,064	Not Leased
Residential - Multifamily	Solar Array	1,062	Not Leased
Residential - Home	Solar Array	1,055	Not Leased
Residential - Multifamily	Solar Array	1,053	Not Leased
Residential - Multifamily	Solar Array	1,053	Not Leased
Residential - Home	Solar Array	1,046	Not Leased
Residential - Home	Solar Array	1,044	Not Leased
Residential - Home	Solar Array	1,036	Not Leased
Residential - Home	Solar Array	1,031	Not Leased
Residential - Home	Solar Array	1,022	Not Leased
Residential - Multifamily	Solar Array	1,017	Not Leased
Residential - Home	Solar Array	1,014	Not Leased
Residential - Home	Solar Array	997	Not Leased
Residential - Home	Solar Array	981	Not Leased
Residential - Home	Solar Array	980	Not Leased
Residential - Home	Solar Array	972	Not Leased
Residential - Home	Solar Array	968	Not Leased
Residential - Home	Solar Array	958	Not Leased
Residential - Home	Solar Array	958	Not Leased
Residential - Home	Solar Array	955	Not Leased
Residential - Home	Solar Array	951	Not Leased

Structure Type	Facility Equipment Type	Distance (Feet)	Lease Status
Residential - Home	Solar Array	937	Not Leased
Residential - Home	Solar Array	916	Not Leased
Residential - Home	Solar Array	907	Not Leased
Residential - Home	Solar Array	905	Not Leased
Residential - Home	Solar Array	893	Not Leased
Residential - Home	Solar Array	891	Not Leased
Residential - Home	Solar Array	883	Not Leased
Residential - Home	Solar Array	881	Not Leased
Residential - Home	Solar Array	881	Not Leased
Residential - Home	Solar Array	878	Not Leased
Residential - Home	Solar Array	875	Not Leased
Residential - Home	Solar Array	872	Not Leased
Residential - Home	Solar Array	856	Not Leased
Residential - Home	Solar Array	855	Not Leased
Residential - Home	Solar Array	846	Not Leased
Residential - Home	Solar Array	836	Not Leased
Residential - Home	Solar Array	834	Not Leased
Residential - Home	Solar Array	821	Not Leased
Residential - Home	Solar Array	818	Not Leased
Residential - Home	Solar Array	814	Not Leased
Residential - Home	Solar Array	804	Not Leased
Residential - Home	Solar Array	799	Not Leased
Residential - Home	Solar Array	799	Not Leased
Residential - Home	Solar Array	798	Not Leased
Residential - Home	Solar Array	789	Not Leased
Residential - Home	Solar Array	786	Not Leased
Residential - Home	Solar Array	784	Not Leased
Residential - Home	Solar Array	783	Not Leased
Residential - Home	Solar Array	783	Not Leased
Residential - Home	Solar Array	781	Not Leased
Residential - Home	Solar Array	749	Not Leased
Residential - Home	Solar Array	730	Not Leased
Residential - Home	Solar Array	720	Not Leased
Residential - Home	Solar Array	717	Not Leased
Residential - Home	Solar Array	717	Not Leased
Residential - Home	Solar Array	713	Not Leased
Residential - Home	Solar Array	711	Not Leased

Structure Type	Facility Equipment Type	Distance (Feet)	Lease Status
Residential - Home	Solar Array	710	Not Leased
Residential - Home	Solar Array	703	Not Leased
Residential - Home	Solar Array	695	Not Leased
Residential - Home	Solar Array	665	Not Leased
Residential - Home	Solar Array	661	Not Leased
Residential - Home	Solar Array	658	Not Leased
Residential - Home	Solar Array	646	Not Leased
Residential - Home	Solar Array	644	Not Leased
Residential - Home	Solar Array	636	Not Leased
Residential - Home	Solar Array	634	Not Leased
Residential - Home	Solar Array	626	Not Leased
Residential - Home	Solar Array	614	Not Leased
Residential - Home	Solar Array	612	Not Leased
Residential - Home	Solar Array	602	Not Leased
Residential - Home	Solar Array	600	Not Leased
Residential - Home	Solar Array	574	Not Leased
Residential - Home	Solar Array	573	Not Leased
Residential - Home	Solar Array	566	Not Leased
Residential - Home	Solar Array	565	Not Leased
Residential - Home	Solar Array	562	Not Leased
Residential - Home	Solar Array	561	Not Leased
Residential - Home	Solar Array	556	Not Leased
Residential - Home	Solar Array	556	Not Leased
Residential - Home	Solar Array	553	Not Leased
Residential - Home	Solar Array	551	Not Leased
Residential - Home	Solar Array	550	Not Leased
Residential - Home	Solar Array	549	Not Leased
Residential - Home	Solar Array	544	Not Leased
Residential - Home	Solar Array	542	Not Leased
Residential - Home	Solar Array	540	Not Leased
Residential - Home	Solar Array	538	Not Leased
Residential - Home	Solar Array	528	Not Leased
Residential - Home	Solar Array	522	Not Leased
Residential - Home	Solar Array	509	Not Leased
Residential - Home	Solar Array	487	Not Leased
Residential - Home	Solar Array	474	Not Leased
Residential - Home	Solar Array	463	Not Leased

Structure Type	Facility Equipment Type	Distance (Feet)	Lease Status
Residential - Home	Solar Array	461	Not Leased
Residential - Home	Solar Array	450	Not Leased
Residential - Home	Solar Array	419	Not Leased
Residential - Home	Solar Array	403	Not Leased
Residential - Home	Solar Array	399	Not Leased
Residential - Home	Solar Array	396	Not Leased
Residential - Home	Solar Array	394	Not Leased
Residential - Home	Solar Array	394	Not Leased
Residential - Home	Solar Array	390	Not Leased
Residential - Home	Solar Array	385	Not Leased
Residential - Home	Solar Array	384	Not Leased
Residential - Home	Solar Array	381	Not Leased
Residential - Home	Solar Array	373	Not Leased
Residential - Home	Solar Array	370	Not Leased
Residential - Home	Solar Array	365	Not Leased
Residential - Home	Solar Array	363	Not Leased
Residential - Home	Solar Array	361	Not Leased
Residential - Home	Solar Array	358	Not Leased
Residential - Home	Solar Array	358	Not Leased
Residential - Home	Solar Array	356	Not Leased
Residential - Home	Solar Array	355	Not Leased
Residential - Home	Solar Array	353	Not Leased
Residential - Home	Solar Array	352	Not Leased
Residential - Home	Solar Array	351	Not Leased
Residential - Home	Solar Array	348	Not Leased
Residential - Home	Solar Array	348	Leased
Residential - Home	Solar Array	347	Not Leased
Residential - Home	Solar Array	347	Not Leased
Residential - Home	Solar Array	347	Not Leased
Residential - Home	Solar Array	347	Leased
Residential - Home	Solar Array	346	Not Leased
Residential - Home	Solar Array	346	Not Leased
Residential - Home	Solar Array	345	Not Leased
Residential - Home	Solar Array	343	Not Leased
Residential - Home	Solar Array	343	Not Leased
Residential - Home	Solar Array	341	Not Leased
Residential - Home	Solar Array	341	Not Leased

Structure Type	Facility Equipment Type	Distance (Feet)	Lease Status
Residential - Home	Solar Array	341	Leased
Residential - Home	Solar Array	340	Not Leased
Residential - Home	Solar Array	340	Leased
Residential - Home	Solar Array	336	Not Leased
Residential - Home	Solar Array	335	Leased

(c) Evaluation of the Land Use Impacts

Agricultural land comprises approximately 91.0% of the land use within the Project Area. Second growth deciduous forest, new field, old field, wetlands, and developed lands compose the remaining 9.0% of the Project Area (see Table 8-2).

In calculating land use impacts, the Applicant assumes a conservative estimate and considers all disturbance as part of construction to be considered permanent impacts. Permanent impacts include all area inside the perimeter fence of the Facility and the space in between the Facility components (i.e. solar modules, inverter pads, access roads, construction laydown areas, and substation) and access roads outside the perimeter fence. The one exception in assuming all area within the security fence is disturbed are the areas delineated as forest, wetlands, and streams as the Applicant has sited all Project infrastructure to avoid disturbance to these features and they will not be disturbed as part of construction or operation of the Project.

The final Project design impacts approximately 1,404.7 acres of agricultural land and 4.8 acres of new field, with less than 1 acre of residential lawn anticipated to be permanently impacted by construction and operation of the Facility. Table 8-6 presents the permanent land use impacts anticipated for the Project.

Table 8-6 Project Land use Impacts by Project Component

Project Component	Permanent Disturbance (acres)
Agriculture	
Solar Field[1]	1,404.7
New Field	
Solar Field[1]	4.8
Residential lawn	
Solar Field[1]	0.7

[1]Includes all Project infrastructure within the fence line including modules, access roads, inverter pads, construction laydown areas, substation, as well as access roads outside perimeter fence.

(d) Structures to be Removed or Relocated

No structures are proposed to be removed for the development of the Project.

(2) Wind Farm Map

The Project is a not a wind farm; therefore, this section is not applicable.

(3) Setback Waivers for Wind Farms

No setback waivers are applicable to this Project as it is not a wind farm.

(4) Land Use Plans

(a) Formally Adopted Plans for Future Use of the Project Area and Surrounding Lands

Within Allen County, the Shawnee Township Comprehensive Plan designates the land within the Project Area as land to be used as agricultural in their Future Conceptual Land Use Map (Shawnee Township 2009). In addition, the Comprehensive Plan states that the visual aesthetics of the land should be consistent with the surrounding agricultural land. The Applicant took the Comprehensive Plan into consideration in Project design. The Applicant maintained the agricultural aesthetic of the Project by incorporating cedar farm fencing and allowed for grazing within the Project to further the increase the agricultural use of the Facility area. The life of the Project corresponds with the long-term goals of the Comprehensive Plan, maintaining long-term agricultural use rather than industrial or residential zoning.

Neither Auglaize County nor Logan Township currently have a comprehensive land use plan which would guide future use of the Project Area and surrounding areas. Further, there currently are no zoning restrictions on agricultural zoned lands in Auglaize County that would hinder the development of the Project (Logan Township 2007). The portion of the Project Area that is within Auglaize County is located on land zoned as agricultural.

Development of the Project is consistent with the Shawnee Township's Comprehensive Plan as the current agricultural land use can continue on portions of the Project Area outside of the security fence. In addition, the Applicant proposes to implement sheep grazing within the Project Area making the land use and visual aesthetics of the land consistent with the current and surrounding agricultural land. Because neither Auglaize County nor Logan Township have a comprehensive land use plan designating future use within the Project Area, the Project is not likely to hinder development in adjacent areas or changes in

land use proposed in the future. Further, the land can resume the row-crop agriculture that it is currently being utilized for after decommissioning of the Project.

(b) Applicant's Plans for Concurrent or Secondary Uses of the Site

The Applicant proposes to implement sheep grazing within the Facility, providing a secondary use for the Project Area. Sheep grazing will maintain the agricultural use of the Project Area in addition to the generation of electricity.

(c) Impact on Regional Development

The Project is expected to directly benefit the local community, bringing approximately $2.1 to $2.7 million annually to the community and between approximately $73.5 million to $94.5 million throughout the life of the Project through the associated PILOT program, as discussed in Section 4906-4-06(E) of this application. Funding for joint vocational schools, the school district, the townships, and the counties where the Project is located will benefit from the PILOT payments. The Applicant has committed to a $500,000 community development fund to be used at the community's discretion with the involvement of community stakeholders. In addition to the PILOT payments and community development fund, construction and operation of the Project will provide direct, indirect, and induced economic benefits to the community as discussed in Section 4906-4-06(E)(4) of this application. The Project is not expected to negatively impact housing, the transportation system, or other public services and facilities.

(d) Compatibility with Current Regional Plans

As noted, operation of the Project will maintain an agricultural use of the Facility area through implementation of sheep grazing at the site. Additionally, the proposed Project will not significantly impact schools, housing, and transportation and the Project Area can return to cultivated cropland upon decommissioning of the Project while increasing local tax revenues and contributing to the local economy. Solar-powered generation projects spur economic development and investment from private commercial entities and regional investor-owned utilities. This investment creates an economic cycle bringing new jobs to the area and even greater investment into the local community. The combination of additional tax revenue, the community development fund, and payments to both participating and non-participating landowners increases the economic opportunities for the local community. The construction and operation of the Project will not interfere with future proposed development, rather these types of projects will spur additional development in the State of Ohio as private commercial entities look to purchase solar generation facilities.

(e) Current Population Counts and 10-year Population Projections

The population in Allen County from the 2010 U.S. Census was 106,331. The most recent estimated population for Allen County in 2019 was 102,351, an annual percentage change of -0.4% (Ohio Office of Research 2020a). The population of Shawnee Township from the 2010 Census was 12,449 and was estimated to be 12,083 in 2019, an annual decrease of -0.3% (Ohio Office of Research 2020b). Using the average annual rate change since the 2010 U.S. Census, the population for Allen County and Shawnee Township are expected to be approximately 97,937 and 11,690, respectively in 2030.

The population of Auglaize County from the 2010 U.S. Census was 45,949. The most recent estimated population for Auglaize County was 45,656, an annual percentage change of -0.1% (Ohio Office of Research 2020c). The population of Logan Township from the 2010 Census was 1,113, and was estimated to be 1,097 in 2019, an annual decrease of -0.2% (Ohio Office of Research 2020b). Using the average annual rate of change since the 2010 U.S. Census, the population for Auglaize County and Logan Township are expected to be approximately 45,156 and 1,083, respectively in 2030.

Populated places within five miles of the Project Area include the City of Lima, Village of Cridersville, and Buckland. The current and projected 10 year populations for these communities are provided in Table 8-7 (Ohio Office of Research 2020b).

Table 8-7 Current Population Counts and 10-year Projections of Surrounding Populated Places within a 5-mile Radius of the Project Area

Populated Place	2010 Population	2019 Population	2030 Estimate	Annual Percent Change
City of Lima	38,627	36,659	34,311	-0.6%
Village of Cridersville	1,854	1,792	1,715	-0.4%
Buckland	235	222	208	-0.6%

Source: Ohio Office of Research 2020b

(D) CULTURAL AND ARCHAEOLOGICAL RESOURCES

(1) Recreation Areas and Registered Landmarks

Figure 8-7 depicts all recreation areas and registered landmarks of cultural significance within a 10-mile radius of the Project Area.

(2) Impacts on Registered Landmarks

Weller & Associates, Inc. conducted a Literature Review of the Project Area (see Exhibit S). To identify these known resources, Weller and Associates reviewed cultural resource GIS data obtained from the National Park Service's website for National Register of Historic Places (NRHP) and National Historic Landmark listings, as well as known archaeological sites, historic aboveground structures, cemeteries, and survey data information from the Ohio Online Mapping System, which is maintained by the SHPO. The Literature Review provided a basis for the archaeological and historic architectural survey work plan prepared by Weller and Associates and submitted to SHPO for concurrence on the survey methodologies. The proposed Phase I Cultural Resource Management Investigations work plan and subsequent correspondence with SHPO is provided in Exhibit T. The survey methods and results for both the archaeological survey and historic architectural surveys are summarized below.

The history/architecture reconnaissance survey for the Project was completed by Kramb Consulting, LLC on January 9 and January 16, 2021 to identify above-ground cultural resources more than 50 years old, within an area of potential effect (APE) that extends approximately 2 miles beyond the Facility. The APE was reduced in the northeast and southeast where the 2-mile radius extended into the communities of Fort Shawnee and Cridersville and west where the 2-mile radius extended to the Auglaize River. This reduced APE in certain locations was based on the viewshed model of the Project as well as the obstruction of the Project within the communities of Fort Shawnee and Cridersville where the intervening residences and other buildings would eliminate views of the Project. During the field investigations, 486 new architectural locations were identified within the APE. Of the 486 structures inventoried, eight were identified and recommended as potentially eligible for the NRHP. In addition to the newly identified structures, seven architectural locations have been previously listed on or determined eligible for the NRHP. The field survey also identified one potential district eligible for the NRHP. Kramb Consulting, LLC is in the process of finalizing the architectural history report and it will be submitted to SHPO for concurrence and filed with the OPSB within two weeks of submittal of the application.

Archaeological field surveys were completed by Weller & Associates between December 2020 and January 2021. Surveys were completed in areas within the Project security fence where ground disturbance is predicted (study area). The survey effort included pedestrian survey of areas with surface visibility greater than 50 percent and shovel testing in areas with surface visibility less than 50 percent. To date, approximately 63 percent of the study area has been subjected to Phase I archaeological survey by Weller. These investigations resulted in the identification of 18 previously unrecorded archaeological sites; none of these sites are considered to be significant and no further work is recommended for any of

them. The eastern, approximately two thirds, of the Project overlaps with the boundaries of the historic Hog Creek Shawnee Reservation. To date, no deposits related to the reservation have been identified, which is not unexpected given the regular disturbance of the land by agricultural activities.

Portions of the study area could not be surveyed during the survey window due to wet field conditions which prevented the ground from being disced which allows for the pedestrian surveys. The Applicant intends to complete surveys of the remaining study area during spring 2021 when the ground is dry and can be disced to allow surface collection. The Applicant intends to enter into a Programmatic Agreement with SHPO outlining the remaining commitments to complete the surveys, evaluate the landmarks, and develop a plan for avoiding, minimizing, or mitigating adverse effects to the landmarks identified. The Applicant anticipates submitting the PA to the OPSB within 30 days of the submittal of the application.

(3) Impacts on Recreational Areas

Stantec identified recreational areas within 10-miles of the Project Area using publicly available GIS data sources which are depicted in Figure 8-7. Five recreational areas were identified: Kendrick Woods Nature Preserve; three public land trusts: Central Point Buttonbush Wetland Preserve, Pickrell Property Acquisition, and Ottawa Riverwalk Phase III (both part of the Johnny Appleseed Metropolitan Park District); and the U.S Army Joint Systems Manufacturing Center - Lima. None of the five recreational areas are within 2 miles of the Project Area. Therefore, based on the distance from the Project Area, it is not expected that the Project will have any effects on recreational areas.

(4) Visual Impact

(a) Visibility and Viewshed Analysis

A viewshed analysis was conducted by Stantec using GIS software to determine locations within 10 miles of the Facility that could potentially have views of the Project. A viewshed analysis is a GIS raster model output that shows a project's theoretical visibility in its surrounding vicinity based on topography and the dimensions of Facility components. Stantec created a digital elevation model based on available topographical data and assuming the maximum height of Facility components (solar modules) would be 10 feet, which is the maximum height of the solar modules under consideration by the Applicant for the Project. A Visual Resources Technical Report is provided as Exhibit U that describes the methods and assumptions used for the viewshed analysis in more detail.

A graphical representation of the results of the viewshed analysis is provided in Figure 2 of Exhibit U and is shaded to show the ranges of visibility of the Project, from full view to partial views. Because the

viewshed model does not account for intervening vegetation or structures, and because of the flat terrain upon which the model was based, potential visibility of the Project appears to be high, and there are few areas within a 10-mile radius of the Facility that would not theoretically have visibility of the Project. However, as a result of factors such as vegetation, structures, atmospheric conditions, and distance decay associated with the declining visibility of 10-foot-tall solar modules over long distances, it is unlikely that the Project would actually be visible at those distances, so the analysis therefore focused on views within 2 miles of the Project. Sites within 2 miles of the Project valued for scenic quality and other potentially sensitive receptors include Fort Amanda Site, R.J. Corman Railroad, Wheeler Cemetery, Heritage Park, Apollo Career Center, CSX Railroad, Winona Lake Waterpark and Campground and several churches and schools. The Visual Resources Technical Report provided as Exhibit U include the locations of these resources, as well as other scenic resources within 10 miles of the Project (see Figure 8-7 and Exhibit U, Figure 3).

(b) Existing Landscape and Scenic Quality

Agricultural land use is the dominant feature in this flat to gently sloping till plain. The Project Area's visual character is defined by contrast between the predominantly flat farmlands and clusters of vegetation that abut residential development. The transition of residential development and agricultural uses is separated by W. Breese Road, which is the primary travel route in this part of Allen County and in the northern part of the Project Area. The Applicant adjusted the Project Area based on community input and the transition from residential to agricultural use around Breese Road by moving the Facility south of Breese Road with a 300-foot setback from any solar modules. Beyond W. Breese Road, low-density residences and structures associated with the farmlands are dispersed throughout the Project Area and visible within 3.5 miles away. The flat farmlands allow for open views within the Project Area. However, during the growing season views beyond 3-5 miles away are often limited by crops on the adjacent properties. Longer-distance views of the Project Area are also further limited by existing developments and the surrounding vegetation. The Applicant proposed to add evergreen vegetation on external facing portions of the Facility to further decrease visibility of the Project from roadways and residences.

The Facility area consists of segments of farmland mostly used for row-crop agriculture that are bordered by large clusters of mature trees and vegetation. The western and eastern portions of the Project Area are generally defined by the R.J Corman railroad, which extends southwest to the Village of Buckland and northeast to the City of Lima. Low-density residences and farm structures are aligned with the surrounding roadway network, including the east/west routes of W. Breese Road, Bowsher Road, W. Hume Road, and Zerkle Road; and north/south routes of S. Kemp Road, SR 501, and Sellers Road. The

residential development, structures, and equipment associated with the farmlands are visible throughout the Project Area and surrounding areas, and contributes to the Project Area's agricultural character. There are also non-agricultural and non-residential land uses near the Project Area, such as the Winona Lake Water Park and Campground and the existing AEP Lima substation is located within the eastern portion of the Project Area on Sellers Road.

As previously discussed, there are no regional or local Comprehensive Plans available for Allen County, Auglaize County, or Logan Township. The only available Comprehensive Plan is for Shawnee Township, which includes several references to the preservation of the rural and scenic quality of the landscape and farmland, mainly within the context of clustering residential development. It also discusses the preservation of existing scenery and views in areas such as parks and green space by maintaining landscaping at focal points, such as gateways and scenic river views of the Ottawa River. The Applicant maintained the agricultural aesthetic of the Project by incorporating cedar farm fencing and allowed for sheep grazing within the Project to further the increase the agricultural use of the Facility area. The three most prominent gateways within Shawnee Township, include Shawnee Road at the City of Lima boundary, Fort Amanda Road, and Breese Road at the I-75 intersection. In addition, Shawnee Road, Fort Amanda Road, Breese Road, Spencerville Road, and SR 501 are identified by Shawnee Township Comprehensive Plan as significant corridors.

The Project is not located near any of the important gateways identified by the Shawnee Township Comprehensive Plan, but is located along segments of W. Breese Road and SR 501. There are no officially designated wild, scenic or recreational rivers near the Project Area, or within 10 miles (ODNR 2020b). There are three scenic byways within 10 miles of the Project Area, including the Miami and Erie Canal Scenic Byway in Allen County, Neil Armstrong Scenic Byway in Auglaize County, and the Ohio Lincoln Highway Historic Byway in the City of Lima, as shown on Figure 8-7. However, due to the flat topography, intervening vegetation, and distance from the Facility, the Project is unlikely to be visible from any of these scenic byways.

(c) Landscape Alterations and Impacts

The presence of the Project would be visually unique to the local landscape and would alter the existing landscape, which is defined by the transition from flat agricultural lands to residential development. In close view of the Project (within approximately 0.2 mile) the solar modules would become one of the view's features and would appear as a smooth, blue, horizontal band, absent visual impact mitigation. However, the Applicant has proposed the use of vegetative screening along external facing portions of

the Facility to reduce visibility of the Project. The Project would be evident to varying degrees to viewers traveling along W. Breese Road. To mitigate this, the Applicant has implemented a 300-foot setback along with vegetative screening. The 300-foot setback will allow for agriculture to continue next to the road, further mitigating visibility of the Project. To visualize this mitigation effort, photograph 1 below shows the existing view from W. Breese Road between Sellers and Wapakoneta Road while the second is a photosimulation incorporating the setback, vegetative screening and potential location for landowners to continue to farm the area in between the Project and the road.

The Project would also be visible from W. Hume Road. The solar modules, agricultural fence, and access road would be visible from about 0.1 mile away. Views of mechanical structures, such as those associated with the existing AEP Lima Substation, are already prevalent through the Project Area and surrounding vicinity, particularly in the eastern portion of the Project Area near the residential subdivisions. Visibility of the Project would decrease over relatively short distances. The Project would be barely detectable from about 0.4 mile away as evidenced by the photosimulations prepared for the Project and provided in Exhibit U. The Project would also be segmented across the 2,345 acres of Project Area and separated by the surrounding road, vegetation, and existing structures. These features would further limit visibility of the Project in long distance views. This decrease in visibility defines the outer extent of the Project's actual viewshed as the Project would be less visible in views from distances further away, including views from sensitive receptors located about 2 miles from the Project Area. Additionally, views of the Project would be further limited by the flat topography of the Project Area and proposed vegetation plantings on all external facing portions of the Facility such as Hume Road and W. Breese Road. Additionally, crops on adjacent lands can continue to be planted and will provide additional screening of the Project during the growing season. Therefore, the Project would not be prominently visible in broader, more long-distance views.

Photo 1. Existing view along W. Breese Road between Sellers and Wapakoneta Roads

Photosimulation 2. Simulated view of Project with vegetative screening implemented along W. Breese Road between Sellers and Wapakoneta Roads

(d) Visual Impacts to Cultural and Archaeological Resources

As stated previously, the Applicant intends to complete surveys of the remaining study area during spring 2021. The Applicant intends to enter into a Programmatic Agreement with SHPO outlining the remaining commitments to complete the surveys, evaluate the cultural resources, and develop a plan for avoiding, minimizing, or mitigating adverse effects to the cultural resources identified. The Applicant anticipates submitting the PA to the OPSB within 30 days of the submittal of the application.

(e) Photographic Simulations

Stantec visual resources specialists reviewed aerial imagery, data, and applicable plans to identify potential viewpoints in the vicinity of the Project to be used in creating photographic visual simulations. Photographs were taken on November 4, 2020. The view from each viewpoint was photographed using a 35-millimeter (mm), 18-megapixel, single lens reflex camera equipped with an 18- to 55-mm focal length lens set to 31-mm. This configuration allows for a 50-mm focal length, the industry-accepted standard for approximating the field of vision in a static view of the human eye. The time at which each view point was photographed was documented to allow for accurate matching between the sun's position in the sky and the orientation of the tracking modules in the simulations.

Stantec, in coordination with the Applicant, selected a representative subset of photographed viewpoints to use as Key Observations Points (KOPs). The locations of the five KOPs in relation to the Facility are shown on Figure 1 in Exhibit U. The photographs from the KOPs were used to generate a photo-realistic simulation of the Project in order to compare the existing and proposed conditions. The simulations were developed through a three-dimensional computer model using a combination of AutoCAD files and GIS layers and exported to Autodesk's 3-dimensional Studio Max for production and incorporating the Project specifications.

The simulations generated for the Project at the five KOPs are shown in Figures 7 – 11 in Exhibit U. A more detailed description of existing and proposed conditions for each of the KOPs is provided in Exhibit U, but overall while a development of this type and size would be unique to the local landscape, the Project would be barely detectable from approximately 0.4 mile away.

(f) Visual Impact Minimization

Photo simulations developed to evaluate visual impacts established that the Project would be highly visible from locations 0.1 to 0.2 mile away, but at a distance of 0.4 mile, would appear mostly absorbed into the existing agricultural landscape. The Applicant has established a 300-foot setback from W. Breese

Road that will allow the land to continue to be used for agriculture, resulting in additional screening of the Project during the growing season when crops are present. In addition, the Applicant proposes to place vegetation in strategic locations along the perimeter of the Facility to partially screen the Project in views from the nearby residences and roadways, as shown in Figures 10 and 11 in Exhibit U. Further, in certain locations, including all locations depicted in the photosimulations, the Applicant proposes to use cedar farm fencing rather than chain-link fencing to make the Project blend in with the natural aesthetic and maintain the agricultural setting. Documentation of the approach to be utilized by the Applicant to minimize visual and lighting impacts is provided in Exhibit V.

(E) AGRICULTURAL DISTRICTS AND IMPACTS TO AGRICULTURAL LAND

(1) Mapping of Agricultural Land

Figure 8-8 depicts all agricultural land within the Project Area, all of which are cultivated lands. Communication by Stantec with the Allen County Auditor and the Auglaize County Auditor, on January 19, 2021, identified 15 parcels within the Project Area that are enrolled in the Agricultural District Program. The Agricultural District Program parcels total 1,290 acres of the Project Area and the Facility will be located on 784 acres of that total.

(2) Agricultural Information

(a) Acreage Impacted

Agricultural land use dedicated to corn and soybean cultivation comprises 91.0% of the Project Area, totaling 2,132.5 acres. During operation of the Project, approximately 1,405 acres of agricultural land, approximately 1,036 acres within Allen County and 369 acres in Auglaize County, will be taken out of production in order to accommodate the Project facilities. This acreage represents approximately 0.5% of the land currently used for farming in Allen County (Ohio Office of Research 2020a) and 0.3% of the land currently used for farming in Auglaize County (Ohio Office of Research 2020c). Of the agricultural land utilized for the Facility, approximately 784 acres is currently enrolled in the Agricultural District Program.

(b) Evaluation of the Impact of Construction, Operation, and Maintenance of the Proposed Facility

(i) Field Operations

Agricultural field operations related to cultivated land will stop once construction of the Project begins. This will impact approximately 1,405 acres of agricultural land within the Facility area. However, during the operational phase of the Project, the Applicant, in coordination with landowners, proposes to implement agricultural sheep grazing, within the Facility. While a different type of agriculture than the current cultivated lands, sheep grazing still means the land will be used for agricultural purposes.

After the Project is decommissioned, the Project can be returned to cultivated land. Construction of the Project on cultivated land allows the soil to "rest" during the life of the Project. The land use practices of operation of the Project result in reduced soil erosion and fewer chemicals and fertilizers that need to be utilized as compared to the current farming practices. Further, grazing and pollinator planting can increase biomass production, nitrogen content, soil carbon storage, and soil moisture – all beneficial to crop production when the land returns to cultivated lands (Puget and Lal 2005; Hewins et al 2018; and Franzluebbers 2012).

(ii) Irrigation

Current crops and cultivation practices within the Project Area do not utilize irrigation. Therefore, the Project will have no impact to irrigation during the construction, operation, and maintenance.

(iii) Field drainage systems

Stantec conducted a desktop analysis to determine potential drainage tile locations within the Project Area in order to minimize the potential for Project infrastructure to damage the drain tile that is in place. Multiple years of historic aerial imagery, 2013 through 2019, of the Project Area was reviewed looking for drainage patterns that typically match the effects of drainage tiles. Based off this analysis, Figure 8-8 depicts the approximate location of potential drainage tiles found within the Project Area. Exhibit W provides greater detail on the methods used to identify potential drainage tile locations.

The site design has been developed to avoid placement of solar module racks where installation of the posts via pile driving could damage drain tiles and result in saturated soils or areas of ponding onsite. In addition, the Applicant has requested any GIS information from participating landowners on any additional drainage tile locations and has incorporated the location of drain tile outflows when observed in the field during site surveys. However, the desktop assessment of drain tile locations is approximate and

construction of the Project could result in damage to drain tiles that were not previously mapped. If during construction drain tiles are damaged, the Applicant will have in place a procedure to document the location and notification process to ensure that a contractor is engaged to repair the damaged drainage tiles as part of construction and site restoration efforts. The stormwater and erosion controls in place for the Project during construction will also serve to mitigate any offsite water flow that may result from broken drain tiles. During operations the Applicant will monitor site conditions looking for indications of damaged drain tile, such as saturated soils, ponding, etc. Upon identification of a potentially damaged drain tile, the Applicant will work with the landowner and the contractor to complete the necessary repairs to the drain tile.

(iv) Structures used for Agricultural Operations

The Project proposes no impacts to agricultural related structures during construction, operation, or maintenance of the Project.

(v) Viability as Agricultural District Land

The Project Area includes 15 parcels enrolled as Agricultural District land (Figure 8-8) that will be impacted during construction, operation, and maintenance of the Project. These 15 parcels will not be eligible for the program during the operation of the Project. However, after decommissioning the Project, the parcels are able to re-enroll in the program.

(c) Avoidance and Mitigation Procedures During Construction, Operation, and Maintenance to Reduce Impacts to Agricultural Land, Structures, and Practices

Every effort has been made by the Applicant to reduce the Facility area in order to reduce the amount of agricultural land being removed from cropland production during the operation of the Project. Current crop cultivation within the Facility area will cease once construction of the Project starts, however areas used for cultivated cropland within the Project Area but outside of the security fence can continue to be used for cultivation. While cultivated cropland within the Facility will cease during operations, the Applicant intends to implement rotational sheep grazing during operation of the Project to facilitate an alternative agricultural use of the Facility area during the life of the Project.

(i) Avoidance or Minimization of Damage to Field Tile Drainage Systems and Soils

Stantec conducted a desktop analysis to determine potential drainage tile locations within the Project Area. Historic aerial imagery of the Project Area was assessed to determine drainage patterns that

typically match the effects of drainage tiles. Using this analysis, Figure 8-8 depicts the approximate location of potential drainage tiles found within the Project Area. The Applicant incorporated the drain tile data gathered from the desktop analysis to site the Project infrastructure to avoid damages to field drainage tile where possible in developing the Project design.

(ii) Timely repair of Damaged Field Tile Systems

Any damage to drainage tiles as a result of construction of the Project will be repaired in a timely manner by the Applicant. The Applicant will retain a contractor specializing in agricultural drainage tile repair to fix damaged drain tile.

(iii) Segregation of Excavated Topsoil Decompaction and Restoration of Topsoil

Construction of the Project will include clearing and limited grading of the topsoil as part of the installation of the Project infrastructure. The site design will be constructed using a “light on land” construction approach that minimizes the amount of grading onsite. Topsoil will be segregated onsite and decompacted prior to spreading over the areas to be restored. Immediately after construction, the disturbed areas will be seeded to stabilize the site. The Applicant will utilize a seed mix that will be suitable for sheep, in addition to providing habitat to pollinators and other wildlife. The combination of perennial vegetation and grazing practices will promote soil health, decompaction and restoration during operation of the Project.

4906-4-09 REGULATIONS ASSOCIATED WITH WIND FARMS

The Project is not a wind farm; therefore, these regulations are not applicable.

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APPLICATION TO THE OHIO POWER SITING BOARD FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR BIRCH SOLAR 1, LLC

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Summary: Application - 1 of 31 (Cover, Affidavit, and Narrative) electronically filed by Christine M.T. Pirik on behalf of Birch Solar 1, LLC