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September 24, 2021

Tanowa Troupe  
Administration/Docketing  
Ohio Power Siting Board  
180 E. Broad Street, 11th Floor  
Columbus, OH 43215

**Re: OPSB Case No. 21-0041-EL-BGN  
Palomino Solar, LLC**

Dear Ms. Troupe:

Accompanying this letter is the application by Palomino Solar, LLC for a Certificate of Environmental Compatibility and Public Need for the Palomino Solar Energy Project, an up to 200 megawatt solar-powered electric generation facility to be located in Highland County, Ohio. The original application was electronically filed. Five hard copies have been provided to the Ohio Power Siting Board along with ten disc copies.

In accordance with Ohio Administrative Code 4906-2-04, I would like to make the following declarations:

Name of the applicant:

Palomino Solar, LLC  
c/o Innergex Renewable Development USA, LLC  
3636 Nobel Drive, Suite 260  
San Diego, CA 92122

Name and location of the proposed facility:

Palomino Solar Energy Project  
Union and Dodson Townships in Highland County, Ohio

Name of the authorized representative:

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Taft Stettinius & Hollister LLP  
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Notarized statement:

See attached Affidavit of David Little  
Managing Director of Palomino Solar, LLC

No information presented by Palomino Solar, LLC in the first or second pre-application notification letter has been revised since issuance of those letters.

Sincerely,

Taft Stettinius & Hollister LLP

*/s/ Kodi J. Verhalen*

Kodi J. Verhalen

Enclosure

---

**BEFORE  
THE OHIO POWER SITING BOARD**

<b>In the Matter of the Application of</b>	)	
<b>Palomino Solar, LLC for a Certificate of</b>	)	<b>Case No. 21-0041-EL-BGN</b>
<b>Environmental Compatibility and Public</b>	)	
<b>Need</b>	)	

**AFFIDAVIT OF DAVID LITTLE, MANAGING DIRECTOR OF PALOMINO SOLAR,  
LLC**

STATE OF DELAWARE     )  
COUNTY OF SUSSEX     ) SS:

I, David Little, Managing Director of Palomino Solar, LLC, 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 upon my personal knowledge:


1. I am the Managing Director for the Palomino Solar Energy Project to be located in Union  
and Dodson Townships in Highland County, Ohio.
2. I have reviewed the Application of Palomino Solar, LLC for a Certificate of  
Environmental Compatibility and Public Need to Construct an Electric Generating  
Facility in Case No. 21-0041-EL-BGN.
3. To the best of my knowledge, information, and belief, the information and materials  
contained in the above-referenced Application are true and correct.

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



David Little  
Managing Director  
Palomino Solar, LLC

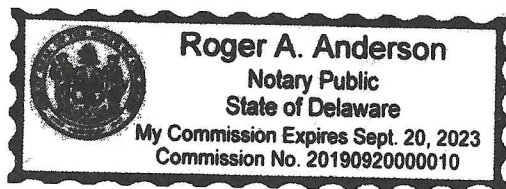
Sworn to before me and signed in my presence this 23 day of September, 2021.



Notary Public

Printed Name: ROGER A ANDERSON

Commission Expires: 20 SEPT 2023



**APPLICATION**  
**TO THE**  
**OHIO POWER SITING BOARD**  
**FOR A**  
**CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED**  
**FOR THE**  
**Palomino Solar Energy Project**  
**Highland County, Ohio**  
**Case No. 21-0041-EL-BGN**  
**Date: September 24, 2021**  
  
**Palomino Solar, LLC**

Prepared  
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Exhibit O.	Historic Architectural Reconnaissance Survey
Exhibit P.	Ecological Assessment
Exhibit Q.	Summary of Public Comments Received
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## Acronyms and Abbreviations

AC	Alternating Current
ANSI	American National Standards Institute
BMP	Best Management Practice(s)
CAUV	Current Agricultural Use Value
Certificate	Certificate of Environmental and Public Need
DC	Direct Current
EAP	Emergency Action Plan
EMF	Electromagnetic Fields
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FTE	Full Time Equivalent
gen-tie	Generation Interconnection
GIS	Geographic Information System
GWh	Gigawatt-hours
HASP	Health and Safety Plan
IEEE	Institute of Electrical and Electronics Engineers
Innergex	Innergex Renewable Energy, Inc.
JEDI	Jobs and Economic Development Impact
kV	Kilovolt
LBNL	Lawrence Berkeley National Laboratory
MW	Megawatt
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NEC	National Electrical Code
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NLCD	National Land Cover Database
NO	Nitrogen Oxide
NOI	Notice of Intent
NOT	Notice of Termination

NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
OAC	Ohio Administrative Code
ODNR	Ohio Department of Natural Resources
ODOT	Ohio Department of Transportation
ODW	Ohio Division of Wildlife
OEPA	Ohio Environmental Protection Agency
OPSB	Ohio Power Siting Board
PILOT	Payment in lieu of Taxes
PJM	PJM Interconnection, LLC
PM	Particulate Matter
POI	Point of Interconnection
Project	Palomino Solar Energy Project
PV	Photovoltaic
ROW	Right(s)-of-Way
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Office
SO <sub>2</sub>	Sulfur Dioxide
SR	State Route
SWPA	Source Water Protection Area
SWPPP	Stormwater Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VRA	Visual Resource Assessment

**4906-4-01. PURPOSE AND SCOPE****(A) Requirements for Filing Certificate Applications**

Palomino Solar, LLC (Palomino Solar or Applicant), an affiliate of Innergex Renewable Energy, Inc. (Innergex), is applying to construct the Palomino Solar Energy Project, which is proposed as a 200-megawatt alternating current (MW<sub>ac</sub>, hereinafter referred to as “MW”) utility-scale photovoltaic (PV) solar-powered electric generation facility (Facility) and associated facilities (electrical collection lines, inverters, a substation, an operations and maintenance (O&M) building, access roads, fence lines, weather stations, and laydown yards) (Project). This document is Palomino Solar’s submittal for a Certificate of Environmental Compatibility and Public Need (Certificate) (Application). The Application is written in accordance with the requirements of Chapter 4906-4 of the Ohio Administrative Code (OAC) for the filing of certificate applications for electricity generating facilities. The Application has been prepared by Palomino Solar, with support from Cardno, Inc. (Cardno).

**(B) Waivers**

OAC 4906-4-01(B) provides that the Ohio Power Siting Board (OPSB) may, upon an application or motion filed by a party, waive any requirement of OAC Chapter 4906-4 other than a requirement mandated by statute. By motion filed separate from this Application, the Applicant is requesting a waiver, in part, from the provisions of OAC 4906-4-08(D)(2) and OAC 4906-4-08(D)(4), which require the study of impacts to certain cultural and archaeological resources within 10 miles of the Project Area. This waiver is requested as the potential impacts are expected to be limited to the immediate vicinity of the Project.

OAC 4906-3-01(B) provides that the OPSB may, upon an application or motion filed by a party, waive any requirement of OAC Chapter 4906-3 other than a requirement mandated by statute. In light of the COVID-19 pandemic, Applicant requested, and was granted, a waiver from the provisions of OAC 4906-3-03(B) requiring a public informational meeting to be held in person in the area where a project is to be located. Instead of holding only in-person public informational meetings, the Applicant hosted one web-based public informational meeting on March 9, 2021, with telephone conference call capabilities, and one in-person public informational meeting on June 28, 2021, with web-based attendance and telephone conference call capabilities, mailed Project information to affected landowners within and adjacent to the Project area, and is maintaining an updated Project information website ([www.palominosolar.com](http://www.palominosolar.com)).

**4906-4-02. PROJECT SUMMARY AND APPLICANT INFORMATION****(A) Project Summary**

The Applicant is proposing to construct a 200-MW PV solar-powered electric generation facility. The Project will utilize PV panel arrays, electrical collection lines, inverters, a substation, an O&M building, access roads, fence lines, weather stations, and laydown yards. The Facility will have a point of interconnection (POI) to the existing transmission grid at the Hillsboro-Middleboro 138 kilovolt (kV) transmission line. The POI will be the subject of a separate filing to the OPSB.

**(1) General Purpose of the Facility**

The general purpose of the Facility is to produce solar-powered electricity that will maximize energy production from available solar resources in order to deliver clean, renewable electricity to the Ohio bulk power transmission system and serve the needs of electric utilities, corporations and their customers. The electricity generated by the Facility will be transferred to the transmission grid operated by PJM Interconnection, LLC (PJM) for sale at wholesale or under a power purchase agreement.<sup>1</sup>

**(2) Description of the Facility**

Figure 02-1 depicts an overview of the Project area. A detailed map of the Project, including the layout of solar arrays, access roads, fence lines, an O&M building, and substation location, can be found in Figure 03-2.1 to 0.3-2.5 (Section 4906-4-03(B)). The Facility and associated facilities will be located on privately-owned land within Highland County, Ohio. The proposed area on which the Applicant is proposing to locate the Project encompasses approximately 2,900 acres (Project Area); however, the actual Project layout will be more limited in size than this full area, as discussed in this Application.

The installed capacity of the Facility will be 200 MW, with the annual capacity factor ranging from 22 percent to 26 percent. These parameters are expected to produce an estimated 378 to 462 gigawatt-hours (GWh) of electricity each year. More information regarding the Project may be found in section 4906-4-03(B) of this Application.

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<sup>1</sup> ORC § 4906.06(A)(5) requires a statement of how the Facility fits into the Applicant's forecast as provided in its report submitted under section 4935.04 of the Revised Code. Palomino Solar is not required to submit a report under section 4935.04 of the Revised Code and, as such, this forecast requirement is not applicable to this Application.

**(3) Description of the Suitability of the Site for the Proposed Facility**

The Project Area was selected because the land can viably support a utility-scale solar energy facility. Attributes such as irradiation, access to electric power transmission, compatible land use, and low population density are key attributes of the Project Area. Local officials and participating landowners have expressed positive feedback during the initial activities of Palomino Solar. More information regarding the site selection and suitability of the site may be found in section 4906-4-04(A) of this Application.

**(4) Project Schedule**

The acquisition of land and land rights in the Project Area began in 2019. During that year and thereafter, landowner outreach as well as meetings with local stakeholders were held to receive feedback from stakeholders near the Project Area. A public informational meeting was held on March 9, 2021, to provide the public with information regarding the Project. A second public informational meeting was held on June 28, 2021. Project design will be finalized after issuance of a Certificate and before construction of the Project. Construction of the Project is expected to begin in August 2022, shortly after design plans are finalized, and to be completed in Fall 2023. Once construction is complete, the Facility will be placed in service. More information regarding the Project schedule may be found in section 4906-4-03(C)(1) of this Application.

**(B) Applicant Information****(1) Plans for Future Generation Capacity at the Site**

Palomino Solar does not have plans for an increase to future generation capacity at this site beyond the currently proposed 200-MW Facility. The maximum capacity of the Facility at the POI (Hillsboro-Middleboro 138 kV transmission line) is anticipated to be 200 MW.

**(2) Description of Applicant and Operator**

Palomino Solar is an indirect and wholly owned subsidiary of Innergex. Innergex is an independent renewable power producer that develops, acquires, finances, constructs, owns, and operates hydroelectric, wind energy, and solar energy facilities. As a global corporation, Innergex conducts operations in Canada, the United States (through Innergex Renewable Development USA, LLC), France, and Chile. Innergex manages a large portfolio of assets that currently consists of 78 operating facilities, including 37 hydroelectric facilities, 34 wind energy facilities, and seven solar energy facilities. Innergex believes in sustainable development that balances People, the Planet, and Prosperity.



The Applicant plans to construct and operate the Project in its entirety and over the length of the 30-plus-year term of the Project lease agreements.

## **4906-4-03. PROJECT DESCRIPTION AND SCHEDULE**

### **(A) Project Area Description**

The Project Area is described in the sections below, which outline the geography and topography of the Project Area, the proposed Project layout, population centers, utility corridors, water features, and recreation areas.

#### **(1) Geography and Topography Map**

Surrounding geological features, defined here as the geography and topography within two miles of the proposed Project Area, are displayed in Figure 03-1.1 to 03-1.10. In addition to geology, Figure 03-1.1 to 03-1.10 details the following:

##### **(a) Proposed Facility Layout**

The Project's final layout design will include the Facility, the electrical collection lines, inverters, a substation, an O&M building, access roads, fence lines, weather stations, and laydown yards (Figure 03-2.1 to 03-2.5).<sup>2</sup> Any adaptations from the preliminary to final designs would consist of optimization of the layout based on future refinements. Factors that will determine these changes include but are not limited to public concerns, survey results, engineering designs, final equipment selection, innovations within the solar energy industry, and feedback from the OPSB in response to the certification process.

##### **(b) Population Centers and Administrative Boundaries**

The Project Area is located within Union and Dodson Townships, Highland County, Ohio. The Project Area is rural in development but is within 10 miles of multiple villages (Figure 03-1.1 to 03-1.10). Lynchburg is the closest village, located approximately 1.2 miles west of the Project Area. New Vienna is located approximately two miles north of the Project Area. Other surrounding communities include Hillsboro, located 5.5 miles southeast of the Project Area.

##### **(c) Transportation Routes, Gas Pipelines, and Electric Transmission Corridors**

The Project Area is bisected by Ohio State Route (SR) 124, locally labeled as Panhandle Road (Figure 03-1.1 to 03-1.10). Mad River Road follows a north-to-south line along the eastern edge of the Project Area. No other major roadways border the Project Area. Major roadways within five miles of the Project Area include SR 73 to the east, SR 134 to the west, and U.S. Route 50 to the south. There are no airports directly adjacent to the Project Area. There is one private heliport

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<sup>2</sup> The transmission line will be included in a separate filing to the OPSB.

within five miles of the Project Area. Details about aviation facilities appear in section 4906-4-04(A)(3)(i) of the Application and in Figure 03-1.1. According to the US Department of Transportation's National Pipeline Mapping System, there are no natural gas pipelines in the Project Area (NPMS 2020).

**(d) Named Rivers, Streams, Lakes, and Reservoirs**

Numerous wetlands and streams, including both named and non-named features, are present within the Project Area and the surrounding one-mile radius (Figure 04-1). Turtle Creek lies primarily to the west of the Project Area, passes through the northern section, and continues along the northern Project boundary.

**(e) Major Institutions, Parks, and Recreation Areas**

The Oldaker State Wildlife Area is located adjacent to the southern edge of the Project Area. It is a 140-acre area administered by the Ohio Division of Wildlife (ODW) (Figure 04-1.2). The area is managed primarily for rabbits and quail and is used for hunting and fishing. It contains a public parking lot and a mixture of wooded and grassland areas (ODNR 2021a).

The Fallsville State Wildlife Area is located approximately 0.6 miles east of the Project Area. It is a 1,382-acre area administered by the ODW. The area is managed for wildlife associated with farmland and includes a target range, parking facilities, and stocked fishing ponds (ODNR 2021b).

**(2) Area of All Owned and Leased Properties**

The breakdown of the number of properties that have an option to purchase or are under Palomino Solar land control by lease or easement for the Project are shown below in Table 03-1.

**Table 03-1. Owned and Leased Properties in Project Area**

Status	Number of Properties	Area (Acres)
Lease/Easement	50	1,776.4
Option to Purchase	21	1,135.3

**(B) Detailed Description of Proposed Facility**

The proposed Project is described in the sections below, which outline the equipment specifications and layout of the Project. Finalized plans and equipment specifications will be provided to OPSB staff prior to construction. If equipment specifications change from what is presented in the Application, such changes are not anticipated to change the potential impacts

described herein. The specification documentation for the panels, trackers, and inverters currently under consideration by the Applicant for the Facility is included in Exhibit A of the Application.

## **(1) Description of Generation Equipment**

### **(a) Type and Characteristics of Generation Equipment**

The proposed Facility is projected to have approximately 600,000 PV panels mounted to associated racking and trackers. Exhibit A includes manufacturer specifications for the PV panels that may be utilized at the Facility. Once installed, the PV arrays will operate continuously; however, at night there will be no electricity produced. Based on the installed capacity (200 MW) and capacity factor (22 percent to 26 percent), the Facility will produce approximately 378 to 462 GWh of electricity per year.

Heat rate is not applicable to solar power generation, as there is no fossil fuel combustion that occurs to generate heat. Therefore, the heat rate data requirement of OAC 4906-4-03(B)(1)(a) is not applicable to the Project.

### **(b) Turbine Dimensions**

Solar power generation does not use wind turbines. Therefore, this section is not applicable to this Project.

### **(c) Fuel Quantity and Quality**

Solar power generation does not require the use of coal or fossil fuels. As such, this section does not apply to this Project.

### **(d) List of Pollutant Emissions and Quantities**

Solar power generation does not result in carbon emissions or airborne pollutants. As such, this section does not apply to this Project.

### **(e) Water Requirement, Source, and Discharge Information**

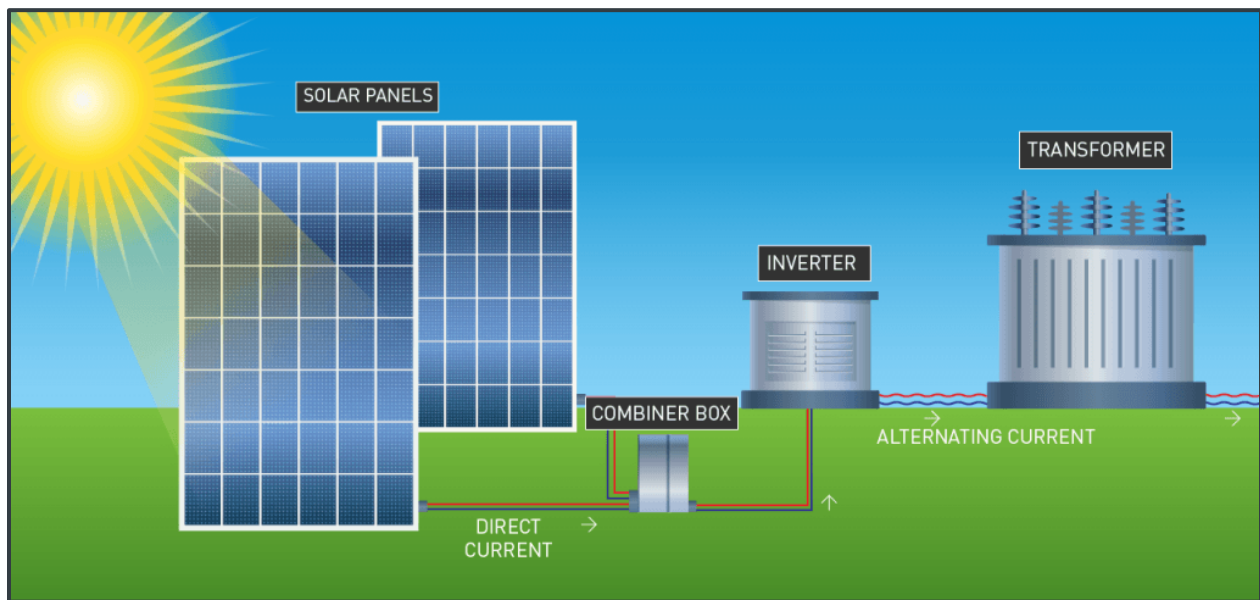
Solar power generation does not require the use of water and therefore does not result in wastewater or water discharge. Therefore, this section does not apply to this Project.

## **(2) Construction Method and Description of Facility Components**

This section describes, based on information available at the time of submission of the Application, the materials, color and texture of surfaces, and dimensions and installation of all Project components. Sections 4906-4-07 and 4906-4-08 of this Application provide more

information regarding site preparation, construction, and reclamation methods used by the Project.

Inset 3-1 illustrates the process by which the Facility will convert solar energy into electricity that is able to be connected to the transmission grid. PV panels are connected to a combiner box that connects to an inverter that converts the direct current (DC) power to alternating current (AC) power. The AC power then travels from the inverter to the transformer, where the AC power is modified to the correct output voltage for the substation.



**Inset 3-1. Solar Energy Conversion Process**

**(a) Solar Modules and Racking System**

Construction of PV panels and the racking system will begin after the construction of access roads. Depending on topography, grading may be necessary for installation. Each PV panel will be approximately 3 feet wide and 6.5 feet long. The maximum height of each PV panel will be approximately 12 feet from the ground. Panels will be able to rotate up to 60 degrees off from center. The center of the PV panels will be affixed to a single-axis racking system that will be attached to a cross bar approximately nine feet off the ground. The PV panels will rotate based on sun availability. Inset 3-2 shows an example of PV panels and racking systems similar to those proposed for the Facility.



**Inset 3-2. Typical PV Panel Array**

Trackers that use a single axis, like the ones proposed for the Facility, consist of linked horizontal support beams that have a drive train system located in the center of the PV panels. This enables the array to pivot and track the sun from sunrise in the east to sunset in the west. Single-axis tracker designs and PV panel array specifications can be found in Exhibit A. Inset 3-3 shows an example of a tracking rack system.



**Inset 3-3. PV Panel Tracking Rack System**

The PV panel arrays are supported by steel piles driven into the ground up to 20 feet. It is anticipated that piles will be driven throughout the Facility layout. Based upon the geotechnical test borings (Exhibit I), this pile depth is adequate across the Project Area.

Vegetation preparation will begin once installation of piles, racking, and PV panels has been completed. The disturbed soils will be tilled to maximize the likelihood of vegetation establishment. Vegetation will adhere to the Landscape Plan in Exhibit J. Stabilization of disturbed areas within the Project Area will meet the requirements of the Ohio Environmental Protection Agency (OEPA).

#### **(b) Fuel, Waste, Water, and Other Storage Facilities**

PV panel arrays do not require fuels or water to produce electricity and therefore do not generate waste petroleum products or wastewater. Petroleum products may be used during construction in various types of construction equipment as a fuel or for lubrication.

Oil will be used during standard operations for insulating and cooling transformers in the substation. Oil for this purpose will be stored in an aboveground storage tank inside the substation fence. This tank will exceed 1,320 gallons, and a Spill Prevention Control and Countermeasures

(SPCC) Plan will be prepared for the storage tank prior to the installation of the tank in the Project Area. Waste oil from the transformers will be disposed of in accordance with applicable federal, state, and local regulations.

Storage of hydraulic oils may occur in the O&M building using drums on secondary containment pallets or a double-walled fuel tank with additional secondary containment.

**(c) Fuel, Waste, Water, and Other Processing Facilities**

PV panels do not require fuels or water to produce electricity and therefore do not generate waste petroleum products or wastewater. Such processing facilities will not be necessary for the Project.

**(d) Water Supply, Effluent, and Sewage Lines**

Standard Facility operations will not use or discharge measurable amounts of water. A septic system may be necessary for the O&M building proposed for the Project, and any required permits or inspections under Ohio law would be obtained before it is placed in service.

**(e) Associated Electric Transmission and Distribution Lines and Gas Pipelines**

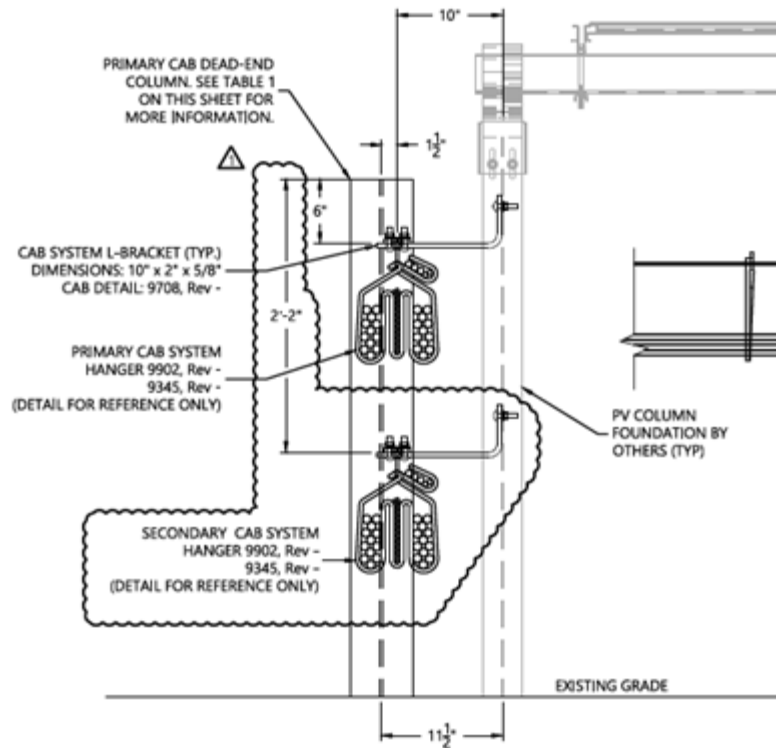
The Project will connect to the 138 kV Hillsboro-Middleboro transmission line. The request for approval of interconnection and the POI will be filed in a separate application with the OPSB. There are no distribution lines or gas pipelines associated with the Project Area.

**(f) Buried and Overhead Electric Collection Lines**

The electrical collection system will be installed below ground, but final details on the electrical design will be determined based upon site conditions, installation costs, availability of materials, and final design requirements. Approximately 338,000 feet (64 miles) of belowground electrical collection line will be installed between panels and the substation as part of the Project.

Each solar panel will be connected by a single circuit DC cable that will be attached to the tracking system and then buried in a trench (Inset 3-4). The DC cable will run on a nearby inverter, which will convert the electricity to AC. A buried AC cable will connect each inverter to the Project substation. Buried AC cables will be a minimum of 36 inches below ground. Buried AC cables will include multiple branch circuits at 34.5 kV and be wrapped in polyvinyl chloride (PVC) jackets.





**Inset 3-4. Typical DC Collection Bracket**

Electrical collection system installation in agricultural areas within the Project Area will include excavating and segregating the topsoil from the spoil material near the work area. Spoil material will be replaced into the excavated area shortly after cable installation, and topsoil will be replaced at the surface of the excavated trench. Avoidance measures will be taken in order to minimize impacts to drain tiles; however, if drain tiles are damaged during construction, the repair and/or replacement of the drain tiles will follow the Drain Tile Mitigation Plan (Exhibit M). The trench path and adjacent areas will be restored to the original topography and surface condition. Revegetation of the area is detailed in the Landscape Plan (Exhibit J).

#### **(g) Substations, Switching Substations, and Transformers**

The proposed design of the Project utilizes up to 76 inverters (Inset 3-5 provides a photograph of an inverter), depending on final equipment selection. A gravel inverter pad area will provide an area to place a skid, which will provide a foundation for the transformer, inverter, and Supervisory Control and Data Acquisition (SCADA) system. The gravel inverter pad will be approximately 18 feet by 8 feet. The specifications of proposed inverter options currently under consideration are provided in further detail in Exhibit A. The electricity from the inverters will be sent to the

transformers at the substation. The substation footprint is anticipated to be approximately 200 feet by 80 feet. The substation contains the transformers and materials needed to increase the voltage of the electricity for interconnection to the 138 kV Hillsboro-Middleboro transmission line.

The area surrounding and within the substation will be all gravel in order to minimize the risk of fire. The substation will sit on a concrete foundation and will include circuit breakers, insulators, transformers, lighting to meet the required standards, and surge arrestors. The substation will be surrounded by a chain-link fence with barbed wire affixed on top or other fence meeting the requirements of the National Electrical Code (NEC). Final design of the substation will be in accordance with the NEC, the National Electrical Safety Code (NESC), PJM standards, AEP Ohio design standards, regional utility practices, and the Rural Utility Service Code.



**Inset 3-5. Typical Inverter**

#### **(h) Meteorological Equipment**

Meteorological instruments that measure solar energy are called pyranometers. Pyranometers are used to measure weather conditions including wind speed and solar irradiance. Current Project designs utilize up to five pyranometers. A photograph of a typical pyranometer appears in Inset 3-6.



**Inset 3-6. Typical Pyranometer**

**(i) Access Roads**

The Project Area will require approximately 18.1 miles of permanent access roads to be constructed to provide access to infrastructure. The access roads will be approximately 16 feet wide and have a gravel surface. The access roads may be wider at intersections and along curves. In the construction phase, temporary access roads may be up to 20 feet wide and create temporary impacts to soil and vegetation. After construction, the temporary impact areas will be restored and revegetated.

**(j) Construction Laydown Areas**

Approximately 57 laydown areas that range in size from one to three acres are proposed in the Project Area. The laydown areas will store equipment and materials between delivery and installation and provide parking for construction management trailers. Erosion and sediment control will be utilized for the laydown areas, but gravel use is not anticipated. After construction

has been completed, laydown areas not having permanent infrastructure will have their topsoil redistributed and revegetated to the specifications of the Landscape Plan (Exhibit J).

**(k) Security, Operations and Maintenance Facilities or Buildings**

A chain-link fence with barbed wire affixed on top, or other fence meeting the requirements of the NEC, will surround the PV panel arrays and associated infrastructure throughout the Project Area. Lighting will illuminate Facility entrances, inverters, the O&M building, and the substation per the Lighting Plan included with the Landscape Plan (Exhibit J). The O&M building is expected to be a single-story structure measuring 88 feet by 50 feet. A 10,000-square-foot parking lot and temporary storage area will be located adjacent to the O&M building. The O&M building is planned to include a septic system to support typical business office usage. The construction of the O&M building will adhere to the requirements of applicable building codes. Inset 3-7 represents the typical O&M building design that Palomino Solar plans to construct for the Project.





**Inset 3-7. Typical O&M Building**

Security and monitoring of the Project will utilize a SCADA system that allows remote control of various aspects of the Facility. Security will be enforced with site security systems, and the Facility entrances will have lockable gates. Monitoring using the SCADA system will enable views of the electrical data, grid station data, mechanical data, meteorological data, and operation and fault status.

**(I) Other Pertinent Installations**

Stormwater infrastructure will be installed for the life of the Project in accordance with the OEPA Permit No. OHC000005, General Permit Authorization for Storm Water Discharges Associated with Construction Activity under the National Pollutant Discharge Elimination System (NPDES). This infrastructure is anticipated to consist of infiltration ditches and swales along access roads.

**(3) Need for New Transmission Lines**

The Project will interconnect to the 138 kV Hillsboro-Middleboro transmission line. The POI connection to the existing transmission line (including the generation lead) will be described in a separate application to the OPSB.

**(4) Project Area Map**

Figure 03-2 displays the preliminary site layout at 1:12,000 scale for the Project and illustrates the following aspects:

**(a) Aerial Photograph**

Aerial imagery was obtained through ESRI ArcGIS Pro software.

**(b) Proposed Facility**

Details on Project components and layout, as discussed above in section 4906-4-03(B)(2), are provided by the Applicant (Figure 03-2.1 to 03-2.5).

**(c) Road Names**

Road name data was obtained from the Ohio Department of Transportation (ODOT) Transportation Information Mapping System.

**(d) Property Lines**

The proposed Project Area includes private properties, the boundary data for which was acquired from the local auditor's office.

**(C) Detailed Project Schedule****(1) Schedule**

Inset 3-8 presents a Gantt-style chart illustrating major activities and milestones, including:

**(a) Acquisition of Land and Land Rights**

The land and land rights for the Project were acquired beginning in Q4 2019, and acquisition activities within the Project Area are almost entirely completed at the time of this Application. Obtaining final land rights over a few remaining parcels within the Project Area is in process and is anticipated to be completed by the end of 2021.

**(b) Wildlife Surveys/Studies**

Wildlife surveys and studies were completed in 2020.

**(c) Receipt of Grid Interconnection Studies**

Feasibility and System Impact studies were performed and completed in 2020 and 2021. Palomino has executed the necessary agreements and provided the fees necessary for the Project Facilities Studies as of the date of this Application. All Facilities Studies for the Project are anticipated to be completed by mid-2023.

**(d) Preparation of the Certificate Application**

Preparation of the Application began in 2020. Public informational meetings were held in March 2021 and June 2021.

**(e) Submittal of the Application for Certificate**

This Application was officially submitted on September 24, 2021.

**(f) Issuance of the Certificate**

Palomino Solar anticipates that the Certificate will be issued in Q2 2022.

**(g) Preparation of the Final Design**

Palomino Solar anticipates completing construction drawings and final designs for the Project in Q3 2022.

**(h) Construction of the Facility**

Construction of the Project is anticipated to begin in Q3 2022 and be completed in Q4 2023.

**(i) Placement of the Facility in Service**

Upon the completion of construction, the Facility will be placed in service. Palomino Solar anticipates that this will occur in Q4 2023.

**(2) Construction Sequence**

Construction within the Project Area will proceed in the following sequence, with multiple activities being performed at the same time:

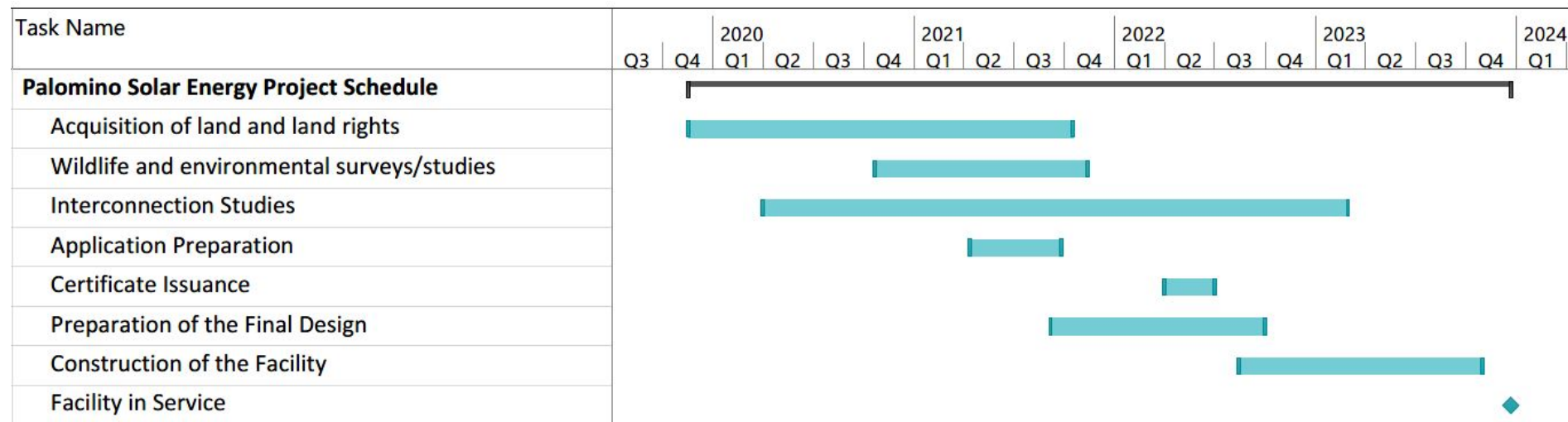
- Installing stormwater and erosion control measures in accordance with OEPA OHC000005
- Marking and securing the borders of the construction areas for the Project
- Clearing the Project Area where necessary
- Grading areas in the Project Area for access roads, laydown areas, PV arrays, and substation
- Finalizing construction of access roads

- Installing steel piles
- Installing racking on top of piles
- Installing PV array panels onto racking
- Installing electrical collection system
- Installing the substation
- Installing inverters
- Commissioning and energizing the Facility
- Grading and drainage
- Restoration and revegetation

### **(3) Impact of Critical Delays**

The in-service date of the Project depends on Palomino Solar's ability to acquire the necessary materials and construct the Project. The Applicant's ability to timely acquire solar panels, racking, inverters, or transformers as well as the Applicant encountering permitting delays or labor shortages could result in delays to the overall Project timeline. Such delays could incur significant monetary costs as a result of missed financial incentive deadlines, such as deadlines for federal incentive programs.





**Inset 3-8. Project Construction Schedule Gantt Chart**

**4906-4-04. PROJECT AREA SELECTION AND SITE DESIGN**

The selection of appropriate sites for a solar-powered electric generation facility is constrained by numerous factors that are essential considerations for technically and economically viable facility operations. The sections below describe the general site selection process, along with associated siting constraints and requirements.

**(A) Project Area Selection****(1) Description and Rationale for Selecting Study Area**

Various factors were considered in selecting the proposed Project Area. Primary criteria included the average quality and quantity of direct sunlight for generating solar energy, pre-existing electric transmission systems in the surrounding areas with available transmission capacity, local topography and geological features, current land use, and average population density across the region. The willingness of landowners to agree to the construction of the Project or associated portions of the Project was also a factor in defining the Project Area.

Access to the bulk power transmission system located within the vicinity of the Project Area depicted in Figure 04-1 was a crucial requirement in selecting the Project Area. The existing transmission lines in the vicinity of the Project Area connect to the Hillsboro and Middleboro 138 kV substations, which are owned and operated by AEP Ohio. The existing 138 kV bulk transmission line must be able to support a POI that will transmit power to the electrical grid.

Regional geology, current land use, and topographic features also influence a site's suitability for solar energy development. Local land use in the Project Area predominantly consists of agriculture such as soybeans and corn. This land use is characterized by large plots of open space that are highly suitable for conversion to solar arrays. The topography of the Project Area is largely flat in the southern portion, with some minor (up to 20 feet) variation in the northern portion of the Project Area.

Accessibility to roadways was also considered. Major roadways within five miles of the Project Area include SR 73 to the east, SR 134 to the west, and U.S. Route 50 to the south. There are no airports immediately adjacent to the Project Area. Additional local roads include Sharpsville Road, Dade Road, Johnson Road, Middle Road, Anderson Road, Rammel Road, and Wolfe Road. Some of these roads provide accessibility routes for construction materials, contractors and employees as well as transportation related to O&M for the Project.

**(2) Map of Study Area**

A map of the study area is included in Figure 03-1.1 to 03-1.10. The Project Area is shown in Figure 04-1, which illustrates the type of land use that currently makes up the Project Area. Palomino Solar worked closely with landowners to determine the viability of the area. Once Palomino Solar determined the viability of the area, Palomino Solar identified landowners willing to allow for surveys on their land. Willing participants and an adequate POI indicated that the Project Area was viable for the development of the Project.

**(3) List and Description of all Qualitative and Quantitative Siting Criteria**

Siting criteria used for the selection of the Project Area include:

**(a) Willing Land Lease Participants and Host Communities**

Palomino Solar has developed relationships with landowners in the Project Area and obtained lease and other land use agreements in order to support the construction of the Project. Palomino Solar has also spoken to the host communities and townships to educate and inform stakeholders.

**(b) Compatible Land Use**

The majority of the land within the Project Area is rural agricultural land, which provides a suitable location for the development of a solar energy facility. More detail on land use is available in section 4906-4-08(C) of the Application.

**(c) Site Accessibility**

The proposed Project Area is accessible by local and state roads. This road network is able to support the transport of materials and access for Project construction. Further detail on site accessibility is available in section 4906-4-06(F)(3) of the Application.

**(d) Adequate Access to the Bulk Power Transmission System**

The Applicant has selected a strategic site location as part of the planning process for this Project. As part of the site consideration, the Applicant reviewed the proximity of the Project to pre-existing electricity generating facilities in the surrounding area. Existing infrastructure for this review included transmission lines, power plants utilizing either coal or natural gas, and electrical substations.

The 138 kV Hillsboro-Middleboro transmission line is a pre-existing transmission line that crosses the Project Area.

**(e) Limited Residential Development**

The Project Area and surrounding one-mile radius host a low population and low residential density. The wider region has few towns, the largest of which is Hillsboro, with an estimated population of 6,554 as of July 2019 (United States Census Bureau 2021).

See section 4906-4-08(C) and Exhibit E of this Application for additional detail on demographics in the vicinity of the Project Area.

**(f) Limited Sensitive Ecological Resources**

The majority of the Project Area has open space and agricultural land. The Project will be designed to minimize impacts to limited sensitive ecological resources such as forested areas, ponds, streams, and wetlands.

See section 4906-4-08(B) and the Ecological Assessment (Exhibit P) for more information on ecological resources.

**(g) Cultural Resources**

A review of known cultural resources around the Project Area identified no significant cultural resources within the Project Area. Thus, the proposed Project would have no impacts on known cultural resources.

Further details describing cultural resources and historic structures in the proposed Project Area are available in section 4906-4-08(D) and Exhibits N (Phase I Archaeological Reconnaissance Report) and O (Historic Architectural Reconnaissance Survey) of this Application.

**(h) Appropriate Geotechnical Conditions**

Geotechnical conditions were determined to be adequate for development of the Facility. Further details regarding geotechnical conditions are available in section 4906-4-08(A)(5) and Exhibit I (Preliminary Geotechnical Engineering Report) of this Application.

**(i) Distance from Airports**

While PV panels are compatible with airports, all aviation facilities were considered during the siting process. There is one private heliport (Bell Air Ranch Heliport) within five miles of the Project Area. The Bell Air Ranch Heliport is approximately two miles south of the Project Area, and potential impacts from glare are negligible. The Glint and Glare Analysis conducted for the Project (Exhibit L) concluded that there were no predicted glare occurrences for the nearest two airports with control towers, Wilmington Air Park and Highland County Airport, which are located 9.5 miles

and 9.7 miles, respectively, from the Project Area. See section 4906-4-07(E) of this Application for additional detail on aviation facilities.

#### **(4) Description of Process by Which Siting Criteria Were Applied**

Desktop evaluations were performed to identify an area of study and eventually select the Project Area. The initial evaluation covered a 50,000-acre area comprising approximately one-fifth of Highland County, Ohio. Based on this initial evaluation, the initial evaluation area was narrowed down to the Project Area.

#### **(5) Description of Project Area Selected for Evaluation**

Palomino Solar concluded that the Project Area meets all the criteria needed to support a solar energy project such as the Project. More information regarding the factors evaluated for site selection is available in section 4906-4-04(A)(3) of this Application.

#### **(B) Facility Layout Design Process**

The Project layout design process is based on the siting criteria and the layout of the Project Area. The Project layout (Figure 03-1.1 to 03-1.10) is subject to change based on continuing technological innovations and communications with the OPSB during the certification process. The proposed Project layout for purposes of this Application was developed to ensure that all potential impacts necessary for evaluation were included and considered. After the Certificate for the Project is issued, final design for the Project will be undertaken to identify opportunities to further reduce the overall footprint of the Project, where practicable.

#### **(1) Constraint Map**

Figure 04-1 illustrates the Project Area constraints as well as public roads, setbacks, utilities, and wetlands. Field studies have been conducted to ensure that the environmental impacts of the PV panel arrays are minimized.

#### **(2) Criteria Used to Determine Site Layout and Comparison of Alternative Site Layouts**

Palomino Solar defined siting factors and constraints with the use of consultants' assessments, geographic information system (GIS) tools, and site viability. Numerous layout designs were discussed in order to develop the proposed Project layout. The constraints listed below were used to determine the Project layout.

**(a) Agricultural Constraints**

The Project Area is primarily used as agricultural land. The Project design minimizes long-term impacts to active agricultural land. Once the Facility is at the end of its life, the Project Area can be restored for agricultural use per the landowners' desire during decommissioning.

The Facility's Drain Tile Mitigation Plan (Exhibit M) reflects procedures for minimizing impacts to agricultural land. Methods to repair drain tile on the site can also be found in the Drain Tile Mitigation Plan. More information regarding agricultural constraints is available in section 4906-4-08(E) of this Application.

**(b) Cultural Constraints**

Cardno reviewed known recorded archaeological sites in the Project vicinity through the Ohio State Historic Preservation Office (SHPO). Information on the cultural resources desktop analysis and literature review are available in Exhibit N of the Application. Archaeological field surveys for 63 percent of the Project Area were completed in 2020 and 2021. The remaining Project Area will be surveyed in fall 2021, prior to any construction activity (the results of this survey will be provided to the OPSB in a supplemental filing of Exhibit N of this Application). An inventory of historic structures around the Project Area was completed in 2021 (Exhibit O).

**(c) Ecological Constraints**

Field surveys were completed in 2020 and 2021. Consultation with Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) occurred in fall 2020. Palomino Solar did not identify any ecologically sensitive areas within the Project Area. Per consultation with ODNR and USFWS, Palomino Solar will not engage in tree-clearing activities between April 1 and September 30 to minimize potential impacts to protected bat species. Prior to any tree clearing, construction areas will be assessed for bird nests and species of concern. More information about ecological constraints can be found in section 4906-4-08(B) of this Application.

**(d) Geotechnical Considerations**

Palomino Solar identified that geotechnical conditions in the Project Area were appropriate for solar energy development. To ensure safe engineering, geotechnical conditions will be considered during final Facility design. More information about geotechnical considerations can be found in section 4906-4-08(A)(5) and Exhibit I of this Application.

### **(e) Glare Considerations**

A Glint and Glare Analysis (Exhibit L) was performed for the Facility. No impacts from glint or glare from the Facility to flight paths, airports, homes, or roadways are anticipated. More information about glint and glare considerations can be found in section 4906-4-07(E) and Exhibit L of this Application.

### **(f) Hydrologic Constraints**

A hydrologic study was conducted to analyze the risk of flooding in the Project Area. Flooding could hinder the integrity or engineering of the PV solar array. Project design will avoid areas prone to flooding or ponding. More information about hydrologic constraints can be found in section 4906-4-08(A)(4) of the Application and the Preliminary Geotechnical Engineering Report (Exhibit I).

### **(g) Landowner Considerations**

Palomino Solar will continue to consult directly with landowners and the community during finalization of the Project design.

### **(h) Noise Constraints**

Solar energy facilities are not subject to any specific national, state, or local laws regarding noise level limits. Sensitive receptors within and surrounding the Project Area will have minimal noise impact, as the Project layout is designed to limit noise impact.

More information on noise is available in section 4906-4-08(A)(3) of this Application and the Existing Conditions Background Sound Survey and Noise Impact Assessment (Exhibit H).

### **(i) Road and Property Setbacks**

Palomino Solar has designed the Project layout with setbacks established for placement of substation, panels, inverters, weather stations, and the O&M building (Table 04-1).

**Table 04-1. Proposed Setbacks for Project Layout**

<b>Features</b>	<b>Setback Distance (ft)</b>
<b>Non-Participating Habitable Residences (PV Panels to Residence)</b>	100
<b>Non-Participating Property Line to Project Fence</b>	40
<b>Public Roadways (Edge of Pavement to PV Panels)</b>	40

**(j) Tree-Cutting Considerations**

Per consultations with ODNR and USFWS, tree-cutting activities will not take place between April 1 and September 30 to minimize potential impacts to protected bat species. Tree-cutting activities will primarily include cutting of swaths and isolated windrows. Large intact areas of existing forest will not be impacted. The Landscape Plan (Exhibit J) identifies tree preservation areas and indicates where tree cutting will take place to maximize land resources while preventing panel shading. More information on tree-cutting considerations can be found in section 4906-4-08(B) of this Application, the Ecological Assessment (Exhibit P), and the Landscape Plan (Exhibit J).

**(k) Wetland and Stream Constraints**

Cardno performed wetland delineation surveys in 2020 and 2021. The Project layout has been designed to minimize impact to streams and wetlands. More information on estimated wetland and stream impacts is available in section 4906-4-08(B)(2)(a) of this Application and the Ecological Assessment (Exhibit P).

**(3) Description of Number and Type of Comments Received**

Prior to and during the public informational meetings held in March and June 2021, written and oral comments were solicited. Written comments submitted at the public informational meetings, emailed directly to Palomino Solar, and filed in the OPSB case docket through August 31, 2021, are attached as Exhibit Q (Summary of Public Comments Received).



## 4906-4-05. ELECTRIC GRID INTERCONNECTION

### (A) Connection to the Regional Electric Grid

Plans for interconnection to the existing power grid include the construction of a Project substation and a less-than-two-mile transmission line. The Project will connect to the AEP transmission network along the 138 kV Hillsboro-Middleboro transmission line. The POI will consist of a Project gen-tie line, a POI switchyard, and a line loop connecting the existing 138 kV Hillsboro-Middleboro transmission line to the POI. POI details will be described in a separate filing to the OPSB, anticipated to be filed in approximately Q3 2022.

Connection with the existing power grid will first require approval from PJM, a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. A series of PJM studies determine what upgrades, if any, are necessary for a power-generating project to reliably interconnect with the existing PJM grid. These studies include a Feasibility Study, a System Impact Study, and a Facilities Study, and are designed to inform developers about required updates, project timelines, and project costs.

### (B) Interconnection Information

#### (1) Generation Interconnection Request Information

The applicant has two PJM queue positions on the Hillsboro-Middleboro 138 kV transmission line (Table 05-1).

**Table 05-1. PJM Queue Position Details**

Queue Number	Queue Date	Maximum Facility Output (MW)	Energy (MW)	Capacity (MW)
<b>AF2-440</b>	3-31-20	50	50	25
<b>AG1-107</b>	8-31-20	200	150	85.7

Information related to these two queue positions is available through the PJM New Services Queue by visiting [www.pjm.com/planning/services-requests/interconnection-queues.aspx](http://www.pjm.com/planning/services-requests/interconnection-queues.aspx) and entering each queue number into the search box under the “Queue/OASIS ID” heading.

**(2) System Studies****(a) AF2-440**

The AF2-440 Feasibility Study for a 50 MW interconnection (Exhibit C) details both potential Project difficulties and mediation options, such as network upgrades, to address these difficulties. The AF2-440 Feasibility Study application was submitted in July 2020 for a connection to the Martinsville-Highland 69 kV transmission line. The POI was updated to the 138 kV Hillsboro-Middleboro transmission line in the AF2-440 System Impact Study report (Exhibit C) received from PJM in March 2021. The AF2-440 Facilities Study is currently in process, with the Facilities Study Report expected to be received by March 31, 2022.

**(b) AG1-107**

AG1-107 was submitted for a 200 MW maximum Facility output on the 138 kV Hillsboro-Middleboro transmission line. The AG1-107 Feasibility Study report was issued by PJM in January 2021 (Exhibit C). The AG1-107 System Impact Study report was issued by PJM on August 30, 2021. The AG1-107 Facilities Study Agreement was executed on September 7, 2021 and submitted along with the required deposit. The AG1-107 Facilities Study Report is expected to be received by February 28, 2023.

**4906-4-06. ECONOMIC IMPACT AND PUBLIC INTERACTION****(A) Ownership**

Figure 03-2 illustrates the proposed Project layout, including areas where transmission lines cross public roadways. The collection lines will cross Anderson Road, Dade Road, Johnson Road, Kibler Road, Mad River Road, Panhandle Road, Sharpsville Road, Spickard Road, State Route 124, and Wolfe Road. Private land within the Project Area will be purchased, under an existing option to purchase, or under Palomino Solar land control by lease or easement. All public and private land use will follow local regulations, and the Applicant will acquire all necessary permissions, permits, and voluntary lease agreements. All structures and affiliated equipment that are built for the Project will be the property of the Applicant.

**(B) Capital and Intangible Costs****(1) Estimated Capital and Intangible Costs by Alternative**

The economic data are confidential, as they could provide a potential competitive advantage to other solar energy developers. The total estimated cost of the Project is approximately **<BEGIN CONFIDENTIAL INFORMATION>** [REDACTED] **<END CONFIDENTIAL INFORMATION>**. No cost comparison between alternatives is available due to Palomino Solar not having proposed alternative project areas. More information about intangible costs can be found in section 4906-4-04 of this Application.

**(2) Cost Comparison with Similar Facilities**

The cost of the proposed Project is comparable to the installed project costs available at the U.S. Department of Energy's Lawrence Berkeley National Laboratory (LBNL). According to the LBNL, the median installed cost of projects that were connected in 2019 fell to \$1.40/W<sub>ac</sub>, down 20 percent from 2018 (LBNL 2019).

**(3) Present Worth and Annualized Capital Costs**

Development, design, planning, equipment, and construction costs will all be incurred within the first two years of construction. These costs will contribute to capital costs.

**(C) Operation and Maintenance Expenses****(1) Estimated Annual Operation and Maintenance Expenses**

Annual O&M expenses are included in the confidential version of the Socioeconomic Report (Exhibit E), filed under seal with this Application.

## **(2) O&M Cost Comparisons**

O&M costs can vary widely across solar energy facilities depending on size, lifetime, and events. According to LBNL, the current cost of O&M per capacity has decreased since 2011. The O&M costs for the Project are estimated to be <BEGIN CONFIDENTIAL INFORMATION> [REDACTED], <END CONFIDENTIAL INFORMATION> and will depend on the lifespan of the Project. The O&M costs are estimated to be in line with average costs from the LBNL as well as costs from other facilities the Applicant operates. A more detailed O&M cost comparison is included in the unredacted version of the Socioeconomic Report (Exhibit E), filed under seal with this Application.

## **(3) Present Worth and Annualized O&M**

O&M costs are projected to increase with inflation over the lifetime of the Facility. Additional details are included in the unredacted version of the Socioeconomic Report (Exhibit E), filed under seal with this Application.

## **(D) Cost of Delays**

Various delays may affect the month-to-month timeline for the Project. Timing of different delays may result in different financial costs. Should delays occur during the permitting phase, revenue payments from the completed Project would be set back. Affiliated financial losses would appear as the time value of money resulting from this delay. Should delays occur during the construction phase, costs would stem from unused time of construction crews, construction equipment, and lost time. Either form of delay could result in failure to meet deadlines established under Power Purchase Agreements or Investment Tax Credit arrangements, which in turn could produce penalties and additional losses.

Minor delays over a single month would not necessarily lead to timeline disruption, so long as the final deadline is met. Full details regarding the cost of delays are available in the Socioeconomic Report (Exhibit E), filed under seal with this Application.

## **(E) Economic Impact of the Project**

Solar energy development generates both direct and indirect impacts to local, regional, and state economies. The economic benefits expected from this Project are discussed below, citing information from the Socioeconomic Report (Exhibit E), filed under seal.

Local economic gains are expected to result in part from lease and easement payments made to landowners, which will supplement those landowners' regular income. Over a 30-year period, total lease and easement payments are anticipated to equal approximately <BEGIN CONFIDENTIAL

**INFORMATION** [REDACTED] **<END CONFIDENTIAL INFORMATION>**. This revenue will in turn benefit surrounding communities, as a portion of the money will be spent locally.

Direct benefits include contractors on construction payroll and permanent employees hired for completed Facility operations. A portion of this income will be spent locally, generating a regional economic influx.

The Socioeconomic Report (Exhibit E, filed under seal) details the impacts, indicators, and PV Job and Economic Development Impact (JEDI) model (Version ID: PV12.23.16) used to approximate the effects that Project construction and operations will have on local economies.

Some stakeholders have questioned whether there will be an impact to property values as a result of the Project. To study these concerns specific to the Project, the Applicant contracted to have a Property Value Impact Study prepared (Exhibit D). Based on studying similar utility-scale solar energy projects operating in surrounding states, there is no measurable and consistent difference in property values for properties adjacent to solar energy projects when compared to similar properties locationally removed from their influence.

### (1) Construction and Operation Payroll

The Socioeconomic Report (Exhibit E), filed under seal, details the inputs and calculations used to estimate annual payroll amounts for Project construction and operations. A summary of these calculations is provided below in Table 06-1.

**Table 06-1. Local Economic Impacts**

Period	Jobs (FTE)	Earnings (Millions)	Output (Millions)
<b>Construction</b>			
Project Development and Onsite Labor and Services	371	\$28.6	\$29.3
Module & Supply Chain (i.e., Indirect) Impacts	104	\$5.5	\$16.6
Induced Impacts	89	\$4.7	\$14.1
<b>Total Construction Impacts</b>	<b>564</b>	<b>\$38.8</b>	<b>\$60.1</b>
<b>Annual Operation</b>			
Onsite Labor Impacts	11	\$0.8	\$0.8
Local Revenue & Supply Chain Impacts	3	\$0.2	\$0.6
Induced Impacts	4	\$0.2	\$0.7
<b>Total Annual Operation Impacts</b>	<b>18</b>	<b>\$1.2</b>	<b>\$2.1</b>

Notes: Earnings and output values are shown in millions of dollars in 2021 dollars. Construction and operating period jobs are full-time equivalent for one year (1 FTE = 2,080 hours). Impact totals and subtotals are independently rounded and therefore may not add up directly to the integers shown in this table.

Source: National Renewable Energy Laboratory JEDI Model (version PV12.23.16) (U.S. Bureau of Labor Statistics 2019)

Based upon JEDI estimates, Project construction will generate the equivalent of 371 full-time positions for on-site construction and Project development personnel, with an average wage of \$22.50 per hour plus an additional 45.6 percent in employer benefits. In addition, indirect impacts to supporting module and supply chain industries are estimated to generate 104 full-time equivalent positions during Project construction. Lastly, Project construction is estimated to induce demand through increased household spending in an amount equal to 89 full-time equivalent jobs. The total impact of 564 new jobs is estimated to result in approximately \$38.8 million of earnings, assuming a 2022 construction start and wage rates that remain consistent with statewide and nationwide averages. The value of economic output associated with construction of the Project is estimated to be approximately \$60.1 million.

Based upon JEDI estimates, labor-related expenses by Applicant for Project operations are estimated to generate a total of 18 full-time equivalent jobs with estimated aggregate annual earnings of approximately \$1.2 million. These include direct hires both from the Applicant and highly connected consulting and contract services.

Wage rates for the operational employees are projected to be \$22.50 per hour plus an additional 45.6 percent in employer benefits; this is consistent with Ohio state averages, which are estimated to be approximately \$22 per hour for installation, maintenance, and repair occupations (National Bureau of Labor Statistics, 2018).

## **(2) Construction and Operation Employment**

Table 06-1 outlines the number of jobs that the construction and operation of this Facility are expected to generate. Much of the construction will require general skilled labor. Some specialized workers, such as electricians and engineers, may be needed for installing Project components. General skilled labor is expected to be hired primarily from within the state of Ohio, though specialists may need to be hired from out of state.

This hiring range could lead to economic benefits at the local and state levels. A minimum of 80 percent of labor would come from within the state of Ohio, generating long-term benefits to communities, businesses, and individuals.

## **(3) Local Tax Revenues**

Solar energy projects in Ohio may be exempted from tangible personal property and real property tax payments if certain criteria are met. These criteria are described in Section 5727.75 of the Ohio Revised Code (ORC). In place of traditional tax payments, operators of any qualifying

project, known as qualified energy projects (QEP), are instead required to make annual Payments-in-lieu-of-Taxes (PILOT).

If on or before December 31, 2024, an applicant submits an application to the OPSB, and construction of the Project begins on or after January 1, 2009, and before January 1, 2025, the QEP will be exempt from taxation for the tax year the QEP is placed into commercial operation and all ensuing years. The amount of PILOT to be paid annually to the County treasurer is equal to \$7,000/MW<sub>ac</sub> of nameplate generating capacity. County commissioners may require an additional service payment if the total of the additional payment and the PILOT do not exceed \$9,000/ MW<sub>ac</sub>.

The Applicant submitted a QEP Application for Certification to the Director of the Development Services Agency of Ohio (Ohio DSA) on November 2, 2020. On February 10, 2021, the Highland County Commissioners unanimously adopted Resolution No. 21-43 approving the Project's Application for Certification conditioned upon the Applicant's annual PILOT payments. On February 24, 2021, the Ohio DSA certified that the proposed 200 MW Palomino Solar Energy Project in Highland County is a Qualified Energy Project. Annual payments of \$9,000/MW and a 200 MW Facility result in annual payments of approximately \$1.8 million for the 30-year operational life of the Facility.

#### **(4) Economic Impact on Local Commercial and Industrial Activities**

The Socioeconomic Report (Exhibit E), filed under seal, states that the economic output from Project construction will be approximately \$60.1 million. This estimate of output is used as a guideline for the financial gains inuring to the benefit of manufacturers, retailers, and service providers affiliated with the Project's construction. These gains are expected to favorably impact various economic sectors within Ohio. Job production and increased earnings will positively affect economic output through goods and services, creating a highly beneficial outcome for local economies.

#### **(F) Public Responsibility**

Changes to the Project layout may occur, but would not alter the Project Area, otherwise affect property owners, or create additional impacts to adjacent property owners.

#### **(1) Public Interaction**

Palomino Solar has communicated with local government officials, interacted with landowners and adjacent landowners, and held public informational meetings in March and June 2021.

Palomino Solar intends to continue to communicate and provide information regarding the Project and solar power generation to the community and local officials throughout the Application process. Preconstruction and pre-operation notices will be issued at least one week prior to the construction or operation commencing. Forms of these notifications are found in the appendices to Exhibit F.

The public are able to contact Palomino Solar with questions and complaints regarding the Project through various methods, including by email at [palomino@innergex.com](mailto:palomino@innergex.com), by submitting the Complaint Resolution Form (Appendix G to Exhibit F), through the Project website (<https://www.innergex.com/palomino-solar-project/>), by phone, or in person. Palomino Solar staff will follow up on complaints. All Question/Complaint/Concern Resolution Forms will be submitted to the OPSB quarterly and will remain on file to be available upon request onsite.

## **(2) Liability Insurance**

Palomino Solar will maintain an insurance policy which will cover \$21,000,000 in total, per occurrence and in aggregate. The structure will be in the form of a primary policy with limits of \$1,000,000 and an Umbrella Coverage policy sitting on top to complement the full \$21,000,000 limit. Insurance policies will be maintained throughout construction, operation, and decommissioning.

## **(3) Roads and Bridges**

The Transportation Effect and Route Evaluation Study was prepared by Fisher Associates and is attached to the Application (Exhibit B). The Transportation Effect Study highlights strategies to limit traffic issues associated with the Project. The Route Evaluation Study evaluates delivery and transportation routes, potential impacts to roadways, and possible necessary mitigation measures and potential permits required due to potential impacts.

### **(a) Construction/Delivery Vehicles**

Due to the low volume of existing traffic on the majority of highways and roads surrounding the Project Area, significant impacts to traffic during construction are not anticipated. During construction, hauling trucks, fixed bed trucks or semi-trailers, dump trucks, pickup trucks, and automobiles will all travel to the Project Area. While primarily vehicles of legal weight and size will make up construction traffic, some oversize or wide-load vehicle transportation may be required for materials at the Project. Traffic is anticipated to occur during daylight hours, with Project traffic not anticipated after 7 pm. More information about deliveries is available in the Transportation Effect and Route Evaluation Study in Exhibit B.



**(b) Delivery Route**

Delivery routes are subject to change, but Project components will likely be delivered to the Project Area by truck via U.S. Route 50 or SR 124. More information about deliveries is available in the Transportation Effect and Route Evaluation Study in Exhibit B.

**(c) Impacts and Mitigation**

Fisher Associates conducted an analysis for the Transportation Effect and Route Evaluation Study in Exhibit B. According to the Route Evaluation Study, the majority of transport roads do not appear to exhibit any underlying issues, other than normal aging and surface wear that may require routine maintenance. The exceptions to this would be Bald Knob Road, due to road deterioration, and Anderson Road, for culvert issues. Fisher Associates also recommends the avoidance of Collins Lane due to its width and residential/local traffic. Preconstruction road maintenance activities will be coordinated with Highland County and townships during the preconstruction period. No significant structural improvements are anticipated. Should the conditions of the routes change, mitigation techniques are described in the Transportation Effect and Route Evaluation Study (Exhibit B).

In conjunction with any anticipated County and township roadway use, repair and maintenance agreements, mitigation measures to address maintenance, and defined haul routes will be established and agreed upon with the County and townships. Final engineering design will be submitted prior to construction activities to ensure all transportation-related impacts have been addressed to the satisfaction of the County and townships. Isolated high-traffic areas have been identified around the proposed access locations, and extra caution should also be exercised at all SR intersections due to their increased traffic volumes and higher posted speed limits.

**(4) Transportation Permits**

Palomino Solar will obtain the necessary permits from ODOT and County officials to transport equipment prior to construction. While primarily vehicles of legal weight and size will make up construction traffic, some oversize or wide-load vehicle transportation may be required for materials at the Project, in which case Special Hauling Permits will be obtained from ODOT.

In addition to the required transportation permits, Palomino Solar will coordinate with authorities to ensure proper traffic control during the construction phase. More information regarding transportation permits can be found in Exhibit B.

**(5) Decommissioning**

Utility-scale solar energy facilities typically have a life expectancy of approximately 30 years. If panels or ancillary equipment were to fail before the useful lifetime of the Facility, they would be replaced with operational components. However, if not upgraded, or if large solar arrays are non-operational for an extended period of time such that there is no expectation of their returning to operation, they will be decommissioned. The Applicant's plan for decommissioning consists of two primary components: removal of Project components/improvements and financial assurance. Each of these is described in additional detail below as well as in the Decommissioning Plan (Exhibit G).

**(a) Removal of Facility Improvements**

At the end of the Project life, the Applicant will dismantle and remove Project components and aboveground property owned or installed by the Applicant, as detailed in the Decommissioning Plan (Exhibit G). At the time of decommissioning, panels may be reused, recycled, or disposed of in an approved landfill. PV panel recycling is increasingly available. Belowground structures, such as buried collection lines, will be removed to a minimum depth of 42 inches. Any underground infrastructure installed to a greater depth may remain in place, unless otherwise specified in landowner agreements. The Applicant will re-grade disturbed areas, restoring slopes and contours to their pre-decommissioning grade, as necessary, to the extent practical and in coordination with landowners. Upon request of the landowner, the Applicant may consider allowing roads, foundations, buildings, structures, or other improvements to remain in place. The Applicant will not be obligated to leave any components or improvements and will only consider such action so long as it does not violate any permits or legal requirements.

**(b) Financial Assurance**

The Applicant, through this Application, is committing to providing financial assurances for Project decommissioning and reclamation to the State of Ohio. Prior to the start of construction, upon final engineering, the Applicant will retain an independent and registered professional engineer to calculate the Project-specific decommissioning costs for the Project and update the Decommissioning Plan (Exhibit G). Cost estimates will be recalculated every five years over the life of the Project. This calculation will include the total cost estimate for implementing the Decommissioning Plan, accounting for any unanticipated contingencies of the Project components. Cost estimate will not include salvage value. The Applicant will post and maintain a performance bond or similar financial assurance instrument in a form agreed to by the OPSB in

an amount necessary for the decommissioning of the Project. If a subsequent calculation of the decommissioning cost increases or decreases, the financial assurance instrument will be adjusted accordingly.

The Decommissioning Plan (Exhibit G) will be updated with Project-specific decommissioning costs upon final design after the Certificate is issued. The updated plan and required financial assurance will be provided to the OPSB prior to construction.

**4906-4-07. COMPLIANCE WITH AIR, WATER, SOLID WASTE, AND AVIATION REGULATIONS****(A) Purpose**

Information regarding compliance with existing air, water, solid waste, and aviation regulations, including current site conditions, can be found in the following sections.

**(B) Air<sup>3</sup>****(1) Preconstruction**

In accordance with the Clean Air Act, the United States EPA developed the National Ambient Air Quality Standards (NAAQS). The NAAQS were set to regulate air pollutants that are deemed harmful to public health and the environment. Maximum allowed concentrations and safety margins were established for six principal pollutants, referred to as “criteria” pollutants: ozone, particulate matter (PM), carbon monoxide, nitrogen oxide (NO), sulfur dioxide (SO<sub>2</sub>), and lead.

Based on daily measurements of regional air quality, areas that fall below the NAAQS threshold are designated as attainment areas. Regions that exceed the NAAQS are deemed nonattainment areas. When a nonattainment area improves in air quality and meets the NAAQS, it becomes a maintenance area.

The proposed Project Area is located within Highland County. Highland County is in attainment for all criteria pollutants (EPA 2021). The Project does not require air permits prior to construction. Therefore, those data requirements of OAC 4906-4-07(B)(1) are not applicable to the Project.

**(2) Plans to Control Air Quality During Site Clearing and Construction**

Air quality impacts from construction would occur during daylight hours over the approximately 12-14-month construction period. Construction teams will be on-site using equipment and machinery, which may include bulldozers, backhoes, flatbed semi-trucks, forklifts, tractors, bobcats, augers, pile drivers, and concrete trucks. If construction falls behind schedule or a critical deadline requires extra time, then the use of this machinery may extend beyond daylight hours.

The construction of the Project will produce air pollutants. Emissions will predominantly come from construction and personnel vehicles, operating equipment, and supply deliveries. Vehicles

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<sup>3</sup> OAC 4906-4-07(B) requires certain information related to stack emissions, generator air pollution control equipment, installation of air pollution point sources and related monitoring plans or stations, and contingency plans in the event of air pollution control equipment failure. As the Facility will be a non-emitting generation resource, these requirements are not applicable to the Facility.

and equipment with internal combustion engines produce PM, NO, carbon dioxide, SO<sub>2</sub>, and volatile organic compounds. The anticipated emissions generated by construction are expected to be minor due to the scale and duration of constructions. Estimating the precise quantity of emissions produced by heavy machinery requires factoring in engine horsepower, machine age, task duration, soil type (for ground-breaking equipment), and other variables tied to efficiency. Proper maintenance of construction machinery and vehicles will aid in minimizing construction-related emissions.

In addition to criteria pollutants, construction activities generate dust and other suspended particulates (temporary fugitive air pollutant emissions). Unpaved roads, parking lots, and exposed soil at the construction site are sources of fugitive dust. Best management practices (BMPs) will be implemented on-site, requiring measures such as covering loads and applying water for dust suppression. Water for dust suppression will be obtained from local municipal sources. Disturbed areas will be minimized and restored in accordance with OEPA Permit No. OHC000005. Any complaints regarding the generation of dust will be resolved through the Applicant's Public Information and Complaint Resolution process. Dispersal of air pollutants across the Project Area and off-site will be influenced by the type and intensity of construction activity, extent of control measures, and natural factors such as wind and precipitation. With the use of appropriate BMPs, ambient air quality standards would not be exceeded and construction activities would result in temporary, negligible impacts to air quality.

### **(3) Plans to Control Air Quality during Facility Operation**

Any emissions from the operation of the Project would be generated by worker vehicles and maintenance equipment. Operating PV panels do not produce any emissions, including criteria pollutants, volatile organic compounds, or hazardous air pollutants, during energy production. Therefore, Project operations would generate negligible levels of air pollutants. The Project will yield an overall benefit to air quality at both local and regional levels by reducing the use of non-renewable energy and offering an alternative, minimal to zero-emission electricity source.

The Project does not require an air quality permit. OAC 4906-4-07(B)(3) exempts wind energy projects from this requirement. As the Project is also a renewable energy project, it will not produce any air pollution; it is similar in operation to a wind energy project in that respect. Therefore, this requirement does not apply to the proposed Project.

**(C) Water****(1) Preconstruction**

Field surveys noted the presence of wetlands, ponds, and creeks/streams within the proposed Project Area. These waterbodies could be impacted by erosion and sedimentation generated by ground-disturbing construction activities. Many waterbodies have been channelized into ditches and degraded by the widespread agricultural land use throughout the region. Freshwater emergent wetlands, freshwater forested/shrub wetlands, ponds, and riverine systems are common throughout all regions of the Project Area.

**(a) List of Required Permits to Install and Operate the Facility**

Prior to the start of construction, the Applicant will obtain the following permits:

- The Ohio NPDES Construction Storm Water General Permit, OEPA Permit No. OHC000005;
- A Nationwide Permit under Section 404 of the Clean Water Act (if necessary, as determined after final engineering);
- A Water Quality Certification from the OEPA (if necessary, as determined after final engineering); and
- An Ohio Isolated Wetland Permit (if necessary, as determined after final engineering).

**(b) Water Quality Map**

The Project is not expected to generate significant adverse impacts to groundwater or surface water. Design of the Project will only require small, dispersed areas of impervious surfaces in the form of access roads, gravel pads, the O&M building, and the substation, resulting in no or negligible impacts to surface waters from runoff. The completed PV panels will not include a runoff collection system, allowing rain to filter through vegetated soils and back into the groundwater table. As such, significant negative impacts to waterbodies are not anticipated and this section is not applicable to the proposed Project.

**(c) Description of Water Monitoring and Gauging Stations**

Since the proposed Project is not expected to significantly impact waterbodies within the Project Area, as discussed above in section 4906-4-07(C)(1)(b) of this Application, this section does not apply to this Project.

**(d) Existing Water Quality of Receiving Stream**

The Project is not anticipated to introduce waste or water discharge into waterbodies within the Project Area. Prior to construction, the Project will develop a Frac Out Contingency Plan to address any potential inadvertent releases during horizontal directional drilling (HDD) activities. Construction and ongoing Project maintenance may generate sediment and pollution runoff, which will be mitigated through adherence to BMPs and permit requirements. Therefore, no receiving streams are anticipated to be impacted as a result of this Project. This section does not apply.

**(e) Permit Application Data**

As no discharge water will be produced by the Project, this section does not apply.

**(2) Construction****(a) Water Quality Map**

As discussed in section 4906-4-07(C)(1)(b) of this Application, Project construction and operations are not expected to yield significant detrimental impacts to waterbodies within the Project Area.

**(b) Quantity/Quality of Construction Runoff**

The Project is not expected to generate significant adverse impacts to groundwater. Any impacts would be minimal in both effect and scope. Hazardous materials, including but not limited to fuel, lubricants, hydraulic fluids, herbicides, and fertilizers, will be limited to essential use only, be properly stored, and proper techniques will be followed to prevent spills. Existing roads will be used where possible, but access roads will be constructed to allow access throughout the Project. Construction of these roads will result in compaction and the creation of impermeable surfaces, which prevent the percolation of rainwater into the water table. Additional compaction may result during construction, reducing the aeration of the soil structure and inhibiting water movement from the surface into the groundwater table.

**(c) Mitigation**

In order to protect all surface waters within the proposed Project Area, construction and operational activities will comply with the NPDES requirements of the Clean Water Act. Palomino Solar will also apply for OEPA Permit No. OHC000005, also referred to as the General Permit Authorization for Storm Water Discharges Associated with Construction Activity. In addition, a Stormwater Pollution Prevention Plan (SWPPP) will be designed and implemented by a qualified

engineer as part of the final Project layout. The SWPPP will identify sources of pollution generated by construction that may impact water quality. If applicable, any impacts to jurisdictional waters will be covered under a Nationwide Permit through the U.S. Army Corps of Engineers (USACE), which would be obtained prior to Project construction. The full list of permits to be acquired is listed above in section 4906-4-07(C)(1)(a) of this Application.

Section 4906-4-08(B)(2)(b) of this Application details the measures planned to mitigate impacts by this Project on wetlands and surface waters.

**(d) Changes in Flow Patterns and Erosion**

Changes to flow patterns and erosion are not anticipated, as the limited impacts discussed in section 4906-4-07(C)(2)(b) of this Application and the mitigation measures discussed in section 4906-4-07(C)(2)(c) do not indicate adverse changes to flow.

**(e) Equipment for Control of Effluents**

As the Project will not discharge any effluents into streams, ponds, or wetlands, this section does not apply.

**(3) Operation**

**(a) Water Quality Map**

Section 4906-4-07(C)(1)(b) of this Application details water quality within the Project Area and discusses potential impacts from the proposed Project. No significant detrimental impacts are anticipated. As such, this section does not apply.

**(b) Water Pollution Control Equipment and Treatment Processes**

Due to the limited anticipated impacts to wetlands, surface water, and groundwater, no special processes for water treatment or equipment for pollution control are required. The following section details measures planned to mitigate stormwater discharges.

Though access roads will be part of the final Project design, only a small percentage of the total Project Area will be converted to impermeable surfaces. The completed PV panels will be mounted on elevated tracking structures, thereby providing space between their impervious surface and the ground. Precipitation that falls onto the PV panels will run directly onto the ground below and filter through vegetated soils into the groundwater table. Other dispersed areas of impervious surfaces that will generate impacts include gravel pads, the O&M building, the substation, and the previously mentioned access roads. Anticipated BMPs for impervious



surfaces are being incorporated into the Project plans. These include bordering access roads with ditches and swales.

Calculations to measure stormwater runoff will be analyzed both before and after Project construction. If stormwater runoff levels require additional management under regulatory guidance, then BMPs will be instated in order to satisfy the requirements of OEPA Permit No. OHC000005. Before submitting the final layout, these calculations will be re-evaluated to confirm that they are in compliance with the OEPA requirements.

Section 4906-4-03(B)(2)(b) of this Application noted that oil may be used in the Project substation to insulate and regulate the temperature of transformers. The anticipated storage arrangement will include an aboveground tank within the substation footprint. The storage tank for the Project is anticipated to exceed 1,320 gallons, and the Project anticipates preparing a SPCC Plan prior to tank installation in compliance with federal regulations (40 Code of Federal Regulations Part 112). In addition to meeting storage requirements, disposal of this oil will also adhere to local, state, and federal regulations.

**(c) NPDES Permit Schedule**

The requirements of the Ohio NPDES construction stormwater permit are anticipated to be fully complied with. This will include providing the fees and Notice of Intent (NOI) with at least 21 days remaining before the end of construction.

**(d) Quantitative Flow Diagram**

The information provided by a flow diagram is not applicable to the proposed Project. The following sections will elaborate.

**(i) Sewage**

A septic system in the O&M building will be designed at the capacity to serve all employees of the operational Project. Before this system is installed, the Applicant will acquire the necessary local, state, and federal permits, including the OEPA wastewater permit-to-install. This system will handle all sewage produced at this Project.

**(ii) Blow-down**

The equipment for this Project, primarily comprising PV panels, is not categorized as blow-down equipment. As such, this section does not apply to this Project.

**(iii) Chemical and Additive Processing**

The processing of chemicals or chemical additives will not take place as part of the Project. As such, this section does not apply to this Project.

**(iv) Wastewater Processing**

Wastewater will not be processed or generated as part of the construction or operation of the Project. As such, this section does not apply to this Project.

**(v) Run-off and Leachates**

Leachates will not be generated by the Project. There is insignificant risk of run-off and leachates that may arise during the final disposal of panels after decommissioning. Panels will not be disposed of onsite, mitigating this risk. Panels that are damaged during the operating life of the Project will be replaced. Panels will be recycled and disposed of at appropriate facilities in accordance with the Decommissioning Plan (Exhibit G). As such, this section does not apply to this Project.

**(vi) Oil/water Separators**

Oil/water separators will not be used for the Project. As such, this section does not apply to this Project.

**(vii) Run-off from Soil and Other Surfaces**

Ground disturbance is anticipated as a result of construction activities. Once construction has commenced, disturbed ground will be restored through stabilization and revegetation. Standard operations of the completed Project are not expected to generate significant soil disturbance. As such, this section does not apply to this Project.

**(e) Water Conservation Practices**

PV panels are a non-water-intensive means of generating electricity. The main source of water use will be the O&M building, and it is not expected to exceed the levels used by other small businesses. Additional water use for cleaning PV panels is not anticipated.

**(D) Solid Waste****(1) Preconstruction****(a) Nature and Amount of Solid Waste**

One pre-existing structure will be removed in order to install PV panels (Figure 04-1.2-2). This removal is at the landowner's request. Currently, there are no other structures, large debris, or

solid waste that will require removal before installing PV panels. If waste removal will be required, disposal will proceed as described below.

### **(b) Plans for Waste Removal**

Local, state, and federal regulations will be adhered to for all waste disposal. Materials will be recycled as appropriate. Non-recyclable waste will be disposed of at a licensed landfill.

## **(2) Construction**

### **(a) Nature and Amounts of Construction Waste**

Project construction will produce solid waste. This is expected to include plastic, wood, cardboard, metal, and general garbage.

### **(b) Methods for Storage and Disposal of Construction Waste**

Local, state, and federal regulations will be followed in the disposal of construction waste, including hazardous wastes such as oil, antifreeze, and other chemicals. A contractor will be employed to provide dumpsters and, when the dumpsters are full, have them removed to a licensed facility for emptying. While on-site, these dumpsters will be kept in the laydown yards.

## **(3) Operation**

### **(a) Nature and Amounts of Waste**

Standard Facility operations are not expected to produce higher levels of waste than other small business offices. The main source of waste will be the O&M building, which may generate wood, cardboard, metal packaging, other packaging materials, and general garbage.

### **(b) Methods for Storage and Disposal of Waste**

Similarly, to the storage and disposal of waste generated during construction, waste generated by O&M facilities will be disposed of in adherence to local, state, and federal regulations. This may include hazardous wastes such as oil, antifreeze, and other chemicals. Local recycling and garbage disposal services will be utilized.

## **(4) Licenses and Permits**

Disposal licenses or permits for the generation, storage, treatment, or transportation of waste will not be required for the standard operations of the Project.

**(E) Aviation****(1) Aviation Facilities List and Map**

The Bell Air Ranch Heliport is located approximately two miles south of (and not adjacent to) the Project Area. It is a private use heliport that consists of a grass field adjacent to farm buildings (Figure 03-1.2). No airports or landing strips are within five miles of the Project Area.

**(2) FAA Filing Status and Potential Conflicts**

Based on the results of the Glint and Glare Analysis (Exhibit L), there is no predicted glint or glare impact to nearby airports. Given the distance to the airports (Wilmington Air Park: 9.5 miles, Highland County Airport: 9.7 miles), FAA review is not required for a project without predicted glare impacts. No filings are required for nearby FAA regulated facilities.

**4906-4-08. HEALTH AND SAFETY, LAND USE, AND ECOLOGICAL INFORMATION****(A) Health and Safety****(1) Equipment Safety and Reliability****(a) Major Public Safety Equipment**

Palomino Solar will limit access to the Project during construction to protect the safety of the public. Public entrance to construction areas will be discouraged to protect the public using signage that warns of potential construction areas. The Transportation Effect and Route Evaluation Study (Exhibit B) addresses safety measures to be implemented near public roads, such as the use of high-visibility garments or warning vests for personnel exposed to public vehicular traffic. The Lighting Plan included with the Landscape Plan (Exhibit J) identifies the lighting necessary for safe equipment operation, security, and safety in active work areas.

During operations, perimeter fencing, signage, and controlled gate access will be used as safety features for the Project. Per the Lighting Plan, motion-activated lights will be installed at inverters, the O&M building, and entrances. Electronic security systems and remote monitoring will also be utilized. The Question/Complaint/Concern Resolution Form and contact information will be available to address safety concerns or complaints regarding the Project, per the Public Information and Comment & Complaint Resolution Plan (Exhibit F).

**(b) Equipment Reliability**

The Applicant will select certified equipment for all components of the Project. These components include but are not limited to inverters, PV modules, racking systems, wiring, and transformers. All equipment will follow industry codes (e.g., American National Standards Institute [ANSI], Institute of Electrical and Electronics Engineers [IEEE], NEC, NESC).

**(c) Generation Equipment Manufacturer's Safety Standards and Setbacks**

Specifications for representative modules, inverters, and trackers for the Project are provided in Exhibit A of this Application. Generation equipment manufacturers' safety standards will be provided after the PV solar module technology for the Project has been selected by the Applicant. All Project equipment will be compliant with applicable ANSI, IEEE, NEC, and NESC codes and regulations and best engineering practices. All safety and setback requirements outlined in the manufacturer product manuals and specifications for the equipment selected for the Project will be incorporated into the final design. Internal setbacks, defined by the Applicant, are discussed in section 4906-4-04(B)(2) of this Application.

**(d) Measures to Restrict Public Access**

A chain-link fence with barbed wire affixed on top or other fence meeting the requirements of the NEC will be utilized around panel arrays and associated infrastructure throughout the Project Area to restrict public access. Security of the Project will be maintained, during operation, by security fencing, electronic security systems, remote monitoring, and controlled access gates. “No Trespassing” and “High Voltage” signage will be utilized around the fence perimeter to warn the public of hazards. Consistent with the Lighting Plan included with the Landscape Plan (Exhibit J), motion-activated lights will be used at entrances, the O&M building, and inverters for safety and security.

**(e) Fire Protection, Safety, and Medical Emergency Plans**

Prior to construction, a site-specific environmental health and safety plan (HASP) will be developed. The HASP will identify measures to reduce the potential occurrence of an emergency. The HASP will include an emergency action plan (EAP) that highlights the actions to be taken in case of medical emergencies, fires, or spills. A map denoting the location of safety points, office locations, first aid kits, and spill kits will be available on-site for contractor and subcontractor review per the HASP. Fire extinguishers, spill kits, and first aid will be available in fleet vehicles and construction vehicles in case of fire or spills during operation and construction. All personnel on-site will undergo a safety training program that may include, but is not limited to, site orientation, first aid/CPR/AED training, qualified electrical worker (NFPA [National Fire Protection Association] 70E) training, and equipment-specific training. An operation-specific HASP that includes an EAP will be developed for the Project, and the Applicant will communicate with emergency responders regarding the EAP throughout the time of operations at the Project.

**(2) Probable Impacts due to Failures of Pollution Control Equipment**

This section is not applicable. Solar PV arrays do not combust fuel nor release pollutants into the atmosphere during operations.

**(3) Noise**

A field survey of the existing ambient sound levels within the Project Area was carried out in April 2021 to quantify the baseline environmental conditions. Four monitoring stations spread out over the seven-mile length of the Project Area recorded continuously day and night for seven days. Despite the fact that different types of settings were represented, such as open fields, wooded areas, areas close to roads, areas far from roads, etc., the sound levels were very similar at all positions, indicating that the average measured level at any given time is reasonably

representative of the entire Project Area. Omitting the one stormy period towards the end of the survey, the average (Leq) daytime and nighttime levels were 38 and 30 A-weighted decibels (dBA), respectively. By OPSB precedent, where the sound increase due to a new project is limited to five dBA, these background levels led to design targets of 43 dBA day and 35 dBA night at all potentially sensitive receptors. The loudest feature is the substation. Modeled daytime sound levels at the nearest homes to the substation were calculated to be 41 dBA. Modeled nighttime sound levels at the nearest homes to the substation were calculated to be 25 dBA. The Existing Conditions Background Sound Survey and Noise Impact Assessment is included as Exhibit H.

**(a) Construction Noise Levels at the Nearest Property Boundary**

In general, it is very difficult to quantify or evaluate construction noise in a meaningful way because the noise itself is highly variable with time as individual pieces of equipment start and stop, move forward and backward and, in this case, operate in different parts of the Project Area, which extends approximately seven miles from northeast to southwest. Nevertheless, Table 08-1 provides representative sound levels from construction equipment associated with the different phases of construction relevant to the Project. The table includes a range of typical equipment expected for construction of the Project but does not include specialized equipment which may be used for short periods of time in isolated locations, such as HDD equipment. The Applicant anticipates that the sound levels associated with the HDD equipment will be within the range of sound levels provided in Table 08-1. Figures are given at the standard test distances of 50 feet, 500 feet, and 2,000 feet. The 500-foot distance very generally represents the nearest approach of any construction activity to neighboring homes and quantifies the highest sound level that might occur from construction near the edges of the Project Area. The 2,000-foot distance gives the sound levels that are more representative of what might be heard in the less densely populated areas of the Project Area.

In comparison to those during the construction of other types of power generation facilities, sound emissions during the construction of solar energy projects are expected to be dramatically lower in magnitude and duration. Some unavoidable disturbance is likely when the mounting posts are driven in, but this activity will be fairly short-lived in any particular location. Other sounds from trenching and road building will also be brief in duration and will progress from place to place, avoiding prolonged exposure at any specific location.

**Table 08-1. Typical Sound Levels from Various Types of Construction Equipment**

Equipment	Typ. Sound Level at 50 ft dBA	Est. Maximum Sound Level at 50 ft dBA	Est. Maximum Sound Level at 500 ft dBA	Est. Maximum Sound Level at 2000 ft dBA
<b>Earthmoving</b>				
<b>Road, Substation Construction, Trenching</b>				
<b>Dozer</b>	85	85	63	47
<b>Front End Loader</b>	80	85	63	47
<b>Grader</b>	85	85	63	47
<b>Backhoe</b>	80	85	63	47
<b>Pile Driving</b>				
<b>Vermeer PD10 Pile Driver</b>	84	84	62	46
<b>Truck Traffic</b>				
<b>Flatbed Truck</b>	84	84	62	46

**(b) Operational Noise Levels at the Nearest Property Boundary****(i) Operational Noise from Generation Equipment**

The maximum expected daytime sound level due to Project operation at any residence in the general Project Area is about 38 dBA, but in nearly all other cases the modeled sound level is substantially lower, at about 30 dBA or less. These sound levels are generally lower than the existing ambient sound level, suggesting that any sound emissions from the Project inverters are likely to be inaudible. Near the substation, a Project sound level of about 40 dBA is calculated at the two nearest residences. This is nine dBA below the ambient + five dBA daytime design goal of 49 dBA and is a sound level that essentially represents the point where the sound from any project becomes so low that it goes unnoticed, even in areas with extremely low background levels.

Results from sound modeling at each receptor are included in the Existing Conditions Background Sound Survey and Noise Impact Assessment (Exhibit H).

The Project does not include processing equipment. Therefore, the requirement under OAC 4906-4-08(A)(3)(b)(ii) is not applicable to the Project.

**(ii) Associated Road Traffic**

Due to the rural location of the Project, road traffic is minimal. Information about noise produced from construction equipment/vehicles is provided in Table 08-1 above.



### **(c) Location of Noise-Sensitive Areas within One Mile of the Facility**

Residences within the vicinity of the Project Area are mapped with sound level data in Exhibit H, Figure A, and structures that may be sensitive to sound are mapped within one mile of the Project Area in Exhibit H, Figure A.

### **(d) Mitigation of Noise Emissions during Construction and Operation**

Construction and operation will take place during daylight hours. In general, the potential noise impacts from all aspects of the Project are expected to be minimal.

### **(e) Preconstruction Background Noise Study**

The overall average sound levels during the day and night are tabulated below along with the design goal standard for power generation facilities (Leq [NS:A-weighted] plus 5 dBA) that has been established by precedent on numerous previous projects by the OPSB (Table 08-2).

**Table 08-2. Average Ambient Sound Levels and Project Design Goals**

	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
<b>Average Survey Level, Leq, NS</b>	38	30
<b>Nominal Design Standard (Leq/NS + 5 dBA)</b>	43	35
Note: Leq: Measured Average, NS: A-weighted noise sensitive.		

## **(4) Water Impacts**

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

Figure 08-1 displays wells in the vicinity of the Project Area. Groundwater well details are included in the Ecological Assessment (Exhibit P). No Source Water Protection Areas (SWPAs) are located in the Project Area or within the immediate watershed of the Project Area. The O&M building may require a well for water supply or a septic system for waste, but its water requirements will be similar to those of existing local residences. Shallow excavation required for the Project (i.e., 3-4-foot-deep trenches for buried underground cables) and pile driving depths of up to 20 feet below grade are not expected to impact any public or private wells or associated water supplies.

Palomino Solar will coordinate directly with participating landowners as well as use databases to locate specific wells and identify avoidance and mitigation measures. There are zoning ordinance

setbacks that prevent the Project from being built in the immediate vicinity of residences; there are no anticipated impacts to water wells.

Details on those protection areas for surface water and groundwater are provided below in section 4906-4-08(A)(4)(d) of this Application.

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

Solar PV arrays do not combust fuel or release pollutants into the atmosphere during operations, so this section does not apply.

**(c) Water Resources Map**

Figure 08-1 illustrates there are no OEPA SWPAs in the Project Area.

**(d) Compliance with Local Water Source Protection Plans**

This section is not applicable. No SWPAs were identified in the vicinity of the Project Area by the OEPA. There are no local plans protecting local water resources for the area near the Project. Solar PV modules do not combust fuel or release pollutants into the atmosphere or ground during operations.

**(e) Prospects of Floods in the Area**

No 100-year Federal Emergency Management Agency (FEMA) mapped floodplain areas are located within the Project Area (Figure 08.3-1). The final Project layout will use avoidance and design in order to mitigate any possible hydrologic concerns.

**(5) Geologic Features Map**

Topographic contours, oil and gas wells, bedrock formations, and the Project Area are included in Figure 08-2 of this Application. Additional details regarding geologic features are included in the Preliminary Geotechnical Engineering Report (Exhibit I) and the Ecological Assessment (Exhibit P).

**(a) Suitability of Site Geology Existing Conditions**

The Project Area is located in a region of glaciated till plains and ridges (Preliminary Geotechnical Engineering Report, Exhibit I). Relief across the site is minimal and ranges from 1050 feet Above Mean Sea Level (AMSL) to 1150 feet AMSL. Depth to ground water is 2.5 feet to 15 feet below grade.

The southeast portion of the Project Area is Ordovician Age bedrock mapped as Drakes and Waynesville Formation. These areas are interbedded shale and limestone. The remaining area is Silurian Age bedrock mapped as Dayton Limestone, Nolan/Brassfield Formations, Estill Shale, and Peebles Dolomite/Lilly/Bisher Formations. The Dayton Limestone and Nolan/Brassfield Formations are dolomitic limestone. The Estill Shale areas are primarily shale with some dolomite as a minor component. The Peebles Dolomite/Lilly/Bisher Formations are interbedded dolomite with minor components of limestone and shale.

## **(b) Soil Suitability**

### **(i) Existing Conditions**

Soils in the Project Area are primarily Westboro-Schaffer silt loams including varying amounts of Westboro (wet till ridge), Schaffer (wet till ridge), Clemont, Jonesboro, and Rossmoyne soil series. The soils are poorly drained and are found on nearly level till plains and summits formed in loess and the underlying Illinoian-age glacial till (Preliminary Geotechnical Engineering Report, Exhibit I). Test borings encountered conditions consistent with the USDA County Soil Survey and typically included up to four inches of disturbed agricultural topsoil.

### **(i) Site Suitability**

The soils in the Project Area are suitable for the development of a solar energy generation project, based on the findings of the Preliminary Geotechnical Engineering Report (Exhibit I). Subsurface soil profiles were lean clay in a cohesive layer over a granular layer of silty or clayey sand. Minimal grading (i.e., less than +/- 2 feet) is expected due to the existing flat topography of the agricultural fields where the PV panels are proposed. The on-site soil material appears to be generally suitable for re-use as fill or back-fill.

Groundwater was observed 2.5 to 15 feet below grade, and groundwater levels increased in elevation at some boring locations. Due to the low permeability of the soils encountered, the possibility of groundwater level fluctuations will be considered when developing the design and construction plans for the Project.

## **(c) Plans for Test Borings**

Geotechnical test borings will be conducted at the final location of the Project substation. Borehole abandonment and filling will comply with state and local regulations. The Preliminary Geotechnical Engineering Report for the Project is included in Exhibit I and includes details of bore locations. The report includes a summary of site properties and recommendations for construction practices based on the geological and soil conditions present in the Project Area.

**(6) Prospects of High Winds in the Area**

The Project engineering design factors in wind speeds, based on building code wind speed maps. The Project will be engineered to withstand typical high-wind occurrences (i.e., 40 mph + sustained wind speeds).

**(7) Blade Shear**

The Facility is not a wind energy project. As such, this section does not apply.

**(8) Ice Throw**

The Facility is not a wind energy project. As such, this section does not apply.

**(9) Shadow Flicker**

The Facility is not a wind energy project. As such, this section does not apply.

**(10) Radio and Television Reception**

PV arrays generate weak electromagnetic fields (EMFs) that dissipate at short distances (i.e., less than 50 feet). Solar panels will be less than 15 feet in height and are not expected to interfere with radio or television broadcast. The Facility is not anticipated to interfere with radio or television reception due to the weakness of the EMFs produced by the Facility and the low height of the panels.

**(11) Radar Interference**

Solar energy facilities generate EMFs that dissipate at short distances. The Facility is not anticipated to interfere with radar communication systems due to the weakness of the EMFs produced by the Facility.

**(12) Navigable Airspace Interference**

The tallest structure of the Project is anticipated to be the lightning rod atop the substation, which will likely stand approximately 40 to 45 feet tall. The Project is not anticipated to interfere with navigable airspace.

See section 4906-4-07(E) of this Application for a discussion of potential aviation impacts from glare, which are not anticipated to occur as a result of the Project.

**(13) Communication Interference**

Microwave communication signals may experience interference when the line-of-sight between two transmitters is obstructed. The tallest structure of the Project is anticipated to be the lightning rod on the Project substation, which will stand at 40 to 45 feet aboveground. Due to the lack of structures that would interfere with line-of-sight, interference with microwave communications from the Project is not anticipated.

**(B) Ecological Impact****(1) Ecological Resources in the Project Area**

In support of this Application, Cardno completed on-site ecological surveys and prepared an Ecological Assessment (Exhibit P).

**(a) Open Spaces and Facility Map**

Figure 08-3.1 to 08-3.5 shows the proposed Project and the ecological features within 0.5 miles of the Project Area, including the following features:

**(i) Proposed Facility and Project Area Boundary**

Figure 08-3.1 to 08-3.5 depicts the Project Area boundary and the proposed Project layout.

**(ii) Undeveloped or Abandoned Land such as Wood Lots or Vacant Tracts of Land Subject to Past or Present Surface Mining Activities**

Undeveloped land in the Project Area is made up of deciduous and mixed forest as well as woody wetlands. Of the approximately 2,900 acres that make up the Project Area, approximately 45 acres are woodlots (Table 08-3). Undeveloped land data was derived from the U.S. Geological Survey National Land Cover Database (NLCD 2021).

**Table 08-3. Existing Land Use within Project Area**

Land Cover Type	Acres	Percentage
Cultivated Crops	2,518	86.61%
Deciduous Forest	164	5.65%
Developed, Low Intensity	29	0.98%
Developed, Medium Intensity	1	0.03%
Developed, Open Space	79	2.71%
Hay/Pasture	70	2.39%
Mixed Forest	45	1.56%
Open Water	<0	0.01%
Woody Wetlands	1	0.04%
<b>Total Acreage</b>	<b>2,907</b>	<b>100%</b>
Source: NLCD 2021		

**(iii) Wildlife Areas, Nature Preserves, and Other Conservation Areas**

Oldaker Wildlife Area is located adjacent to the southeast border of the Project Area. The area has been designated an eBird hotspot, and eBird public avian surveys have identified 45 bird species in Oldaker Wildlife Area (eBird 2021). No threatened or endangered species have been identified. Only one species of concern, the northern bobwhite (*Colinus virginianus*), was identified in the Oldaker Wildlife Area. Wildlife areas and other conservation areas are illustrated in Figure 08-3.

**(iv) Surface Bodies of Water**

Forty-nine wetlands, 85 streams, and seven ponds were identified within the Project Area. Waterbodies are depicted in Figure 08-3. More information regarding surface bodies of water may be found in the Ecological Assessment (Exhibit P).

**(v) Highly Erodible Soils and Steep Slopes**

The Project Area is primarily flat agricultural land that lacks steep slopes and highly erodible soils. Figure A.2-1 to A.2-2 of the Ecological Assessment (Exhibit P) depicts the soil units and their corresponding descriptions. Topographic data illustrating altitude and slopes are depicted in Figures A.2-1, A.2-2, and A.3 of the Ecological Assessment (Exhibit P).

**(b) Field Survey of Vegetative Communities and Surface Waters within 100 Feet of Construction Area**

**(i) Vegetative Communities**

The Ecological Assessment (Exhibit P) analyzed the vegetative communities within the Project Area using aerial photos, NLCD data, and eventually field surveys. The Ecological Assessment states that the primary vegetative communities are agricultural land, disturbed/developed land, and areas of deciduous forest that function as property dividers, windrows, and stream barriers. All the major vegetative communities are common in Ohio. Soybean and corn crops make up the majority of the Project Area. Maps of vegetative communities can be found in Figure A.1 in the Ecological Assessment (Exhibit P).

**(ii) Wetland and Stream Delineations**

Cardno conducted surface water delineations within the Project Area. A Wetland Delineation Report is provided as Appendix D to the Ecological Assessment (Exhibit P).

Forty-nine wetlands, 85 streams, and seven ponds were identified within the Project Area. The total acreage of wetland within the Project Area is approximately 30.8 acres. USACE will make the final determination of the jurisdictional status of wetlands and waters in the Project Area. Based on the Project layout, 0.61 acres of wetlands and 0.47 acres of waters will be temporarily impacted during construction. The permanent impacts total less than 0.01 acres for wetlands and 0.08 acres for waters. Delineated wetlands and streams are mapped in the Wetland Delineation Report, which is attached to the Ecological Assessment (Exhibit P) and contains more information.

**(c) Literature Review of Plant and Animal Life within 0.25 Miles of Project Area**

This section provides the results of a literature survey of the plant and animal life within at least 0.25 miles of the Project Area boundary. The literature survey is divided into two sections: (i) plants and (ii) animals.

**(i) Plants**

The review of plant resources within 0.25 miles of the Project Area boundary focuses on species of commercial or recreational value and species designated as endangered or threatened. This information was compiled through the review and analysis of existing data from the ODNR. Aside from crops, there are no known plant species of commercial or recreational value within 0.25 miles of the Project Area. Consultation with the ODNR identified one federally and state-listed endangered species possibly occurring in the Project Area: running buffalo clover (*Trifolium*

*stoloniferum*). The Project Area does not contain any critical habitat for this species. The presence of running buffalo clover within the Project Area is possible due to the existence of disturbed sites that have shade within the Project Area; however, no running buffalo clover was identified during Cardno's field surveys.

## **(ii) Animals**

More information and a comprehensive table of the state and federally listed species potentially occurring in the Project Area is available in the Ecological Assessment (Exhibit P).

### Federally Listed Species

There is no significant habitat for federally listed bird species in the Project Area. During field surveys, no federally listed bird species, eagle nests, or sensitive raptor nests were observed within the Project Area other than a bald eagle (*Haliaeetus leucocephalus*) nest and occupying eagles that were identified adjacent to the Project Area.

The Applicant has consulted with the ODNR and USFWS regarding the presence of the in-use bald eagle nest adjacent to the Project Area. Specifically, the nest is located approximately 390 feet from the Project Area. The Project fencing and panels will be placed at a distance greater than 390 feet from the nest. At the time of this Application, the ODNR and USFWS have not raised concerns that the construction and operation of the Project would disturb the bald eagles that use this nest, provided construction activities do not occur within 660 feet of the nest during the nesting season of mid-January to August, unless otherwise approved by the USFWS. Given that existing agricultural operations occur annually in this area, the nest occupants appear to tolerate this similar activity. The Applicant will continue to consult with the ODNR and USFWS regarding the final Project design in the vicinity of the identified bald eagle nest and the proximity in which solar panels will be placed. Consistent with USFWS guidance, no Project construction activities will occur within 660 feet of the identified bald eagle nest from mid-January to August.

Consultation with the ODNR and USFWS identified the Indiana bat (*Myotis sodalis*) and the northern long-eared bat (*Myotis septentrionalis*) as having the potential to occur in the Project Area. The type of forest at the Project Area is unlikely to provide permanent, suitable habitat for sensitive bat species such as the Indiana bat and northern long-eared bat. Individuals of these species will likely opt for higher-quality wooded areas. Nevertheless, in adherence to the ODNR and USFWS recommendations, tree clearing will occur from October 1 to March 31.



There were five federally endangered mussel/clam species identified through agency consultation. The Project Area does not contain critical habitat for these species. There are no anticipated impacts to these species.

#### State-Listed Species

The Ohio cave beetle (beetle, *Pseudanophthalmus ohioensis*), loggerhead shrike (bird, *Lanius ludovicianus*), king rail (bird, *Rallus elegans*), blue corporal (dragonfly, *Ladona deplanata*), bigeye shiner (fish, *Notropis boops*), and Indiana bat are state-listed as endangered in Highland County (ODNR 2021c). The threatened species listed for Highland County include the barn owl (bird, *Tyto alba*) and the frost cave isopod (isopod, *Caecidotea rotunda*).

State-listed species of concern for Highland County include Henslow's sparrow (bird, *Ammodramus henslowii*), tiger spiketail (dragonfly, *Cordulegaster erronea*), badger (mammal, *Taxidea taxus*), buck moth (moth, *Hemileuca maia*), and eastern box turtle (reptile, *Terrapene carolina*). State-listed species of special interest for Highland County also include the chuck-will's-widow (bird, *Caprimulgus carolinensis*).

None of these species were observed during Cardno's field surveys, and the Project Area does not include any critical habitat for these species. There are no anticipated impacts to these species.

#### **(d) Results of Field Surveys for Plant and Animal Life Identified in Literature Review**

Results of the agency consultation efforts are detailed in sections 4906-4-08(B)(2)(b) and (3)(b) of this Application and in the Ecological Assessment (Exhibit P).

#### **(e) Summary of Additional Ecological Impact Studies**

All ecological impact studies are discussed above in section 4906-4-08(B)(1)(b) and (d) of this Application. Based on the results of the field surveys and consultation with the ODNR and USFWS, there are no additional required ecological studies.

### **(2) Construction Impacts**

#### **(a) Estimation of Impacts of Construction on Undeveloped Areas, Plants, and Animals**

There will be no impacts to undeveloped conservation areas, such as wildlife areas and nature preserves, because the Project Area is located on leased private land. Proposed impacts from construction will occur largely in tilled agricultural fields (Table 08-4). During construction there may be temporary impacts to ecological resources. Any impacts will be minimized. The Ecological

Assessment (Exhibit P) includes additional information including the acreage of potential impacts, impacts to ecological resources, vegetated areas, and wetland features.

**Table 08-4. Existing Land Use Impacted by Proposed Solar Energy Project**

Land Cover Type	Acres	Percentage
Agricultural	1,880.9	99%
Deciduous Forest	13.8	<1%
Wetlands/Water	<0.1	<1%
<b>Total Acreage</b>	<b>1,894.7</b>	<b>100%</b>
Source: NLDC 2021		

Palomino Solar anticipates minimal impact to delineated wetlands in the Project Area. The Ecological Assessment contains tables detailing the anticipated wetland impacts. Based on the Project layout, 0.61 acres of wetlands and 0.47 acres of waters will be temporarily impacted during construction. The permanent impacts total less than 0.01 acres for wetlands and 0.08 acres for waters. Linear feet of impacts will be less than 100 feet for all waters.

Road crossings of wetlands or waterbodies will include a culvert to maintain hydrologic connections and minimize impacts by crossing features perpendicular to the flow or at a narrow point. Collection lines will be installed belowground and result in limited temporary impacts at wetland and water crossings. Surfaces will be returned to preconstruction conditions after installation. Horizontal directional drilling methods may be used when crossing sensitive features as required by local, state, or federal guidelines.

Any impacts to wetlands and waters will be permitted under applicable state and federal wetlands regulations, and construction will follow permit conditions. BMPs will be used to meet water quality and NDPES standards.

Measures to minimize the clearing of wooded areas are described in the Landscape Plan (Exhibit J).

The Ecological Assessment (Exhibit P) goes into further detail regarding the impacts to wildlife and their habitats; however, there are no anticipated impacts.

**(b) Description of Short-term and Long-term Mitigation Procedures****(i) Site Restoration and Stabilization of Disturbed Soils**

Reclamation objectives are to revegetate in order to stabilize exposed soils and control sedimentation and erosion at the site as well as to ensure that the Project Area can be converted back to its preconstruction use, such as agricultural use.

After construction, disturbed areas will be restored to their preconstruction form. Soil will be decompacted, regraded, and reseeded with a native seed mix. Decompanction will take place in areas where topsoil is displaced, such as in laydown yards. Belowground collection lines will be backfilled with segregated topsoil and subsoil. Throughout construction, topsoil and subsoil segregation will occur, and soil treatment may be required in order to preserve the agricultural capability of the soil after the lifespan of the Project. Stockpiles of removed material and demolition debris will be transported off-site to either a recycling facility or a landfill.

**(ii) Frac Out Contingency Plan**

A frac out contingency plan has been developed to address stream crossings for buried underground cabling. A frac out is when drilling mud is inadvertently released to the surface during horizontal directional drilling. Prior to construction, the Project will develop a Frac Out Contingency Plan to address any potential inadvertent releases which occur during HDD activities. The plan will outline response measures for inadvertent returns, containment methods for various locations (e.g., inland, wetlands, or streams), notification procedures, and cleanup activities.

**(iii) Methods to Demarcate Surface Waters and Wetlands During Construction**

Boundaries of surface waters and wetlands will be surrounded by exclusionary fencing in order to set the boundaries of the avoidance areas. These areas will be marked on the Project layout and final construction documents. On-site training provided to all contractors and subcontractors will emphasize the defined limits of the work area, the significance of flagging used, and areas of marked sensitive resources such as wetlands.

**(iv) Inspection Procedures for Erosion Control Measures**

Palomino Solar will file for OEPA Permit No. OHC000005. This permit requires a SWPPP and regular inspection of erosion control measures.

A qualified individual will inspect erosion and sediment control measures throughout construction in order to ensure they are functioning in accordance with applicable standards. Disturbed areas used for storage subject to precipitation will be inspected for potential pollutant runoff into the drainage system. These inspections will occur once a week and within 24 hours of any

precipitation event of 0.5 inches or greater. Control measures will be inspected until 70 percent permanent vegetated cover has been established across disturbed areas.

An inspection report will be completed after each inspection and will include the inspection date, names and qualifications of the inspector, weather information, descriptions of discharges and when they occurred, locations of BMPs that need to be maintained, and recommended corrective actions.

A Notice of Termination (NOT) form that follows NPDES permit requirements will be submitted to the OEPA after the site stabilization. Palomino Solar will maintain SWPPP inspection results for three years after submitting a NOT.

#### **(v) Measures to Protect Vegetation**

The primary measure to protect vegetation is avoidance. The Project Area is primarily composed of agricultural land; therefore, significant impacts to grasslands, forested areas, shrubland, and wetland areas are not anticipated. During construction, measures will be taken to protect vegetation, such as identifying and demarcating sensitive areas such as wetlands, educating the workforce to adhere to the boundaries of ecologically sensitive areas, limiting disturbance to the smallest area possible, preserving mature trees, and maintaining clean work areas. After construction is complete, disturbed areas will be reseeded with native vegetation. More information about vegetation protection can be found in the Landscape Plan (Exhibit J).

The Landscape Plan identifies the core woodlots marked for preservation. Preserving core woodlots in the Project Area is one of the measures Palomino Solar employs to preserve mature trees within the Project Area.

#### **(vi) Options for Clearing Methods and Disposing of Brush**

For the Project to be constructed, scattered shrubs, isolated windrows, and swaths will be cleared. Woodchips from the chipping or grinding of disposed trees and shrubs from the Project Area will provide temporary ground cover or mulch. More information regarding clearing can be found in the Landscape Plan (Exhibit J).

#### **(vii) Avoidance Measures for State or Federally Listed and Protected Species and their Habitats**

As discussed in the Ecological Assessment (Exhibit P), there is no critical habitat for federally and state-listed species within the Project Area. Suitable habitats for listed species are minimal, and there is no post-construction wildlife monitoring currently planned. Per ODNR guidance, there will be no tree-clearing activities between April 1 and September 30 in order to avoid any potential

impacts to bat species. In addition, no Project construction activities will occur within 660 feet of the identified bald eagle nest from mid-January to August. If a federally- or state-listed species is observed during construction, Palomino Solar will contact OPSB staff within 24 hours. Construction that may adversely impact the observed species will be halted until an agreement between Palomino Solar, the OPSB, USFWS, and the ODNR is reached.

### **(3) Operation Impacts**

#### **(a) Estimation of Impact of Operation on Undeveloped Areas, Plants, and Animals**

During operation, there may be minor impacts during maintenance activities, but these are not expected to be significant. There will be no impacts to undeveloped conservation areas, such as wildlife areas and nature preserves, because the Project Area is located on leased private land, as shown in section 4906-4-08(B)(1)(a) of this Application.

#### **(b) Procedures to Avoid/Minimize/Mitigate Short-term and Long-term Operational Impacts**

The Project is not anticipated to have any additional ecological impacts after construction. The Project layout avoids wetland and waterbodies as much as possible, and anticipated impacts will not be large enough to require mitigation under state and federal wetland regulations.

Solar energy facilities have very little direct impact to wildlife since they do not have the same collision risk for avian and bat species as operational wind turbines. The Project Area is made up primarily of agricultural land and therefore does not currently offer much habitat for wildlife. The flat topography, vegetation, and landscape also reduce avian and bat presence in the Project Area. There are no anticipated operational impacts to wildlife resources and therefore no proposed mitigation measures.

More information can be found in the Landscape Plan (Exhibit J).

#### **(c) Post-Construction Monitoring Plans**

There are no anticipated significant impacts to wildlife from the construction and operation of the Project; therefore, Palomino Solar does not have plans for post-construction monitoring.

**(C) Land Use and Community Development****(1) Land Use****(a) Land Use Map**

Figure 08-4 depicts land use within one mile of the Project Area. Figure 03-2.1 to 03-2.5 depicts a detailed Project layout (as designed at the time of this Application) and land use within the Project Area:

**(i) Proposed Facility**

The layout of the current proposed Project includes PV solar arrays, electrical collection lines, inverters, a substation, an O&M building, access roads, fence lines, weather stations, and laydown yards.

**(ii) Land Use**

Land uses mapped within the Project Area and surrounding the Project Area are primarily agricultural/open urban use. Forested areas are present within the Project Area but are avoided by the proposed development.

**(iii) Structures**

Structures in the Project Area and surrounding it are primarily rural residences. There is a quarry approximately 0.25 miles northwest of the Project Area. The Project layout was developed according to the setbacks to structures identified in Table 04-1.

**(iv) Incorporated Areas and Population Centers**

The village of Lynchburg is approximately one mile west of the Project Area and has a population of approximately 1,500 people.

**(b) Structures****(i) Distance between Structures and the Nearest PV Panel (for structures within 1,500 feet)**

Distances between the PV panels and existing structures within 1,500 feet are shown in Exhibit R1. Distances between the PV panels and property boundaries within 1,500 feet are shown in Exhibit R2. The locations of PV panels, associated infrastructure (e.g., access roads, underground cabling), residences, and property boundaries appear in Figure 04-1.2 to 04-1.5.

There are 302 structures within 1,500 feet of a PV panel. Exhibit R1 presents the distance of each structure to the nearest PV panel and the participation status of the underlying parcel. The closest

non-participating residence is over 100 feet from the PV panels. The setbacks between PV panels and non-participating property boundaries are at least 50 feet.

**(ii) Structures, Property Boundaries, and Roads within 250 feet of the Associated Facilities**

The distances between Project-associated facilities and residences, property boundaries, and existing roads within 250 feet are shown in Exhibits R3 and R4. The locations of associated facilities for the Project, residences, property boundaries, and existing roads appear in Figure 04-1.2 to 04-1.5. All setbacks that have been established for the Project-associated facilities are presented in Table 04-1. Certain collection line setbacks from property boundaries or roads where the participating landowner has requested that the underground collection line be placed in close proximity to a property boundary or road associated with their property will be less than 40 feet. A setback between access roads and structures, property boundaries, or roads may also be less than the distance presented in Table 04-1 where the access road is connected to an existing road at a location where the property boundary or existing structure is currently located in close proximity to the existing road. No access road or collection line underground cabling is located within 100 feet of a non-participating residence.

**(iii) Land/Lease Status of the Property for Each Structure**

The lease status of each structure is presented in Exhibit R1.

**(c) Land Use Impacts**

The primary land use impacted by the Project is agricultural use. Figure 08-4 presents the land uses within the Project Area. Below, Table 08-5 lists the temporary and permanent land impacts by Project component. More information about agricultural impacts can be found in section 4906-4-08(E).

**Table 08-5. Land Use Impacts**

Facility Components	Temporary Impact (Acres)	Permanent Impact (Acres)	Total Impact (Acres)
Solar Arrays <sup>1</sup>	0	1,770.8	1,770.8
Access Roads <sup>2</sup>	8.8	35.1	43.9
Inverter Pads <sup>3</sup>	0	0.36	0.36
Buried Collection Lines <sup>4</sup>	85.3	0	85.3
Collection Substation	0	2.69	2.69
O&M Building	0	0.40	0.40
Laydown Yards	49.2	0	49.2
<b>Total<sup>5</sup></b>	<b>134.3</b>	<b>1,821.2</b>	<b>1,894.7</b>

1 The area of permanent disturbance refers to the entire area under and between the panels. This area will be taken out of production for the lifetime of the Project (30-40 years).

2 Access roads will be 20 feet wide during construction (temporary impact) and 16 feet wide during operation (permanent impact).

3 Inverter pads will be 10 feet by 20 feet.

4 Buried collection lines will use a 15-foot-wide temporary work area, which will be regraded and revegetated after construction.

5 The row totals are less than sum of all items in each column due to the overlap of impacts between features. The totals reflect the net temporary, permanent, and combined disturbance area for the Project.

Table 08-5 presents the total, temporary, and permanent impacts on land uses illustrated in Figure 08-4 for each land use type and by Project component. Project-related impacts to land use were calculated based on the impact assumptions provided in Table 08-5.

Project construction and operation will impact agricultural land within the Project Area, but no impacts due to the Project are anticipated outside the Project Area. Out of a total Project Area of 2,907 acres, the Project will impact 1,894.7 acres (65 percent of the total Project Area). Palomino Solar is aware of other solar energy projects proposed in the vicinity of the Project. These projects are not, however, being developed by Innergex or any of its affiliates or subsidiaries.

Any temporary impacts that occur during construction will take place on participating parcels. As described in section 4906-4-08(E)(2)(b), Palomino Solar's construction activity will take place on private agricultural land. The Project layout and siting minimize impacts to agricultural land.

#### **(d) Structures that will be Removed or Relocated**

One structure will be removed for the construction of the Project. The landowners have requested the removal of this structure.

#### **(2) Parcel Status Map**

The Facility is not a wind energy project. As such, this section does not apply.



**(3) Setback Waiver**

The Facility is not a wind energy project. As such, this section does not apply.

**(4) Land Use Plans****(a) Formally Adopted Plans for Future Use of Site and Surrounding Lands**

Highland County does not have a comprehensive or land use plan. The townships where the Project is located (Union and Dodson) do not have comprehensive plans. The Village of Lynchburg, Ohio is located one mile west of the Project and developed a Comprehensive Plan in 2009. The City of Hillsboro, the next closest municipality with a comprehensive plan, is located approximately 5.5 miles southeast of the Project Area.

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

There are no anticipated concurrent or secondary uses at the Facility.

**(c) Impact on Regional Development**

The housing and commercial development within five miles of the Project Area is driven by the rural economy of Highland and Clinton Counties. The economy is primarily driven by agriculture; within and surrounding the Project Area, corn and soybean agriculture make up the majority of the land use. Housing development and related demand depend on a multitude of factors. More information on the impacts to regional development is provided in the Socioeconomic Report (Exhibit E). Public services will be minimally affected, as only area roadway traffic will be slightly impacted according to the Transportation Effect and Route Evaluation Study (Exhibit B). Impacts to the regional transportation system will be negligible after construction.

**(d) Regional Plan Compatibility**

As discussed in section 4906-4-08(C)(4)(a) of this Application, the Village of Lynchburg Ohio, located approximately one mile west of the Project Area, developed a Comprehensive Plan in 2009. However, the Project is not located within the jurisdiction of the Village of Lynchburg Comprehensive Plan and will not impact development under the Comprehensive Plan. Therefore, there will be no impacts to regional plans or local development initiatives.

**(e) Current and Projected Population Data**

Table 08-6 presents the population trends for jurisdictions in the vicinity of the Project, including percentage changes in population from 2000 to 2018. The construction of the Facility is not expected to impact local or regional population trends.

**Table 08-6. Population of Ohio Jurisdictions within 5 Miles**

Jurisdiction	2010 Population	2019 Population	Annual Growth Rate (2000-2019)	10-Year Projected Population (2031)	2018 Population Density (people per square mile)
Highland County, OH	43,648	43,016	-0.16%	42,186	78.8
Clinton County, OH	42,416	41,957	-0.12%	41,352	102.9
Lynchburg, OH	1,661	1,415	-1.65%	1,136	1,521
New Vienna, OH	1,294	1,214	-0.69%	1,114	1,480
Union Township, OH	2,065	1,986	-0.43%	1,885	67
Dodson Township, OH	2,610	2,581	-0.12%	2,543	98

Source: U.S. Census Bureau, 2000. Projected growth obtained by applying 2000-2019 rate to future growth.

#### **(D) Cultural and Archaeological Resources**

Cardno completed an Historic Architectural Reconnaissance Survey in April 2021 (Exhibit O). Using Ohio SHPO guidance, the survey covered a two-mile radius around the Project Area as the Area of Potential Effect (APE). The April 2021 survey identified nine potentially NRHP-eligible properties in the APE. No national historic landmarks were identified in the APE.

##### **(1) Landmarks of Cultural Significance Map**

Figure 08-5 illustrates formally adopted land and water recreation areas, recreational trails, scenic rivers, scenic routes or byways and registered landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance within 10 miles of the Project Area.

Cardno reviewed numerous sources of information relating to archaeological and historic resources located within the Cultural Resources Study Area, including:

- National Register of Historic Places (NRHP)
- NRHP Determinations of Eligibility
- National Historic Landmarks
- Ohio Historic Inventory
- ODOT Historic Bridge Inventory
- Ohio Archaeological Inventory
- Ohio Genealogical Society cemetery files
- Mills Archaeological Atlas of Ohio (1914)
- Previous SHPO cultural resources surveys

## (2) Impact to Landmarks and Mitigation Plans

Impacts to known cultural, archaeological, and architectural resources are summarized above and in Exhibits N and O. Archaeological field surveys for 63 percent of the Project Area were completed in 2020 and 2021. All identified resources have been avoided. The remaining Project Area will be surveyed in Fall 2021. Once archaeological surveys are complete, Palomino Solar will consult with the Ohio SHPO to further avoid any features found during remaining surveys. Palomino Solar is consulting with the Ohio SHPO to receive guidance on mitigation measures and visual screening. The Visual Resource Assessment and Mitigation Plan (Exhibit K) provides more information regarding landmarks and mitigation plans.

## (3) Impact to Recreational Areas and Mitigation Plans

Scenic and recreational areas within a 10-mile radius of the Project Area are shown in Table 08-7 and listed below.

**Table 08-7. Recreational Areas within 10 Miles**

Recreational Area	Distance from Project Area (miles)
Oldaker Wildlife Area, Union Township	Adjacent to SE boundary of Project Area
Fallsville Wildlife Area, Penn Township	0.6 miles E of Project Area
Clinton County Open Lands Easement Area, Clinton County	5 miles NW of Project Area
Snow Hill Country Club, Clinton County	6 miles N of Project Area
Hillsboro Elks Lodge Golf Course, Hillsboro	8 miles SE of Project Area
Highland County Fairgrounds, Hillsboro	8 miles E of Project Area
Hillsboro City Park, Hillsboro	8 miles E of Project Area
Grasslands Reserve Program, Brown County	8 miles W of Project Area
Indian Creek Wildlife Area, Brown County	9.5 miles SW of Project Area

As listed in Table 08-7 above, nine scenic and recreational areas occur within ten miles of the Project Area. The Project will not be visible to any of the recreational areas that are five miles or greater from the Project Area. The Oldaker and Fallsville Wildlife Areas are close enough to the Project that some panels may be seen from those locations. However, both sites are dominated by wooded areas. The Project would not be visible from the public access areas of the Oldaker Wildlife Area (i.e., the access road, fishing area, public trails) due to the wooded areas within the park that are located between the public access areas and the Project. The Project would be visible from the edge of the wooded area at the northwest corner of the Oldaker Wildlife Area, but no mapped trails within the park provide access to this area. Similarly, the Project would not be visible from public access areas in the Fallsville Wildlife Area. Existing highways and homes

located between the Project and the Fallsville Wildlife Area would obstruct the visibility of the panels and minimize any visual impact to the Fallsville Wildlife Area. Additional information regarding the results of the viewshed analysis is provided in section 4906-4-08(D)(4) of this Application.

#### **(4) Visual Impact**

Cardno prepared a Visual Resource Assessment and Mitigation Plan for the proposed Project (Exhibit K). The Visual Resource Assessment and Mitigation Plan analysis was completed by GIS professionals and environmental specialists using detailed topographic data, including Light Detection and Ranging (LiDAR) data, and spatial analysis software (ESRI). The viewshed was analyzed for a five-mile radius around the Project Area. Though a five-mile radius was analyzed based on a topographic model, the low profile (i.e., the 15-foot maximum height) of the solar panels makes it unlikely that any part of the Facility would be visible beyond two miles away, considering the existing structures and vegetation as well as the limitations of human eyesight.

##### **(a) Project Visibility and Viewshed Analysis**

The Visual Resource Assessment and Mitigation Plan determined that the project was visible in 30.8 percent of the visual study area. Panel visibility was highest within one half-mile of a panel. Beyond one mile from the panels, visibility was substantially reduced.

##### **(b) Description of Scenic Quality of Existing Landscape**

The majority of the landscape in the visual study area is agricultural fields (64.4 percent). Forested areas compose an additional 16.7 percent of the visual study area. Forested areas are mostly small (<200 acres) contiguous forests or narrow tree rows. The remaining area is a combination of developed areas and pastureland.

##### **(c) Landscape Alterations and Impacts on Scenic Quality of the Landscape**

Panels will be located in existing agricultural fields, and the clearing of forested areas will be minimized. The panels will alter the existing landscape, but impacts will be limited due to the low profile of the panels. Panels will be visible from agricultural fields near installed panels and from homes and structures near agricultural fields. Views from villages and developed areas such as Lynchburg or New Vienna will largely be obstructed by existing trees, forested areas and the distance from the panels. Panels will be located on the opposite side of wooded areas as the public access points of the Oldaker Wildlife Refuge, which will limit their visibility.

**(d) Visual Impacts to Landmarks of Cultural Significance**

The Historic Architectural Reconnaissance Survey identified 177 properties in the survey area, of which nine were recommended eligible for the NRHP. Of those nine, two had visual impacts (i.e., panels visible from the residence).

**(e) Photographic Simulations**

A total of nine locations were selected for photographic simulations. These locations include two of the substation and interconnection location and one from a local church. The locations represent a range of the panel arrangements that characterize the project in the local landscape.

**(f) Impact Minimization Measures**

The Project proposes a range of mitigation measures to limit its visual impact. The Project will be located in a rural area, which lowers the number of homes in the vicinity and reduces its visual impact. The Project will maintain setbacks from homes, roads, and non-participating parcel boundaries. The Project panels will use an anti-glare coating that will reduce the visual impact of glare from the panels (Exhibit L). The Project will minimize the clearing of existing forest areas that create natural visual screening for the panels. Additional screening will be placed along areas of high visibility and within close proximity to homes. The Landscape Plan (Exhibit J) includes details for the proposed screening measures.

**(E) Agricultural Resources****(1) Agricultural Land and Agricultural District Land Map**

Figure 04-1 depicts agricultural land and agricultural districts within and surrounding the Project Area.

**(2) Potential Impacts and Proposed Mitigation****(a) Acreage Impacted**

Figure 04-1 depicts the current land use and Project layout in the Project Area. A total of up to 1,880.9 acres of agricultural lands may be permanently impacted by the Project (Table 08-4). The current designed Project layout was developed for purposes of evaluating potential land, environmental, and human settlement impacts in the Project Area. Further design and refinements to the Project layout will be made after a Certificate is issued by the OPSB and prior to construction with the intent to decrease the overall Project layout area to the extent practicable.

**(b) Impacts on Agricultural Facilities and Practices****(i) Field Operations**

Once construction is complete, the Project will occupy up to 1,984.7 acres of land that is currently used for agricultural operations. Any agricultural activities on this land will be halted for the lifetime of the Project. Once the Project has been decommissioned, the underlying Project Area will be restored and will be usable as agricultural land once again.

**(ii) Irrigation**

Palomino Solar will coordinate with landowners and tenants to identify current irrigation systems prior to construction. Non-participating parcels' irrigation systems will not be impacted.

**(iii) Field Drainage Systems**

The drain tile systems in the Project Area could be impacted by the Facility. Palomino Solar will coordinate with stakeholders to identify drain tiles within the Project Area. While mitigation measures will be implemented, drain tile impacts may occur. More information on measures to avoid and mitigate impacts is available in the Drain Tile Mitigation Plan (Exhibit M). Additional information regarding the identification of field drainage systems, as well as avoidance and mitigation measures to repair potential damage, is detailed below in section 4906-4-08(E)(2)(c) of this Application.

**(iv) Structures used for Agricultural Operations**

One residence with two associated uninhabited farm buildings will be removed for the construction of the Project. Landowners have approved the removal of these structures.

**(v) Viability as Agricultural District Land**

Figure 04-1 shows the agricultural production in the Project Area. Once the Project is constructed, these parcels will no longer be utilized as agricultural land for the lifespan of the Project. Upon decommissioning, the leased private land can return to agricultural production.

**(c) Proposed Mitigation Procedures****(i) Avoidance/Minimization of Damage to Field Tile Drainage Systems**

The locations of identified drain tiles are presented in the Drain Tile Mitigation Plan (Exhibit M). Any known drain tiles will be illustrated on the final construction plan for avoidance. Drain tiles may be impacted during the construction of the Project. There are additional details regarding damage to field tile drainage systems below.

**(ii) Timely Repair of Damaged Field Tile Systems**

Damaged drain tiles will be assessed and repaired according to the Drain Tile Mitigation Plan (Exhibit M). The Drain Tile Mitigation Plan will assess the Project Area and surrounding area in order to ensure that there are no adverse impacts to surrounding drain tiles on non-participating parcels. If there is any uncertainty regarding drain tiles outside of the Project Area, or if there is an impacted drain tile main, repairs will be made promptly to secure the greater drainage system. All repairs are expected to take place within 30 days of discovery.

**(iii) Topsoil Segregation, Decompaction, and Restoration**

Topsoil and subsoil will be segregated throughout the Project Area. The purpose of segregation is to allow vegetation to establish quickly once construction has been completed. Topsoil segregation will also assist in agricultural production after the Facility's lifetime has ended. Decompaction will take place in areas where topsoil is displaced, such as in laydown yards. Belowground collection lines will be backfilled with segregated topsoil and subsoil. Once construction is complete, the soil will be decompacted, re-graded, and seeded with the native seed mix described in the Landscape Plan (Exhibit J).

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