Application for Certificate of Public Convenience and Necessity
Onion River Solar Project
Docket #9805-CE-100
Sheboygan County, WI

ONION RIVER SOLAR
A RANGER POWER PROJECT

MAY 29, 2020

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Abbreviations

AC	alternating current
AEA	Agricultural Enterprise Area
ATC	American Transmission Company
BMP	best management practice
BPA	Bonneville Power Administration
Braun Intertec	Braun Intertec Corporation
CAFO	Confined Animal Feeding Operations
Commission	Public Service Commission of Wisconsin
CPCN	Certificate of Public Convenience and Necessity
CRP	Conservation Reserve Program
CWA	Clean Water Act
DATCP	Department of Agriculture, Trade and Consumer Protection
dBA	A-weighted decibel
DC	direct current
DESRI	D.E. Shaw Renewable Investments, LLC
DPP	Definitive Planning Phase
DOT	Department of Transportation
EPA	U.S. Environmental Protection Agency
ER	Endangered Resources
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FPP	Farmland Preservation
FRP	Farmland Preservation Agreements
GHI	Global Horizontal Irradiance
GIA	Generator Interconnection Agreement
GIS	Geographic Information System
GW	gigawatt
HDD	horizontal directional drilling
HMA	hot-mix asphalt pavement
HSIS	Highway Structures Inventory System
HUC	Hydrologic Unit Code
IBA	Important Bird Area
JDA	Joint Development Agreement
KOP	Key Observation Points
kV	kilovolt
mG	milli-Gauss
MISO	Midcontinent Independent System Operator
MW	megawatt
NHI Portal	Wisconsin Natural Heritage Inventory
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSA	Noise Sensitive Area
O&M	operations and maintenance
OHWM	Ordinary High Watermark
Onion River	Onion River Solar, LLC
PADUS	Protected Areas Database of the U.S.
Project	Onion River Solar Project
PSC	Public Service Commission of Wisconsin

PV	photovoltaic
PVSYST	photovoltaic systems software
ROW	rights-of-way
SPCC	Spill Prevention, Containment and Countermeasures
SSURGO	Soil Survey Geographic Database
STC	standard test conditions
TV	television
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Services
USGS	U.S. Geological Survey
W	watt
WDNR	Wisconsin Department of Natural Resources
WHPD	Wisconsin Historic Preservation Database
WisDOT	Wisconsin Department of Transportation
WISLER	Wisconsin Information System for Local Roads
WPDES	Wisconsin Pollutant Discharge Elimination System
WRAPP	Water Resource Application for Project Permits
WRP	Wetland Reserve Program
WWI	Wisconsin Wetland Inventory

1.0 PROJECT DESCRIPTION AND OVERVIEW

Onion River Solar, LLC (“Onion River”) submits this Application for a Certificate of Public Convenience and Necessity (“CPCN”) in accordance with Wis. Stat. § 196.491(3) and Wis. Admin Code § PSC 111.53 to the Public Service Commission of Wisconsin ("PSC" or "Commission"). The application was prepared in consideration of the guidance provided by the PSC’s Application Filing Requirements for Solar Energy Projects in Wisconsin, (Guidance from PSC comment provided to Application Filing Requirements for Wind Energy Projects in Wisconsin Version 5B, February 2012) and consultations with the PSC and Wisconsin Department of Natural Resources ("WDNR").[1] The applicant is also seeking WDNR permits applicable to the Project as identified in the Project Engineering Plan submitted to the WDNR on March 20, 2020. The WDNR responded on March 25, 2020, providing concurrence with the List of Needed Permits identified in the Engineering Plan.

Onion River is seeking a CPCN and all other approvals and authorizations required to construct, install, operate and maintain a solar energy generating facility 150 Megawatt (“MW”) Alternating Current (“AC”) in size, known as Onion River Solar ("Project"), to be located in the Town of Holland in Sheboygan County, Wisconsin. Onion River will utilize a single-axis tracker system that is scheduled to be placed in service in October of 2022. The total Project area provided for within this application will support a panel design to produce 150 MW AC of power and the 25 percent alternative area required through the application filing requirements. The total Project area provided can also support a potential battery energy storage system to be considered by the applicant at a later date. More details regarding the Project are provided within this application.

1.1 GENERAL PROJECT LOCATION AND DESCRIPTION OF PROJECT AND PROJECT AREA

1.1.1 Provide the following information about the Project:

1.1.1.1 Project Location - counties and townships in the Project Area.

The proposed Project is located in the Township of Holland in Sheboygan County, Wisconsin. Table 1.1-1 identifies the location of the preferred Primary Project Area and an Alternative Project Area.

TABLE 1.1-1 PROJECT LOCATION

County	Primary Project Area		Alternative Project Area	
	Township Name	Sections	Township Name	Sections
Sheboygan	Holland	4, 5, 7, 8, 9, 17, 18	Holland	4, 6, 7, 8, 17

[1] Numbering in this application is consistent with numbering in the Filing Requirements.

1.1.1.2 Size of Project Area in acres.

Approximately 1,891 acres are under site control and available for development, before consideration of siting restrictions and specific landowner exclusions (51 acres) with 1,613 acres under lease and 278 acres under purchase option. The Project area, as shown in Figure 1.1-1 (Appendix A) was drawn taking into consideration the following:

- Location of Project facilities (panels, access roads, substation)
- Project properties under contract
- Public roads utilized for construction and maintenance
- Current setbacks per County and Township zoning
- Approximate zone of shadow/sound impact of panels

The Project is situated on multiple different parcels of land with multiple property owners and contains areas identified as primary and alternate. The Project area includes 1,392 acres of land to support the primary design (the Primary Project Area), which can produce 150 MW AC of power, and 448 acres of land to meet the Commission's 25 percent standard for an alternative site (the Alternate Project Area), which can produce 37.5 MW of power. The proposed sites and the evaluation process are described in detail in Section 1.5 below.

Onion River possesses signed landowner agreements for the parcels currently proposed to host panels (primary and alternate), access roads, substation, laydown yard, transformers, junction boxes and the collection system. Onion River will locate an operations and maintenance ("O&M") building within the Project Area that will be of a Conex box type construction. The applicant has provided for enough leased land within the application to allow for a battery energy storage system that may be considered for the Project at a later date. No specifics for a potential battery storage system is provided within this application other than its location would likely coincide with the Project substation and enough land is available within that location to support such a system. As summarized in Section 1.8, the Project will require permits from local and county departments of transportation to allow partial placement of the collection system in public road rights-of-way ("ROW").

1.1.1.3 Size (rated capacity), in megawatts, of the proposed Project.

- ***(If an actual vendor is not yet under contract, the applicant must provide information on at least two panels that are being considered. Those panels must represent the maximum and minimum megawatt size under consideration for purchase for the project.)***

The full Project nameplate capacity of 150 MW AC can be achieved with the single axis tracking systems proposed for the Project. The current photovoltaic ("PV") module being considered in the conceptual design for the project is the Canadian Solar 410-Watt module.

At the time of construction several PV module offerings from different suppliers will be evaluated and a selection will be made based on the most cost-effective option. The technologies that may be considered are polycrystalline, monocrystalline and bi-facial PV modules, and the final supply of modules may contain a mix of several similar wattages. PV modules produced by a wide range of manufacturers are under consideration for the Project, including, but not limited to, Canadian Solar, Hanwha Qcells, JA Solar, Jinko, Longi, Risen, SunPower, Sunergy and Trina.

1.1.1.4 Number of panel sites proposed for the project and the number of alternate panel sites that have been identified

The Primary Project Area is designed for approximately 465,120 individual PV panels with a total direct current ("DC") generating capacity ranging from 180 to 210 MW, which, for a designed 1.15 to 1.5 DC-to AC ratio, is enough capacity to meet a nameplate generation of 150 MW AC power. The fenced PV array area cover a total of 876 acres. When the panels are in their horizontal position in the tracking system, the panels cover approximately 255.24 acres of this total area. The Primary Project Area includes seventeen panel array areas that are separately fenced.

The Alternate Project Area is designed for approximately 102,264 individual photovoltaic panels with a total DC generating capacity of 41.93 MW, enough capacity to meet a nameplate generation of 37.50 MW of AC power, which is 25 percent that of the Primary. The fenced PV array area covers a total 197 acres. When the panels are in their horizontal position in the tracking system, the panels cover approximately 56.10 acres of this total area. The Alternate Project Area includes six panel array areas that are separately fenced.

1.1.2 Provide a general map showing the location of the Project Area, nearest communities, townships, and major roads. Include an inset map showing where the Project is located in the state. Scale should be appropriate for showing communities within at least 10 miles of the Project Area boundary.

Figure 1.1.2 provided in Appendix A depicts the general Project location and Figure 4.1.1 shows the total Project area with an aerial photography basemap. Figure 4.1.2 is a detailed mapbook of the proposed Project facilities.

1.2 OWNERSHIP

The applicant is Onion River, a Delaware limited liability company that will own and operate the Project. Onion River is controlled by D.E. Shaw Renewable Investments, LLC ('DESRI"), a Delaware limited liability company.

DESRI and its affiliates develop, acquire, own, and manage long-term contracted renewable energy assets in North America. DESRI and its affiliates' portfolio of renewable energy projects currently includes approximately 40 wind and solar projects that represent more than 3 gigawatt ("GW") of aggregate capacity. DESRI is a member of the D.E. Shaw group, a global investment and technology development firm with more than $50 billion in investment and committed capital as of December 1, 2018 and is headquartered in the US.

Ranger Power LLC is developing the Project on behalf of Onion River Solar, LLC. Ranger Power is a utility-scale solar development company focused on bringing cost-effective, clean, renewable energy projects and jobs to the Midwest region. Ranger Power's team of experienced developers and renewable energy specialists have successfully developed early-, mid-, and late-stage solar projects throughout the country. Collectively, the Ranger Power team has worked on over 2 GW of operating renewable energy projects and currently has over 3 GW under development in the Midwestern United States.

1.3 PROJECT NEED/PURPOSE

1.3.1 through 1.3.5

These sections are omitted as they only apply to utility sponsored projects.

1.3.6 Energy Agreements

1.3.6.1 Identify all Wisconsin utilities under contract for delivery of energy from the proposed project.

Subject to approvals from the Commission of (1) a CPCN for the Project and (2) a certificate of authority to transfer ownership of the Project, Onion River anticipates that ownership of the Project will be transferred to a Wisconsin public utility.

1.3.6.2 For each utility under contract or with which an agreement in principle for delivery of energy is in place provide the following, by utility:

1.3.6.2.1. Rated capacity under contract.
1.3.6.2.2. Annual energy to be delivered under contract or expected to be delivered.

This section addresses Section 1.3.6.2 and its subsections. Onion River does not anticipate entering into a power purchase agreement or other energy agreement, because it is anticipated that a Wisconsin public utility will own the Project.

1.4 ALTERNATIVES

Ranger Power, as a private developer, sought and evaluated prospective areas for solar energy development in Wisconsin and the Midwest. Section 1.4.2 describes the process used to evaluate and prioritize potential areas for development. Ranger Power considered brownfield as well as greenfield sites. However, the proposed Project requires over 1,500 acres of nearly contiguous developable land in close proximity to existing transmission facilities. There were no brownfield sites identified in Wisconsin that meet the siting requirements.

Ranger Power reviewed the Open and Closed Landfill/Brownfield Site Boundaries available from WDNR Bureau of Remediation and Redevelopment for Sheboygan County and adjoining Ozaukee (south), Fond du Lac (west) and Manitowoc (north) Counties. Many less than 25-acre sites were identified scattered throughout the counties. The vast majority of these sites were associated with small (less than 25 acres) historical “town dumps”. The nearest site is approximately 16 acres in size and is located approximately two miles southwest of the Project. The largest site identified is the 160-acre Ridgeview Landfill approximately 37 miles north (near Village of Whitelaw, Manitowoc County) of the Project. The Ridgeview landfill is currently an active recycling and disposal facility operated by Waste Management of Wisconsin. Less than ten 25-acre to 95-acre sites were also identified scattered across Sheboygan County and the adjoining counties.

Two of the overriding siting principles that limit the practicable locations for utility scale solar developments are 1) having enough contiguous land to support a large scale project (in the case of the

Project, approximately 1,840 acres), and 2) immediate proximity to a viable grid interconnection point for the power. The brownfield sites Onion River evaluated all fail to meet these two overriding siting principles.

Onion River considered potential areas throughout the state of Wisconsin and used the factors in Section 1.4.2.2.to select the area evaluated for the Project which encompasses a 2.5-mile radius within proximity to the proposed point of interconnection to the grid at the American Transmission Company ("ATC") Holland substation located near the intersection of County Road GW and Risseeuw Road. The total acreage of the facility proposed within this application was evaluated based on topography, environmental concerns, land rights, proximity to the point of interconnection, and willing landowner participation as further discussed in Section 1.5.1.

1.4.1 Supply Alternatives: Utilities Only

This section is omitted because it only applies to public utility sponsored projects.

1.4.2 Project Area Selection

1.4.2.1 Alternative Project Areas - Describe the project area screening and selection process used to select the proposed project area. Provide the following:

1.4.2.1.1. List individual factors or site characteristics used in project area selection

1.4.2.1.2. Explain how individual factors and project area characteristics were weighted for your analysis and why specific weights were chosen

1.4.2.1.3. Provide a list of all project areas reviewed with weighted scores for each siting factor or characteristic used in the analysis

1.4.2.2 Provide a narrative describing why the proposed project area was chosen.

This section addresses the requirements of Section 1.4.2, including all subsections, i.e., 1.4.2.1 through 1.4.2.2.

Ranger Power is a developer of large utility-scale solar farms. Its projects typically range from 75 MW to 200 MW, with some as large as 400 MW. Ranger Power seeks solar development opportunities throughout Wisconsin and the Midwest.

The process that Ranger Power follows in finding and evaluating potential project sites varies; however, the elements described below are fundamental to the process and were used in Ranger Power's review of potential areas in the state of Wisconsin.

Phase I
The first phase of assessment eliminates areas of poor resource or other siting flaws as described below.

- Transmission and Injection Capacity – Nearby electric transmission infrastructure is necessary to connect a project to the power grid. A project substation and additional transmission lines are often necessary, however the cost required to connect a project to the grid increases with the distance over which project-specific transmission must be built.

- Land availability – Large open areas are necessary for utility-scale solar facilities. Cities, suburbs and areas of active residential development are eliminated in the first phase of the search for an eventual project site.

Phase II

The second phase of assessment is a more focused evaluation of areas identified as feasible in Phase I.

- Land use – Large tracts of open land must be available to support the responsible siting of solar panels. Agricultural land is ideally suited for solar farms.
- Community – Onion River values working with communities that welcome solar projects and responsible economic development opportunities.
- Potential host landowners – Prospective landowners are visited to gauge interest in hosting project facilities.
- Environmental concerns – A site suitability tool was run to screen for environmental factors including, but not limited to, wetlands, waterways, trees, critical habitat, endangered species and animals, and hydric soils. The Project areas selected showed few environmental factors, and those factors identified can be avoided by placement of the solar PV array.
- Cultural and Historic Resources - Archaeological, cultural, and historical resources were considered during the site selection and Project design. The areas selected will not impact known archaeological, cultural, or historical resources.
- Constructability – Topography (elevation and slope), as well as soils and subsurface geology are reviewed at a desktop level. Detailed field analyses are performed later in the development process.
- Road infrastructure – Highways and roads within the proposed project area are reviewed for compatibility with large construction vehicles and delivery trucks. Main highways feeding into the area from major ports or rails are also considered for delivery of panels and other components.

The evaluation that led to the final site selection was a mix of both quantitative and qualitative functions described above.

Phase III

The final phase of preliminary site assessment often overlaps with the tasks outlined in Phase II. Landowner commitments are signed. Resource assessments, feasibility, suitability and environmental reviews are performed in the field. These activities are discussed in detail in Section 1.5 below.

Ranger Power identified the Midwestern US as a promising potential market for solar farms in 2016, due to the low penetration of such facilities. One of the most significant factors enabling solar development in this region has been the dramatic decline in the cost of large solar systems, due to a combination of improving technology, equipment and installation methods. Economies of scale make Wisconsin-based projects cost competitive with traditional forms of energy generation.

The proposed Project was identified following a rigorous analysis of three key factors: the existing transmission grid in Wisconsin, the suitability of available land, and the receptiveness of the community.

- With respect to the grid analysis, Ranger Power looks for injection points where the existing electrical infrastructure is robust. This minimizes the interconnection facility costs and network upgrades frequently attributed to new generating facilities. In addition, Ranger Power prioritizes projects where land is available adjacent to the point of interconnection to minimize the length of high voltage transmission generation tie lines and the number of structures that support them. For the Onion River Project, the projected network upgrade costs are less than $5M, and the Project substation will be located approximately 200 to 300 feet from the existing ATC-owned Holland substation, minimizing the need for additional high voltage infrastructure.
- With respect to suitability of available land, solar farms are best sited on tracts that are relatively flat or with a slight southern incline. The use of cleared land minimizes impacts from shading and the need to remove trees. It also significantly reduces the likelihood that sensitive flora or fauna inhabit the area.
- With respect to receptiveness of the community, Ranger Power places great importance on community-supported projects. In order to be a good neighbor, it is important that the project start on the right foot by being transparent and being in constant communication with the public. The Ranger Power team engages local landowners, neighboring landowners, municipal leaders, and state legislators early on in its development process.

The area ultimately selected and evaluated for the Onion River Project encompassed approximately 5,000 acres all within proximity to the proposed point of interconnection to the grid at the ATC Holland substation located near the intersection of County Road GW and Risseeuw Road. The total acreage of the facility proposed within this application was evaluated based on topography, environmental concerns, land rights, proximity to the point of interconnection, and willing landowner participation.

1.5 PANEL SITE SELECTION

1.5.1 List the Individual Factors or Characteristics Used to Select the Proposed and Alternative Panel Sites

Onion River, along with its consultant Stantec, evaluated each of the participating landowner's properties for siting potential. For purposes of evaluation, a participating landowner is one that receives financial compensation for allowing use of their land for the Project. The evaluation process was performed with the use of a Geographic Information System ("GIS"), allowing the consideration and iterative analysis of many factors. This process included, but was not limited to, the following:

- Landowner control – After obtaining final leases, purchase options and agreements, the Project footprint was established, and a preliminary assessment of possible sites based on environmental and topographical considerations was performed.
- Setbacks – Setbacks from public ROWs, utilities and sensitive community resources were established and mapped. No sensitive community resources such as churches, schools or nursing homes are located within a 1-mile radius of the Project area.
- Unavailable or restricted land – Managed and public lands, conservancies, land under contracts such as Conservation Reserve Program ("CRP"), Managed Forest Law and Farmland Preservation Agreements ("FPA") were reviewed and considered for restrictions.

Two parcels were identified with lands currently enrolled in CRP, which include a total of 4.3 acres enrolled in the program. No FPA contracts apply to lands within the Primary or Alternate Project Areas.

- Airport locations – Airports, airstrips and runways were assessed to ensure sufficient distances from runways to the nearest Project panel array. The Davies Airport is the nearest active airport and is located approximately 4.5 miles east of the Project. The Dulmes Field (2.1 miles east of the site) and Smeis airport (4.4 miles east of the site) were identified within proximity to the site. However, Dulmes Field is listed as an historic field that is no longer in operation. No landing strip was identified by aerial review of the Smeis airport and this airport is assumed to not be currently in operation.
- Environmental review – A desktop environmental review was performed to identify preliminary solar facility locations which would minimize impacts.
- Constructability and collection – Construction restrictions due to factors such as slopes and soils were considered. Construction efficiency and costs were also evaluated. Construction equipment movement and the ability to network the collection system between solar panel array sites were additional considerations.
- Landowner preferences – Potential locations of panels and access roads were discussed with hosting landowners and their concerns and preferences were considered in the preliminary design. Onion River reserves the right to make minor changes in the field to accommodate unforeseen circumstances. Any such minor changes shall take into account the basic premise of setbacks, sound and shadow considerations that were used in modeling the current Project layout.

The steps described above were often repeated in an iterative process to arrive at a Project design that minimized impacts to the environment and landowners while maximizing the efficiency of the Project. The Alternate Project Area is viable and buildable; however, it may represent additional impacts to the environment or higher construction costs. The Alternate Project Area will be utilized, should the permitting process or PSC review reveal that one or more sites in the Primary Project Area are unacceptable, or if circumstances arise prior to construction that prohibit the use of a Primary Project Area location. Revisions to the panel layout design may also require revisions in cable routes, access roads, and possibly slight shifts in other panel locations.

1.5.2 Provide Information on How Solar Array Location Site Characteristics and Types of Panel Chosen Factored Into the Selection of the Final Site

The solar location site characteristics were considered as described in Sections 1.4.2 and 1.5.1. Solar PV is a mature, proven technology. The current design for the Project includes Canadian Solar 410-Watt modules, Sungrow SG3150U-MV or SMA SC2500-MV inverters and self-powered single-axis trackers provided by NEXTracker. Specification sheets describing the mechanical characteristics of these components is provided in Appendix B. For a 2022 in service date, the Project is expected to use products with similar electrical and physical characteristics that are readily available in the market at the time of purchase. Bifacial technology is also being contemplated. The bi-facial modules have greater per watt PV module cost and therefore will need to be evaluated as further discussed in Section 2.2.1.

Maintaining technological flexibility among high quality manufacturers allows Ranger Power to ensure the quality of the solar system while also offering attractive pricing. A final determination of technology providers will be made closer to the start of construction; it is anticipated the quality and performance of panels, tracking, and inverters will continue to improve in the coming years. Securing this equipment will require at least 6-8 weeks for procurement and delivery, and up to 8 months for procurement and delivery of the step-up transformer. Only Tier I, highly financeable solar panel providers have been identified as potential suppliers for the Project. Both Ranger Power and DESRI have extensive experience using a variety of tier-one manufacturers of PV panels, inverters, and tracker systems. A representative list of preferred and potential equipment suppliers under consideration is provided below.

TABLE 1.5-1 PREFERRED AND POTENTIAL EQUIPMENT SUPPLIERS

Panels	Inverters	Trackers	SCADA
Hanwha Q Cells	SMA	NEXTracker	SOLV
LONGi	Power Electronics	Array Technology Inc.	
Trina	TMEIC	Sunlink	
Canadian Solar	Huwei	Gamechange	
First Solar	Sungrow	Soltek	
Jinko			
LG			
REC Solar			
SunPower			
JA Solar			
BYD			
Sunergy			

1.5.3 Panel Setback Distances

1.5.3.1 Minimum setback from:

1.5.3.1.1. Residence

1.5.3.1.2. Property lines

1.5.3.1.3. Other buildings (e.g. animal barns, storage sheds)

1.5.3.1.4. Roads

This section addresses the requirements of Section 1.5.3.1, including all subsections, i.e., subsections 1.5.3.1.1 through 1.5.3.1.4.

The Primary Project Area and Alternate Project Area for the Project were chosen conservatively using the design criteria outlined in Sections 1.5.1 and 1.5.2. The Project does not require any easements from non-participating residents to accommodate the setbacks utilized.

Onion River has voluntarily established the following minimum setback distances for the Project. These setback distances meet or exceed all applicable requirements under county and township ordinances or rules.

TABLE 1.5-1 DESIGN SETBACKS

Setback Description	Setback Distance
Residences	150 feet / 200 feet (special case) – setback to PV generation assets (Arrays, Inverters) excluding access roads and fences.
Non Participating Property Lines (side and rear)	Minimum of 50-foot setback to PV generation assets (Arrays, Inverters) excluding access roads and fences. No Setback at internal property lines.
Fence Line	Minimum 10 feet
Public Road ROW	Class A highways: 75 feet Class B highways: 67 feet Class C highways: 42 feet
Drainage Ditches	20-foot setback from top of bank of ditch.
Potentially Navigable Waterways	75-foot Shoreland Zoning setback to PV generation assets (Arrays, Inverters) excluding access roads and fences.
Overhead Communication and Electrical Lines (not including lines to individual houses or outbuildings)	Easement Area
Overhead Utility Service Lines (lines to individual houses or outbuildings)	20 foot setback to allow overhead line maintenance activities

1.5.3.2 Identify any sites where setback waivers are needed or have been executed.

No setback waivers are required.

1.5.3.3 Status of easement agreements:

1.5.3.3.1 Identify all easement agreements that have been signed

1.5.3.3.1 Identify all easement agreements that have not been signed and provide a short description of the status of negotiations

Table 1.5-2 provided below identifies all solar and transmission easement agreements that have been signed and those that are still in the process of negotiation.

TABLE 1.5-2 STATUS OF EASEMENT, PURCHASE OPTION AND LEASE AGREEMENTS

Owner	Parcel ID	Type	Status	Acres
ARENTSEN, KENNETH C & ARENTSEN, RUTH A	59006061703	Solar Lease	Participating	40.65
ARENTSEN, MARK & ARENTSEN, JULIE K	59006062270	Solar Lease	Participating	27.02
ARENTSEN, MARK I	59006064970	Solar Lease	Participating	40.52
ARENTSEN, MARK I	59006064950	Solar Lease	Participating	35.56
ARENTSEN, RONALD J. & ARENTSEN, GAIL M.	59006061621	Transmission Easement	Participating	33.22
DEKKER, PAUL & DEKKER, THOMAS	59006062310	Solar Lease	Participating	30.41
DEKKER, PAUL & DEKKER, THOMAS	59006062300	Solar Lease	Participating	10.15
DEKKER, PAUL & DEKKER, THOMAS	59006062281	Solar Lease	Participating	37.00
DEKKER, PAUL & DEKKER, THOMAS	59006062331	Solar Lease	Participating	20.08
GARSIDE, DAVID J & GARSIDE, VICKI S	59006064810	Solar Lease	Participating	40.41

Owner	Parcel ID	Type	Status	Acres
GARSIDE, DAVID J & GARSIDE, VICKI S	59006064800	Solar Lease	Participating	40.45
GARSIDE, DAVID J & GARSIDE, VICKI S	59006064790	Solar Lease	Participating	35.41
GARSIDE, DAVID J & GARSIDE, VICKI S	59006064782	Solar Lease	Participating	32.37
HILBELINK FARMS INC	59006062210	Solar Lease	Participating	30.40
HILBELINK FARMS, INC	59006064750	Solar Lease	Participating	40.23
HILBELINK FARMS, INC	59006064720	Solar Lease	Participating	29.99
HILBELINK FARMS, INC	59006062370	Solar Lease	Participating	40.42
HILBELINK FARMS, INC	59006062350	Solar Lease	Participating	37.39
HILBELINK FARMS, INC	59006062320	Solar Lease	Participating	10.12
HILBELINK FARMS, INC	59006062340	Solar Lease	Participating	20.23
HILBELINK FARMS, INC	59006062230	Solar Lease	Participating	20.32
HILBELINK FARMS, INC	59006062180	Solar Lease	Participating	35.23
HILBELINK FARMS, INC	59006062200	Solar Lease	Participating	40.78
HILBELINK FARMS, INC	59006064761	Solar Lease	Participating	39.01
HILBELINK TRUST	59006064741	Solar Lease	Participating	5.07
HILBELINK TRUST	59006061970	Solar Lease	Participating	20.79
HILBELINK TRUST	59006061920	Solar Lease	Participating	39.13
HILBELINK TRUST	59006061330	Solar Lease	Participating	25.97
HILBELINK TRUST	59006061590	Solar Lease	Participating	29.49
HILBELINK TRUST	59006061550	Solar Lease	Participating	30.67
HILBELINK TRUST	59006061690	Solar Lease	Participating	33.62
HILBELINK TRUST	59006061680	Solar Lease	Participating	41.12
HILBELINK TRUST	59006062480	Solar Lease	Participating	41.53
HILBELINK TRUST	59006062500	Solar Lease	Participating	30.20
HILBELINK TRUST	59006062501	Solar Lease	Participating	11.18
HOLLE, PHILIP A. & HOLLE, LAURIE A.	59006062273	Solar Lease	Negotiating	1.50
JENSEMA TRUST	59006061250	Solar Lease	Participating	37.12
JENSEMA TRUST	59006061240	Solar Lease	Participating	42.61
LAMMERS, STANLEY R & LAMMERS, WENDY	59006061350	Solar Lease	Participating	24.32
LAMMERS, STANLEY R & LAMMERS, WENDY	59006061410	Solar Lease	Participating	36.11
LAMMERS, STANLEY R & LAMMERS, WENDY	59006061420	Solar Lease	Participating	4.00
LAMMERS, STANLEY R & LAMMERS, WENDY	59006061340	Solar Lease	Participating	16.21
LAMMERS, STANLEY R & LAMMERS, WENDY	59006061660	Solar Lease	Participating	40.72
LAMMERS, STANLEY R & LAMMERS, WENDY	59006061390	Solar Lease	Participating	5.18
LAMMERS, STANLEY R & LAMMERS, WENDY	59006061380	Solar Lease	Participating	28.41
LAMMERS, STANLEY R & LAMMERS, WENDY	59006061280	Solar Lease	Participating	34.42

Owner	Parcel ID	Type	Status	Acres
LAMMERS, STANLEY R & LAMMERS, WENDY	59006061610	Solar Lease	Participating	39.46
MCMULLEN ETAL, THOMAS J	59006062290	Solar Lease	Participating	30.49
MCMULLEN ETAL, THOMAS J	59006062250	Solar Lease	Participating	29.69
MCMULLEN TRUST	59006062260	Solar Lease	Participating	9.55
OTTE, DAVID R	59006064890	Solar Lease	Participating	71.18
SCHROEDER, ROBERT C	59006065120	Solar Lease	Participating	40.54
SCHROEDER, ROBERT C	59006065090	Solar Lease	Participating	20.29
TEUNISSEN TRUST	59006065080	Purchase Option	Participating	20.30
TEUNISSEN TRUST	59006064980	Purchase Option	Participating	40.60
TEUNISSEN TRUST	59006064930	Purchase Option	Participating	37.93
TEUNISSEN TRUST	59006062400	Purchase Option	Participating	25.27
TEUNISSEN TRUST	59006062380	Purchase Option	Participating	10.11
TEUNISSEN TRUST	59006062410	Purchase Option	Participating	32.40
TEUNISSEN TRUST	59006062240	Purchase Option	Participating	20.27
TEUNISSEN TRUST	59006061954	Purchase Option	Participating	93.87

1.6 COST

This section is omitted as it is only applicable to public utility sponsored projects.

1.7 MISO AND PROJECT LIFE SPAN

1.7.1 MISO market - Describe how, at the time of this filing, the proposed facility will be treated as an intermittent resource in the MISO market.

In March of 2018, Onion River filed an Interconnection Request with the Midcontinent Independent System Operator ("MISO")and the Project was assigned queue position, J1153 as part of the April 2018 MISO Definitive Planning Phase Cycle ("DPP"). In its application, Onion River requested full Network Resource Interconnection Service for 150 MW nameplate capacity of the facility.

Onion River will be eligible to receive Zonal Resource Credits for Capacity within MISO Zone 2. Solar PV projects in MISO receive the class average of 50 percent for the first MISO Planning Year until they can demonstrate 3-years of operational history. Thereafter, their capacity value is determined based on a 3-year historical average output of the resource for peak hours during the summer months.

The Project is currently being evaluated through the System Impact Study process and has completed Phase 1 and Phase 2. The final Phase 3 study report is expected in October 2020. It is expected the Project will have a fully executed Generator Interconnection Agreement ("GIA") by Q1 2021.

The Project is anticipated to be registered as a Dispatchable Intermittent Resource once operational in the MISO Market.

1.7.2 Provide an Estimate of Expected Project Life Span for the Solar Plant

The design life for the Project is approximately 30-35 years. Onion River understands that the value of a solar farm lies in its operation and anticipates a premium level of operation and maintenance service throughout its life. Solar PV is subject to light-induced degradation, with annual production levels declining by 0.5 to 0.7 percent. With this level of maintenance Onion River expects that the operating condition of the panels in 35 years will be approximately 75 percent of the first year of operation. Based upon the needs of the marketplace, the community, the landowners, and the Project, it is anticipated there will be an opportunity to extend the Project life beyond 35 years. The lease agreements would allow for an operating period of 40 years – an extension beyond 40 years would require approval from landowners.

1.7.3 Describe How the Facility will be Decommissioned at the End of Life Span

The Project will operate for at least 30 years and the useful life of the Project may be 35 or 40 years based on current forecasts for modern equipment. At the end of the Project's useful life, Onion River will assess whether to cease operations and decommission the Project or to replace equipment and attempt to extend the life of the Project. In general, the majority of decommissioned equipment and materials will be recycled. Materials that cannot be recycled with be disposed of at approved facilities.

At the end of the Project's useful life, the Project would cease operation. At that time, the facilities would be decommissioned and dismantled and the site restored in accordance with the Decommissioning Plan developed for the Project (Appendix T).

Decommissioning activities will begin within twelve months of the Project ceasing operation and are anticipated to be completed in three to six months, with monitoring and site restoration extending beyond this period to ensure successful revegetation and restoration. A partial list of activities include:

- De-energize solar arrays
- Remove panels and dismantle racking
- Remove inverters, transformers and skids
- Remove access and internal roads
- Remove perimeter fencing
- De-compact subsoils, restore and revegetate

Decommissioning of the Project is described in more detail in the full Decommissioning Plan, which is provided as Appendix T.

1.7.3.1 Provide an estimate of the cost of and source of funding for decommissioning

Onion River expects that the Project will cost $4.7 million to decommission. This represents the net cost of decommissioning expenses and potential revenues collected from the salvage value of panel components and recoverable materials. A detailed analysis is included in the Decommissioning Plan provided as Appendix T. However, the design has not been finalized for the Project and the uncertainties with the salvage and secondary marketplace in 30 to 35 years could lead to an inaccurate estimate. A more accurate decommissioning cost can be generated in the future after the Project is operating, after other large-scale solar facilities have been decommissioned, and after the salvage and secondary marketplace has developed more fully. Onion River proposes to generate a detailed, refreshed decommissioning estimate, and post security at year 15 of the facility's operation with the assumption of a 30 to 35-year useful life. Onion River will post decommissioning security in the form of a performance bond, letter of credit or cash to cover the net estimated cost to decommission the Project.

1.8 REGULATORY PERMITS AND APPROVALS

1.8.1 Approvals and Permits

For each of the regulatory agencies listed below provide the following information:

- ***regulatory agency***
- ***the approvals/permits required,***
- ***application filing date,***
- ***the status of each application,***
- ***agency contact name and telephone number:***

1.8.1.1 Federal

1.8.1.1.1. Federal Aviation Administration ("FAA")
1.8.1.1.2. US Army Corps of Engineers ("USACE")
1.8.1.1.3. US Fish and Wildlife Service ("USFWS")
1.8.1.1.4. Other federal agencies not listed above

1.8.1.2 State

1.8.1.2.1. Department of Transportation ("DOT")
1.8.1.2.2. Department of Natural Resources ("DNR")
1.8.1.2.3. Other state agencies not listed above
1.8.1.3. Local Permits – including county, town, city, and village

The expected permit requirements for construction and operation of the proposed Project are listed in Table 1.8.1. The regulatory agency and trigger for the permit requirement are also listed.

Table 1.8-1 summarizes the permits and approval types that are required at the federal, state and local level for the Project. Onion River is in contact with the appropriate agencies and will update the list if

additional requirements are identified. The necessary permits and approvals will be obtained before commencing construction activities.

TABLE 1.8.1-1 PERMITS, NOTICES, CONSULTATIONS AND APPROVALS

Agency	Interest or Permit	Contact	Anticipated Application Date
Federal			
USFWS	Coordination on Endangered Species Act, Bald and Golden Eagle Protection Act, and Migratory Bird Treaty Act	Shauna Marquardt (952) 252-0092X247	Anticipated Q2 2021
USACE	Section 404 of the Clean Water Act – Nationwide Permit 51 Anticipated	Marie Kopka (262) 641-5498	Anticipated Q2 2021
FAA	Navigable Airspace Review (14CFR77.13(a))	FAA Notice Criteria Tool	Completed 5/15/20
State			
PSC	CPCN for construction of large energy generation facility	Andy Ehlert (608) 266-5814	Q2, 2021
WDNR	Section 401 of the Clean Water Act ("CWA"), Water Quality Certification and State-Regulated Wetlands (Isolated Wetland Permit)	Lindsay Tekler (608) 535-2602	Q2 2021
WDNR	Wisconsin Pollutant Discharge Elimination System (WPDES)/ Stormwater Runoff Permit (NR216)	Kim Gonzalez (608) 267-2759	Q2 2021
WDNR	Wisconsin Navigable Waters, Harbors and Navigation (Chapter 30)	Lindsay Tekler (608) 535-2602	Q2, 2021
WDNR	Wisconsin Endangered Species Law (s. 29.604, Wis. Stats.)	Stacy Rowe (608) 266-7012	Completed 2/10/2020
Wisconsin State Historical Society Historic Preservation Office	Cultural Resources (historical and archaeological) under Section 106 of the National Historic Preservation Act	Chip Brown (608) 264-6508	Anticipated Q2 2021
Wisconsin Department of Transportation ("WisDOT")	Heavy and oversized load permits	Bob Fasick (920) 492-0148	Anticipated Q2 2021
Local			
Sheboygan County Planning and Conservation Department	Erosion Control and Stormwater Management Permit	(920) 459-1370	Anticipated Q2 2021
Sheboygan County Transportation Department	Permit to Construct, Maintain or Repair Utilities Within Highway Right-Of-Way	Greg Schnell (920) 459-3822	Anticipated Q2 2021

Agency	Interest or Permit	Contact	Anticipated Application Date
Sheboygan County Transportation Department	Driveway Permit	Greg Schnell (920) 459-3822	Anticipated Q2 2021
Sheboygan County Transportation Department	Oversize-overweight permit	Greg Schnell (920) 459-3822	Anticipated Q2 2021
Sheboygan County	Shoreland/Floodplain Permit	Kathryn Fabian (920) 459-3060	Anticipated Q2 2021 If needed
Town of Holland	Driveway, Building and Electrical Permit	Janelle Kaiser 920-668-6625	Anticipated Q2 2021

1.8.2 Correspondence with Permitting Agencies - Provide copies of correspondence to and from state and federal agencies that relate to permit approval, compliance approval, or project planning and siting. Provide copies of any correspondence to or from local governments. This should continue after submittal of the application.

Copies of correspondence with applicable permitting agencies are provided in Appendix C. Onion River will continue to provide copies of agency correspondence to the PSC, following submittal of this application.

2.0 TECHNICAL DESCRIPTION, PROJECT AREA, PANEL AND PANEL SITES, AND ANCILLARY FACILITIES

2.1 ESTIMATED SOLAR RESOURCE AND PROJECTED ENERGY PRODUCTION

- ***Provide a complete solar resource and energy production assessment for the Project. This report should include, at a minimum:***

2.1.1 Solar Data Used In Analysis

To evaluate the solar energy resource for the Project, meteorological data from the NREL National Solar Radiation Database was used. The data are averaged from hourly model output over 19 years (1998-2016). This solar irradiance and climate information was then used to simulate a typical full year of production with the photovoltaic systems software ("PVSYST") analysis program.

2.1.2 Monthly and annual typical solar irradiance

Below is a summary of the available solar energy throughout the year using PVSYST V6.86 to simulate the energy conversion process using Canadian Solar HiDM PV model CS1U – 410MS 1500V module.

TABLE 2.1-1 GLOBAL HORIZONTAL IRRADIANCE

Global Horizontal Irradiance ("GHI") on PV Plane (kWh/m^2)												
Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Year**
40.3	62.5	114.7	144.4	182.3	193.0	211.9	172.5	132.2	89.1	51.7	36.6	1431.2

2.1.3 Gross and Net Capacity Factor (explain the method used to calculate the capacity factors and provide the data used)

While the maximum output of the solar farm will be 150 MW AC at the point of interconnection, its output may be less due to time of day, weather, soiling and irradiance. The software program PVSYST was used to simulate the energy conversion process using model files from the PV module and inverter manufacturer, historical weather data as discussed in section 2.1.1, and the parameters that apply to the solar farm.

The system consists of an installed DC power capacity of approximately 165 MW to 210 MW (1.15 to 1.4 DC/AC power ratios). These values will be confirmed once the final layout and generation equipment are determined. The net capacity factors for the Project are calculated to be approximately 23 percent when comparing the nameplate rating to the energy forecasted from the PVSYST model.

2.1.4 Estimated Energy Production of Project

2.1.4.1 Estimated production losses

Energy losses within the system include electrical losses in the AC and DC electrical collector system, energy conversion losses within the PV inverters, step-up transformers and various other equipment, as well as losses due to soiling of the PV modules themselves due to dust, debris and snow cover. Taking those factors into account, a reasonable estimate of energy losses ranges from 15 to 20 percent of the maximum output, which is consistent with industry-wide estimates.

2.1.4.2 Estimated net energy production

The estimated net annual energy production is between approximately 270,000 and 330,000 MW hours. Annual energy production output will depend on final design, site specific features, and annual variability in the solar resource.

2.2 PANEL TYPE AND PANEL CHARACTERISTICS

2.2.1 Identify the Manufacturer and Model of Solar Panel to be Used.

- ***(If no Panel Purchase Agreement has been signed, applicants should identify the panel or panels being considered. It is acceptable to identify a range by providing information on the largest and smallest panel being considered, however, consult with Commission staff prior to preparing the application.)***

Solar panel technology is continually making advancements in both manufacturing and efficiency and is subject to commodity pricing based on the current market demand and available stock. The final PV module selection therefore cannot be made until a time at which detailed engineering is completed and ordering of the PV modules is possible. For this reason, the preliminary engineering provided in this submission has been completed using an assumed silicon crystalline PV module with a 410-watt ("W") DC power output at standard test conditions ("STC") for the purposes of quantifying the proposed energy output. We believe that this is a realistic estimation of the available offering at the time of Project construction.

As noted above, the modules considered have a 410-W DC output for energy forecast purposes but may range anywhere from the current market offering of 390 W, or beyond the 450-W output at the time of construction. A specification sheet of a representative 410-W module is provided in Appendix B, which has similar physical and electrical characteristics.

At the time of construction, several PV module offerings from different suppliers including Canadian Solar, Hanwha Qcells, JA Solar, Jinko Solar, Longi Solar, Risen, Recomm, HT-SAAE, FirstSolar, Sunergy, SunPower and Trina will be evaluated, and a selection will be made based on the most cost-effective option. The technologies that may be considered are polycrystalline, monocrystalline and bi-facial PV modules, and the final supply of modules may contain a mix of several similar wattages.

Bi-facial PV modules are similar to traditional glass plate modules but have the added benefit of collecting solar energy that strikes the back of the PV module due to reflection from the ground and adjacent

modules and trackers, allowing increased energy production for the same solar irradiance when compared to traditional, non-bifacial modules by as much as 30 percent. This may allow the Project to have the same installed generation capacity with a reduced footprint or have an increased output while maintaining the same footprint. The bi-facial modules have greater per watt PV module cost and therefore will need to be evaluated.

2.2.2 Panel Delivery Date - Indicate whether this is a firm date.

Panel deliveries are expected to occur between February and September 2022.

2.2.3 Total Number of Panels Required for Project

The Primary Project Area is designed for approximately 475,000 panels with a generating capacity of 180 MW to 210 MW of DC power. Based on the module wattages under consideration and the PV tracker system selected, the final count could range from approximately 410,000 to 510,000. The full Project nameplate capacity of 150 MW AC can be achieved with the single axis tracking systems for the site.

2.2.4 Technical Characteristics of Panels

The PV module selected for the Project will have approximately 72-cells or 144-cell (half-cells) crystalline modules and will be a plate glass module with an aluminum frame with approximate dimensions of one meter by two meters, or thin-film technology (CdTe). The PV modules will be connected in series for up to 1500V operation and will be mounted on a tracker system in-line and oriented such that the long side of the module is facing adjacent modules on racking which tracks east to west to follow the sun throughout the day.

A module datasheet for the 410-W module considered in the conceptual design is provided in Appendix B. The final module selected is expected to have similar physical construction and electrical characteristics.

2.2.4.1 Through 2.2.4.7 Technical Characteristics of Turbines

These Sections 2.2.4.1 through 2.2.4.7 are only applicable to wind farms and are not applicable to this Project.

2.2.4.8 Physical Dimensions

A scaled drawing of a 410-W panel (Canadian Solar HiDM), which was used for the conceptual design for this Project, is provided in Appendix B. The 410-W panel is 2.08 meter by 0.99 meter and is 35 millimeters thick. All 72-cell or 144-cell (half-cell) PV modules that would be considered at this time generally conform to the nominal dimensions of approximately 2 meters long by 1 meter wide.

2.2.4.9 Panel Power Curve (provide actual data – solar resource and rated output needed to create the curve)

As noted in Section 2.2.4 above, a datasheet including power curve data for a representative 410-W module is provided in Appendix B.

2.2.5 Technical Characteristics of Panel Supports

2.2.5.1 Type of Material Used

The racking and tracker supports are made of non-galvanized, galvanized and stainless steel.

2.2.5.2 Support Dimensions and Number of Sections Required

The solar panels will be mounted on a steel and/or aluminum racking frame that is positioned three to seven feet from the finished ground with a +\- 60-degree range of motion (single axis tracking) driven by electric motors. The single axis tracking system is anticipated to be mounted on steel support posts driven into the ground or screw driven helical piles. The horizontal tracker would be in its highest position during the morning and evening hours when the trackers are tilted at their maximum angle and would be a maximum of 10 to 12.5 feet (3.0 to 3.8 meters) above the ground surface. The bottom edge of the modules will be a minimum of one foot above grade at maximum tilt, and a minimum of four feet above grade when tilted flat at mid-day.

In summary:

- Approximate height of tracker rotation shaft – 3 to 7 feet.
- Minimum tracker height (module edge to ground at maximum tilt) –1 to 4 feet.
- Maximum tracker height (module edge to ground at maximum tilt) – 10 to 12.5 feet.
- Range of tracking angle - +/-60 degrees.

The variability in height is due to the panel configuration of the racking system in portrait orientation. A portrait configuration racking design, has a single row of panels arranged in portrait tracking east to west. The long axis of the panels would be perpendicular to the axis of the tracking system. The panels would be approximately three to seven feet above grade when tilted flat at mid-day in this design. A racking system with a two in-portrait design may also be selected. This system holds two panels in portrait configuration with a long axis that is perpendicular to the tracker. The two in-portrait configuration requires taller piles and results in a taller overall system, but also provides for wider aisles. Racking system design will be selected prior to construction.

In the case of extreme weather conditions, Onion River has reviewed the closest weather station's climate history, as verified by the Solar America Board for Codes and Standards. Potential tracking technologies will be assessed in the context of other project attributes, such as resource forecast and expected operating profile. The final selection could assume an operating scenario where equipment can operate in the most extreme heat and cold, or potentially pause tracking operation until these conditions pass.

The PV modules will be installed using industry standard, best practices. Upon completion of the final site design, pile lengths will be specified to allow the PV module racking system and tracker to be constructed at a minimum height above surrounding grade in order to account for average snow accumulation at the Project area. Solar O&M procedures also call for modules to be placed in stow position to avoid snow accumulation during snow events and snow removal between arrays may be conducted on an as-needed basis.

Trackers are arranged in North-South rows with a length of up to 90 modules and pitch between rows estimated between 18 feet and 26 feet from one another. The trackers are arranged in circuits and blocks, that are separated by roads or AC collection system corridors. The piles will run north to south along the row of modules that are mounted on rails affixed to torque tubes mounted on the piles and this steel structure will likely include an integrated cable management solution in order to support the insulated copper DC string wire which interconnects each of the PV modules. The quantity estimate for piles is provided in Table 2.2-1, including Primary and Alternate Project areas from the conceptual layout.

TABLE 2.2-1 QUANTITY ESTIMATE FOR PILES

Project Area	Tracker Type	Quantity	Piles/Tracker	Total Piles
Primary	Full Tracker	4,674	10	46,740
	Part Tracker	2,679	7	18,753
	Total	**7,353**	**-**	**65,493**
Alternate	Full Tracker	1,089	10	10,890
	Part Tracker	497	7	3,479
	Total	**1,586**	**-**	**14,369**

These solar trackers are expected to be self-powered, however some tracker systems available require external power to be bought from an auxiliary power source.

2.2.6 Scale Drawings of Panels Including Pad and Transformer

As noted in Section 2.2.1, the final selection of the PV module and inverters will be made at a future date based on the available market offering. A scaled drawing of a 410-W panel, which was used for the conceptual design for this Project, is provided in Appendix B. A manufacturer specification sheet of the inverter used as the basis of the preliminary Project design is also provided in Appendix B.

2.3 CONSTRUCTION EQUIPMENT AND DELIVERY VEHICLES

2.3.1 Types of Construction Equipment and Delivery Vehicles

Construction equipment will include the following: graders, bulldozers, excavators, forklifts, trailers, plows, trenchers, pile drivers and directional boring rigs. It is anticipated that most equipment will be initially delivered to the Project's temporary laydown areas. Equipment will be transported from the laydown yard to the appropriate construction areas, as needed.

Additional deliveries of construction materials and components will be made directly to the construction sites. The materials and delivery vehicles include the following:

- Culvert sections and road aggregate (flatbed semis);
- Racking foundation piles, single axis trackers, inverter stations, and modules;
- Ready-mixed concrete at the substation only (traditional ready-mix concrete trucks);
- Large equipment and main substation main transformer (heavy/oversize load tractor trailers); and
- Spools of fiber optic cable, electrical cable, electrical conductors, modules, foundation piles, single axis trackers, anchor bolts, padmount transformers and inverters (lowboy or flatbed semis).

2.3.2 Gross Vehicle Weight for All Vehicles Using Local Roads

Vehicles used for transporting Project components will consist of legal load (80,000 pounds or less) over-the-road flatbed and box trucks, other than the oversize load delivery vehicles for the main step-up transformer for the Project substation.

The site will receive an average of approximately 5 to 10 box trucks (modules) a day throughout the module delivery period and three to eight flatbed trucks a day (inverters, piles, racking, misc.) during the pile driving period. The shipping weight of the main transformer will be approximately 317,550 pounds and may be transported via rail to the nearest railyard or via barge to the nearest port and then via special multi-axle trucking as necessary to the site.

Onion River's construction contractor will work with state and local authorities to obtain the applicable oversize-overweight permits.

2.3.3 For Vehicles Used for Panel and Equipment Delivery (diagrams or Drawings of Vehicles are Acceptable) Include:

2.3.3.1 Overall vehicle length

Except for the main power transformer, vehicles used for delivery will be standard over-the-road semitrucks and flatbed trailers.

2.3.3.2 Turning radius

The turning radius will be the radius for standard over-the-road semi-trucks.

2.3.3.3 Minimum ground clearance

The minimum ground clearance will be the clearance for standard over-the-road semi-trucks.

2.3.3.4 Maximum slope tolerance

The routes to the site are relatively flat, therefore, slope tolerance is not expected to be an issue.

2.3.4 Delivery Vehicle Configurations

As construction progresses, the solar panels, racking and other equipment will generally be delivered directly to the installation locations in a standard over-the-road truck. Forklifts or telehandlers are used to unload pallets from the truck and place the pallets throughout the site. Some equipment will be delivered to the laydown area and then distributed as needed.

2.3.5 Roads and Infrastructure

Stantec performed a preliminary review of the regional roads, bridges and intersections within the Project footprint as well as possible routing to the panel sites. Stantec also compiled data on public infrastructure from WisDOT's Wisconsin Information System for Local Roads ("WISLR") and Highway Structures Inventory System ("HSIS") to evaluate the suitability of the infrastructure to support expected construction traffic.

The area roads are primarily hot-mix asphalt pavement ("HMA"). The roads serve the general traveling public, area agriculture industry traffic, and local vehicle traffic. No roads are posted for weight restrictions in the area. The fact that road are not "posted" with winter weight limits is evidence that the local road system has sufficient load bearing capacity to support the needs of typical roadway vehicles and therefore the Project, however each possible route considered for delivery and transportation of construction materials will be evaluated individually for potential mitigation requirements prior to construction. To determine the sub-surface load bearing capacities of local roads, past maintenance requirements are often an accurate indicator of future performance.

In general, except for access drive entrance/exit locations, haul vehicles that have axle and wheel loads similar to standard highway vehicles should not have an adverse impact on roadways, bridges, and structures that have been designed for modern highway loadings. This would apply to State and County Trunk Highways and other major roadways that have been designed for and routinely carry this type of traffic. Also, this would apply to minor roads with newer structures designed in accordance with current codes. Driveway locations may reveal localized roadway deficiencies due to the increased stresses of vehicle braking, turning, and accelerating. Minor roads with older and smaller drainage structures would require investigation and evaluation of individual structures prior to construction.

2.3.5.1 DESCRIBE METHODS TO BE USED TO HANDLE HEAVY OR LARGE LOADS ON LOCAL ROADS

As described in Section 2.3.2, vehicles used for transporting Project components will consist of legal load (80,000 pounds or less) over-the-road flatbed and box trucks except for the delivery of the main step-up transformer for the Project substation. Onion River's construction contractor will work with state, county

and local authorities to obtain the applicable oversize-overweight permits prior to receiving delivery of the transformer.

2.3.5.2 PROBABLE ROUTES FOR DELIVERY OF HEAVY AND OVERSIZED EQUIPMENT AND MATERIALS

The most suitable access route for vehicles arriving from the North and South will be via I-43 to STH 32 via CTH V, CTH AA, or directly to STH 32 near Cedar Grove. STH 32 runs north-south approximately 2-3 miles east of the Project site. Since STH 32 is on the opposite site of the Onion River, the river would be crossed at either CTH A or CTH G.

The most suitable access route for vehicles arriving from west of the Project site will also be to utilize STH 57 which is a north-south road just west of the Project site. The access to the project site from STH 57 should be via CTH A.

Final routes for equipment have not been chosen at this time although most loads will approach the Project area via the roadways listed above. Although some highways are listed as 'high-clearance' or 'oversize-over weight', these ratings do not remove the requirement for application for a permit for a load which exceeds the standard limits for size and weight. Conversely, the lack of a 'high-clearance' or 'oversize-over weight' rating does not preclude a highway from use for loads which exceed state limits as long as permits are granted, and careful planning is completed. Finally, temporary restrictions are placed on many roads during Spring thaw and Winter Frozen Road Period. The WisDOT Oversize-Overweight Permit section will be contacted for additional information as soon as specific loads and routes are known.

2.3.5.3 POTENTIAL FOR ROAD DAMAGE AND COMPENSATION FOR SUCH DAMAGE

Significant road damage during the construction phase of the Project is unlikely. Vehicles used for transporting Project components will consist primarily of legal load over-the-road flatbed and box trucks. Prior to commencement of construction, a roadway condition survey of road conditions within the Project perimeter will be performed. If necessary, roads will be video-taped both before and after construction and assessed by an independent consultant acceptable to Onion River.

If direct damage results from the Project traffic, it will be repaired and returned to conditions mutually agreed upon by the affected jurisdictions pursuant to road use agreements, joint development agreement and other similar arrangements. Deliveries to Project sites will be compliant with statutory heavy-haul axle loading requirements.

2.3.5.4 PROBABLE LOCATIONS WHERE LOCAL ROADS WOULD NEED TO BE MODIFIED, EXPANDED, OR REINFORCED IN ORDER TO ACCOMMODATE DELIVERY OF EQUIPMENT.

In general, no modifications to local roads are expected to be necessary for this project at this time. One specific location of concern which should be avoided, if possible, during construction, is the bridge over Hidden Creek on Risseeuw Road, approximately 300 feet east of CTH GW. This bridge is not listed in the HSIS database, probably due to its age. The Town of Holland Roadway Superintendent has stated that this bridge may be compromised and should be carefully inspected prior to construction.

2.3.5.5 INCLUDE AN ESTIMATE OF WHETHER OR NOT TREES NEAR OR IN ROAD ROW MIGHT NEED TO BE REMOVED.

Pruning of trees along equipment-delivery routes to accommodate the large loads is not anticipated. Trimming or clearing of trees on participating owner's lands to accommodate equipment delivery will be discussed and agreed upon prior to construction.

2.3.5.6 PROVIDE AN ESTIMATE OF LIKELY LOCATIONS WHERE LOCAL ELECTRIC DISTRIBUTION LINES WILL NEED TO BE DISCONNECTED IN ORDER TO ALLOW PASSAGE OF EQUIPMENT AND MATERIALS.

2.3.5.6.1 Describe how residents will be notified before local power would be cut.

It is not anticipated that local electric distribution lines will need to be disconnected during delivery of materials or installation of the facility. Therefore, notifications are not anticipated.

2.3.5.6.2 Estimate the typical duration of a power outage resulting from equipment or materials delivery.

No power outages are anticipated to be required for the delivery of equipment and materials.

2.3.6 Construction Traffic - Anticipated traffic congestion and how congestion will be managed, minimized or mitigated. Include:

Stantec performed a preliminary analysis of the regional roads, bridges and intersections within the Project area for possible routing to the panel sites and consideration of traffic impacts. The results of this study are discussed in further detail in Section 2.3.5. Figure 4.1.1 in Appendix A identifies the roads within the vicinity of the Project area.

2.3.6.1 List of roads most likely to be affected by construction and materials delivery.

Road use during construction for materials delivery will likely include STH 57, STH 32, CTH A, CTH AA, CTH G and CTH GW. Section 2.3.5.2 discusses how each road is anticipated to be used during the construction phase.

2.3.6.2 Duration of typical traffic disturbance and the time of day disturbances are most likely to occur.

The Project is in a rural area and thus general traffic congestion will be limited. During construction little to no interference with local traffic patterns is anticipated and closures of state, county or local town roads are not planned. Most of the work and transportation activities will occur during low volume and off-peak times. Signage will be posted during construction to notify local traffic of construction vehicles entering and exiting the roadway and presence of workers.

The first phase of construction will include delivery of earth-moving equipment and aggregate for the solar array access road entrances off local roadways. Delivery trucks will bring steel posts, racks and solar modules, followed by equipment and personnel to install them. This will be followed by installation of the electrical system which will be installed by trenching equipment as described in Section 2.4.7.4.2.

Construction activities will be conducted primarily during daylight hours, Monday through Saturday. Smaller vehicles for personnel arriving on-site may continue through later hours if needed to maintain the Project's construction schedule.

2.4 OTHER PROJECT FACILITIES

2.4.1 Foundations

- ***Describe the type of foundation or foundations to be used. If more than one type of foundation may be needed describe each and identify under what circumstances each foundation type would be used. Include the following:***

The Project will use driven pile foundations and, where needed based on geotechnical conditions, drilled or helical pile foundations may be used. The main power transformer will be installed on a concrete foundation.

2.4.1.1 Dimensions, surface area and depth required for each foundation.

Typical driven pile foundations are six-inches-wide by nine-foot steel sections with eight to 15 feet of embedment and a reveal height of two to five feet. If helical piles are needed, foundation dimensions will be determined in the detailed engineering phase. Typical drawings of driven and helical piles are provided in Appendix B.

The substation footprint will be approximately 280 feet by 195 feet with 55 feet by 33 feet of concrete for the main transformer foundation. The final design of the substation is yet to be determined. A typical substation foundation schematic is provided as an example in Appendix B.

2.4.1.2 Amount of soil excavated for each foundation type.

No excavation is required for driven pile foundations which is the primary foundation to be used. A helical pile foundation system is a design/build foundation system that would be designed based on site-specific geotechnical conditions. The need for a helical pile has not been determined at this time. Soil excavation quantities for the substation and concrete foundation for the main transformer will be determined in the detailed engineering phase.

2.4.1.3 Describe how excavated soils will be handled including disposal of excess soil.

Excess soil is not anticipated to be generated by the Project. If required, excavated soils will be thin-spread in a nearby upland location within the Project area after construction in accordance with terms of the solar lease agreements with landowners. Spreading subsoil on cropland or pasture will be avoided.

No subsoil excavation is anticipated for driven foundation piles in the PV array.

Limited subsoil excavation is anticipated for substation foundation construction. In this instance proper topsoil and subsoil segregation will be performed. Excess topsoil will be spread or used as berm material within upland areas on the Project site or adjacent crop land with landowner approval. Excess subsoil will be properly handled and disposed of within the Project area or will be properly disposed of off-site.

2.4.1.4 Materials to be used for the foundation.

2.4.1.4.1 Approximate quantity and type of concrete required for typical foundation.

No concrete is needed for driven or helical piles. Subject to detailed engineering, the main transformer foundation will use approximately 5,500 cubic feet of standard reinforced concrete with a compressive strength of not less than 5,000 pounds per square inch.

2.4.1.4.2 Materials required for reinforcement.

The concrete will be reinforced with rebar.

2.4.1.4.3. Description of the tower mounting system

This section is applicable to wind projects. No tower mounting systems will be required. However, the solar panel racking frame is mounted to the piles by a steel bracket on top of the piles. Additional description of the racking frame is provided in Section 2.2.5.2.

2.4.1.5 Provide technical drawings of each foundation type to be used showing foundation dimensions.

Technical drawings for the driven and helical piles and a typical main transformer foundation are provided in Appendix B.

2.4.2 Site Construction Area

2.4.2.1 Crane Pads

This section is not applicable to solar facilities and therefore is not included.

2.4.2.2 Laydown Areas

The laydown areas will be established throughout the Project sites. The specific location of the laydown areas within Project sites will be established during the detailed design and construction planning of the Project. Siting criteria used to determine the location of the laydown areas includes locating main laydown areas close to site entrances and secondary laydown as required in areas local to the performance of the construction work. The laydown areas will be established exclusively in upland areas. In the event laydown areas are necessary outside the site boundaries to facilitate clean and orderly site conditions during construction, they will be established with landowner permission.

These areas will be used to stockpile racking system components, PV modules, cable spools, and other components until they are needed. Larger components such as inverters, transformers and substation equipment will be delivered directly to the final installed location wherever possible.

A centralized delivery laydown area is shown on Figure 4.1.2 in Appendix A. This centralized delivery laydown area will be prepared by placing materials such as crushed stone, geotextile grid or both in order to prevent excessive disturbance to the area due to heavy and frequent construction traffic. This primary laydown area will also be the location for the construction trailer and for worker parking.

After construction is complete the gravel surface installed for the centralized laydown area will be removed, the soil will be de-compacted, and the site will either be seeded or immediately returned to agricultural use, depending on landowner agreement.

2.4.2.3 Parking Area

Construction worker parking will be located in or near the primary centralized laydown area shown in Figure 4.1.2 in Appendix A. Workers will be shuttled in vans or busses as required to the work areas.

2.4.2.4 Provide a Scale Drawing Showing the General Construction Setup for the Site.

The general construction set-up will consist of construction trailers, worker parking, portable washroom facilities and a laydown area to store construction equipment and materials. The initial stage of the construction will consist of the civil work for building site entrances, clearing and preparing the site in order to install silt fencing and security fencing. Once the perimeter security fencing is completed, site access can be controlled by locking fence gates located at the entrances from public roadways.

The general progression of the construction work will be to establish site access roads, complete any required grading for the substation, and installation of PV racking pile foundations and electrical cable trenching. Once this is completed the PV racking will be installed, modules will be mounted on racking, and inverter stations landed on their pad or foundation. The substation construction is typically independent of the rest of the site.

All construction will take place within the panel areas and along access roads and collector lines between panel areas as shown on Figure 4.1.2 in Appendix A. Erosion control best management practices ("BMPs") will be installed around the limits of these areas. Detailed construction planning will be developed by the developer or general contractor closer to the construction of the solar farm once detailed engineering is completed.

2.4.3 Access Roads

2.4.3.1 Provide the total number of miles required for access roads.

Internal site access roads are expected to be between 10 and 15 miles in total length.

2.4.3.2 Describe materials to be used and methods for construction of access roads including road bed depth.

For access roads in areas with soil strength limitations that will be traversed a minimum number of times (i.e. one or two times) by construction vehicles, construction matting may be used to a limited extent during construction. In these areas, the existing soil surface will remain intact, planted in perennial vegetation and maintained for operation and maintenance once construction is completed.

If areas are identified as having soil strength limitations to support construction vehicles where vehicle traffic will be more frequent (i.e. site approaches), aggregate materials may be used. In these areas, top soil will be stripped and stored for use during reclamation. Geotextile matting will be installed prior to placement of aggregate to prevent mixing with native subsoil. The aggregate would be maintained for the life of the Project. During decommissioning at the end of the Project's life, these areas will be restored by

removing the aggregate, decompacting the soil if required, restoring the topsoil and either seeding to permanent perennial vegetation or returning the area to agricultural production. A schematic showing a cross section of a typical access road is provided in Appendix B. Decommissioning activities for the Project are discussed in further detail in Section 1.7.3 and in the Decommissioning Plan in Appendix T.

2.4.3.3 Specify the required width of access roads. Fully describe any differences between final road size and that required during construction.

Internal site roads will be 16 feet wide during construction and operation of the facility.

2.4.3.4 Describe any site access control (i.e. fences or gates)

The fence that will be used to surround and provide security to the photovoltaic panel areas will consist of a seven to eight-foot-high deer exclusion fencing. The Project substation will require a seven to eight-foot high chain link fence that may include three strands of barb wire at the top. Each fenced area will have at least one secured entrance gate. A typical of the fence design to be used for the Project is included in Appendix B.

2.4.4 Transportation.

2.4.4.1 Explain why existing roads and access roads cannot be used and why.

Existing public roadways will be used to access the site. No temporary roads or temporary widening of roads during construction are planned at this time.

Internal access drives within the Project area will be designed to provide access to power conversion equipment within the panel arrays and around the Project perimeter to provide access to solar equipment and accommodate ongoing maintenance of the Project components. Roads will also provide access for emergency vehicles under emergency circumstances.

2.4.4.2 Description of materials to be used and methods for construction of new access roads.

As described in Section 2.4.3.2, construction matting and aggregate may be used to a limited extent in areas with soil strength limitations for construction vehicles. Where aggregate is used, it would be maintained for the life of the Project. During decommissioning at the end of the Project's life, these areas will be restored by removing the aggregate, decompacting the soil if required, restoring the topsoil and either seeding to permanent perennial vegetation or returning the area to agricultural production. A schematic showing a cross section of a typical access road is provided in Appendix B. Decommissioning activities for the Project are discussed in further detail in Section 1.7.3 and in the Decommissioning Plan in Appendix T.

2.4.4.3 Discuss when and how transportation paths would be removed and land recovered.

Removal of transportation paths is not required since the internal site roads are specified to be 16 feet wide during construction and for final operations. At the end of the Project life, access roads will be

decompacted and the site restored to its preconstruction condition. Any aggregate surfaces will be removed, and the subsoil will be decompacted. Any windrowed topsoil will be re-distributed throughout the site and decompacted as needed.

2.4.5 General Construction Areas

2.4.5.1 Identify size and location of lay-down areas outside of those found at the sites and any other areas used for material storage.

Individual temporary construction areas are planned at each panel site to stage the panel pieces for erection. Upland agricultural areas will be used for this purpose. The areas will be decompacted upon completion of construction prior to final revegetation. See Section 2.4.2 for a description of these areas.

In addition to the individual panel staging areas, a centralized, temporary construction laydown yard is located at the site as shown on Figure 4.1.2 in Appendix A. The laydown yard will serve several purposes including:

- Delivery of panel components and equipment;
- Delivery of construction materials as needed; and
- Material storage at the laydown yard will be a combination of open-air storage, storage in containers, and storage in trailers.

Upon completion of construction, the laydown yard will either be restored for agricultural use or be part of the Project revegetation plan. This area will be restored by removing the aggregate if used, decompacting the land and establishing perennial vegetation.

2.4.5.2 Identify size and location of construction parking areas.

The construction laydown yard will also serve as a construction parking area.

2.4.5.3 Describe the expected use of these areas after project completion.

The laydown/parking areas will be reclaimed as described in Section 2.4.5.1.

2.4.5.4 Provide a list of all hazardous chemicals to be used on site during construction and operation (including liquid fuel).

Hazardous chemicals including fuel for vehicles, paints and lubricants will be stored on site during the construction period. Gasoline and diesel fuel will be stored in individual tanks in the vehicles. Refueling of the vehicles will be contracted with a local fuel delivery service to be completed in the evening hours. Other hazardous chemicals on site will be stored in trailers located at the central laydown area. The expected hazardous chemicals include diesel fuel, gasoline fuel, oil, grease, spray paint, and galvanization paint.

2.4.5.5 Discuss spill containment and cleanup measures including the Spill Prevention, Control, and Countermeasures (SPCC) and Risk Management planning for the chemicals proposed.

Onion River will require that a Spill Prevention, Containment and Countermeasures ("SPCC") Plan be provided by the contractor awarded the construction contract for the Project. The SPCC Plan will outline the procedures and preventive measures that will be followed throughout the construction period. Onion River and all of its contractors will be required to comply with the plan. At a minimum the SPCC Plan will identify the following:

- Typical fuels, chemicals, lubricants and paints to be used or stored in the Project area.
- Methods and location of storage.
- Locations designated for lubrication and refueling (i.e. outside of sensitive resource areas).
- Preventive measures to be used to minimize potential impacts.
- Mitigation methods to be employed, should a spill occur.
- Location of construction spill kits (gloves, booms, sorbents, barrier materials, etc.).
- Emergency notification procedures and forms.
- Contact information for individuals requiring notification if a spill should occur.

The SPCC Plan will be kept on-site during construction and will meet all U.S. Environmental Protection Agency ("EPA") requirements. The SPCC Plan, because of its specificity, will be written by the contractor prior to commercial construction.

2.4.6 Transmission and Distribution Interconnection

2.4.6.1 Describe any transmission or distribution grid interconnection requirement.

The Project will be interconnected to the transmission grid through an existing substation owned by ATC. The ATC substation is located immediately to the north of the proposed Project substation and will require a short 138 kilovolt ("kV") overhead line between the two substations. See Section 1.7.1 for the current status of the MISO interconnection process.

The output of the MISO studies will determine the design details for the substation. See Figure 4.1.4.1 (Appendix A) for a 1-line drawing of the proposed interconnection with the existing ATC 138kV Holland Substation. Onion River has coordinated with ATC regarding this proposed connection point.

2.4.6.2 Describe all communications and agreements, official or otherwise, with the transmission or distribution owner.

In March of 2018 Onion River filed an Interconnection Request with the MISO. The Project was assigned queue position J1153 and is a part of the April 2018 MISO DPP Cycle. In its application, Onion River requested full Network Resource Interconnection Service for 150 MW nameplate capacity of the facility. Onion River plans to enter a Generator Interconnection Agreement early in 2021 with MISO as the Transmission Provider, and ATC as the Transmission Owner. Ranger Power has been in communication with both MISO and ATC to discuss the interconnection of the Project.

2.4.6.3 For transmission interconnections, indicate where the Project is in the MISO Queue and provide copies of the latest draft or final MISO report for the Project interconnect. During the PSC review process applicant must continue to supply the latest reports from MISO.

The Project is currently being evaluated through the System Impact Study process and has completed Phase 1 and Phase 2. The final Phase 3 study report is expected in October 2020. It is expected that the Project will have a fully executed GIA in March 2021.

2.4.7 Collector Circuits

2.4.7.1 Total number of miles of collector circuits required – separated by circuit type (overhead vs. underground).

The current configuration for the collector system contains a bulk total of approximately 19.5 miles of cables consisting of three single conductor cables running in a bundle (one circuit) or a single cable containing all three conductors. Wherever possible, the individual electrical collection circuits will be run within the same route and will share the same trench up to a maximum of five circuits in parallel through the site and will converge into eight parallel circuits as they approach the Project's substation.

The collector circuits are planned as an aboveground or underground system with direct buried cables or cables installed in direct buried ducts. The table below details the length of underground collector circuits required for the Project.

TABLE 2.4-1 COLLECTOR CIRCUIT LENGTHS

	Collector Trench Length (mile)	Total Cable Length* (mile)
Bore	**0.28**	**0.40**
Alternate Array Area**	0.10	0.10
Primary Array**	0.18	0.30
Trench	**13.34**	**19.03**
Alternate Array**	3.65	3.65
Primary Array**	9.68	15.38
Grand Total	**13.61**	**19.43**

*More than one cable may occupy a collector trench.
**Refer to Section 1 for a definition of these areas.

2.4.7.2 Specify the collector circuit voltage to be used.

The collector circuit voltage will be 34.5kV.

2.4.7.3 Transformer type, location, and physical size of transformer pad at each site.

The Project will include a collector substation with a 138/34.5kV main transformer as described in Section 2.5. A schematic of the main transformer is provided in Appendix B. Project facilities will consist of solar panels producing DC voltage, which must be changed to AC voltage through a series of inverters. The

inverters will be spaced several hundred feet apart from each other. Approximately 50 inverters will be installed throughout the Project area (64 including the Alternate area). The final selection of the inverter model will be made at a future date based on the available market offering. A manufacturer brochure of the inverter used for the basis of the preliminary design included with this submission is provided in Appendix B. The dimensions of the representative inverter are 8 x 9.5 x 20 feet (WxHxD). The inverters are typically part of a skid assembly with the inverter and the assembly being mounted on a driven pile foundation.

2.4.7.4 Underground Collector Circuits

The collection system for the Project will be broken into up to seven separate circuits. Each of the seven circuits will carry approximately 14 percent of the generating capacity of the Project. The seven circuits are to be grouped into common cable trenches up to a maximum of 5 circuits due to the required de-rating of cables due to mutual heating of the surrounding soils. It is anticipated that two cable trenches can carry the seven circuits to the substation and each circuit will be connected to its own switchgear breaker.

2.4.7.4.1 Conductor to be used

The preliminary design assumes the conductor will be aluminum. Insulation: 35kV TRXLPE, 100 percent insulation, (1/6 or 1/3 concentric neutral depending on wire size), PVC Jacket overall. Cables are MV-105. Final specifications will be determined during the detailed engineering phase.

2.4.7.4.2 Burial depth and width of trench

The collection system will either be buried at a depth of at least 36 inches to the top of the cables or will be enclosed within a conduit and buried at a depth of at least 24 inches. These depths meet minimum cover requirements as specified in table 300.5 of NEC 2017, Chapter 3 “Wiring Methods and Materials.” The trench for the cable will be one foot wide. Where multiple cables are installed parallel to each other, the cable separation will be up to two feet apart, therefore the width of the trench will vary depending on the number of circuits within the trench. Please refer to Appendix B for a typical trench layout based on varying number of cables.

2.4.7.4.3 Describe trench and how lines would be laid (direct buried, conduit etc.) Provide scale drawing of underground circuit.

Installation of the collection system will be by use of a vibratory plow or trenching method in upland areas. The vibratory plow directly impacts an area approximately 12 inches wide. An example of the vibratory plow method is included in Appendix B. Underground horizontal directional drilling (“HDD”) will be utilized in environmentally sensitive areas, such as wetlands and waterways, to avoid impacts to these resources. Trenching methods will be used for installation of the collection system through some wetlands and waterways within the Project. There are several underground HDD drilling areas that will be used to cross roadways including CTH AS, CTH A, CTH GW, Dulmes Road, Ebbers Road and Risseeuw Road.

Onion River has had numerous discussions with the host landowners and understands that there are drain tiles in this area. If any drain tiles are damaged due to installation of buried conduit they will be evaluated for repair during construction.

Further field investigation of drain tile networks will be conducted prior to construction if necessary. Upon satisfactory mapping of active (functioning and necessary) drain tile locations, considerable care during construction will be taken to: a) avoid drain tile locations which are within the Project site, b) re-route drain tile away from locations which could be damaged during construction, or c) in the case of fields with pattern tile networks, work with applicable landowners to establish acceptable criteria for rerouting, replacing or abandoning in place drain tile that is within a PV array.

If drain tile is damaged, the damaged segments will be repaired in place or, if necessary, relocated as required by the condition and location of the damaged tile. In the event drain tile damage becomes apparent after commercial operation, the drain tile will be repaired in a manner that restores the operating condition of the tile at the point of repair. All repair, relocation, or rerouting referenced above will be consistent with these policies: a) materials will be of equal or better quality to those removed or damaged; b) work will be completed as soon as practicable, taking into consideration weather and soil conditions; c) work will be performed in accordance with industry-accepted, modern methods; and d) in the event water is flowing through a tile when damage occurs, temporary repairs will be promptly installed and maintained until such time that permanent repairs can be made.

2.4.7.5 Overhead Collector Circuits

Some overhead collector circuits may be utilized for the Project. Details regarding their use and location will be determined during final engineering.

2.4.8 Construction Site Lighting

It is expected that at the main laydown area lighting will be used during construction only and will be installed either on pole(s) or on the construction trailers to provide adequate light for safety and security. Construction is planned to be conducted during daylight hours and therefore will not require additional site lighting. In the event that site lighting is needed to accommodate safe working conditions for construction, portable lighting and generators may be used as needed.

2.4.8.1 Describe the site lighting plan during Project construction.

Construction will occur during normal daylight hours. Therefore, with the exception of the lighting at the main laydown area, lighting on site during construction is not anticipated to be required. However, if extensions of working hours would be needed, temporary lighting may be used in the in the form of portable lighting and generators.

2.4.8.2 Provide copies of any local ordinances relating to lighting that could apply.

Local ordinances, including the Sheboygan County Zoning Ordinance and the Town of Holland Zoning Ordinance are provided in Appendix E. No provisions for lighting applicable to this construction are included in Sheboygan County or the Town of Holland zoning ordinances.

2.5 SUBSTATION

- ***If the Project includes the construction of a substation or modifications to an existing substation, provide the following information:***

2.5.1 A complete electrical description of required substation facilities including a list of transformers, busses, and any interconnection facilities required

This section discusses the substation that will be developed for the Project. A preliminary Substation layout schematic can be found in Appendix B.

The Project substation design will be completed during detailed engineering for the Project. A footprint of 350 feet by 260 feet has been allocated at this stage and will generally include items below within the substation:

- 34.5kV switchgear or open-air switches;
- 34.5kV bus and supporting structures;
- 34.5kV metering and instrumentation;
- Station service transformer;
- Main power transformer 34.5kV to 138kV, may also be split into two smaller transformers;
- 138kV circuit breaker;
- 138kV bus and supporting structures;
- 138kV metering and instrumentation;
- 138kV dead-end structure and outgoing transmission line to ATC substation;
- Protection and control building;
- Internal access roads;
- Security fence with vehicle gate, man gate, barbed wire. Fence to be grounded per National Electrical Safety Code requirements;
- Buried power cables, control cables and bare copper grounding grid;
- Lightning protection masts (as required);
- Yard lighting to be used during maintenance and or during emergency; and
- Any required power factor control equipment such as a STATCOM or capacitor bank.

2.5.2 Indicate the size (in acres) of the land purchase required for the new substation or substation expansion.

A schematic showing the approximate orientation of the substation on the property is provided in Appendix B. The land required for the Project substation is part of the lease agreement with parcel tax id number 59006064790. The interconnection facilities will be located within ATC's existing substation. ATC does not require any additional land for the interconnection.

2.5.3 Indicate the actual size of the substation or substation addition in square feet, the dimensions of the proposed substation facilities, and the orientation of the substation within the purchase parcel.

The proposed Project substation will have a footprint of 350 feet by 260 feet. A schematic showing the approximate orientation of the substation on the property is provided in Appendix B.

2.5.4 Identify current land ownership and whether applicant has control of property or whether or not an option to buy has been signed.

The land designated for the Project substation is part of an overall lease of parcel tax id number 59006064790.

2.5.5 Describe substation construction procedures (in sequence as they will occur) including erosion control practices (see Section 3.1).

A typical construction sequence for the Project substation involves, in order, site grading work, below-grade foundation installation, above-grade physical construction of buswork and installation of major electrical equipment, wiring and completion of all terminations, followed by testing, commissioning, and ultimately energization. A site-specific construction specification and schedule will be developed but is not yet available. All contractors will be required to follow the Storm Water Pollution Prevention Plan, as well as adhere to any site-specific environmental requirements including erosion and dust control.

2.6 OPERATIONS AND MAINTENANCE BUILDING

Onion River will locate an O&M building within the Project area that will be of a Conex box type construction. A Conex box is a steel container of varying sizes. The placement of the structure on the site will be in conformance with all local and state building codes

3.0 CONSTRUCTION SEQUENCE AND WORKFORCE

3.1 CONSTRUCTION SEQUENCE

3.1.1 Provide the construction schedule for the proposed Project. Include a timeline showing construction activities from beginning of construction to in-service. Identify all critical path items.

The estimated construction schedule is provided in Table 3.1 below.

TABLE 3.1-1 ESTIMATED PROJECT CONSTRUCTION SCHEDULE

Activity	Start	End
Start of Construction	July 2021	
Workforce Mobilized	July 2021	August 2021
Vegetation removal and localized grading	August 2021	September 2021
Staging and Laydown Areas Established	September 2021	October 2021
Access Roads and Installed	September 2021	October 2021
Posts Driven	October 2021	April 2022
Tracking System Racks Installed	October 2021	April 2022
Inverter Pads Installed	October 2021	April 2022
Solar Modules Installed	April 2022	October 2022
Project Substation Built	March 2022	August 2022
Gen-Tie Line Built	April 2022	July 2022
Commissioning	October 2022	November 2022
In-Service Date		November 2022

3.1.2 Provide a description of the staging and construction sequence required for building the proposed Project at a typical site. Include the delivery of materials.

The following provides a description of the staging and construction sequence for the project:

- Pre-vegetate and stabilize tillable acreage and areas lacking appropriate soil stabilizing vegetation, limited to areas where limited or no ground disruption will occur and consistent with the revegetation and restoration plan
- Stabilize construction entrances and exits;
- Receive security fencing and gate materials;
- Install perimeter security fencing and gates;
- Remove vegetation in areas of construction and perform limited and localized grading as needed for staging and lay-down areas and for transformer substation;

- Develop the staging and lay-down areas for receiving of construction materials and equipment, storage of the construction materials and equipment containers, location of construction trailers and parking for personnel and construction-related vehicles;
- Survey and stake the access roads and panel locations;
- Develop the access roads (limited grading is anticipated as roads will be constructed at grade when possible);
- Delivery of equipment, including piles and potentially helical piers, aluminum supports/mounting structures, tracking systems and inverters. Because the Project will be constructed in blocks and multiple blocks will be constructed simultaneously as well as over time, deliveries will continue over time in advance of construction of the blocks;
- Install driven piles or helical piers for a given block;
- Install aluminum supports/mounting structures on to piles for a given block;
- Install inverter pads for a given block;
- Install tracking systems for a given block;
- Delivery of PV modules and collection system equipment;
- Install solar PV modules;
- Install collection system by means of trenching and directional drilling;
- Electrical testing and equipment inspections for each block and the collection system;
- Receive materials and equipment for step-up transformer substation;
- Install step-up transformer substation and connect collection system to transformer substation;
- Electrical testing and equipment inspections of transformer substation and connections to substation;
- Install and inspect tie-in to ATC substation;
- Conduct interconnection inspections and testing and Project commissioning;
- Vacate and restore staging and lay-down areas. De-compact the subsoil, with windrowed topsoil re-distributed and de-compacted again as needed; and
- Reseed and revegetate staging and lay-down and other disturbed areas consistent with revegetation and restoration plan.

3.1.3 Estimate of Time Required to Complete Construction at a Typical Photovoltaic Site.

The duration of construction for this project is estimated to be 12-18 months including set up and demobilization with the main construction occurring within eight to ten month. The schedule in Table 3.1.1 assumes 18 months. This timeline is in part dependent on winter weather conditions and the ability to work through the winter months. If the winter is mild, activities such as driving posts, installing of racking, and installing inverter pads could be accelerated. In this case, the total construction period could last 12 months.

3.3 WORKFORCE

3.3.1 Provide Information on the Workforce Size and Skills Required for Plant Construction and Operation.

During construction, the work force will be primarily comprised of laborers, equipment operators and management personnel. The equipment operators will operate civil equipment, pile drivers, cranes, and material handling equipment. Most of the personnel required to construct this project will be laborers that install racking systems and place modules. Approximately200 workers are anticipated to be needed to construct the project. Once construction is complete, the facility will require approximately two full time personnel for O&M. The plant operator(s) will have specific training / expertise to run a solar facility.

3.3.2 Estimate How Much of the Expected Workforce Will Come From Local Sources.

Approximately 75 percent of the workforce is expected to come from local sources. This percentage is dependent upon the local labor market and the availability of qualified employees at the time of construction. It is in the best interest of the Project to utilize local labor to the greatest extent possible.

4.0 PROJECT MAPS, AERIAL PHOTOGRAPHY, PHOTO SIMULATIONS, AND GIS SHAPEFILES

Required maps listed below are included in Appendix A.

4.1 PROJECT AREA MAPS

4.1.1 General Project Area Map

4.1.2 Detailed Project Area Map

4.1.3 Topographic Map

4.1.4 Substation

4.1.4.1 Substation Map

4.1.4.2 Engineering Diagram

4.1.5 O&M Building

The O&M building will be of a Conex box type construction. The location of this facility will be determined based on final engineering design, therefore Figure 4.1.5 is not included. The placement of the structure on the site will be in conformance with all local and state building codes.

4.1.6 Natural Resources and Land Use/Ownership Maps

4.1.6.1 Wetland Maps

4.1.6.2 Land Ownership Maps

4.1.6.3 Public Lands

4.1.6.4 Land Cover

4.1.6.5 Flood Insurance Rate Maps (FIRMs)

4.1.6.6 Soil Survey Maps

4.1.6.7 Bedrock Maps

4.1.7 Community Maps

4.1.7.1 Zoning Maps

4.1.7.2 Sensitive Sites

Figure 4.1.7.2 is not necessary as no schools, day care centers, hospitals or nursing homes were identified within 0.5 miles of the Project substation or 1 mile of the Project area.

4.1.7.3 Airport Maps

4.1.8 Communication Infrastructure

4.1.8.1 Communication Infrastructure Maps

Figure 4.1.8.1 is not included because this section is understood to not be required for solar projects.

4.2 GIS SHAPEFILES

Appendix F (submitted on a data disc) contains the following GIS-related items as part of the application:

- GIS shapefiles containing all the data used to produce all maps in the application.
- A spreadsheet listing all GIS data files, a file description, the source of the data, and the date when the data was collected or published.
- Map files in Esri ArcGIS *.mxd format for all GIS maps in the application.
- Esri ArcReader published map files in *.pmf format for all maps in the application.
- Georeferenced 2018 orthophotography.

All shapefiles and orthophotography are referenced to Wisconsin Transverse Mercator projection system.

4.2.1 Project Area Boundary

4.2.2 Project sites identified by number

4.2.3 Alternate project sites identified by number

4.2.4 Access roads for proposed site (include road width)

4.2.5 Access roads for alternate sites (include road width)

4.2.6 Crane paths required for proposed and alternate turbine sites (include path width).

This information is not required for solar projects.

4.2.7 Underground collector circuits (include number of conductors and voltage)

4.2.8 Overhead collector circuits (include voltage)

Some overhead collector circuits may be utilized for the Project. Details regarding their use and location will be determined during final engineering.

4.2.9 Electric distribution lines

4.2.9.1 All electric distribution lines within the entire Project Area (include voltage of each line and phases present (A, B, and or C,),

4.2.9.2 All electric distribution lines within one mile of the Project boundary area (include voltage of each line and phases present (A, B, and or C).

Voltage and phase of existing distribution is currently unknown. Line locations have been provided on aerial photos.

4.2.10 Transmission lines within the Project Area identified by voltage.

4.2.11 New Substation - provide shapefiles showing:

4.2.11.1 Perimeter of entire parcel acquired or to be acquired,

4.2.11.2 Perimeter of substation,

4.2.11.3 Access road,

4.2.11.4 Other facilities such as a retention pond or storm water control,

4.2.11.5 All collector circuits entering the substation,

4.2.11.6 Transmission interconnect.

4.2.12 Expansion of an Existing Substation

An expansion of the existing substation is not proposed for the Project.

4.2.13 O & M Building

4.2.13.1 Perimeter of property acquired,

4.2.13.2 Perimeter of building,

4.2.13.3 Location and perimeter of other buildings,

4.2.13.4 Location and perimeter of parking lot,

4.2.13.5 Location of access road.

The O&M building will be of a Conex box type construction. The location of this facility will be determined based on final engineering design, therefore Figure 4.2.13 is not included.

4.2.14 Wetlands in the Project Area

4.2.14.1 WWI Wetlands,

4.2.14.2 Delineated wetlands. (See Section 6.2.1)

4.2.15 Landowners/buildings

4.2.15.1 Residences on all participating parcels,

4.2.15.2 Non-participating residences inside the Project boundary,

4.2.15.3 Land ownership and parcels within the Project Area,

4.2.15.4 Land ownership and parcels within 1 mile of the Project Area boundary,

4.2.15.5 Confined animal operations - provide shapefiles showing:

- *The locations of any confined farm animals within the Project Area,*
- *All confined animals operations within one mile of the Project Area boundary,*
- *For each confined animal shapefile provide attribute data that identifies the type of animal, the number of confined animals, and the name of the land owner.*

No WDNR-permitted Confined Animal Feeding Operations ("CAFO") (more than 1,000 animals) are located within one mile of the Project Area. The nearest CAFOs are a two dairy farms. One is located 1.4 mile southwest of the Project area and one is located 1.3 mile northeast of the Project area. Onion River has attempted to map the locations of smaller confined animal operations based on publicly available data. Specific types and numbers of animals are not known; however, cattle, sheep and horses are common in Sheboygan County.

4.2.16 All public lands within the Project boundary and public lands within 2 miles of the Project boundary.

4.2.17 All public airport runways within 10 miles of the Project boundary. Show runway orientation and length

4.2.18 All private airports and landing strips inside and within two miles of the proposed Project boundary. Show runway orientation and length.

4.2.19 Land Cover/Vegetative Communities (Do Not Use Obsolete DNR Land Cover data.) See section 5.3.

4.2.20 Provide a GIS shapefile showing the locations of properties enrolled in the Conservation Reserve Program.

4.2.21 FEMA flood plains within the Project Area.

4.2.22 Aerial Photos (no older than three years) of Project Area and surrounding landscape (10 mile radius of the Project Area).

4.3 TOPOGRAPHY – RASTER FILES OF TOPOGRAPHIC FEATURES WITHIN THE PROJECT AREA AND SURROUNDING LANDSCAPE (10 MILE RADIUS OF THE PROJECT AREA)

Raster files of topographic features within the project area and surrounding landscape are included in Appendix F.

4.4 PHOTO SIMULATIONS

Existing aesthetic conditions of the Project area and its vicinity were documented with photographs taken December of 2019. Prior to commencing the photo simulations for the Project, Onion River consulted with Commission staff to determine the suitability of Key Observation Points ("KOPs"). Three KOPs were selected and used to create visual simulations of what the project may look like once constructed:

- KOP 1 – from County Trunk Highway A west of Rauwerdink Road
- KOP 2 – from County Trunk Highway A at intersection of Meves Road
- KOP 3 – from near Ebbers Road

The completed Visual Simulations are provided in Appendix G. They contain baseline photographs and visual simulations for the three KOP's listed above.

5.0 NATURAL AND COMMUNITY RESOURCES, DESCRIPTION AND POTENTIAL IMPACTS

5.1 SITE GEOLOGY

5.1.1 Describe the geology of the Project Area.

The Project area lies within the Northeastern Wisconsin Drift Plain of the Northern Lake States Forest and Forage Region. This area is covered with glacial lake plain, till, and outwash deposits. Some of the higher areas are moraines that appear as ridges aligned from north to south. The Project area is underlain by the Ozaukee Member of the Kewaunee formation, which consists of basal till deposited by ice flowing southward in the Lake Michigan basin, as well as associated fluvial and lacustrine deposits which were deposited during the last part of the Wisconsin Glaciation. These deposits are generally pebbly, clayey, and silty till and lake sediment.

Bedrock within the Project area is of the Engadine formation of the Silurian Group consisting of Niagra dolomite (McLaughlin, 2013). Also present is the Maquoketa shale which overlies the dolomite formations and is referred to as the Platteville-Galena formation of the Sinnipee Group. Lowest in stratigraphy is Cambrian sandstone over Precambrian igneous rocks. Depth to bedrock in most of the Project area ranges from 15 meters (50 feet) to greater than 30 meters (100 feet) (WDNR, 2011). U.S. Department of Agriculture ("USDA") Natural Resource Conservation Service ("NRCS") Soil Survey Geographic Database ("SSURGO") mapping indicates that depth to the restrictive layer for the Project area ranges from 0.43 meter (1.4 feet) to greater than 2 meters (6.5 feet).

The Project area is primarily deep to very deep, well-drained and somewhat poorly drained silt loam formed in clayey till, typically with a thin mantle of loess, on ground moraines, end moraines, and recessional moraines. Stream valleys within the Project area consist of very deep somewhat poorly drained soils formed in loamy and sandy drift on lake plains, outwash plains, and valley trains and poorly drained loamy alluvium over sandy and gravelly alluvium.

5.1.2 Geotechnical Report on Soil Conditions

The preliminary geotechnical investigation was performed for the Project. A summary of the geotechnical investigation is presented here as well as discussion related to prime farmland based on review of USDA NRCS SSURGO data. The full preliminary geotechnical report with boring logs can be found in Appendix H.

5.1.2.1 Provide a summary of conclusions from any geotechnical report or evaluation of soils in the Project Area

Onion River commissioned Braun Intertec Corporation ("Braun Intertec") to perform a preliminary subsurface exploration and geotechnical engineering evaluation for the Project. The purpose of the investigation and report was to explore subsurface conditions, conduct field and laboratory testing to characterize the subsurface soils and bedrock properties and to provide preliminary geotechnical engineering parameters for the design and installation of the tracking systems for the solar panels.

- ***Results of soil borings including a review of soil bearing capacity and soil settlement potential.***

Twenty soil standard penetration test borings were performed to a depth of 20 feet at select locations within the Project area. Lab tests were performed to assess thermal conductivity and corrosivity testing on selected soil test samples retrieved from the borings to aid in soil classification and engineering analysis. Five field electrical resistivity tests were also performed. Soil boring and resistivity test locations are shown in the Geotechnical Report in Appendix H of this application.

According to the geotechnical evaluation, a majority of the Project area has a topsoil thickness ranging from about 6 to 18 inches comprised of dark brown to black sandy lean clay, clayey sand, and silty sand. The surface materials under a majority of the Project area were underlain by intermixed layers of glacial outwash and till with variable amounts of gravel present.

Natural soils suitable for support of the proposed solar racks and transformers are present within the Project area. The non-organic on-site soils are expected to generally be suitable for reuse as backfill and fill. Some clay soils are present within the site, and where used as backfill and fill, moisture conditioning (drying) of the clays may be needed prior to reuse to achieve compaction. On-site clay soils are generally more frost-susceptible, are sensitive to moisture and disturbance, and will generally require more grading efforts for reuse as structural backfill and fill. The on-site soils generally consist of clays and silts that are considered to be moderately to highly frost susceptible. Such soils can retain moisture and heave upon freezing. In general, this characteristic is not an issue unless these soils become saturated due to surface runoff or infiltration or are excessively wet in-situ. General site grades will be set to direct surface drainage away from structures to limit the potentials for saturation of the subgrade and any subsequent heaving.

Frost heave of exterior slabs can be addressed by replacing the frost susceptible soils with non-frost susceptible soils or insulation as described in the Geotechnical Report in Appendix H. Alternatively, the equipment pads can be supported on frost-depth foundations with a structural slab.

Significant mass grading of the site is not anticipated to be needed to reach finished grades. Access evaluation and recommendations regarding site preparation, preliminary foundation design, floor slab subgrade, preliminary gravel access road (if deemed necessary), drainage and maintenance, and utility construction are provided in detail in the Geotechnical Report in Appendix H.

- ***Soil conditions related to site geology that might create circumstances requiring special methods or management during construction.***

Groundwater was encountered during auger advancement at 3 of the 20 soil borings at depths ranging from about 5 feet to 18.5 feet. Groundwater was not observed in the remaining 17 soil bores which were completed to a depth of 20 feet. Estimated groundwater depths at the specific boring locations at the time of drilling are presented in Table 3 (Groundwater Summary) in the Preliminary Geotechnical Report included as Appendix H of this application.

It is not anticipated that groundwater will be encountered during typical excavations at this site. If perched water or collected rainwater is encountered within excavations for foundations it will be removed with sump pumps to facilitate proper backfilling or concrete placement. Any dewatering activities will follow WDNR BMPs.

Results of the corrosion testing performed as part of the geotechnical analysis indicate that corrosion protection of buried structures such as steel piles is not required at this site.

5.1.2.2 Depth to Bedrock

- ***Identify any sites where foundation construction must be modified because of the presence of bedrock, and construction methods and foundation issues associated with situations where bedrock formations are near the surface.***

Twenty soil test borings were performed during the geotechnical evaluation for the Project. A depth of 20 feet was achieved in all borings. Bedrock was not encountered within 20 feet of the surface in any of the borings.

The construction activities for the Project include driven piles for the tracking system, collector system trenches and other shallow excavations for access roads, laydown yard and a substation slab foundation. Typical driven pile foundations are six inches wide by nine-foot steel sections with eight to 15 feet embedment. If pile refusal is encountered due to shallow bedrock or other subsurface obstructions, alternate foundation installation techniques or designs such as helical piles may be used.

Results of the geotechnical report determined that standard, driven piles should be feasible for the majority of the site. The design loads are relatively light for solar projects, such that foundation lengths less than 15 to 20 feet are often used. Field-testing of potential foundation types and sizes will be conducted to more accurately evaluate post foundation design. Tensile and lateral load testing will also be conducted.

If helical piles are used, they will be installed to a depth adequate to prevent basal heave from ground freezing. Cobbles or boulders may be present that could damage or impede the advancement of helical piles. To facilitate installation in gravel or cobbles, the contractor may need to “open up” or “sea shell” the helices. A contingency plan will be implemented to account for installation difficulty requiring additional excavation or additional piles. A helical pile foundation system is a design/build foundation system that would be designed and installed by a qualified contractor. Further evaluation of foundations types to be employed for the Project will take place during final design.

Utilities for this Project will generally be limited to electric utilities, which will be placed at depths of about two to three feet below proposed grades. Due to the relatively shallow installation depths of these utilities, no major excavation related difficulties are anticipated.

Therefore, based upon a review of the surface and bedrock geology of the area, and information gathered during the preliminary geotechnical review, the predominant depth to bedrock within the Project area is anticipated to be greater than the proposed construction activities. A final geotechnical study will be completed prior to construction which will confirm the exact pile requirements. If subsurface conditions preclude installation of driven piles, alternative pile types such as helical piles may be used. The final decision will be approved by a structural engineer to ensure compliance with all applicable regulations and the safety and durability of the Project.

- ***Likelihood or potential that construction on bedrock formations may negatively impact private wells within two miles of panel sites.***

Since a depth of 20 feet was achieved in borings, there is a low likelihood that construction on bedrock formations may negatively impact private wells within two miles of the Project area. If bedrock formations are encountered during the final subsurface exploration and geotechnical engineering evaluation, measures will be implemented to guard against the introduction of contaminants into groundwater due to accidental release of construction related chemicals, fuels, or hydraulic fluid during construction. Spill-related impacts from construction are primarily associated with fuel storage, equipment refueling, and equipment maintenance. To avoid spill-related impacts, the construction contractor will be required to prepare a SPCC Plan that outlines measures that will be implemented to prevent accidental releases of fuels and other hazardous substances and describes response, containment, and cleanup procedures. By implementing the protective measures set forth in the SPCC Plan, long-term contamination due to construction and operation activities is not anticipated.

5.2 TOPOGRAPHY

5.2.1 Describe the General Topography of the Project Area

- ***Raster files of topographic features within the project area and surrounding landscape (10-mile radius of the project area).***

Raster files of topographic features within the Project area and surrounding landscape, including the area within a 10-mile radius, can be found in the electronic files provided for section 4.2.

The surface topography of the Project area is characterized by nearly level to rolling till plains, lake plains, and outwash plains mixed with drumlin fields, bedrock controlled moraines, lake terraces, flood plains, swamps, and marshes. The drumlins and moraines form low hills and ridges. Lakes and streams are numerous, and streams generally form a dendritic drainage pattern. Elevation ranges from 740 to 850 feet (225.5 to 259 meters). Local relief is mainly less than 5 feet (1.5 meters) with slope gradients less than 2 percent, but some hills rise more than 30 feet (9 meters) above the adjacent lowlands. The western and south western portion of the Project area is slightly more sloping in nature, with slopes ranging from 6 to 12 percent.

5.2.2 Describe Expected Changes to Site Topography Due to Grading Activities

The topography of the Project area will be temporarily altered by construction activities including installation of the foundations for the tracking systems and trenching for the collector system. Other than grading requirements for the substation/step-up transformer to be built within the Project area, no significant grading is anticipated. Panel arrays will be designed and constructed to conform to the existing topography to avoid the need for significant grading. Access roads will be constructed as close to existing grade as possible; maintaining preconstruction hydrologic flow patterns.

Upon completion of construction activities, the areas temporarily impacted due to construction activities will be returned to their pre-construction topography.

5.3 LAND COVER

The Project is located in a rural area dominated by agriculture. The land cover is dominated by agricultural crops. Areas not utilized for farming activities consist of woodlands and wetlands. Figure 4.1.6.4 in Appendix A provides an overview of the land cover existing within the Project area.

5.3.1 Vegetative Communities in the Project Area. List and identify the dominant plants in the following community categories:

The vegetative communities in the Project area were evaluated by a combination of aerial photographic review and field visits during 2019. Most of the Project is comprised of active agriculture under row crop production.

5.3.1.1 Agricultural

- ***Row Crops.***

The dominant vegetation within the agricultural areas are under row crop production comprised of corn (*Zea mays*) and soybeans (*Glycine max*).

- ***Other Agricultural Areas.***

Common vegetation observed within or adjacent to the cultivated fields include common ruderal species such as ragweed (*Ambrosia spp.*), common dandelion (*Taraxacum officinale*), common plantain (*Plantago major*), and Canada thistle (*Cirsium arvense*).

5.3.1.2 Non-Agricultural Upland

- ***Prairie/Grasslands.***

The dominant vegetation within the non-agricultural upland areas are comprised of grassland areas along the perimeter and between agricultural fields and isolated woodland areas. The upland grasslands are dominated by Timothy (*Phleum pretense*), Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), common milkweed (*Asclepias syriaca*), Canada goldenrod (*Solidago canadensis*), and Canada thistle.

- ***Upland woods.***

Upland woodlands located within the Project area are comprised of relatively small isolated woodlots, pine plantation, and perimeter areas within the agricultural landscape. These woodlands are primarily dominated by bur oak (*Quercus macrocarpa*), red oak (*Quercus macrocarpa*), white oak (*Quercus alba*), red pine (*Pinus resinosa*), sugar maple (*Acer saccharum*), American basswood (*Tilia americana*), white ash (*Fraxinus americana*), American elm (*Ulmus americana*), chokecherry (*Prunus virginiana*), prickly ash (*Zanthoxylum americanum*), Tatarian honeysuckle (*Loniccera tatarica*), common buckthorn (*Rhamnus cathartica*), partridgeberry (*Mitchella repens*), Virginia creeper (*Parthenocissus quinquefolia*), woodland strawberry (*Fragaria vesca*), wild parsnip (*Pastinaca sativa*), and wild red raspberry (*Rubus idaeus*).

5.3.1.3 Wetlands

- ***Forested Wetlands.***

A moderate amount of forested wetland communities are present within the Project Area, and are further described in Section 6.2 and within the Wetland Delineation Report in Appendix I.

- ***Non-forested Wetlands.***

The wetlands within the Project area are mostly comprised of non-forested wetland communities including wet meadow and farmed wetlands. Open water associated with waterways are included in this category. These wetlands and their dominant species are further described in Section 6.2 and within the Wetland Delineation Report in Appendix I.

- ***Marshes, Bogs, and Fens.***

Other non-forested wetland types such as marshes, bogs, or fens do not exist within the Project area.

5.3.2 Acres of Land Cover Categories in Project Area

5.3.2.1 -5.3.2.4 Agricultural, non-Agricultural Upland, Wetlands, and Developed Lands

Land cover within the Project Area was identified using aerial photography and direct field observations taken during site visits in the summer of 2019 and spring of 2020. The land cover was digitized into a GIS layer to quantify the existing site conditions into the categories as specified in Table 5.3-1. The total land cover acreages within the Primary and Alternate Project Areas for each land cover category are provided in Table 5.3-1. The Primary and Alternate Project Areas are further described in Section 1.0.

TABLE 5.3-1 TOTAL LAND COVER IN ACRES

Land Cover Classification	Total Land Cover	Primary Project Area	Alternate Project Area
Agriculture			
Row Crops	1,502.17	1,172.32	329.85
Hay/Pasture/Old field	0	0	0
Other Agriculture	10.06	10.06	0
Non-Agricultural Upland			
Prairie/Grassland	47.81	36.36	11.45
Upland Woods	81.44	63.16	18.28
Wetlands			
Non-Forested (including open water)	80.47	48.43	32.04
Forested Wetlands	94.79	51.79	43.00
Developed Land			
Residential	12.51	7.33	5.20

Land Cover Classification	Total Land Cover	Primary Project Area	Alternate Project Area
Commercial /Industrial (includes road ROW)	11.53	8.87	2.66
Project Area Total	1,840.78	1,398.34	442.44

5.3.3 Land Cover Impacts

The land cover analysis described in Section 5.3.2 was used to calculate the acreage of impacts due to construction and operation of the Project based on the site design. Impacts are identified by the various Project facilities such as the Solar Production Area, Collector System, Access Roads, Substation, and Perimeter Areas. Descriptions of the impacts associated with each of these areas are provided in Sections 5.3.3.1 through 5.3.3.6.

5.3.3.1 Solar Production Areas (within fence)

The Solar Production Areas are defined as all portions of the Project facilities located inside the proposed fencing of the site. These areas include the panels and associated facilities such as MV stations, access roads, and underground collector lines. During construction most of these areas will be used for accessing panel locations and for temporarily staging materials and equipment. Impacts during construction are mostly limited to agricultural lands to the extent practicable. However, there will be some localized clearing along fence lines and small wooded areas. Larger forested areas that are within the fenced areas will be avoided. Some panels and other facilities will be located within some of the farmed wetland areas, as further described in Section 6. However larger wetland communities and nearby waterways will be flagged and avoided. BMPs will be employed to protect wetlands and waterways near the construction areas.

Once the panels and associated facilities have been installed, the surrounding area will be seeded with an appropriate herbaceous seed mix as described in Section 6.5.3.4. At the end of the Project's useful life, the Project would cease operation. At that time, the facilities would be decommissioned and dismantled, and the site restored to its preconstruction condition. If previously farmed, the site may be returned to farm production as described in Section 1.7.3. However, for the duration of the Project, impacts to agricultural lands will be considered permanent.

Table 5.3-2 below provides the total land cover within the Solar Production Area identified by the Primary and Alternate Project Area.

TABLE 5.3-2 SOLAR PRODUCTION AREA IMPACTS IN ACRES

Land Cover Classification	Primary Project Area		Alternate Project Area	
Impact Type	**Temp**	**Perm**	**Temp**	**Perm**
Agriculture				
Row Crops	0	870.47	0	190.64
Hay/Pasture/Old field	0	0	0	0
Other Agriculture	0	0	0	0
Non-Agricultural Upland				

Land Cover Classification	Primary Project Area		Alternate Project Area	
Impact Type	**Temp**	**Perm**	**Temp**	**Perm**
Prairie/Grassland	1.93	3.42	0.02	0.58
Upland Woods	0	2.87	0	2.51
Wetlands				
Non-Forested Wetlands (including open water)	2.41	6.53	1.11	4.45
Forested Wetlands	0	0.17	0.80	0
Developed Land				
Residential	0.19	0	0.16	0.14
Commercial /Industrial (includes road ROW)	0	0	0	0
Project Area Total	4.53	883.46	2.09	198.32

5.3.3.2 Collector System

The Collector System is comprised of the underground cabling infrastructure located between the Solar Production Areas (outside fenced areas). The width of the Collector System will vary depending on the number of cables in a given location. For the purpose of impact analysis in the section, installation of the Collector System is estimated to be an approximate 15-foot temporary impact width and will be installed utilizing trenching methods. Where these facilities must cross waterways, impacts will be avoided by using directional bore methods.

TABLE 5.3-3 COLLECTOR SYSTEM IMPACTS IN ACRES

Land Cover Classification	Primary Project Area[1]		Alternate Project Area[1]	
Impact Type	**Temp**	**Perm**	**Temp**	**Perm**
Agriculture				
Row Crops	1.13	0	0.67	0
Hay/Pasture/Old field	0	0	0	0
Other Agriculture	0	0	0	0
Non-Agricultural Upland				
Prairie/Grassland	1.19	0	1.87	0
Upland Woods	0	0.57	0	0.04
Wetlands				
Non-Forested Wetlands (including open water)	0.07	0	0.03	0
Forested Wetlands	0.03	0	0	0
Developed Land				
Residential	0.36	0	0.56	0
Commercial /Industrial (includes road ROW)	1.09	0	0.11	0
Project Area Total	3.87	0.57	3.24	0.04

5.3.3.3 Access Roads

The access-road impacts have been identified for areas outside the Solar Production Areas (outside fenced areas) and are presented in Table 5.3.4. Access roads were estimated to be approximately 16 feet wide, located mostly within existing agricultural lands. Access roads may be comprised of a combination of temporary construction matting and grass/unimproved pathways. If areas are identified as having soil strength limitations to support construction vehicles where vehicle traffic will be more frequent (i.e. site approaches), aggregate materials may be used.

Impacts to wetlands and waterways have been minimized to the extent practicable. The preliminary design does not anticipate permanent impacts to wetlands. One waterbody crossing will be required for an access road which will require the installation of a culvert. Aggregate material will not be used in wetland areas identified within the Project limits as shown within the Wetland Delineation Report in Appendix I. Please refer to Section 6 for details regarding the impacts to wetlands and waterways.

TABLE 5.3-4 ACCESS ROAD IMPACTS IN ACRES

Land Cover Classification	Primary Project Area[1]		Alternate Project Area[1]	
Impact Type	**Temp**	**Perm**	**Temp**	**Perm**
Agriculture				
Row Crops	0	0.70	0	0.47
Hay/Pasture/Old field	0	0	0	0
Other Agriculture	0	0	0	0
Non-Agricultural Upland				
Prairie/Grassland	0	0.03	0	0.03
Upland Woods	0	0	0	0
Wetlands				
Non-Forested Wetlands (including open water)	0	0.004 (600 sq ft)	0	0
Forested Wetlands	0	0	0	0
Developed Land				
Residential	0	0	0	0
Commercial /Industrial (includes road ROW)	0	0	0	0
Project Area Total	0	0.74	0	0.50

5.3.3.4 Crane Paths

This section does not apply to solar projects.

5.3.3.5 Substation

The proposed substation will have a footprint of 280 feet by 195 feet and will impact approximately 1.25 acres of agricultural land located with the Primary Project Area. In addition, as storm water detention facility approximately 0.78 acre in size will be located adjacent to the Project substation. Both of these areas are currently cultivated cropland. No wetland or waterway impacts are anticipated on the substation site.

These acreage totals are included in the permanent landcover impacts within the Primary PV area as detailed in 5.3-2.

5.3.3.6 Perimeter Areas

The Perimeter Areas of the Project are comprised of all areas within the site boundary that are not part of the Solar Production Areas, Collector System, Access Roads, and Substation. The Perimeter Areas include most of the existing forested and wetland areas of the site and will not be affected during construction. These areas will remain in greenspace during construction and Project operation. No wetlands or waterways are anticipated to be impacted within the perimeter areas either during or after construction. BMPs will be employed to protect wetlands and waterways near the construction areas.

Some of the agricultural areas within the identified Perimeter Areas may be utilized for construction purposes, such as equipment access, temporary material storage, and for the laydown yard. Once construction has been completed, most agricultural areas will be seeded as described in Section 6.5.3.4. Seed mixes developed for the Project are included in Appendix K. Larger contiguous areas may be farmed if determined to be practicable once the Project is in operation. For the purposes of determining impacts, all agricultural areas that are not farmed will be permanently impacted for the duration of the Project.

TABLE 5.3-5 PERIMETER ACRES

Land Cover Classification	Primary Project Area[1]			Alternate Project Area[1]		
Impact Type	Temp	Perm	Not impacted	Temp	Perm	Not Impacted
Agriculture						
Row Crops	0	314.71[1]	0	0	124.14[1]	0
Hay/Pasture/Old field	0	0	0	0	0	0
Other Agriculture	0	0	10.06	0	0	0
Non-Agricultural Upland						
Prairie/Grassland	0	0	31.10	0	0	8.3
Upland Woods	0	0	60.38	0	0	15.19
Wetlands						
Non-Forested Wetlands (including open water)	0	0	39.61	0	0	26.23
Forested Wetlands	0	0	51.61	0	0	42.18
Developed Land						
Residential	0	0	7.14	0	0	3.96
Commercial /Industrial (includes road ROW)	0	0	8.87	0	0	1.46
Project Area Total	0	314.71[1]	208.77	0	124.14[1]	97.32

[1]Some cropland outside of the fenced area may be returned to crop production after construction is complete depending upon landowner preference.

5.3.3.7 O&M Building

Onion River will locate an O&M building within the Project area that will be of a Conex box type construction. A Conex box is a steel container of varying sizes. The placement of the structure on the site will be in conformance with all local and state building codes.

5.4 WILDLIFE

Wildlife habitat found within the Project area was identified based on desktop habitat review, field investigations and observations, and state and federal information on threatened and endangered species.

5.4.1 Describe existing wildlife resources and estimate expected impacts to plant and animal habitats and populations.

The wildlife species that inhabit the proposed Project area are typical of those found in the Eastern Ridges and Lowlands of the Central Lowland Physiographic Province of the United States. The Project area consists of agricultural fields, wetlands, and woodlands which provide suitable habitat for a variety of common Wisconsin wildlife and plant species. Typical mammals found in these habitats include white-tailed deer, gray and red fox, skunk, common raccoon, cottontail rabbit, coyote, eastern gray squirrel, and woodchuck. Wildlife may utilize agricultural fields to travel between preferred habitat, which is typically field edges, fallow fields, forests and wetlands.

Many bird species may also be found in the Project area and vary depending on time of year. Typical breeding bird species likely to occur within the Project area include red-tailed hawk, tree swallow, American robin, gray catbird, common yellowthroat, song sparrow, and red-winged blackbird. Wild turkey, Canada goose, ring-necked pheasant, and mallard may also be present.

No managed wildlife areas are present within the Project area. The nearest wildlife area is Schwengel Waterfowl Production Area located 4.0 miles south of the Project. One WDNR managed Extensive Habitat Public Hunting Ground is located 3.0 miles west of the Project. Important Bird Areas (“IBAs”), which are discrete sites identified by the National Audubon Society, provide essential habitat for one or more bird species and include habitat for breeding, wintering, and/or migrating birds. No IBAs are located within the Project area. The North Kettle Moraine State Forest is the nearest IBA and is located 11.6 miles west of the Project. No parcels of Wetland Reserve Program (WRP) lands were identified within the Project or within a 2-mile radius of the Project Area (Figure 4.1.6.3 in Appendix A).

While these surrounding resource areas are comprised of natural areas and diverse wetland habitats capable of supporting various bird species of high conservation priority, the habitat within the Project area is dissimilar and not considered suitable except for common bird species more typical of agricultural settings. The Project is anticipated to have minimal negative impact on wildlife species and their preferred habitats since the majority of the Project area consists of actively tilled agricultural land. Anticipated impacts are generally expected to be of short duration and limited to the period of construction activities. After construction is complete, Onion River will revegetate the Project area with perennial grasses. A mix of native prairie grasses, sedges, and forbs may be used in open spaces between panel blocks and areas between the perimeter fence and property boundaries as described in Section 6.5.3.4. It is anticipated that revegetation of the Project area with a permanent cover of prairie vegetation will increase suitable habitat for a variety of wildlife species including pollinating insects, nesting birds, and small mammals.

In addition, all attempts were made during the preliminary engineering design process to maintain connectivity of woodland areas to the lands surrounding the Project area. The purpose of this was to

maintain possible use of these areas by larger mammals, such as whitetail deer, while keeping them segregated from the fenced solar areas.

The fence that will be used to surround and provide security to the photovoltaic panel areas will consist of a seven to eight-foot-high deer exclusion fencing. This type of fencing will provide for the passage of smaller wildlife such as possum, raccoon, and rabbit while excluding larger mammals such as whitetail deer. Deer exclusion fencing is also readily visible to avian species.

The Project substation will require a seven to eight-foot high chain link fence which may include three strands of barb wire at the top. A schematic of the proposed fencing is found in Appendix B.

Because of these design approaches, it is anticipated that the Project will not significantly affect existing animal populations.

Onion River is not aware of research on the effects of large-scale solar facilities upon avian species in the Midwest. To understand potential effects of photovoltaic solar arrays on avifauna in Wisconsin, searches were performed of published literature and agency or non-profit guidance available online.

In these reports, birds used solar facilities for feeding, hunting, drinking, shading, and sheltering (DeVault *et al.* 2014, Montag *et al.* 2016, Visser 2016). Birds also interacted with solar sites unintentionally, resulting in mortality events and other negative effects (Lovich & Ennen 2011, Turney & Fthenakis 2011, Hernandez *et al.* 2014, Kagan *et al.* 2014, Jenkins *et al.* 2015, Smith & Dwyer 2016, Visser 2016). Overall, the literature reports lethal, sub-lethal, non-lethal, and beneficial effects of solar arrays on avifauna.

To date, research regarding effects of solar arrays on avifauna has focused on arrays situated in desert or Mediterranean habitats in the United States and South Africa (e.g. Visser 2016, Kagan *et al.* 2014, Lovich & Ennen 2011, Jenkins *et al.* 2015, Turney & Fthenakis 2011), areas where water resources are often scarce (especially relative to Wisconsin or other Midwestern solar farms). Whether the scarcity of water enhances the lake effect is critical to understanding the impact of Wisconsin-based solar farms and is unconfirmed. A single study (Montag *et al.* 2016) investigated effects in the southern United Kingdom, which has an oceanic climate (somewhat similar to central Appalachia or the Pacific Northwest in the United States). Although dissimilar to Midwestern climate regimes, the avifauna at this site would presumably not be as attracted to individual perceived waterbodies as those in desert or Mediterranean habitats where water resources are rarer. However, Montag *et al.* does not discuss the lake effect or other sources of avian mortality (Montag *et al.* 2016). In addition, one study (DeVault *et al.* 2014) investigated a solar farm located in Ohio but focused on effects of a solar field as an attractant to avifauna and did not estimate mortality directly. However, DeVault *et al* found that in airports in three states, Arizona, Colorado, and Ohio, solar installations did not increase avian visitation at nearby airports relative to previously grassland habitats (2014). Although the focus was on reducing collision risk to aircraft, lower bird densities at solar sites in Ohio may translate to low visitation at other Midwestern solar farms, including in Wisconsin

Onion River's independent research is consistent with the findings of Commission staff. *See*, *e.g.*, Final Environmental Assessment for the Two Creeks Solar Electric Generation Facility (PSC REF #357516, pages 27-29) (concluding that the research is inconclusive or undeveloped and does not substantiate risks to birds or other wildlife from large-scale solar facilities).

Overall the risk for negative avifauna population impact from solar projects in the Midwest does not rise to the level that requires active monitoring.

5.5 PUBLIC LANDS

To assess the Project area for these resources, the following were reviewed: U.S. Geological Survey ("USGS") Protected Areas Database of the U.S. ("PADUS"), USGS topographic maps, aerial photographs, agency databases, and the internet (i.e., Google Earth, Google Maps) for public lands, recreational sites, and other special use areas in the Project area.

In addition to public lands listed below, private property may be enrolled in state land management programs (such as Managed Forest Law and Forest Crop Law). These programs may allow public access for activities such as hunting and fishing. These private properties, as identified by the WDNR in their Managed Lands database, have been mapped for consideration within the Project area. One parcel within the Project area is enrolled in the WDNR Managed Forest Law program. A portion of this parcel is in cultivated cropland and will support PV arrays. However, no Project facilities will be located within forested area and no tree clearing will be conducted within Managed Forest Law program land. No forested area within this parcel will be impacted by the Project.

A GIS file of public lands within two miles of the Project area is included with this submission. A map showing federal, state, county and local properties within two miles of the Project area is included as Figure 4.1.6.3 in Appendix A.

5.5.1 State Properties, including: Wildlife Areas, Fisheries Areas, and State Parks

No state-owned or managed properties including wildlife areas, natural areas, fisheries areas, and state parks are located within the Project area**.** One WDNR Extensive Wetland Habitat and Public Hunting Grounds is located 1.5 miles west of the Project area. No other state-owned or managed properties are within two miles of the Project (see Figure 4.1.6.3 in Appendix A).

The Project will likely not be visible from Extensive Wetland Habitat and Public Hunting Grounds due to distance, topography, and tree cover.

The WisDOT owns and manages an ROW associated with State Highway 57 within two miles of the Project area.

5.5.2 Federal Properties including: Wildlife Refuges, Parks and Scenic Riverways

There are no federally owned properties or easements such as wildlife refuges, parks or scenic river ways located within two miles of the Project area.

Potential impacts on vegetative communities, wildlife and sensitive species is discussed in sections 5.3, 5.4 and 5.9 respectively. Potential for impacts to waterways and wetlands is discussed in section 6.1 and 6.2 respectively.

5.5.3 County and Local Parks

No county or local properties are located within the Project area. Two locally managed properties are located within two miles of the Project area (see Figure 4.1.6.3 in Appendix A).

- Hingham Athletic Park, located 0.92 mile north of the Project area
- Adell Village Park, located 1.87 miles west of the Project area

The Project will likely not be visible from these properties due to distance, topography, and tree cover and is not expected to impact recreational use of these areas.

5.6 LOCAL ZONING AND SAFETY

5.6.1 through 5.6.5

Sections 5.6.1 through 5.6.5 only apply to public utilities. Therefore, these sections are not addressed in this Application.

5.6.6 Provide a list of potential local issues normally associated with zoning, road use and safety, or other condition uses

5.6.6.1 Provide copies of all correspondence to and from local government pertaining to issues of zoning, safety, or local road use safety plans.

Communications with county officials regarding a Project Joint Development Agreement are ongoing.

5.6.6.2 Provide a discussion of how local concerns will be accommodated.

Onion River has met and coordinated with county and local planning and zoning staff to discuss zoning, land use and other local issues. Onion River will continue to work proactively with county and local staff to identify and address issues and concerns should they arise. Further discussion regarding local government impacts and public outreach are provided in Sections 13 and 14.

5.7 LAND USE PLANS

Project facilities will be located in the Town of Holland within Sheboygan County.

5.7.1 Through 5.7.4 County Recreation Plans, Farmland Preservation Plans, Highway Development Plans, Sewer Service Area Plans

Land use plans and zoning ordinances, including any County Recreation Plans, Farmland Preservation Plans, Highway Development Plans, Sewer Service Area Plans and relevant planning documents are listed in Table 5.7-1 and provided in Appendix E.

TABLE 5.7-1 LAND USE PLANS AND ORDINANCES

Government	Plan or Ordinance
Town of Holland	Town of Holland Comprehensive Plan Year 2030 No adoption date
	Addendum – 1: 10-Year Update to Comprehensive Plan Year 2030, Town of Holland, Sheboygan County, WI Adopted January 14, 2019
	Addendum – 2: Update to Comprehensive Plan Year 2030, Town of Holland, Sheboygan County, WI Adopted February 10, 2020
	Town of Holland Zoning Ordinance - Chapter 330
	Weight Limitation on Town Roads - Article V Section 318-18
Sheboygan County	Sheboygan County Comprehensive Land Use Plan, 2010 – 2030 Adopted December 2009, Amendment 1 – 1/21/14
	Sheboygan County Comprehensive Outdoor Recreation and Open Space Plan 2015
	Floodplain Zoning Sheboygan County Ordinance Chapter 73
	Shoreland Ordinance - Sheboygan County Ordinance Chapter 72
	Erosion Control and Stormwater Management Sheboygan County Ordinance Chaptern75
	Sheboygan County Farmland Preservation Plan 2013

5.8 ARCHAEOLOGICAL AND HISTORIC RESOURCES

5.8.1 Historic and Archaeological Sites Potentially Affected

Stantec has conducted an initial cultural resources database review, created an archaeological site probability model, and conducted field investigations to identify any cultural resources present within the Project area. The results of the cultural resources database review indicated that three archaeological surveys had been conducted within 1 mile of the Project area and that 3 archaeological sites, 4 cemeteries, and 18 historic structures had been recorded within 1 mile of the Project area. No archaeological sites, cemeteries, or historic structures were within the Project area.

Archaeological site location modelling was used to identify areas of high potential for archaeological sites. Stantec identified the area of high archaeological site potential through review of the Wisconsin Historic Preservation Database ("WHPD") online archaeological site files and historical maps postdating the Civil War. High potential for prehistoric Native American sites was found to be within 400 feet of sources of water, mainly in this instance the east and west branches of the Onion River. Further, site locations were restricted to areas with less than 15 percent slope and on soil types that were not subject to frequent flooding.

Between April 21 and April 24, 2020, Stantec archaeologists conducted a pedestrian survey of 236 acres with high potential for prehistoric Native American and Historic period Euro-American archaeological site. The pedestrian survey of 236 acres resulted in the identification of six historic period sites, all with artifacts dating from the late nineteenth to early twentieth century, two prehistoric Native American sites including one dating to the Late Archaic to Early Woodland periods and one site with both historic period and prehistoric Native American components. The Historic period component dates from the late nineteenth to early twentieth centuries while no date could be determined for the prehistoric Native

American component. Lastly, two prehistoric Native American isolated finds, both broken flakes, were also located.

No structural remains and few architecture group artifacts were found at the historic period sites. In a number of instances, this appears to be because the artifact scatters are areas of domestic refuse disposal associated with a nearby residence or farm. In other instances, it may reflect that the now-absent residence consisted of a wood-framed structure lacking a substantial foundation, basement, or cellar. Given the general paucity of artifacts located at most of the historic period sites, the ubiquity of late nineteenth- to early twentieth-century sites in existence, the likely lack of structural features, and the likely lack of intact artifact deposits at these sites, Stantec does not recommend additional archaeological investigations at historic period sites B1, P1, the portion of P2 within the Project limits, U1, FF1, and GG1. Nor does Stantec recommend additional investigations at the historic period component present at Site X1.

Few artifacts were found at the four prehistoric Native American artifact locations. In two instances, artifacts were represented by single broken flake fragments. In the other two instances the prehistoric Native American sites are represented by sparse scatters of lithic debris, most likely representing short-term retooling encampments associated with hunting activities.

Table 5.8.1-1 lists the sites located within the Project area. A version of this table that provides the location of each site is included as confidential information in Appendix L.

TABLE 5.8.1-1 POTENTIALLY AFFECTED ARCHAEOLOGICAL AND HISTORICAL SITES

Archaeological Sites
SB-0007/BSB-0153
SB-0180
SB-0181
BSB-0077
BSB-0081
BSB-0082
BSB-0186
Architectural Sites
AHI # 78799, House
AHI # 79022, House
AHI # 79023, House
AHI # 79025, House
AHI # 79457, House

5.8.2 Archaeological and Historic Site Locations in Which Construction Would Occur

- ***Archaeological Resources***

All four prehistoric Native American locations are situated in plowed agricultural fields. The paucity of artifacts and location in a plowed field suggest that these sites lack subsurface integrity and a robust data set that would allow researchers to address questions important to the understanding of local prehistory. Stantec does not recommend further archaeological investigations at prehistoric Native American sites and isolated finds K1, DD1, D1, and Z1, nor at the prehistoric Native American component at Site X1.

There are no cataloged burial sites or cemeteries within the Project. All cataloged burial sites and cemeteries within the 1-mile buffer are greater than 5 feet from the Project as required under Wis. Stat. § 157.70.

- ***Architectural/Historical Resources.***

The results of the architectural and historical survey concluded that there were five cataloged historic structures within 0.25 mile of an Onion River property boundary. Stantec reconnaissance survey indicated that all are screened by either landscape trees near the structure or tree lines and forested parcels between the structure and proposed solar facilities. In light of the screening between the structures and the solar facilities, Stantec concludes that the Project will not have an adverse effect on these resources. As such, Stantec has not evaluated the five structures for eligibility for listing in the National Register of Historic Places ("NRHP").

5.9 ER REVIEW – ENDANGERED, THREATENED, AND SPECIAL CONCERN SPECIES AND COMMUNITIES

5.9.1 Provide a copy of the DNR approved ER review and all supporting materials

An Endangered Resources ("ER") Review was conducted for the Project to identify whether any state or federally listed rare species, natural communities, or other natural features with element occurrence records may occur within one-mile of the Project area. A Certified ER review was submitted to the WDNR on February 10, 2020. The results of the ER Review concluded that no actions need to be taken to comply with state and/or federal endangered species laws. The WDNR approved the ER review and provided concurrence and recommendations on February 10, 2020.

Onion River conducted an informal consultation with the USFWS through the Information for Planning and Consultation online system on February 10, 2020. The northern long-eared bat, eastern prairie fringed orchid and Pitcher's thistle were identified on the list provided. No suitable habitat for the eastern prairie fringed orchid or the Pitcher's thistle is present within the Project area. Therefore, the Project is not expected to impact the orchid or thistle.

The Wisconsin Natural Heritage Inventory ("NHI Portal") database contains all current northern long-eared bat roost sites and hibernacula in Wisconsin. The NHI Portal was consulted for this Project, and per USFWS's 4(d) rule, it was determined that this project is more than 150 feet from a known maternity roost tree and is more than 0.25 mile from a known hibernacula.

The ER review concluded that this Project can proceed without federal restrictions. The certified ER Review and the USFWS response is provided as confidential information in Appendix M.

5.9.2 Include a map showing the location of endangered, threatened and special concern species and or their habitat, and natural communities identified on the ER Review that occur within a minimum of 1-mile of the proposed project area or as agreed to by the DNR.

(ER Reviews, supporting materials, and maps should be filed as confidential documents.)

A Confidential ER Map is included as part of Appendix M.

6.0 WATERWAY/WETLAND PERMITTING ACTIVITIES

- ***Section 6.0 covers information required by DNR for waterway, wetland, and erosion control permits. The following subsections apply to both proposed and alternate sites.***

Onion River retained the services of Stantec to identify wetlands and waterways within the Project area. Wetland delineations were completed in accordance with the January 1987 Technical Report Y-87-1 entitled, "Corps of Engineers Wetland Delineation Manual" during the fall of 2019 and spring of 2020. Detailed information on wetland and waterways and the methodology used for the Project is provided in the Wetland Delineation Report, provided in Appendix I. A summary of the wetland communities located within the Project area are provided in Appendix J, WDNR Table 2.

The Project area does not contain sensitive wetlands as defined by 2015 Wisconsin Act 387, including state or federally listed waterways, trout streams, fisheries, wilderness areas, recreational areas, sensitive resources of state or federal concern, or other areas of special natural resource interest as outlined in Wis. Admin. Code § NR 103.04.

6.1 WATERWAY PERMITTING ACTIVITY

- ***For each access road, collector circuit, or other facility directly affecting waterways; identify and number all waterway activities, based on Table 1 (Supplement to DNR Form 3500-53). For each stream or waterbody provide site photos, the width at the top of the bank, and the slope of the banks at the proposed activity location. For each stream affected by activities occurring below the ordinary high-water mark, note the water and sediment quality and the potential for either to be contaminated. For each activity, note if the waterway is defined as an Area of Special Natural Resource Interest (ASNRI) under the provisions of Ch. NR 1 Wis. Admin. Code. If a temporary bridge is required for construction, identify the type of structure to be used. Use Table 1 as the format for completing this information request.***

Waterways have been avoided to the extent practicable. The Project facilities that will require waterway crossings include access roads and the collector system. Other Project facilities such as the panels and associated facilities and substation will not impact waterways. The proposed waterway crossing are necessary to meet locational and constructability requirements of the Project.

The Project intersects six waterways at eight locations within the Primary and Alternate Project Areas as a result of collector system and access road crossings. Four of the crossings would be completed by HDD methods for the collector system and would avoid impacting waterways. Three crossings will be conducted via trench method for the collector system. One crossing is required for equipment access purposes within the Primary Project rea and will require placement of a culvert and backfill. The need for vegetation clearing at waterway crossings is expected to be limited and no downstream impacts to waterways are expected during construction of the Project. These crossings are detailed in WDNR Table 1 (Appendix J), and the crossing locations identified on Figures 6.3.1, 6.3.2, and 6.3.3 in Appendix A. A navigability determination request for these waterways is included in Appendix I. Photographs of each waterway are provided in the Appendix D of the Wetland Delineation Report and the Navigability Determination Request both within in Appendix I of this application.

6.2 WETLANDS

- ***For each access road, collector circuit, or any other facility directly affecting wetlands; identify and number all wetland crossings. Insert this information in Table 1 as discussed above in directional order with the waterways.***

6.2.1 Identify all wetlands on a map using data from the Wisconsin Wetland Inventory (WWI) and identify any other wetlands or changes to WWI boundaries based on delineations using all forms and information required by and in accordance with the January 1987 Technical Report Y-87-1 entitled, "Corps of Engineers Wetland Delineation Manual," including relevant guidance documents. Wetland delineation reports should be submitted to the DNR as a hardcopy with the application. Electronic copies of wetland delineation reports (in MS Word format, or similar) may be submitted on a CD.

The wetlands within the Project area are mostly comprised of non-forested communities including wet meadow and farmed wetlands. The wetlands are further described in the Wetland Delineation Report in Appendix I. A summary of the wetland communities located within the Project area are provided in Appendix J, WDNR Table 2.

The non-forested wetlands are commonly dominated by reed canary grass (*Phalaris arundinacea*), stinging nettle (*Urtica dioica*), giant ragweed (*Ambrosia trifida*), giant goldenrod (*Solidago gigantea*), curly dock (*Rumex crispus*), Canada bluejoint grass (*Calamagrostis canadensis*), swamp smartweed (*Persicaria amphibia*), cursed crowfoot (*Ranunculus sceleratus*), witchgrass (*Panicum capillare*), yellow foxtail (*Setaria pumila*), lake sedge (*Carex lacustris*), tussock sedge (*Carex stricta*), hybrid cattail (*Typha x glauca*), broadleaf cattail (*Typha latifolia*), flat-topped aster (*Doellingeria umbellata*), blue vervain (*Verbena hastata*), and barnyard grass (*Echinocloa crus-galli*). Five wetland areas also had a shrub-carr component dominated by sandbar willow (*Salix nigra*), red-osier dogwood (*Cornus sericea*), gray dogwood (*Cornus racemosa*), and American black currant shrubs (*Ribes americana*).

The forested wetlands that exist within the Project area are either small isolated communities, floodplain forests associated with the Onion River, or are a minor component of the wet meadows described above. The forested wetlands are comprised of hardwood swamp and floodplain forest communities and are commonly dominated by red maple (*Acer rubrum*), American elm (*Ulmus americana*), trembling aspen (*Populus termuloides*), green ash (*Fraxinus pennsylvanica*), and box elder (*Acer negundo*) in the overstory. The dominant shrub/ground layer species include red-osier dogwood, wild red raspberry (*Rubus idaeus*), Allegheny blackberry (*Rubus allegheniensis*), American black currant, Canada bluejoint grass, blueflag iris (*Iris versicolor*), American manna grass (*Glyceria grandis*), Virginia waterleaf (*Hydrophyllum virginianum*), reed canary grass, orange jewelweed (*Impatiens capensis*), lake sedge, greater bladder sedge (*Carex intumescens*), giant goldenrod, and large leaf avens (*Geum macrophyllum*).

6.2.2 Wetland Crossings

Wetlands have been avoided to the extent practicable, however due to size and configuration of the Project within the landscape, wetland impacts are not completely avoidable. The Project will require

temporarily impacting wetlands due to the potential placement of construction matting for panel facilities, perimeter fencing and access roads. Additionally, the collector system will require crossing wetlands by trench methods. There is one permanent wetland impact associated with an access road crossing within the Primary Project Area.

6.2.2.1 Describe the length of each wetland crossing**.**

Impacts on wetlands are detailed in WDNR Table 1 (Appendix J).

A breakdown of proposed impacts associated with the project are as follows:

Facility / Impact Type	Temp Wetland Impact (sf)	Permanent Fill (waterways) (sf)
Primary – Array matting	291,960	0
Primary – Fence matting	15,535	0
Primary – Access culvert		600
Primary – Collection trench	3,477	
Alternate – Array matting	193,710	0
Alternate – Fence matting	3,298	0
Alternate – Access culvert	0	0
Alternate – Collection trench	0	0
TOTAL	**Primary: 310,972 sf = 7.13 ac**	**Primary: 600 sf = .01 acre**
	Alternate: 197,008 sf = 4.52	
	Total: 507,980 sf = 11.66 acres	

As per typical permit conditions established by the USACE for construction within wetlands, Onion River will continue to evaluate ground conditions within wetland areas where panels will be constructed. The use of construction matting, quantified in the table above as a temporary impact does not constitute a regulated wetland impact by the USACE. However, Onion River commits to the use of construction matting, low ground pressure equipment, or completing construction activities during frozen ground conditions as a means to avoid wetland impact from construction equipment.

Appendix J, WDNR Table 1 provides detail for potential array construction matting installations across wetlands for the Project. Within the Primary Project Area, 22 wetlands, W-01, W-03, W-04, W-05, W-06, W-07, W-10, W-12, W-13, W-14, W-19, W-20, W-21, W-24, W-36, W-40, W-43, W-44, W-62, W-66, W-67, and W-73, will potentially be crossed by construction matting. Within the Alternate Project Area, six wetlands, W-03, W-49, W-50, W-51, W-68, and W-69, will potentially be crossed by construction matting. The total amount of proposed construction matting is detailed within WDNR Table 1 for the purposes of permit evaluation and completeness.

Appendix J, WDNR Table 1 provides detail for fence installations across wetlands for the project. Within the Primary Project Area, 14 wetlands, W-01, W-03, W-04, W-13, W-14, W-19, W-20, W-21, W-24, W-36, W-40, W-43, W-62, and W-66, will be crossed by fencing. Within the Alternate Project Area, three wetlands, W-03, W-68, and W-69 will be crossed by fencing. The fence posts that are installed within the wetland will be driven. No concrete will be used in the installation of these fence posts. Therefore, no wetland fill or permanent impact will result due to fencing.

Appendix J, WDNR Table 1 provides detail for collector system trench installations across wetlands for the project. Within the Primary Project Area, seven wetlands, W-01, W-02, W-24, W-25, W-63, W-75, and W-80W, will be crossed by collector trench and two wetlands will be crossed by bore, W-25 and W-80. Within the Alternate Project Area, no wetlands, will be crossed by collector system trench or bore.

6.2.2.2 For each crossing, identify wetland type using the WWI classification, and wetland type as identified by plant community type (floodplain forest, hardwood swamp, coniferous bog, coniferous swamp, open bog, calcareous fen, shrub swamp, alder thicket, shrub-carr, sedge meadow, shallow marsh, deep marsh, wet to wet-mesic prairie, fresh (wet) meadow, shallow open water communities, seasonally flooded basin).

Wetland characteristics, including the Wisconsin Wetland Inventory ("WWI") classification and wetland type, are provided in WDNR Table 2 (Appendix J) and the Wetland Delineation Report (Appendix I).

6.2.2.3 Based on discussions with DNR staff during pre-application consultations, document the presence and percent cover of key wetland invasive species at each wetland crossing.

A description of wetlands including the presence of invasive species is provided in the Wetland Delineation Report (Appendix I) and are further described in Section 6.4.

6.2.3 Sensitive Wetlands

- ***Determine if any wetlands affected are considered sensitive including any wetlands in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code) including:***

6.2.3.1 Cold Water Community as defined in § NR 102.04(3)(a), Wis. Adm. Code, including trout streams, their tributaries, and trout lakes

6.2.3.2 Lakes Michigan and Superior and the Mississippi River.

6.2.3.3 State- or federally-designated Wild and Scenic River.

6.2.3.4 State-designated riverway.

6.2.3.5 State-designated scenic urban waterway.

6.2.3.6 Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advanced delineation and identification study.

6.2.3.7 Calcareous fen.

6.2.3.8 State park, forest, trail or recreation area.

6.2.3.9 State and federal fish and wildlife refuges and fish and wildlife management area.

6.2.3.10 State- or federally-designated wilderness area.

6.2.3.11 State-designated or dedicated natural area (SNA).

6.2.3.12 Wild rice water listed in § NR 19.09, Wis. Adm. Code.

6.2.4.11 Surface water identified as outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code.

6.2.3.12 Other sensitive wetlands are deep marsh, northern or southern sedge meadow not dominated by reed canary grass, wet or wet-mesic prairie not dominated by reed canary grass, fresh wet meadows not dominated by reed canary grass, coastal marsh, interdunal or ridge and swale complex, wild rice dominated emergent aquatic, open bog, bog relict, muskeg, floodplain forest, and ephemeral ponds in wooded settings.

This text addresses Section 6.2.3 and its subsections. The Project area does not contain sensitive wetlands, state or federally listed waterways, trout streams, fisheries, wilderness areas, recreational areas, sensitive resources of state or federal concern, or other areas of special natural resource interest as outlined in Wis. Admin. Code § NR 103.04.

As described in Section 6.2.1 above, the majority of the wetlands within the Project area are comprised of wet meadow and farmed wetlands. These wetlands are generally of lower-quality and dominated by invasive or non-native species. These wetlands have been impacted over time by adjacent intensive farming activities and extensive drainage manipulation.

6.3 MAPPING WETLANDS AND WATERWAY CROSSINGS

- ***For each facility (access road, collector circuit etc.) in or adjacent to wetlands or waterways, provide three (3) maps, as described in Subsections 6.3.1 – 6.3.3, for each location on 11x17 inch paper, each with the same scale.***

6.3.1 Recent air photo showing only the proposed facility (access road, crane path, collector circuit, substation etc.) crossing or adjacent to wetlands or waterways.

6.3.2 Topographic map showing the facility (road, crane path, collector circuit etc.) crossing or adjacent to wetlands or waterways.

6.3.3 Recent air photos showing the locations of the following items:

6.3.3.1 Facility crossing or adjacent to wetland or waterway.

6.3.3.2 Waterways.

6.3.3.3 WWI (as a transpicuous layer).

6.3.3.4 Delineated Wetlands (clearly marked).

6.3.3.5 Hydric soils- (as a transpicuous layer) indicated faintly to be used as secondary review, if needed.

6.3.3.6 Proposed temporary bridge locations (labeled to correlate with Table 1).

6.3.3.7 Locations for other Chapter 30 activities such as grading or riprap (labeled to correlate with Table 1).

Project maps depicting the information in Section 6.3.1 through 6.3.3 are provided as Figures 6.3.1, 6.3.2, and 6.3.3 in Appendix A. These figures display Project facilities, WWI data, delineated wetlands, streams and ponds (per Wisconsin 24k Hydrography Database), elevation contours, hydric soils, wetland and waterway crossings and other activities related to the Chapter 30 permit.

6.4 WATERWAY/WETLAND CONSTRUCTION METHODS

Wetlands and waterways have been avoided to the extent practicable, however due to size and configuration of the Project within the landscape, impacts to these features are not completely avoidable. Impacts to wetlands and waterways are described further in the sections that follow.

6.4.1 Waterway Crossings – Construction Methods

The Project intersects waterways at six locations within the Primary Project Area and two locations within the Alternate Project Area. Three of the crossings would be completed by HDD methods for the collector system within the Primary Project Area, by HDD methods for the collector system within the Alternate Project Area, and would avoid impacting waterways. Two crossing would be completed by trench methods for the collector system within the Primary Project Area and one crossing would be completed by trench method for the Alternate Project Area. One crossing is required for equipment access purposes within the Primary Project Area and will require placement of a culvert and backfill. These crossings are detailed in WDNR Table 1 (Appendix J), and the crossing locations are identified on Figures 6.3.1, 6.3.2, and 6.3.3 in Appendix A.

No waterways are proposed to be crossed by project fences.

6.4.1.1 Describe specific methods to be used for waterway crossings including location and methods of construction for:

6.4.1.1.1 Access Roads

The Primary Project Area would require one waterway crossing and would require the installation of a new culvert. This crossing would impact 0.014 acre (600 square feet) of the waterway for culvert and backfill placement.

No waterways are anticipated to be crossed by access roads within the Alternate Project Area.

A Temporary clear span bridge is not proposed for this crossing because the culvert will remain in place to provide access for facility operation and maintenance activities.

6.4.1.1.2 Collector System

There are seven locations where the collector system will cross waterways. The Primary Project Area would cross four waterways and the Alternate Project Area would cross one waterway. Three collector lines crossing waterways will be installed by means of HDD within the Primary Project Area. One collector line waterway crossing will be installed by means of HDD within the Alternate Project Area. The HDD method will be used to avoid direct impacts to these waterways.

6.4.1.2 Describe the method of crossing including structure type if applicable.

The access road crossing of the waterway within the Primary Project Area will utilize a metal corrugated culvert to maintain waterway flow and hydrology. The collector system will be installed by use of HDD methods.

Proper erosion control devices in the form of silt fence, straw bales, surface roughness and temporary seeding will be used to stabilize disturbed areas near waterways during construction and following the completion of the work. Monitoring of disturbed areas will occur until these areas have stabilized to 70 percent vegetative cover.

HDD construction methods are described in section 6.4.1.5 below.

6.4.1.3 Describe cleaning of machinery to prevent spread of invasive species.

Equipment will be cleaned before mobilization to the site to prevent introduction of invasive species from off-site sources. The equipment will be manually cleaned of plant materials between work zones within the Project site. Additionally, any equipment working below the Ordinary High Watermark ("OHWM") of waterways will be decontaminated using the appropriate BMPs.

6.4.1.4 Describe the proposed area of land clearance and disturbance at waterway crossings and the types of equipment proposed for the work.

The need for land clearing at waterway crossings is expected to be limited. The vegetation at most waterway crossing locations is comprised of herbaceous vegetation with a lesser amount of tree and shrub growth. Where needed, vegetation clearing will be facilitated by hand clearing and limited equipment use.

6.4.1.5 In the case of underground construction for collector circuits, describe the proposed method for crossing the stream or river. For boring operations, provide the size, depth and location of boring pits and the estimated amount of excavated materials that will result.

HDD methods will be utilized for underground construction of collector circuits crossing waterways. Entry points and exit points will be located within upland areas a minimum of 10 feet from the edge of the

waterway and will be moved farther away when appropriate to achieve the proper depth required for each bore. Installation depths will be at least five feet below the bottom of the waterway crossing.

Silt fence or similar erosion control devices will be located between the disturbance and nearby waterways. Adequate supplies of containment materials will be kept at HDD bore sites to be used in the event of an inadvertent release of drilling mud (frac out). Proper erosion control devices in the form of silt fence, straw bales, surface roughness and temporary seeding will be used to stabilize disturbed areas near waterways during construction and following the completion of the work. Monitoring of disturbed areas will occur until these areas have stabilized to 70 percent vegetative cover. Engineering plan typical boring and pit details are presented in Appendix B.

6.4.1.5.1. Describe methods for de-watering of boring pit. Include a discussion of discharge locations and suspended solids standards for discharge water.

Dewatering activities may be necessary during construction. Water pumped during these activities will be discharged into upland vegetated areas, as described in Section 6.7. These activities will comply with the standards and methodologies as presented in the WDNR Technical Standard 1061.

6.4.1.5.2. Identify contingency plans for bore refusal and frac-outs if directional boring is proposed. Provide scaled pre and post- Project diagrams for all crossings including top view and cross section or side views.

Written site-specific contingency plans for a frac-out event will be developed prior to construction and kept at the Project site.

6.4.2 Wetland Crossings – Construction Methods

Wetlands have been avoided to the extent practicable, however due to size and configuration of the Project within the landscape, wetland impacts are not completely avoidable. The Project will require temporarily impacting 23 wetlands due to the potential placement of construction matting for panel facilities and installation of perimeter fencing; and for trenching due to construction of the collector system. The Project requires a total temporary wetland impact of 11.7 acres (509,173 square feet). The wetlands to be impacted by the Project are primarily comprised of farmed wetland and wet meadow communities. These impacts to wetlands are detailed in WDNR Table 1 (Appendix J) and described further in the sections below.

6.4.2.1 Describe specific methods to be used for wetland crossings including location and methods of construction for:

6.4.2.1.1. Panel Facilities

A total of 23 wetlands would be temporarily impacted during construction by potential placement of matting for the installation of panel facilities. The Primary Project Area would temporarily impact 6.7 acres (291,852 square feet) within 19 wetlands. The Alternate Project Area would temporarily impact 4.4 acres (191,664 square feet) within 5 wetlands. One wetland that will be impacted reside within both the primary and alternate Project areas.

As described in Section 2.4.1, the Project will typically use driven pier foundations. These foundations avoid direct discharge to wetlands, therefore no permanent fill associated with the panel facilities are proposed as part of the Project.

The wetlands to be impacted by the panel facilities are primarily comprised of farmed wetland and wet meadow communities, and are further described in WDNR Table 2, Appendix J.

6.4.2.1.2. Access Roads

The Primary Project Area would require one waterway crossing and would require the installation of a new culvert. This crossing would impact 0.014 acre (600 square feet) of the waterway for culvert and backfill placement. A culvert will be required and ballast will consist of clean stone.

6.4.2.1.3. Collector Circuits.

A total of seven wetlands will be impacted by construction of the collector circuits. Seven wetlands would be crossed by trenching for the Primary Project Area resulting in 0.08 acre (3484.8 square feet) of temporary impact. No wetlands would be crossed by trenching for the Alternate Project Area. Upon completion of collector trenching within wetlands the excavated soil will be returned to the trench and preexisting grades will be restored.

6.4.2.2 Describe cleaning of machinery to prevent spread of invasive species.

Equipment will be cleaned before mobilization to the site to prevent introduction of invasive species from off-site sources. The equipment will be manually cleaned of plant materials between work zones within the Project site. Additionally, any equipment working below the OHWM of waterways will be decontaminated using the appropriate BMPs.

6.4.2.3 Describe the proposed area of land clearance and disturbance at wetland crossings and the types of equipment proposed for the work.

The need for land clearing within wetland areas is expected to be limited. Most wetlands that will be impacted by construction activities are currently farmed or are comprised of herbaceous vegetation. Where needed, localized trees or shrubs will be removed by hand clearing and limited equipment use.

6.4.2.4 Describe methods and discharge locations for site de-watering, and locations for stockpile of fill materials.

Dewatering activities may be necessary during construction. Water pumped during these activities will be discharged into upland vegetated areas, as described in Section 6.7, and will comply with the standards and methodologies as presented in the WDNR Technical Standard 1061.

Any stockpiles of fill will be placed in upland areas outside of established wetland boundaries. Additional information regarding materials management are contained in Section 6.6.

6.4.2.5 In the case of underground construction for collector circuits, describe the proposed method for crossing the wetland. For boring operations, provide the size, depth and location of boring pits and the estimated amount of excavated materials that will result.

Trench methods will be utilized for underground construction of collector circuits crossing wetlands. Topsoil will be removed and segregated prior to installation. An average six-foot wide trench will be excavated, and the materials stockpiled in a nearby upland location. Once the circuits are installed, the trench will be backfilled and restored to match existing topography. Proper erosion control devices in the form of silt fence, straw bales, surface roughness and temporary seeding will be used to stabilize disturbed areas near wetlands during construction and following the completion of the work. Monitoring of disturbed areas will occur until these areas have stabilized to 70 percent vegetative cover.

6.4.2.5.1. Describe methods for de-watering of boring pit. Include a discussion of discharge locations and suspended solids standards for discharge water.

Water pumped during these activities will be discharged into upland vegetated areas, as described in Section 6.7 and will comply with the standards and methodologies as presented in the WDNR Technical Standard 1061.

6.4.2.5.2. Identify contingency plans for bore refusal and frac-outs if directional boring is proposed. Provide scaled pre and post- Project diagrams for all crossings including top view and cross section or side views.

No HDD crossings of wetlands is anticipated.

6.5 EROSION CONTROL AND STORM WATER MANAGEMENT PLAN

Once the Project is authorized, Onion River will submit a Water Resource Application for Project Permits ("WRAPP") to the WDNR in accordance with Wis. Admin. Code ch. NR 216. The application will include a site-specific Erosion Control and Storm Water Management Plan. The Plan will include technical drawings and descriptions of the BMPs that will be followed in compliance with WDNR technical standards.

A general outline of the Preliminary Erosion Control and Storm Water Management Plan follows.

6.5.1 Erosion Control Methods and Materials

See Appendix N for the Preliminary Erosion Control and Storm Water Management Plan.

6.5.1.1 Soil and slope stabilization

To minimize any potential for soil erosion from wind and water, Onion River will install temporary and permanent erosion control devices as specified in the Erosion Control and Storm Water Management Plan and applicable permits. Temporary erosion control measures, including sediment filter devices (e.g., wattles or silt fence), will be installed immediately following initial ground disturbance. Mulch or other wildlife-suitable erosion control matting may be used on steep slopes (greater than 3:1 slope) to prevent

erosion during construction. The temporary erosion control devices will be inspected on a regular basis and after each rainfall event of 0.5 inch or greater, to ensure controls function properly.

Following construction, disturbed areas will be seeded, and mulched and permanent erosion controls will be installed. The effectiveness of revegetation and permanent erosion control devices will be monitored by the long-term operation and maintenance of the facility. Erosion control devices will be maintained until the site is successfully re-vegetated. Following successful revegetation of construction areas, temporary erosion control devices will be removed.

6.5.1.2 Seeding and mulching

After site grading is complete, a temporary cover of oats or annual rye will be planted to prevent soil erosion during construction. Upon completion of construction all disturbed areas will be seeded with a perennial seed mix that complies with Wis. Admin. Code ch. ATCP 20 regarding noxious weed seed content and labeling. Permanent seeding will comply with WDNR Conservation Practice Standard 1059 Seeding for Construction Site Erosion Control.

Revegetation of the site is described further in Section 6.5.3.4. All disturbed portions of the site receiving seeding will be mulched, except for any areas where steep slopes are present. If steep slopes are present, wildlife compatible erosion control blanket will be installed. Mulch will comply with the WDNR Conservation Practice Standard 1085 Mulching for Construction Sites.

6.5.1.3 Matting, tracking pads, silt fences, stockpile protection

Construction impact to wetlands will be minimized through the use of construction matting, low ground pressure equipment, or by performing work under frozen ground conditions. The use of the construction mats in wetlands will be determined by an examination of site-specific soil stability and moisture content at the time of construction. Tracking pads will be constructed at site access points to prevent soil and mud being tracked onto adjacent roadways.

Silt fence will be installed adjacent to earthwork locations where the existing vegetation is removed. Significant material stockpiles are not expected for this project; however, if stockpiles are required, they will be protected from erosion by a row of silt fence installed along downstream sides. Refer to the Preliminary Erosion Control and Storm Water Management Plan in Appendix N for additional BMP detail regarding use of silt fence and stockpile protection.

6.5.1.4 Dewatering-related erosion and sediment control

If dewatering or pumping of water is necessary, all water from dewatering or trench-draining activities will be discharged in a manner that does not cause nuisance conditions. Dewatering activities will not cause erosion in receiving channels, on downslope properties, or inundation in wetlands causing significant adverse impact to the wetland. If the discharge from the dewatering or pumping process is turbid or contains sediment-laden water, it will be treated through use of sediment traps, vegetative filter strips, flocculants, or other sediment reducing measures such that the discharge is not visibly different from the receiving water.

6.5.1.5 Channel protection

Waterways will be protected from low-impact uses (panel installation and access road preparation) by the use of either silt fence or permanent filter strips. Waterways will be protected from high-impact uses (site grading) by similar means.

6.5.1.6 Any other appropriate erosion control measures

See Preliminary Erosion Control and Storm Water Management Plan erosion control site map in Appendix N for additional detail.

6.5.1.7 Details and typical section drawings of all the erosion control methods utilized

The details and typical section drawings of all erosion control methods utilized are included in the Preliminary Erosion Control and Storm Water Management Plan included in Appendix N.

6.5.2 Erosion Control Measure Site Plan

6.5.2.1 Construction site boundary

Exhibits provided in Appendix B of the Preliminary Erosion Control and Storm Water Management Plan include maps of the construction site boundary, a preliminary location of all erosion control measures, the locations of stockpiled soil, vehicle equipment access sites, areas of disturbance, and drainage area configuration. The Project site will be accessible from SH WI-57 via CTH A, CTH GW, and multiple Town Roads.

6.5.2.2 The location of all erosion control measures.

Preliminary erosion and sediment control BMP locations are available in Appendix E of the Preliminary Erosion Control and Storm Water Management Plan included in Appendix N of this application.

6.5.2.3 Location of stockpiled soil.

No significant areas of stockpiled soil are anticipated on this Project. A small topsoil stockpile may be constructed at the proposed substation site.

6.5.2.4 Vehicle and equipment access sites.

Rock pads will be installed at site exits prior to grading activity. Preliminary locations of vehicle and equipment access sites are available in the Preliminary Erosion Control and Storm Water Management Plan (Appendix N).

6.5.2.5 Areas of disturbance.

The proposed Project will disturb a limited area with a fenced Project area measuring approximately 858 acres for the construction of solar panels, an associated collector system, access roads, and security fencing around the perimeter within the Primary and Alternative Project Areas and is described in detail in

Section 5.3.3. The proposed construction activities are provided in the Project area maps in the Preliminary Erosion Control and Storm Water Management Plan (Appendix N).

6.5.2.6 The drainage area configuration.

The Project area is located within Middle Onion River Hydrologic Unit Code ("HUC") 0403010110 watershed; within the Town of Holland, in Sheboygan County. The Project area drainage maps are available in the Preliminary Erosion Control and Storm Water Management Plan (Appendix N).

6.5.2.7 Surface water diversion measures

No surface water diversion methods will be utilized. Sheet flow draining from surrounding properties will not be blocked or re-directed. Sheet flow draining from this Project site will be treated with vegetated buffers before it leaves the site.

6.5.2.8 Topography

The surface topography of the Project area is predominantly closed depressions with minor amounts of gently rolling hills and plains, reflecting the underlying bedrock and glacial ground moraine deposits. The surface features were formed from deposition and erosion during periods of glaciation. Elevation ranges from 740 to 850 feet (225.5 to 259 meters). Local relief is mainly less than 5 feet (1.5 meters) with slope gradients less than 2 percent, but some hills rise more than 30 feet (9 meters) above the adjacent lowlands. The western and south western portion of the Project area is slightly more sloping in nature, with slopes ranging from 6 to 12 percent.

6.5.2.9 Existing floodplains and wetlands

The entire site lies in Federal Emergency Management Agency flood zone "X," which indicates an area of minimal risk and is outside the 1 percent and 0.2 percent annual chance floodplains (100 and 500-year floodplains). A wetland and waterbody delineation were completed for the Project in 2019. The extent and type of wetlands within the Project area are discussed in Section 6.2. Wetlands and waterbodies within the Project area will be protected during construction and operation of the facility by BMPs described in the Preliminary Erosion Control and Storm Water Management Plan (Appendix N).

6.5.2.10 Location of trees and unique vegetation

The results of the environmental review conducted for the Project and approved by the WDNR did not identify any unique vegetation or natural communities within the Project area. Anticipated tree clearing within the Project area will be limited to that incidental to provide for access or collector line placement as well as clearing small upland tree lines within the PV areas. Significant tree clearing for the Project is not expected.

6.5.3 Sequence of Erosion Control Measures

6.5.3.1 Clearing and grubbing

The majority of the site will not require clearing and grubbing due to the existing condition of the site being tilled agricultural fields. It is expected there will be approximately 2.9 acres of clearing and grubbing

necessary within the Primary Project Area and approximately 1.5 acres within the Alternate Project Area. However, the footprint of the PV arrays may not be developed on the entirety of these areas.

6.5.3.2 Material installation

The Preliminary Erosion Control and Storm Water Management Plan, included as Appendix N of this application, contains a description of BMPs that are likely to be installed for this Project..

WDNR tracks oak wilt in Wisconsin. Oak wilt is caused by an invasive fungus that may affect and kill all species of oak trees. WDNR maintains a map of the county distribution of oak wilt in Wisconsin. According to the mapping, the Project is not within the oak-wilt established or confirmed area. The high-risk time when oaks are most susceptible to oak wilt infection in Wisconsin is from April through July. Onion River will attempt to limit disturbance to oak stands during this time; however, avoidance of all oak removal may not be possible. If Onion River removes oaks between April and July, Onion River will comply with WDNR recommendations to apply water-based paint or shellac immediately to the cuts. If an infected oak tree is cut, Onion River will not remove it from the property but instead burn or tarp the infected tree to prevent the spread of the disease.

Dutch elm disease as a fungus that can kill elm trees and other species. Wisconsin does not have regulations or quarantine zones for Dutch elm disease, but University of Wisconsin Extension recommends limiting the removal and disposal of elm trees. Onion River will not transport cut elm trees outside of the counties where they originated.

The DATCP maintains a list of Emerald ash borer detected and confirmed areas. The Project area lies within Emerald Ash Borer Confirmed Area. The entire State of Wisconsin is under a quarantine. Because the entire state is listed as under quarantine there are no regulations limiting transport ash trees (limbs, branches, stumps or chips) within the State of Wisconsin. Onion River typically will leave cut trees on the landowner's property for landowner use. If a landowner requests that Onion River remove cut trees, Onion River will prevent moving potentially infected wood outside of the Wisconsin quarantine area.

6.5.3.3 Channel construction

No new swales or channels are anticipated for this Project. Existing waterways will be protected from erosion using vegetated buffers and/or slit fence.

6.5.3.4 Revegetation processes

Portions of the site not utilized for the Project facilities or not impacted during construction will remain vegetated. These areas include most wetlands, forested lands, and other perimeter areas of the site. Agricultural areas that have limited vegetation and areas disturbed by construction will be seeded and stabilized throughout construction. To the extent possible, disturbance during construction will be phased to limit the amount of bare soil onsite at any one time. Construction of the Project will occur in five phases as described below.

Phase I

Initial Stabilization

- Prior to construction, the Project area will be fallow cropland.

- Seed entire Project area, including vegetative buffers, with a temporary annual seed cover (i.e. oats) that will not compete with the permanent seeding to be established post-construction.

Phase II

Pre-Grading BMPs

- Install perimeter control including silt fence and rock construction entrance taking care not to disturb vegetative buffers planted in Phase I.
- Install all other erosion control BMPs that will not be affected by site grading.
- Initial erosion control devices will be left in place until final stabilization is achieved.

Phase III

Site Grading

- Grading may be conducted in select areas on site. If topsoil is stripped during grading, it will be appropriately segregated, and it will be immediately re-spread over the graded area at the completion of grading rather than stockpiled.
- It is not anticipated that gravel will be necessary for access roads. However, if gravel roads are constructed, topsoil will be stripped and will be re-spread elsewhere onsite.
- Begin temporary stabilization and seed of graded areas that will not be disturbed for a period of 14 days.
- Complete any BMP installation required after grading is complete.

Phase IV

Solar Construction

- After completion of the site work, construction of the solar features will begin with pile driving. Piles will be directly driven with no excavation required.
- Trenching for underground electrical will commence at the completion of pile driving. Any stabilized ground that is disturbed by the trenching process will be re-stabilized if construction disturbance is not expected to resume for a period of 14 days.

Phase V

Final Stabilization

- Initiate permanent seeding.
- Once permanent seed is established at a uniform 70 percent coverage, remove all temporary control BMPs and stabilize any areas disturbed by their removal.
- Monitor stabilized areas until final stabilization is reached.
- Procedures for restoring wetland areas disturbed during construction are included in the Vegetation Management Plan (Appendix K) of this application.

6.5.3.5 Seeding and mulching/matting

After site disturbance and construction is complete in an area, a temporary cover of oats or annual rye will be planted to prevent soil erosion during construction. Upon completion of construction all disturbed

areas will be seeded with a perennial seed mix that complies with Wis. Admin. Code ch. 20 regarding noxious weed seed content and labeling. Permanent seeding will comply with WDNR Conservation Practice Standard 1059 Seeding for Construction Site Erosion Control.

All disturbed portions of the site receiving seeding will be mulched, except for any areas where steep slopes are present. If steep slopes are present, wildlife compatible erosion control blanket will be installed. Mulch will comply with the WDNR Conservation Practice Standard 1085 Mulching for Construction Sites. Temporary erosion and sediment control BMPs will remain in place until 70 percent vegetation cover is established.

Once the Project is authorized, Onion River will develop a site-specific revegetation plan that will outline seed mixes, installation and establishment details, and proposed long-term vegetation management specifications.

6.5.4 Off-Site Diversion Methods

No off-site diversion methods are anticipated to be used for this Project.

6.5.4.1 Identify off-site contributions of water affecting project construction sites

All existing drainage patterns will be maintained for the Project. There are no significant concentrated flow points which will have adverse effects on the Project. General drainage patterns are shown on the Preliminary Erosion Control and Storm Water Management Plan.

6.5.4.2 Methods of controlling off-site water contributions

Off-site water will be treated with on-site water. There are no special procedures for off-site water.

6.5.4.3 Site plan indicating:

6.5.4.3.1 Where the off-site water is originating from

Off-site water is shown on the Preliminary Erosion Control and Storm Water Management Plan. There are no Diversion Measures planned for this Project.

6.5.4.3.2 Locations of diversion measures on-site

There are no Diversion Measures planned for this Project.

6.5.5 Provisions for Inspection and Maintenance

6.5.5.1 The regular inspection of all erosion control efforts per the requirements of Wis. Admin. Code § NR 216.

6.5.5.1.1 Identify who will perform the inspections.

Erosion control measures will be inspected continuously by the contractor in various areas of construction activity. As deficiencies are noted, they will be reported to the owner and will be repaired as quickly as

practicable. W here additional measures are required, they will be installed by the contractor to meet the requirements of the WPDES permit for the Project.

6.5.5.1.2 Specify when the inspections will occur.

Erosion control will be inspected and repaired continuously throughout the construction phase of the project.

6.5.5.1.3 Any special circumstances initiating an inspection.

Complete inspection will be performed by the contractor within 24 hours of 0.5 inches of rainfall on the site.

6.5.5.2 The regular maintenance of all erosion control efforts.

6.5.5.2.1 Identify who is responsible for the maintenance.

The construction contractor will be required to inspect all erosion prevention and sediment control BMPs and pollution management measures to ensure integrity and effectiveness during all routine and post-rainfall event inspections.

6.5.5.2.2 Specify corrective actions, if site is not maintained according to provisions.

Corrective actions will depend on the type of erosion control measure which is deficient and how it is failing. Erosion control measures can be cleaned, replaced, repaired or enhanced depending on the need.

6.5.6 Post-Construction Stormwater Management

6.5.6.1 Develop a storm water management plan per the requirements of Wis. Admin. Code § NR 216.47.

A Preliminary Erosion Control and Stormwater Management Plan has been prepared for this Project in accordance with Wis. Admin. Code ch. NR 216. It is attached to this report as Appendix N.

6.5.6.1.1 Where applicable, describe and provide details on the best management practices that will be used to meet the performance standards of Wis. Admin. Code § NR 151.12.

BMPs shall be designed, installed and maintained to control total suspended solids carried in runoff from the post-construction site by design, reducing, to the maximum extent practicable, the total suspended solids load by 80 percent.

In areas where solar panels and access drives are the only improvements, grassed buffer areas will be installed along the edge of the Project area and adjacent to wetland areas to remove suspended solids. Additionally, the run-off from a field of solar panels will be constantly filtered by the vegetation planted throughout the site. The flow-lengths over the proposed access drives will be dwarfed by the flow-lengths over the vegetated surfaces. Off-site stormwater impacts are not anticipated.

BMPs shall be employed to maintain or reduce the peak runoff discharge rates, to the maximum extent practicable, as compared to pre-development conditions for the 2-year, 24-hour design storm applicable to the post-construction site.

For all of the site, except for the sub-catchment containing the substation, the run-off curve number for the proposed grassed surface will be lower than the run-off curve number of the farm field which it replaces. This means that the peak-discharge rates will be decreased. For the sub-catchment containing the substation, we are proposing a small detention pond which will reduce the peak run-off rate and reduce the total suspended solids to conform to code requirements.

BMPs shall be designed, installed and maintained to infiltrate runoff to the maximum extent practicable, except where the least permeable soil horizon to five feet below the proposed bottom of the infiltration system using the USDA method of soils analysis is one of the following: sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.

6.6 MATERIALS MANAGEMENT PLAN

Construction materials for the Project will be handled in accordance with the methodology outlined within this document and the Preliminary Erosion Control and Storm Water Management Plan, Appendix N.

6.6.1 Haul Routes

The following text provides the information requested in Sections 6.6.1 and its subsections.

6.6.1.1 Indicate how and where hauled materials will be routed, including:

The main haul route for construction materials will be along STH 32 or 57 into the various panel areas. Each major panel area will have its own laydown yard. No grading or addition of fill materials will be conducted for these laydown areas. Materials to be routed directly to individual panel areas will be determined by the construction contractor. A centralized delivery laydown area is shown on Figure 4.1.2 in Appendix A. This centralized delivery laydown area will be prepared by placing materials such as crushed stone, geotextile grid or both in order to prevent excessive disturbance to the area due to heavy and frequent construction traffic. This primary laydown area will also be the location for the construction trailer and for worker parking.

It is not anticipated that contaminated materials will be found during Project construction. In the unlikely event that contaminated materials are discovered, they will be handled in a manner compliant with state and local regulations.

6.6.1.1.1. Inbound materials
6.6.1.1.2. Outbound materials
6.6.1.1.3. Clean fill materials
6.6.1.1.4. Contaminated materials
6.6.1.1.5. Others

6.6.1.2 Alternate locations if necessary.

Alternate locations are not necessary.

6.6.1.3 Include a haul route diagram indicating haul route locations.

Haul routes, construction laydown and staging areas are discussed in Sections 2.3.5, 2.3.6 and 2.4.5.

6.6.2 Stockpile Areas

6.6.2.1 List and describe:

6.6.2.1.1. Material to be stockpiled.

Construction material stockpiles will be located at the construction laydown yard as discussed in Section 2.4.5.1. Soils stripped or removed due to grading and excavation will be separated into topsoil and subsoils and stored in upland areas only.

6.6.2.1.2. Where will material be stockpiled on-site.

Excavated subsoils, if any, will be stockpiled near the laydown areas and used as backfill as needed. Topsoil will be used during the reclamation process for disturbed areas near panels and access roads. They will be shaped into screening berms for the life of the Project.

6.6.2.1.3. Measures to protect stockpiled areas, if applicable.

Any stockpiled materials will be protected with perimeter controls and temporarily seeded if stockpiled longer than 14 days.

6.6.2.2 Provide a plan view diagram indicating stockpile area locations.

See Sections 2.4.1 and 2.4.2 for a discussion of panel foundation construction and the handling of removed soils.

Sediment control measures will be in place prior to any removal of topsoil or grading work and will be maintained until the potential for erosion has stabilized. Stormwater and erosion control measures along with drawings of proposed BMPs are provided in Appendix E of the Preliminary Erosion Control and Stormwater Management Plan provided as Appendix N of this application.

6.6.3 Equipment Staging Areas

6.6.3.1 Where equipment will be stored on-site

Equipment will be staged from the temporary laydown yard and individual panel staging areas as discussed in Section 2.4.5.

6.6.3.2 Include a plan view of equipment storage areas on-site

The temporary laydown yards will be transient in nature and will be located within panel areas as construction within these areas progresses. A primary project laydown yard is shown on Figures 4.1.1 and 4.1.2, Appendix A.

6.6.3.3 Spill control and kits on-site

Spill control kits will be kept at the primary project laydown yard and within construction vehicles. Onion River will acquire an SPCC Plan from the contractor awarded the construction contract. The SPCC Plan will outline the procedures and preventive measures that will be followed throughout the construction period.

6.6.4 Field Screening Protocol for Contaminant Testing

- ***If contaminated materials (i.e. soil) are encountered on-site, indicate:***

6.6.4.1 How will the materials be screened.

6.6.4.2 Where will the materials be tested.

6.6.4.3 What protocols will be followed.

6.6.4.4 How work will be impacted.

The following text provides the information requested in Section 6.6.4 and its subsections. The Project area land use is predominantly agricultural. Farm owners typically store hazardous materials, such as fuels and chemicals within farm buildings such as barns and sheds. Therefore, it is unlikely these materials will be encountered or disturbed during Project construction.

Contractors will be trained to identify potential contaminated materials. If encountered, Onion River will notify a firm experienced in the analysis and treatment of such materials if contaminated soils or materials are encountered during construction. The suspected materials will be tested, treated and disposed of according to the proper protocol for the situation encountered and the corresponding statutory requirements. The WDNR will be contacted as required under state statutes.

6.6.5 Estimated Types, Concentrations and Volumes of Contaminated Materials

- ***If contaminated materials are known to exist on-site, list and describe:***

6.6.5.1 The type of contaminant.

6.6.5.2 Where the contaminant is located on-site.

6.6.5.3 Media in which the contaminant is located within (i.e. soil, water, etc.)

6.6.5.4 The estimated concentration of the contaminant.

6.6.5.5 The estimated volumes of the contaminant.

The following text provides the information requested in Section 6.6.5 and its subsections. As described in the preceding section, the Project area land use is predominantly agricultural. Farm owners typically store hazardous materials, such as fuels and chemicals within farm buildings such as barns and sheds. Therefore, it is unlikely these materials will be encountered or disturbed during Project construction. Other than the materials utilized in the agricultural operations, no hazardous materials are known on participating Project properties.

6.6.6 Methods for Dewatering of Excavated Materials

- ***If free water is found present in excavated materials, list and describe:***

6.6.6.1 What methods will be used to correct the situation (i.e. how will water be removed).

6.6.6.2 Where these methods will take place on-site.

The following text provides the information requested in Section 6.6.6 and its subsections. If conditions warrant during construction, dewatering at panel locations may occur. The contractor will construct and maintain all dewatering BMPs necessary to comply with discharge requirements contained in local or state permits, ordinances, and rules. The contractor will consult with the engineer before constructing a dewatering device.

Excavated materials will be stored in upland areas away from wetlands and waterways. The dewatering of excavated materials will employ the use of filtration and erosion control devices, such as filter bags, straw bales, and geotextiles. These methods will control the release of water containing sediment from stockpiles and graded areas. Water will be released into upland areas only and prevented from directly entering wetlands or waterways.

6.6.7 Estimated Volumes of In-channel and Upland Excavated Materials

6.6.7.1 Volume of Dredged Materials (cubic yards)

6.6.7.1.1 Excavation from bed and bank of waterway.

6.6.7.1.2 Excavation from wetland.

The following text provides the information requested in Section 6.6.7.1 and its subsections. Excavation of materials in wetlands and waterways will be minimized to the extent practicable. Waterways will not be

impacted by collector system installation due to the use of HDD methods. No excavation within wetlands or waterways will be required for panel construction.

The Primary Project Area would require one waterway crossing and would require the installation of a new culvert as described in Section 6.4. The total area to be excavated from the waterway for the installation of the access-road culvert is estimated at less than five cubic yards. The material removed will be utilized as backfill within the construction site or disposed of as discussed in Section 2.4.1 of this application.

Excavation within seven wetlands will be necessary for the installation of the collector system. T he wetlands to be impacted are primarily farmed wetlands and emergent wetlands. No excavation will occur in forested or shrub-carr wetlands. The Project collector system within wetlands will be installed using a trenching method. Topsoil will be segregated and temporarily stockpiled. Once the collector system is installed, the excavated materials will be backfilled, and topsoil replaced to match existing topography and contours. If necessary, any materials that cannot be backfilled will be utilized or disposed of as discussed in Section 2.4.1 of this application.

6.6.7.2 Volume of Upland Materials (cubic yards)

6.6.7.2.1. Excavation from areas outside of waterway and wetlands.

The following text provides the information requested in Section 6.6.7.2 and its subsection. Upland excavation of approximately 31.6 miles of collector circuit should not result in any removed materials. The majority of material excavated during construction will be used as backfill during construction. Material not re-used in the construction process will be disposed of in upland areas as discussed in Section 2.4.1.

6.6.8 Estimated Volumes and Location of Re-used In-channel and Upland Excavated Materials

6.6.8.1 Reuse of Dredged Materials

6.6.8.1.1. Provide the total volume of reused dredged materials in cubic yards.
6.6.8.1.2. Provide the location either on Project plans or provide off-site address, property owner, and site map drawn to scale.
6.6.8.1.3. Provide the purpose of the dredged material usage (i.e. grading, trench backfill, etc.).

6.6.8.2 Reuse of Upland Materials

6.6.8.2.1. Provide the total volume of reused upland materials in cubic yards.
6.6.8.2.2. Provide the location either on Project plans or provide off-site address, property owner, and site map drawn to scale.
6.6.8.2.3. Provide the purpose of the upland material usage.

The following text provides the information requested in Section 6.6.8 and its subsections. Onion River anticipates that the majority of material excavated during construction will be used as backfill during

construction. Material not re-used in the construction process will be disposed of in upland areas as discussed in Section 2.4.1.

The Project collector system will be installed using a trenching method in upland areas. The process will result in minimal excess materials, as most excavated materials will be replaced as backfill into the opening. Bore pits excavated for the entrance and exit of the horizontal directional drilling components will be placed in upland areas. A typical bore pit can be up to 10 feet by 20 feet. Up to 1,600 cubic feet (60 cubic yards) of material may be excavated for each pit. All materials removed from bore pits will be used as backfill of the pit upon completion of the bore.

6.6.9 Off-site Disposal Plans for Contaminated or Non-contaminated Materials

6.6.9.1 Disposal of Dredged Materials

6.6.9.1.1. Total volume of disposed materials (cubic yards).
6.6.9.1.2. Disposal site location.
6.6.9.1.3. Type of disposal Site (i.e. confined disposal facility, landfill, etc.).
6.6.9.1.4. Disposal site name and address.

6.6.9.2 Disposal of Upland Materials

6.6.9.2.1. Total volume of disposed materials (cubic yards).
6.6.9.2.2. Disposal site location.
6.6.9.2.3. Type of disposal site (i.e. confined disposal facility, landfill, etc.).
6.6.9.2.4. Disposal site name and address.

The following text provides the information requested in Section 6.6.9 and its subsections. Onion River anticipates that the majority of material excavated during construction will be used as backfill during construction. Material not re-used in the construction process will be disposed of in upland areas as discussed in Section 2.4.1. If contaminated materials are encountered, they will be disposed of in a manner compliant with state and local regulations, as outlined in Sections 6.6.4 and 6.6.5.

6.7 DEWATERING PLAN

- ***Provide details for pit/trench dewatering for collectors and for dewatering excavation for structure foundations. The following checklist serves as guidance in the completion of the Dewatering Plan necessary to meet the requirements of the Chapter 30 and NR 216 permits.***

Dewatering activities may be necessary during the excavation of panel foundations and digging of directional drill bore pits. Water pumped during these activities will be discharged into upland vegetated areas. The contractor awarded the construction contract will comply with the standards and methodologies as presented in the WDNR Technical Standard 1061.

6.7.1 Dewatering/Diversion of Flow

- ***Provide detailed plans for the dewatering/diversion of flow/standing water removal consistent with DNR Technical Standard 1061 for dewatering. Include typical dewatering/diversion measure plans with:***

6.7.1.1 Specifications for the dewatering/diversion of flow/standing water removal.

6.7.1.2 Methods employed to dewater/divert flow/treat water, if applicable.

6.7.1.3 Details of how methods will be employed.

6.7.1.4 Details of where methods will be employed.

6.7.1.5 Capacities and capabilities.

The following text provides the information requested in Section 6.7.1 and its subsections. Pumping of water during construction of panel foundations and drill bore pits will be discharged into upland vegetated areas. The general guidelines that will be followed during these dewatering activities are as follows:

- Floats will be placed on pump intakes
- Discharges from settling or filtration devices will be directed to upland vegetated areas
- Soils in the vicinity of the discharge point will be assessed before discharge
- Discharge outlets will be protected from scouring
- Topography between the discharge point and the nearest receiving waters will be evaluated for erosion potential
- No water will be discharged to karst features, wetlands or waterways
- Settling or filtration devices may include:
  - settling basins or tanks
  - filter bags
  - straw bales or gravel bag structures

Construction of Project access roads will require one waterway crossing as per the preliminary plan. Field observations noted an OHWM of 0.5 feet and a flow rate of 0.1 foot per second associated with this feature. Construction of the culvert for this access road will be scheduled during low flow so that temporary diversion of flow will not be required. Weather forecasts will be monitored in advance of these activities, and construction postponed if large rain or melt events are predicted.

Advanced dewatering techniques are not anticipated to be necessary during construction of the Project. The contractor will construct and maintain all dewatering BMPs necessary to comply with the discharge requirements contained in local or state permits, ordinances, and rules. The contractor will consult with the Project engineer before constructing a dewatering device.

6.7.2 Downstream Impact Minimization - List and describe methods of minimizing downstream impacts during high flow conditions.

No downstream impacts on waterways are expected during Project construction. As noted in Section 6.7.1, all dewatering discharges will be made to vegetated upland areas. Waterways with planned culvert installations carry minimal flow and will be monitored so that construction activities are not performed during high flow events.

6.7.3 Analysis of Possible System Overload Scenarios

6.7.3.1 Estimated volume of system overload (i.e. what rainfall overloads the system).

6.7.3.2 Estimated frequency of system overload (i.e. how often will the system be overloaded).

6.7.3.3 Actions taken if stream is to be overloaded.

The following text provides the information requested in Section 6.7.3 and its subsections. As overload scenarios are not anticipated due to the limited flow of waterways near construction sites, no overload analyses were performed. If heavy rainfall or melt events are predicted, waterways will be monitored for possible near or overflow conditions. In the event that that overflow conditions are likely, construction activities near the affected waterway will be postponed.

6.7.4 Impacts of System Overload on Construction Activities and Water Quality

6.7.4.1 Anticipated number of lost work days.

6.7.4.2 Possible water quality impacts.

6.7.4.3 Methods of deterring adverse changes in water quality.

The following text provides the information requested in Section 6.7.4 and its subsections. Onion River and its contractors will install erosion control devices and employ BMPs as described in the Preliminary Erosion Control and Storm Water Management Plan (Appendix N). These devices will be properly maintained, deterring sediment flow into wetlands and waterways near construction sites.

Construction activities will be postponed during extreme rain events, though natural overflow conditions may still result in sediment flow from existing agricultural use or prior construction activities. In an effort to minimize impacts, sediment control devices will be inspected weekly for integrity, and also following precipitation events producing 0.5 inches or more of rainfall within a 24-hour period as outlined in WDNR Technical Standards.

6.7.5 Water Discharge Locations

6.7.5.1 Where water will be discharged.

6.7.5.2 How water will be discharged.

6.7.5.3 A site map indicating discharge locations.

The following text provides the information requested in Section 6.7.5 and its subsections. Water discharging may be necessary at bore pit locations. As these facilities are installed in upland locations, discharges will be made to nearby upland vegetated areas. No discharges will be made directly to wetlands or waterways; areas between discharge locations and sensitive resources will be assessed for infiltration capabilities.

Devices anticipated to be utilized include those listed in Section 6.7.1. Advanced sediment trapping practices are not anticipated; however, if needed, the devices will comply with WDNR Technical Standards and be approved by the Project engineer.

6.7.6 Details of a Back-up System

6.7.6.1 What type of back-up system will be used (include backup and standby equipment/power supply).

6.7.6.2 Conditions when the system will be needed.

6.7.6.3 How the back-up system will operate.

6.7.6.4 Where the back-up system will be located.

The following text provides the information requested in Section 6.7.6 and its subsections. The primary dewatering device will be electric pumps (powered by gasoline or diesel-powered generators) or a gasoline or diesel-powered pumping system. Back-ups will include additional similar pumps, which will be stored on-site at the Project laydown areas.

6.7.7 High Flow Plan

6.7.7.1 How the water will be removed from the site.

6.7.7.2 Methods of water removal (e.g. pumping).

6.7.7.3 Methods of minimizing water contamination (e.g. treatment methods).

6.7.7.4 Protocol for evacuating materials from the flood conveyance channel including:

6.7.7.4.1. List of materials that would require evacuation during high flow periods.

6.7.7.4.2. How will the materials be evacuated from the flood conveyance channel.

6.7.7.4.3. Where will the materials be temporarily placed on-site.

6.7.7.4.4. How will the materials be transported.

6.7.7.4.5. Methods of protecting the materials.

6.7.7.4.6. Include a site map indicating the location of temporary placement.

6.7.7.5 Protocol for evacuating machinery from the flood conveyance channel including

6.7.7.5.1. Type of machinery that would require evacuation during high flow periods.

6.7.7.5.2. How will the machinery be evacuated from the flood conveyance channel.

6.7.7.5.3. Where will the machinery be temporarily placed on-site.

6.7.7.5.4. Include site map indicating possible locations of temporary machinery placement.

The following text provides the information requested in Section 6.7.7 and its subsections. Due to the topography of the Project site and the low percentage of impervious area, flooding events are not anticipated. In the event of heavy rainfall, construction activities will be postponed. No panels or bore pits are located in flood plains. Soil and material stockpiles will be located in upland areas away from mapped flood plains. In the unlikely event of storage areas being inundated with flood waters, the materials will be relocated by truck via public roads to an appropriate alternative site within the Project area.

No vehicles or construction equipment will be stored within flood conveyance channels. In the event of high precipitation or a high-flow period, equipment will be kept out of possible flood conveyance channels and stored at the Project laydown areas.

6.7.8 Contaminated Water

- ***List and describe what measures will be taken if contaminated water is found on site including:***

6.7.8.1 Methods of isolating the contaminated water.

6.7.8.2 Methods of analyzing the contaminated water.

6.7.8.3 Where the water will be tested.

6.7.8.4 Methods of removing contaminated water from site.

6.7.8.5 How the water will be treated and disposed.

The following text provides the information requested in Section 6.7.8 and its subsections. Due to the agricultural nature of the Project area, contaminated water is not expected to be encountered. If construction or agricultural activities cause a spill of hazardous fuels or if unexpected contamination is encountered, the procedures outlined in the Project SPCC Plan will be followed. See Section 2.4.5.5 for a discussion of the SPCC Plan. Contaminated water and/or soils will be disposed of in a manner compliant with state and local regulations.

Adequate supplies of containment materials will be kept at HDD bore sites to be used in the event of an inadvertent release of drilling mud (frac-out). Written site-specific contingency plans for a frac-out event will be developed prior to construction and kept at the Project site.

7.0 AGRICULTURAL IMPACTS

7.1 INFORMATION ON FARMING ACTIVITIES IN PROJECT AREAS

The Project is being constructed predominantly on agricultural lands. Agricultural land that is converted to solar production areas will be suitable for a return to farming at the end of the life of the project as the land will have "rested" for the useful life of the project, which may be 35 years or more. During decommissioning, farmland that is compacted by heavy loads will be de-compacted in accordance with best management practices for agricultural lands. If topsoil is stripped during grading, it will be appropriately segregated, and it will be immediately respread over the graded area at the completion of grading rather than stockpiled

The Project will remain vegetated throughout the year, in contrast to the current agricultural activities that expose large soil surfaces across the Project area to both surface water and wind erosive forces. When the Project area is revegetated, infiltration of rainfall will increase, and the soil surface will remain covered and not exposed to water and wind erosion. Because of this, sediment load to nearby waterways will decrease, thereby benefiting water quality.

7.1.1 Current Cropping Patterns

Crops predominantly grown within the Project area include corn and soybean. Crops are generally rotated according to agricultural practices for the area. Because the vast majority of the Project area is flat, plow lines typically parallel the longest dimension of the field. Access roads are often located along an existing farm road or along field edges, providing more convenient and reliable access to distant fields.

7.1.2 Location of Drainage Tile or Irrigation Systems

Onion River has had numerous discussions with landowners and understands that drain tile is common in this area. Individual landowners have been consulted regarding the location of drain tile within the Project area. Further field investigation of drain tile networks will be conducted prior to construction. Upon satisfactory mapping of active (functioning and necessary) drain tile locations, considerable care during construction will be taken to: a) avoid drain tile locations which are within the Project site, b) re-route drain tile away from locations which could be damaged during construction, or c) in the case of fields with pattern tile networks, work with applicable landowners to establish acceptable criteria for rerouting, replacing or abandoning in place drain tile that is within a PV array.

If drain tile is damaged, the damaged segments will be repaired in place or, if necessary, relocated as required by the condition and location of the damaged tile. In the event drain tile damage becomes apparent after commercial operation, the drain tile will be repaired in a manner that restores the operating condition of the tile at the point of repair. All repair, relocation, or rerouting referenced above will be consistent with the following policies: a) materials will be of equal or better quality to those removed or damaged; b) work will be completed as soon as practicable, taking into consideration weather and soil conditions; c) work will be performed in accordance with industry-accepted, modern methods; and d) in the event water is flowing through a tile when damage occurs, temporary repairs will be promptly installed and maintained until such time that permanent repairs can be made.

7.1.3 Farmland Preservation Agreements (FPA) for Proposed Sites

Land leased for the Project is zoned Prime Agricultural District by Sheboygan County, which complies with Wisconsin Farmland Preservation law, Wis. Stat. ch. 91. The Town of Holland administers zoning within the township under Zoning Code Section 330-22. Utility use is permitted by the Town's zoning ordinance in Prime Agricultural Districts and by Chapter 91 of the Wisconsin Statutes within farmland preservation areas.

Sheboygan County participates in the Farmland Preservation Program under the Wisconsin Working Lands Initiative, which was passed as part of the state's 2009-2011 biennial budget, under Chapter 91 of the Wisconsin Statutes. The main components of the program include: 1) expansion and modernization of the State's existing Farmland Preservation ("FPP") Tax Credit Program; 2) establishment of Agricultural Enterprise Areas ("AEAs"); and 3) development of a program to purchase agricultural conservation easements.

An AEA is an area of productive agriculture that has received designation from the State of Wisconsin at the request of landowners and local governments. Landowners within designated AEAs are eligible to enter into voluntary farmland preservation agreements. Review of Department of Agriculture, Trade and Consumer Protection ("DATCP") online interactive mapping shows that no AEA lands are present within the Project area or Sheboygan County.

It was determined through landowner discussions that participating parcels within the project area have not been enrolled and do not have active contracts in the Sheboygan County Farmland Preservation Program. However, the project area is within an area where FPP tax credits are available due to the existence of County zoning and the ability for landowners to be eligible if they meet other requirements such as maintaining a conservation plan, nutrient management plan, or proper erosion / manure control. If landowners have taken FPP tax credits, these are applied to their previous year's taxes and have no bearing on future activities.

7.1.4 Conservation Reserve Program (CRP) Lands Inside the Project Boundary

Due to privacy concerns, the USDA does not release the names of participants in the CRP program. Information can be released for individual properties with written permission by the landowner. Based on discussions with landowners, it was determined that two participating parcels have active or future contracts under the CRP program. Onion River is continuing to work with participating landowners to identify whether any lands within the Project area are enrolled in CRP. Onion River will ensure all applicable properties are removed from CRP prior to construction, if required.

8.0 AIRPORTS AND LANDING STRIPS

The FAA website[2] was searched for registered airport listings of public airports near the Project site. Additionally, WisDOT[3] and several private sources of airport/airstrip information, such as Esri[4] and AirNAV[5] were searched. According to the sources listed there are no public or private airports within the Project area. Four airports and one heliport are located within 10 miles of the Project and include the following: Riverside Strip (Silver Creek), Davies Airport (Oostburg), Var der Vaart Airstrip (Sheboygan), Sheboygan County Memorial Airport (Sheboygan), and the Aurora Valley Medical Center Heliport (Plymouth). Sheboygan County Memorial Airport is the only public airport; the remaining three airports and the heliport are private. Additionally, attempts were made to determine if local land owners utilized crop dusting services within the Project area.

8.1 PUBLIC AIRPORTS

8.1.1 Identify all public airports inside the proposed project boundary.

There are no public airports within the Project area.

8.1.2 Identify all public airports within 10 miles of the project boundary.

Airports within a 10-mile radius of the Project are displayed on Figure 4.1.7.3 (Appendix A). A shapefile of the airport data acquired is provided on the data CD filed with this application.

8.1.2.1 Identify separately all public airports within:

8.1.2.1.1. 10,000 feet of the nearest panel

There are no public airports within 10,000 feet of the Project area.

8.1.2.1.2. 20,000 feet of the nearest panel

There are no public airports within 20,000 feet of the Project area.

8.1.3 Describe any mitigation measures pertaining to public airport impacts.

Because the maximum height of the solar panels will be 10 to 12.5 feet aboveground, the Project will not interfere with airspace used by the above-described airports. A glare analysis was conducted for the Project – an overview is provided in Section 12, and the full Glare Study in Appendix O. This analysis considered airports and predicts no impacts on airports and airport traffic. Therefore, mitigation measures pertaining to public airports are not planned at this time.

[2] FAA - http://www.faa.gov/airports/airport_safety/airportdata_5010/
[3] WisDOT - http://www.dot.wisconsin.gov/travel/air/airportdirectory.htm
[4] Esri - http://www.esri.com/data/free-data/index.html
[5] AirNav, LLC. http://www.airnav.com/airports/

8.2 PRIVATE AIRPORTS/GRASS LANDING STRIPS

The FAA, WisDOT, and sources listed in Section 8.1 were searched for listings of private airports and airstrips within 10 miles of the Project. Airports within a 10-mile radius of the Project are displayed on Figure 4.1.7.3 (Appendix A). A shapefile of the airport data acquired is provided on the data CD filed with this application.

8.2.1 Identify all private airports/landing strips within the proposed Project boundary.

There are no registered private airports or airstrips listed within the Project area.

8.2.2 Identify all private airports/landing strips within two miles of the Project boundary

There are no registered private airports or airstrips listed within two miles of the Project area.

8.2.3 Provide the distance from each private airport/landing strip (ends of runway) to the nearest panel.

The nearest panel to the Riverside Strip is located 35,613 feet (10,855 meters) at its nearest point to the end of the landing strip/runway. The nearest panel to Davies Airport is located 26,934 feet (8,209 meters) at its nearest point. The nearest panel to Var der Vaart Airstrip is located 41,009 feet (12,500 meters) at its nearest point. The nearest panel to the Aurora Valley Medical Center Heliport is located 68,267 feet (20,807 meters) at its nearest point.

8.2.4 Describe any mitigation measures pertaining to private airport or airstrip impacts.

Because the maximum height of the solar panels will be 10 to 12.5 feet above ground, the Project will not interfere with airspace used by the above-described airports. A glare analysis was conducted for the Project – an overview is provided in Section 12, and the full Glare Study in Appendix O. This analysis considered airports and predicts no impacts to airports and airport traffic. Therefore, mitigation measures pertaining to private airports and the heliport are not planned at this time.

8.3 COMMERCIAL AVIATION

8.3.1 Identify all commercial air services operating within the Project boundaries (i.e. aerial applications for agricultural purposes, state programs for control of forest diseases and pests (i.e. Gypsy moth control).

There are no known, registered commercial air services operating within the Project area. The DATCP and WDNR websites were searched for aerial application information. A total of 264 commercial

and 141 private aerial pesticide applicators are listed in Sheboygan County.[6] Within the Town of Holland there are 17 commercial and 7 private aerial pesticide applicators listed. The Gypsy Moth control programs do not list Sheboygan County as a current treatment area.[7] No other aerial application programs sponsored by DATCP, WDNR or Sheboygan County were located in the search.

8.3.2 Describe any potential impact to commercial aviation operations

The maximum height of the solar panels will be 10 to 12.5 feet above ground, and the glare analysis for the Project predicts no impacts on airports; therefore, no impacts on commercial aviation operations are anticipated.

8.3.3 Describe any mitigation measures pertaining to commercial aviation

Because no impacts are anticipated, mitigation measures pertaining to commercial aviation are not planned.

8.4 EMERGENCY MEDICAL SERVICES – AIR AMBULANCE SERVICE

8.4.1 Identify the provider/s of air ambulance services within the Project Area

Other than the Aurora Valley Medical Center Heliport noted above, the closest air ambulance services provider to the Project area is Flight for Life in Waukesha, Wisconsin located approximately 60 miles south of the Project area.

8.4.2 Describe any planned mitigation (e.g. establishment of safe landing zones, etc.).

The Project is not expected to affect the response capabilities of any emergency medical services including air ambulance services. Therefore, no mitigation is planned.

8.5 FEDERAL AVIATION ADMINISTRATION

The FAA regulates obstructions to navigable airspace (14 C.F.R. § 77.13(a)). Regulations state that the FAA Administrator must be notified of any structure whose height: (1) exceeds 200 feet above ground level or (2) exceeds an imaginary surface extending 20,000 feet (3.79 miles) from the nearest airport runway at a slope of 100:1 (horizontal: vertical). If the structure is within 10,000 feet (1.89 miles) of an airport whose longest runway does not exceed 3,200 feet, the slope is reduced to 50:1. The FAA has determined that the Project does not present a hazard to air navigation.

8.5.1 Provide copies of all correspondence with the FAA

Onion River submitted site specific information regarding the proposed elevations of both panels and gen-tie structures to the FAA online Notice Criteria Tool. Copies of the outputs from these submittals with the FAA is provided in Appendix C.

[6] DATCP - https://www.kellysolutions.com/WI/Applicators/searchbyCity.asp
[7] WDNR - https://gypsymoth.wi.gov/

8.5.2 Provide copies of all FAA determinations of hazard/no hazard.

Based upon outputs from the FAA online Notice Criteria Tool provided in Appendix C, the height of the proposed structures within the Project footprint do not exceed Notice Criteria, therefore, no further consultation / determinations are required.

8.5.3 Provide a summary of the status of all FAA determinations with details on how any unresolved problems with aircraft safety are being addressed

Onion River used the FAA Notice Criteria Tool to determine filing requirements with the FAA. Results of the tool indicated that the proposed structures within the Project footprint do not exceed Notice Criteria as per 14 C.F.R. § 77.9.

8.5.4 Provide a detailed description of any obstruction marking and lighting that will be required by the FAA

There is no FAA required lighting for the Project.

8.6 WISCONSIN DEPARTMENT OF TRANSPORTATION – BUREAU OF AERONAUTICS – HIGH STRUCTURE PERMITS

8.6.1 Provide a list of all sites requiring DOT high structure permits.

Wisconsin Stat. § 114.135 grants the Secretary of WisDOT the power and authority to control the erection of buildings, structures, towers and other objects. Control is limited to those objects that would either extend to a height of more than 500 feet above the ground or surface of the water within one mile of the location of the object, or above a height determined by the ratio of one foot vertical to 40 feet horizontal measured from the nearest boundary of the nearest public airport or spaceport within the state; however, this power and authority shall not extend to objects of less than 150 feet in height above the ground or water level at the location of the object or to objects located within areas zoned under Wis. Stat. § 114.136 or to objects located within areas zoned under Wis. Stat. § 62.23 (7) where the zoning ordinance enacted under said subsection controls the height of structures.

No structures will be constructed above 500 feet in height or within one mile of a public airport or spaceport for the Project. Therefore, no high structure permits from the WisDOT Bureau of Aeronautics will be required.

8.6.2 List the permit status and conditions for each site requiring high structure permits.

No structures developed for the Project will require permits from the WisDOT Bureau of Aeronautics.

9.0 ELECTRIC AND MAGNETIC FIELDS (EMF)

9.1 ESTIMATE OF MAGNETIC PROFILE CREATED BY COLLECTOR CIRCUITS

An analysis of the estimated magnetic profile of the proposed collector system for the Project was conducted by Stantec using the Bonneville Power Administration ("BPA") Corona and Field Effects software. Results of the analysis are summarized here; a copy of the complete EMF Study is provided in Appendix P.

9.1.1 Show a separate profile for the typical buried collector circuits. If some trenches would support more than one buried circuit, provide a separate estimate for each bundled configuration.

The maximum magnetic field strength estimated near or at the centerline of the trench was calculated and is summarized in the Table 9.1.1-1. In each scenario of underground cables, the magnetic field was below 5.2 milli-Gauss ("mG") at 25 feet from the centerline. Electric field intensity was not calculated for the underground scenarios in the analysis because it is canceled out due to the shielding by the metallic screen on the underground cables. Appendices A.1 to A.5 in the EMF Study in Appendix P of this application provide detailed results for the five underground cable scenarios.

TABLE 9.1.1-1 UNDERGROUND CABLE SCENARIOS

UNDERGROUND (UG) CABLES	MAXIMUM MAGNETIC FIELD (at/near Centerline) (mG)
Scenario 1: 1 UG cable	22.794
Scenario 2: 2 parallel UG cables	37.437
Scenario 3: 3 parallel UG cables	45.834
Scenario 4: 4 parallel UG cables	50.996
Scenario 5: 5 parallel UG cables	52.636

9.1.2 Show a separate profile for any overhead collector circuits.

The maximum electric field strength and magnetic field strength estimated near or at the centerline of the overhead lines was calculated and is summarized in the Table 9.1.2-1. In each scenario for the overhead lines, the magnetic field was below 46 mG and the electric field was below 0.2 kV/m at 25-feet from the centerline. Refer to Appendices A.6 to A.10 in the EMF Study in Appendix P of this application for detailed results of the overhead line scenarios.

TABLE 9.1.2-1 OVERHEAD CABLE SCENARIOS

OVERHEAD (OH) CIRCUTS	MAXIMUM ELECTRIC FIELD (at/near Centerline) (kV/m)	MAXIMUM MAGNETIC FIELD (at/near Centerline) (mGauss)
Scenario 6: 1 Circuit OH line	0.08429	14.49
Scenario 7(a): 2 Circuits OH lines (Config. a)	0.50492	83.27
Scenario 7(b): 2 Circuits OH lines (Config. b)	0.17076	17.60
Scenario 8(a): 3 Circuits OH lines (Config. a)	0.15691	32.09
Scenario 8(b): 3 Circuits OH lines (Config. b)	0.55521	86.14

9.1.3 Assume all panels are working and project is producing at maximum capacity.

The EMF Study and corresponding tables above included the assumption that all panels are working and producing at maximum capacity.

9.1.4 Show EMF profile at 0 feet, 25 feet, 50 feet, and 100 feet from the centerline of each circuit type modeled.

EMF profiles at 5-foot increments up to 200 feet from either side of the centerline are provided for each underground scenario in Appendix A.1 through A.5 of the EMF Study included as Appendix P of this application. Magnetic field profiles at 5-foot increments up to 200 feet from either side of the centerline and electric field profiles at 5-foot increments up to 200 feet from either side of the centerline are provided for each overhead scenario in Appendix A.6 through A.10 of the EMF Study included as Appendix P of this application.

The PSC has concluded that there is no correlation between magnetic fields and negative health effects.[8] For comparison, Table 9.1.4-1 identifies sample ranges of magnetic fields for various appliances and tools.

[8] Public Service Commission of Wisconsin, EMF – Electric and Magnetic Fields, The Electromagnetic Spectrum, https://psc.wi.gov/Documents/Brochures/EMF.pdf >, accessed February 28, 2019.

TABLE 9.1.4-1 COMMON SOURCES OF MAGNETIC FIELDS (MG)[9]

Sources	Distance From Source	
	6 inches (mG)	24 inches (mG)
Microwave Ovens	100 - 300	1 - 30
Dishwashers	10 - 100	2 - 7
Refrigerators	Ambient - 40	Ambient - 10
Fluorescent Lights	20 - 100	Ambient - 8
Copy Machines	4 - 200	1 - 13
Drills	100 - 200	3 - 6
Power Saws	50 – 1,000	1 - 40

[9] National Institute of Environmental Health Sciences ("NIEHS") and National Institutes of Health, EMF: Electric and Magnetic Fields Associated with the Use of Electric Power, June 2002, pp.33-35, <https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf>, accessed on February 28, 2019.

10.0 LINE-OF-SIGHT AND BROADCAST COMMUNICATIONS

Solar facilities are not likely to cause disruptions to line-of-sight and broadcast communications. The height of the Project facilities should not obstruct microwave beam paths, degrade broadcast communications, or interfere with cell phone communications or radio broadcasts. Although unlikely, if any resident or business were able to show impacts to line-of-sight or broadcast communications due to the Project, such impacts will be mitigated to the extent practicable.

The Project will be interconnected to the transmission grid through an existing substation owned by ATC (the "Holland substation"). The Holland substation is located immediately to the north of the proposed Project substation and will require a short 138kV overhead line between the two substations. The proposed electric transmission line (gen-tie line) will extend approximately 350 feet south from the existing Holland substation.

The Holland substation has an existing double-circuit 345kV transmission line exiting from the northwest side of the substation before proceeding southwest approximately 160 feet parallel and west of the proposed gen-tie line. The proposed gen-tie structures, of which there will be no more than 3, will be 70 to 80 feet in height. The existing 345kV transmission lines entering the Holland substation are supported with lattice structures with heights of 125 to 175 feet and the structures have considerable width. Based on the existing infrastructure currently in place, it is not anticipated that the new gen-tie line will impact any line-of-sight and broadcast communications within the area between the proposed and existing stations.

10.1 MICROWAVE COMMUNICATIONS

Telecommunications is the exchange of information over significant distances by electronic means and refers to all types of voice, data, and video transmission. This is a broad term that includes a wide range of information-transmitting technologies such as telephones (wired and wireless), microwave communications, fiber optics, satellites, radio and television broadcasting, the internet, and telegraphs.

Construction of the Project could impact existing telecommunications infrastructure buried underground during construction activities, such as site grading, excavation, and trenching. Wisconsin's One Call center will be contacted prior to construction to locate and avoid impacts to all underground communication system facilities. Once operational, the Project would not impact these resources.

First responder, industrial and business land mobile sites, area-wide public safety, commercial Emergency 911 communications, and land mobile systems are typically unaffected by operation of solar facilities. These networks operate in a non-line-of-site environment. Many land mobile systems are designed with multiple base transmitter stations covering a large geographic area with overlap between adjacent transmitter sites so that the end user is likely to receive signals from multiple transmitter locations.

The maximum height of the solar panels when positioned at their highest apex will be 10 to 12.5 feet (3.0 to 3.8 meters). The perimeter security fence will be 7 to 8 feet (2.1 to 2.4 meters) high. The facilities developed for the Project are consistent with the height of existing development in the Project area and are not anticipated to impact any telecommunications services.

10.2 RADIO AND TELEVISION INTERFERENCE

The exclusion distance for AM broadcast stations varies as a function of the antenna type and broadcast frequency. For directional antennas, the exclusion distance is calculated by taking the lesser of 10 wavelengths or 1.9 miles (3 kilometers). For non-directional antennas, the exclusion distance is simply equal to 1 wavelength. Potential problems with AM broadcast coverage are only anticipated when AM broadcast stations are located within their respective exclusion distance limit from an object that may potentially cause interference. Most facilities do not typically cause interference with FM broadcast stations.

Multipath interference to a television receiver occurs when television signals are scattered by reflecting off an object such as rotating wind turbine blades. Modern digital television ("TV") receivers have undergone significant improvements to mitigate the effects of signal scattering. When used in combination with a directional antenna, it becomes even less likely that such signal scattering will cause interference to digital TV reception.

The Federal Communications Commission ("FCC") website was reviewed for AM and FM radio stations, and TV stations within 3 miles (4.8 kilometers) of the Project area. No stations were identified by this search. As there were no AM, FM, or television stations found within 3 miles (4.8 kilometers) of the Project, the Project should not impact the coverage of local AM stations.

The maximum height of the solar panels when positioned at their highest apex will be 10 to 12.5 feet (3.0 to 3.8 meters). The perimeter security fence and substation fence will be 7 to 8 feet (2.1 to 2.4 meters) high. The facilities developed for the Project are consistent with the height of existing development in the Project area and are not anticipated to impact any radio or television services. After commercial operation, any interference reports will be investigated. Any reports determined to be caused by the installation of panels will be mitigated so as to provide the same level of coverage prior to the installation of the Project.

10.3 NEXRAD INTERFERENCE

A Doppler radar is a specialized radar that uses the Doppler effect to produce velocity data about objects at a distance. It does this by bouncing a microwave signal off a desired target and analyzing how the object's motion has altered the frequency of the returned signal. This variation gives direct and highly accurate measurements of the radial component of a target's velocity relative to the radar. Doppler radars are used in applications such as aviation, sounding satellites, and weather. Tall structures such as trees or buildings within the sight line of the sending position may result in radar interference.

The maximum height of the solar panels will be 10 to 12.5 feet (3.0 to 3.8 meters) and the perimeter security fence and substation fence will be 7 to 8 feet (2.1 to 2.4 meters) high. Because the radar towers are elevated to avoid interference from topography (minimum height of the NEXRAD towers is 32.8 feet (10 meters), it is not anticipated that there would be any impact to radar services due to the development of the Project.

10.4 OTHER COMMUNICATIONS SYSTEMS

The FCC website was also queried for registered antenna structures (towers) within 3 miles (4.8 kilometers) of the Project area. No towers are located within the Project area. One tower is within 3 miles (4.8 kilometers) of the Project area and is 200 feet (61 meters) in height. The tower is located about 1.3 miles (2.14 kilometers) northwest of the Project area and is approximately 7,120 feet (2,170 meters) from the closest proposed panel. At this distance and based on the maximum height of the solar panels at 10 to 12.5 feet (3.0 to 3.8 meters) and the perimeter security fence and substation fence at 7 to 8 feet (2.1 to 2.4 meters) high, impacts on cellular services of this tower are not anticipated.

11.0 SOUND

11.1 PROVIDE EXISTING (AMBIENT) SOUND MEASUREMENTS AND PROJECTED SOUND IMPACTS FROM THE PROJECT USING THE PSC'S SOUND MEASUREMENT PROTOCOL.

Onion River conducted a pre-construction ambient sound analysis for the Project. Sound generated due to operation of the facility will be from the Project substation transformer and the inverters located throughout the Project area. The sound generated from solar panel tracker motors do not substantially contribute to the ambient noise environment therefore they were not included in the study. Results of the analysis show that the Project will comply with the state standard. The Town of Holland and Sheboygan County have similar public nuisance ordinances that restrict unreasonably loud or disturbing noises, but no regulations directly applicable to a solar facility were identified. The sound generated from the Project, as detailed in the Pre-Construction Sound Report (Appendix Q) are not at a level that would be considered a public nuisance per this ordinance.

Solar energy facilities operate by converting solar radiation into electricity. The Project will only produce electricity between sunrise and sunset. After sunset, the site no longer receives solar radiation and the inverters will not operate and produce sound. The substation transformer will be energized but not in operation. Sunrise and sunset times on the longest day of the year (June 20) will be approximately 5:08 am to 8:36 pm. Therefore, the majority of the operation of the solar facility, and therefore the sound production, will occur during the daytime hours as defined by PSC 128.14.

The sound analysis was based upon a total of 64 inverters of which approximately 50 inverters are required to support the Primary Project Area design, which can produce 150 MW AC of power. The inverters will be set back from the Project site boundary by a minimum of 70 feet, and most inverters will be far more distant to the site boundary. The nearest residence to an inverter is approximately 414 feet. Per the manufacturer's specifications, the maximum sound level from each inverter is less than 84 A-weighted decibels ("dBA") at a distance of one meter (three feet).

To assess the sound at receptors within the array, guidance for wind energy systems (PSC 128.14) was adopted (Standard). Under this regulation, nighttime hours are the hours beginning at 10:00 p.m. and ending at 6:00 a.m. daily and daytime hours are the hours beginning at 6:00 a.m. and ending at 10:00 p.m. daily. The sound limits apply at the outside wall of a nonparticipating residence or occupied community building. The energy system must be designed so that the sound attributable to the proposed system does not exceed 50 dBA during daytime hours and 45 dBA during nighttime hours. Sound levels from the proposed Project were calculated to verify that sound attributable to the proposed solar array does not exceed 50 dBA during daytime hours and 45 dBA during nighttime hours, as defined by the PSC Standard.

Pre-construction ambient sound measurements were made at five monitoring sites. Onion River considered locations that represent the overall Project layout, with locations near residences with potential solar arrays in multiple directions and in the area of the substation. Consideration was also made to represent residences that are impacted by existing vehicle traffic. Based upon the L_{eq} values, the background sound levels varied from 29 to 57 dBA for the varying sample locations and sample

periods. The predominant sound source during the sampling was vehicular traffic, along with animal noises and wind rustling in the trees. Results of the existing ambient sound measurements are provided in Section 5.0 of the Pre-Construction Sound Report included in Appendix Q.

Sound analyses were completed for both an inverter skid, operating at full load, and the substation transformer based on information provided by the equipment manufacturers. An analysis of the impacts from a single inverter skid and a contour map showing the overall expected sound levels from the total solar array can be found in the Pre-Construction Sound Report conducted for the Project included in Appendix Q of this application.

The maximum sound level due to the inverter skid that would be expected at the outside wall of the receptor expected to receive the highest sound, a distance of approximately 414 feet, would be approximately 44 dBA. The actual impact will be less, as a 5-dBA tonal penalty is included to create a worst-case situation. This value is less than the PSC daytime impact standard of 50 dBA and nighttime impact standard of 45 dBA at the wall of the residence. The impacts of the inverters on the nearby residences will not exceed these levels. The projected values are at or very near the background ambient sound levels detailed in the Preconstruction Sound Study provided in Appendix Q.

The sound analysis for the substation was conducted to determine the maximum sound level that would be experienced at the nearest noise sensitive area ("NSA"). The substation transformer will have a sound level of approximately 85 dBA at one meter (three feet). A 5-dbA tonal penalty was applied to the substation transformer sound level for modeling purposes. The substation will be set back from the nearest residence by approximately 1,198 feet. The maximum sound level that would be experienced at this receptor would be 35 dBA. T his value is less than the PSC nighttime impact standard of 45 dBA and the PSC daytime impact standard of 50 dBA at the wall of a nonparticipating residence. Therefore, the impacts of the substation on the nearby residences will comply with the state standard and will not be discernable at the residences surrounding the substation.

The projected sound values due to operation of the facility, including the skid inverters and the substation, are at or very near the existing background ambient sound levels. An analysis of the impacts from the transformer and a contour map showing the overall expected sound levels from the substation can be found in the Pre-Construction Sound Report included in Appendix Q of this application.

To further substantiate the calculations shown above, computer modeling of the solar farm was completed. Sound contours were calculated using the Decibel Module of WindPro Modelling software by EMD International, which utilizes conservative ISO 9613-2 algorithms to estimate sound propagation and atmospheric absorption. The parameters and assumptions made in developing the estimates include the following:

- all inverters and substation were running at all times;
- substation sound power level was conservatively estimated at 96.3 dBA and an inverter sound power level of 96.3 dBA was used;
- ground attenuation scenarios of 0.0 and 0.5 (on a scale of 0.0 representing hard ground to 1.0 representing porous ground) were both modelled (separate figures provided);
- meteorological conditions were conducive to sound propagation (10 degrees Celsius and 70 percent relative humidity);

- receptors were represented as a center point on the residence (a total of 397 receptors were identified in the model); and
- topography (elevations) were considered and estimated using USGS National Elevation Data.

The maximum modeled sound impact from the solar array at any residence is 47.3 dBA with a ground attenuation of 0.0, while the maximum was determined to be 41.9 dBA when a ground attenuation of 0.5 is used, which is below the PSC daytime and nighttime operating standards. Sound resulting from the operation of the solar facility is anticipated to have minimal impact on nearby residences. No additional mitigation measures are required above complying with the equipment specifications used for this analysis.

As the design of the facility progresses, Onion River will reevaluate the sound impact assessment and will update the Pre-Construction Sound Report to verify compliance should any of the following occur:

- Equipment sound level specifications for the invertor skid or transformer increase from the levels utilized in this analysis,
- The minimum distance from an inverter skid to a residence decreases to less than 400 feet, or
- The minimum distance from the substation transformer to the NSA decreases to less than 750 feet.

A post-construction sound analysis and report will be completed following construction of the Project and commencement of operations. The purpose of the analysis will be to verify the findings and conclusions of this report.

11.2 PROVIDE COPIES OF ANY LOCAL SOUND ORDINANCE.

State and local sound regulations were reviewed, and no regulations directly applicable to a solar facility were identified. In the absence of existing pertinent regulations, the Commission's Noise Protocols were used as a guideline for the Project. The Town of Holland and Sheboygan County have similar public nuisance ordinances that restrict unreasonably loud or disturbing noises, but no regulations directly applicable to a solar facility were identified.

11.3 PROVIDE EQUIPMENT MANUFACTURER'S DESCRIPTION OF SOUND ATTENUATING METHODS AND MATERIALS USED IN THE CONSTRUCTION OF PROPOSED EQUIPMENT.

Currently two manufacturers, Sungrow and SMA, are being considered for the supply of the inverters for this Project. The sound analysis performed for the Project assumed the use of the SMA unit, which has the larger sound pressure level of the two inverters considered. The manufacturer specification sheets of an inverter from each manufacturer is provided in Appendix B of this application. An engineering schematic of a substation inverter designed for utility scale solar applications that is representative of that which will be used for the Project substation is provided in Appendix B. Manufacturers of the relatively small solar inverters and motors used for solar energy facilities do not provide information on sound

attenuating methods and materials used in construction of the equipment because these sources do not produce appreciable sound.

11.4 DESCRIBE HOW SOUND COMPLAINTS WILL BE HANDLED.

Onion River will work to maintain equipment and conduct repairs in a timely manner to avoid excessive sound. If Onion River receives sound complaints from local residents, Onion River will mitigate if appropriate to resolve the complaint.

11.5 DISCUSS ANY MITIGATION MEASURES THAT WOULD BE USED TO ADDRESS SOUND COMPLAINTS DURING THE OPERATION OF THE PROJECT.

As determined by the sound analysis conducted for the Project, sound resulting from the operation of the solar facility is anticipated to have minimal impact on nearby residences. No additional mitigation measures are anticipated to be needed during operation of the Project.

12.0 GLARE

12.1 PROVIDE AN ANALYSIS SHOWING THE POTENTIAL FOR GLARE IN THE AREA OF A TYPICAL SOLAR SITE.

(The analysis should list the basic assumptions used and the methodology/software used for creating the shadow flicker analysis.)

Stantec utilized the web-based ForgeSolar glare hazard analysis program to analyze the potential for glare from the Project. This interactive tool provides a quantified assessment of (1) when and where glare will occur throughout the year for a prescribed solar installation, (2) potential effects on the human eye at locations where glare occurs, (3) a general map showing where glare is coming from within an array, and (4) the annual energy production from the PV array so that alternative designs can be compared to maximize energy production while mitigating the impacts of glare.

Based on the solar array parameters provided, glare is not predicted to occur from the Project at the following four airports and one heliport located within 10 miles of the Project: Riverside Strip (Silver Creek), Davies Airport (Oostburg), Var der Vaart Airstrip (Sheboygan), Sheboygan County Memorial Airport (Sheboygan), or the Aurora Valley Medical Center Heliport (Plymouth). Glare is also not predicted for the 31 homesites at a 25-foot viewing height or for drivers of vehicles on 12 roads analyzed adjacent to the Project at either 5-foot (cars and small trucks) or 9-foot (semi-trucks) viewing heights.

The Glare Hazard Analysis Report, including discussion of assumptions made in the analysis, is provided in Appendix O.

12.2 DESCRIBE MITIGATION AVAILABLE TO REDUCE GLARE.

Solar panels absorb light in order to produce energy. Additionally, they are treated with anti-reflective coatings to minimize glare and increase efficiency. As the PV panels will be mounted to single-axis tracking systems, the surface of the PVs will be in-line with the position of the sun; thereby, reducing the potential for steep, glancing angles (i.e., chance for glare) compared to fixed-axis systems. If glint or glare prove to be problematic for an observer, mitigating measures such as fencing, vegetation, or other objects of obstructive nature may be used.

12.3 INQUIRY OR COMPLAINTS.

In the event of a complaint about glare by a resident within or outside of the Project area, ForgeSolar modelling will likely be used to assess the extent and time of day of glare at the point of concern. As described in Section 12.2, there are several options for minimizing the impacts, including the use of fencing and vegetation.

13.0 LOCAL GOVERNMENT IMPACTS

13.1 LOCAL JOINT DEVELOPMENT AND OTHER AGREEMENTS

13.1.1 Provide a summary of major agreement items agreed upon in any Joint Development Agreements (JDA) or other type of agreement including:

13.1.1.1 All services to be provided by the city, town, and/or county during construction and when the plant is in operation (e.g. water, fire, EMS, police, security measures, and traffic control).

13.1.1.2 Specifically, address community and facility readiness for incidents such as fires and structural failures.

13.1.2 Provide a copy of all agreements with local communities (e.g. JDA).

This section addresses the requirements of Section 13.1 of the Application Filing Requirements, including all subsections, i.e., 13.1.1. and 13.1.2.

Onion River has voluntarily engaged with the Town of Holland and Sheboygan County in discussions to develop a Joint Development Agreement ("JDA") which will memorialize the commitments the Project will make to the local community and local units of government. Onion River anticipates that the JDA will include agreement on the following subjects, some of which may exceed State-mandated requirements:

- Road use and maintenance
- Drainage
- Replacement of tax revenues for local educational taxing jurisdictions which do not receive Utility Aid Shared Revenue funds
- Decommissioning and posting of adequate collateral
- Height and size limitations
- Fencing
- Construction process
- Setbacks and vegetative cover

The Project does not expect to require unusual local public services. Traffic control on the part of the County will be minimal. Construction material delivery is generally not oversized or overweight, thus traffic control issues related to material delivery should be manageable. The JDA agreement on construction haul routes may determine the need for traffic control assistance from the Sheboygan County Sheriff.

Construction traffic will be temporary and is anticipated to occur between October 2021 through February 2023 with a bulk of the traffic occurring between February 2022 through November 2022 depending upon permit approvals. Traffic due to continued O&M activities for the Project is anticipated to be negligible. The construction contractor will arrange for the purchase of local water needed during construction for dust control.

Local fire and emergency medical service will be relied upon during construction and during facility operation. Cooperation and training meetings with local emergency providers will be organized and held to maintain familiarity with site facilities and clear channels of communication. A fire safety protocol for the Project will be made available to local departments. Onion River will also develop an Emergency Response Plan with local authorities.

Onion River will require that all contractors on-site during construction meet all state and federal safety standards to ensure public and employee safety. Additionally, Onion River will only partner with tier-one equipment suppliers that meet stringent quality standards, including testing and certification by third party professionals.

13.2 INFRASTRUCTURE AND SERVICE IMPROVEMENTS

No additional infrastructure or facility improvements are expected to be required for the construction or operation of the Project. The impact on budgets of local governments will be positive due to increased revenue from the Shared Revenue payment and ancillary impacts such as an increase in local jobs, landowner payments, and increased spending locally during the construction period.

13.2.1 Identify any local government infrastructure and facility improvements required (e.g. sewer, water lines, railroad, police, and fire).

Onion River is not aware of any infrastructure or facility improvements needed for the construction or operation of the Project.

It is expected that some turning radiuses will need to be temporarily changed for oversized deliveries. When such changes are necessary, Onion River will follow good construction practices; stripping topsoil and stockpiling for use, delivering/grading/compacting stone to accommodate deliveries and ultimately restore such areas to preconstruction conditions. See Section 2.3.5 and Appendix N for additional detail on infrastructure improvements.

Onion River will keep a record of the condition of the roads before, during, and at the conclusion of construction or of any major construction event. This will assist Onion River, the Town of Holland and Sheboygan County in accurately assessing any possible damage to town and county roads. Onion River will be responsible for the compensation for the repair of any such damage to at least original condition.

13.2.2 Describe the effects of the proposed Project on city, village, town and/or county budgets for these items.

Local government budgets will be positively impacted by hosting Onion River. Onion River commits to replacing tax revenues that the local school districts and technical college have previously received from land removed from the local property tax rolls.

The Wisconsin Department of Revenue Shared Revenue Utility Aid Program provides for a capacity-based payment to be distributed annually to the communities hosting an electric generating facility. As proposed, the 150-MW solar project would be eligible for Component 4, the standard MW-based generator payment, and Component 5, payment for energy derived from an “alternative energy source.” A summary of the annual payments through this agreement is provided in Section 13.2.3.

13.2.3 For each site provide an estimate of any revenue to the local community (i.e. city, village, town, county) resulting from the Project in terms of taxes, shared revenue, or payments in lieu of taxes.

In aggregate, Onion River will provide $600,000 in annual payments through the Shared Revenue Utility Aid program. A conservative estimate of 25 years of shared revenue would result in $15 million to the county and township hosting the Project. At the expected design life of 35 years, it would result in $21 million of shared revenue.

The Town of Holland will receive $250,000 annually from the Project and Sheboygan County will receive over $350,000 annually.

TABLE 13.2-1 ESTIMATE OF REVENUE

	Total	Town of Holland	Sheboygan County
MW based Payment	$300,000	$100,000	$200,000
Incentive Payment	$300,000	$150,000	$150,000
Total	**$600,000**	**$250,000**	**$350,000**

13.2.4 Describe any other benefits to the community (e.g. employment, reduced production costs, goodwill gestures).

Benefits to the community and surrounding area include the possible hiring of local employees for Project construction, commissioning, O&M staff as discussed in Section 3.2. Additional jobs would be created to accommodate services, such as snow plowing, landscape maintenance, and Project access road maintenance. Additional economic benefits include significant financial and financial stability benefits to farmland owners that are participating as land lessors to the Project. Other economic benefits not directly controlled by Onion River include ancillary jobs and local support positions, especially during construction.

In addition, the Project has been an active community partner. The Project has opened a local office in Oostburg, Wisconsin and has funded local programs such as the 4-H Youth Development Program of the Sheboygan County UW - Extension campus.

14.0 LANDOWNERS AFFECTED AND PUBLIC OUTREACH

14.1 PROVIDE A SEPARATE ALPHABETIZED LIST (NAMES AND ADDRESSES) IN MICROSOFT EXCEL FOR EACH OF THE GROUPS DESCRIBED BELOW:

14.1.1 Property owners and residents within the Project boundary and a separate list of property owners and residents from the Project boundary out to a distance of 0.5 mile. It is strongly recommended that applicants consult with PSC staff in order to ensure that the format and coverage are appropriate considering the project type, surrounding land use, etc.

A list of property owners within the Project area is provided in Appendix R.

A separate list is provided in Appendix R of property owners and residents within 0.5 mile of the Project area.

14.1.2 Public property, such as schools or other government land.

There are no schools within the Project area or within one mile of the Project area. The Town of Holland Town Hall is located within one mile of the Project area.

14.1.3 Clerks of cities, villages, townships, counties, and Regional Planning Commissions (RPC) directly affected.

Directly affected entities include the Town of Holland, Sheboygan County and the Bay-Lake Regional Planning Commission.

TABLE 14.1-1 CONTACTS FOR ENTITIES DIRECTLY AFFECTED

Entity	Name	Title	Phone Number
Town of Holland	Janelle Kaiser	Clerk	(920) 668-6625
County of Sheboygan	Jon Dolson	Clerk	(920) 459-3003
Bay-Lake Regional Planning Commission	Emily Pierquet	Administrative Assistant	(920) 448-2820

14.1.4 List and describe all attempts made to communicate with and provide information to the public. Describe efforts to date and any planned public information activities. Provide copies of public outreach mailings.

Local Residents – Onion River has been meeting with prospective landowners, their tenants, and nearby residents since 2Q 2018 to lease land, determine local interest in the Project and to notify neighbors about Project plans.

Local Units of Government – The Project has also met periodically with local Town and County elected officials and staff to advise them of Project activities, to gauge interest in a solar facility, as well as to understand permitting requirements and potential concerns:

- Holland township board members;
- Sheboygan County representatives (County Administration, and Planning and Conservation);
- The Village of Oostburg President, the Village of Cedar Grove President, the Village of Waldo Administrator, and the Village of Random Lake President;
- Elected officials from adjacent townships including the Town of Lima, the Town of Sherman, and the Town of Lyndon.

State Elected Representatives and Regulatory Agencies –

- In-person meeting with State Senator Devin LeMahieu at the Wisconsin State Capitol on December 11, 2019 to introduce the Project.
- In-person meeting with State Representative Terry Katsma at the Wisconsin State Capitol on January 16, 2020 to introduce the Project.
- Correspondence with Senator Devin LeMahieu's office to provide representative topics that could be incorporated into the JDA with the Town of Holland in early March 2020.
- Pre-application meeting with the PSC and WDNR to discuss permitting and related topics on February 11, 2020.
- Correspondence with U.S Representative Glenn Grothman's office to introduce the Project on February 19, 2020.

Public – In addition, the Project has engaged in outreach activities to share information and gather feedback from a broader public audience, including:

- One-on-one communication with Project neighbors and community leaders.
- Conversations or meetings with representatives of the Oostburg Chamber of Commerce, Sheboygan County Farm Bureau, Sheboygan County Economic Development Corporation, Wisconsin Manufacturers and Commerce, and the Wisconsin State Farm Bureau.
- Established a dedicated Website at https://www.onionriversolar.com/ that provides information about the Project along with Q&A, additional resources, and contact information.
- Opened a local office in Oostburg, Wisconsin

- Actively monitors an informational e-mail address and toll-free phone number.
- A Planned in-person open house meeting has been delayed due to “Safer at Home” orders. The Project is actively planning virtual alternatives.
- The Project has worked with local media to facilitate coverage of plans for the Project, resulting in significant coverage in the local area, including letters to editors published in local outlets, as well as advertisements providing the community with resources to learn more about the Project. See Section 14.3 for additional information about and reproductions of media coverage.

A representative list of meetings and events is included in Appendix S.

14.2 DESCRIBE PLANS AND SCHEDULES FOR MAINTAINING COMMUNICATION WITH THE PUBLIC (E.G. PUBLIC ADVISORY BOARD, OPEN HOUSES, SUGGESTION BOXES, AND NEWSLETTERS).

Throughout the permitting, design and construction of the Project, Onion River will continue to communicate and engage with local residents, including the following:

- The Project will maintain a local office in Oostburg, Wisconsin with meetings available upon appointment, and plans to have regular drop-in availability once public health guidelines permit.
- The Project will maintain an up-to-date website.
- The Project will monitor an informational e-mail and a toll-free phone line.
- The Project will participate regularly in meetings of local units of government.
- The Project will share Project information with local media.
- The Project will continue one-on-one communication as well as participation in meetings of local business and service organizations (Chamber, Rotary, etc.)
- The Project will periodically communicate with local media and continuing to engage with neighbors in the Project area.

Upon completion of construction, communication will be maintained by the full-time Project staff.

14.3 IDENTIFY ALL LOCAL MEDIA THAT HAVE BEEN INFORMED ABOUT THE PROJECT. THE LIST OF LOCAL MEDIA SHOULD INCLUDE AT LEAST ONE PRINT AND ONE BROADCAST.

Information about the Project has been well communicated to the community. The following are examples of the Project’s outreach efforts to date:

Ozaukee Press – Port Washington, WI

- Article published March 4, 2020.
- Letter to the Editor published March 4, 2020.
- Advertisement published April 2, 2020.

The Sounder – Random Lake, WI

- Letter to the Editor published March 5, 2020.
- Advertisement published April 2, 2020.
- Advertisement published May 7, 2020.
- Advertisement published May 21, 2020.

Sheboygan Press – Sheboygan, WI

- Interview with journalist on March 11, 2020.
- Article published May 6, 2020.

Milwaukee Business Journal

- Article published April 28, 2020.

Lakeshore Weekly – Oostburg, WI

- Advertisement published April 2, 2020.
- Advertisement published May 7, 2020.
- Advertisement published May 20, 2020.

Shoreline Chronicle

- Advertisement published May 13, 2020.
- Advertisement published May 27, 2020.

WHBL

- Project information package was emailed to WHBL Radio News Director on April 6, 2020.

Copies of the Project's Letters to the Editor and advertisements are included in Appendix S.

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APPENDIX C AGENCY CORRESPONDENCE

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APPENDIX S MEETINGS AND EVENTS

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