

**STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION**  
**SITE PERMIT FOR CONSTRUCTION AND OPERATION OF A**  
**DISTRIBUTED PHOTOVOLTAIC SOLAR ENERGY GENERATING SYSTEM**  
**CONSISTING OF MULTIPLE SITES**

**IN**  
**MULTIPLE COUNTIES**

**ISSUED TO**  
**AURORA DISTRIBUTED SOLAR, LLC**

**PUC DOCKET NO. E-6928/GS-14-515**

In accordance with the requirements of Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850, this site permit is hereby issued to:

**Aurora Distributed Solar, LLC**

The Permittee is authorized by this site permit to construct and operate distributed photovoltaic solar energy generating systems and associated facilities totaling up to 100 megawatts alternating current nameplate capacity, to be located at up to 24 facilities in 16 counties.

The distributed photovoltaic solar energy generating systems and associated facilities shall be built within the site boundaries identified in this permit and as portrayed on the official site maps, and in compliance with the conditions specified in this permit.

This site permit shall expire 40 years from the date of this approval.

Approved and adopted this \_\_\_\_ day of \_\_\_\_\_

BY ORDER OF THE COMMISSION

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DANIEL P. WOLF  
Executive Secretary

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**ATTACHMENTS**

- Attachment 1 – Site Permit Boundaries and Preliminary Solar Panels Layout
- Attachment 2 - Complaint Handling Procedures
- Attachment 3 - Compliance Filing Procedures for Permitted Energy Facilities
- Attachment 4 - Permit Compliance Filings
- Attachment 5 – Blanding’s Turtle Fact Sheet

## 1.0 SITE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this site permit to Aurora Distributed Solar, LLC (Permittee) pursuant to Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850. This permit authorizes Permittee to construct distributed photovoltaic (PV) solar energy generating systems and associated facilities totaling up to 100 megawatts (MW) alternating current (AC) nameplate capacity, to be located at up to 24 facilities (each a Facility, together, Facilities or the Project) on up to 24 sites interconnected to Northern States Power Company d/b/a Xcel Energy (Xcel Energy) distribution systems, and as identified in the attached site permit maps, hereby incorporated into this document. The number, combination, and capacity of the individual Facilities which the Permittee selects for construction will depend on a number of factors, including site-specific conditions, engineering studies, environmental survey results, and interconnection details. The photovoltaic solar energy generating systems and associated facilities shall be built within the sites identified in this permit and as portrayed on the official site maps, and in compliance with the conditions specified in this permit.

## 2.0 PROJECT DESCRIPTION

The Project consists of distributed PV power plants to be located at up to 24 Facilities on up to 24 solar sites serving Xcel Energy loads. The distributed solar Facilities range in size from 1.5 MW to 10.0 MW with a combined nominal nameplate capacity of approximately 100 MW alternating current. The Project's primary components include PV modules mounted on a linear axis tracking system and a centralized inverter(s). Associated facilities include electrical cables, conduit, electrical cabinets, switchgears, step-up transformers, SCADA systems, metering equipment, operations and maintenance (O&M) areas and internal access roads. Each Facility will be fenced around the components and gated at the access point.

### 2.1 Project Ownership

The Permittee is expected to continue to own the Project after commercial operation. However, due to the distributed locations of the Project solar facilities and need to satisfy the requirements of the investment tax credit, a federal tax credit available to taxpayers pursuant to the Internal Revenue Code, the Permittee has organized a separate limited liability company (special purpose vehicle or SPV) for each solar facility, which will serve as the investment entity for the tax equity investor. Aurora Distributed Solar, LLC, acting on behalf of itself and each SPV, is the permittee for the Project. The SPVs and related solar sites are listed below.

Name	Related solar site
Albany Solar, LLC	Albany
Atwater Solar, LLC	Atwater
Brooten Solar, LLC	Brooten
Chisago Solar, LLC	Chisago
Dodge Center Distributed Solar, LLC	Dodge

Eastwood Solar, LLC	Eastwood
Fiesta City Solar, LLC	Fiesta City
Hastings Solar, LLC	Hastings
Lake Emily Solar, LLC	Lake Emily
Lake Pulaski Solar, LLC	Lake Pulaski
Lawrence Creek Solar, LLC	Lawrence Creek
Lester Prairie Solar, LLC	Lester Prairie
Montrose Solar, LLC	Montrose
Paynesville Solar, LLC	Paynesville
Pine Island Distributed Solar, LLC	Pine Island
Scandia Solar, LLC	Scandia
Waseca Solar, LLC	Waseca
West Faribault Solar, LLC	West Faribault
West Waconia Solar, LLC	West Waconia

### 3.0 DESIGNATED SITES

The Project includes construction of up to 24 Facilities on up to 24 sites within 16 counties across Minnesota, as set forth in more detail below:

Facility	County	Township/Range/Section	Facility Land Control	Preliminary Development Area	MW-AC*
Albany	Stearns	Sections 8 & 17, T 125N, R 31W	230.6	107.4	10.0
Atwater	Kandiyohi	Section 1, T 119N, R 33W	40.1	36.3	4.0
Brooten	Stearns	Section 31, T 124N, R 35W	13.0	13.0	1.5
Chisago County	Chisago	Section 12, T 34N, R 21W	62.4	60.6	7.5
Dodge Center	Dodge	Section 32, T 107N, R 17W	68.5	60.0	6.5
Eastwood	Blue Earth	Section 14, T 108N, R 66W	49.7	49.7	5.5
Fiesta City	Chippewa	Section 9, T 117N, R 40 W	25.6	25.6	2.5
Hastings	Washington	Section 8, T 26N, R	40.6	40.6	5.0

Facility	County	Township/Range/Section	Facility Land Control	Preliminary Development Area	MW-AC*
		20W			
Lake Emily	Le Sueur	Section 24, T 110N, R 26W	46.9	42.4	5.0
Lake Pulaski	Wright	Section 15, T 120N, R 25W	75.8	63.2	8.5
Lawrence Creek	Chisago	Section 27, T 34N, R 19W	74.3	39.4	4.0
Lester Prairie	McLeod	Section 25, T 117N, R 27W	29.9	26.0	3.5
Montrose	Wright	Section 2, T 118N, R 26W	37.7	34.8	4.0
Paynesville	Stearns	Section 8 & 9, T 122N, R 32W	223.6	108.4	10.0
Pine Island	Goodhue	Section 31, T109N, R 15W	46.9	42.2	4.0
Scandia	Chisago	Section 35, T 33N, R 20W	24.4	23.3	2.5
Waseca	Waseca	Section 12, T 17N, R 23W	89.2	85.2	10.0
West Faribault	Rice	Section 2, T 109N, R 21W	85.5	59.4	5.5
West Waconia**	Carver	Section 1, T 115N, R 26W	75.7	78.1	8.5
<p>* The final MW AC nameplate capacity of each solar energy generating system may vary based on the technology selected and final design.</p> <p>** Preliminary Development Area boundary is larger than the Facility Land Control boundary in this particular instance to accommodate possible interconnection in the public right-of-way on the north side of Highway 5/25.</p>					

Each Facility is more specifically described in the permit application and is shown in the attached Site Location maps.

### 3.1 Project Boundary

The preliminary solar arrays and associated facility layouts are shown on the maps at **Attachment** [1]. The preliminary layout represents the approximate location of the solar arrays and associated facilities at each proposed site and identifies a layout that minimizes the overall potential human and environmental impacts of the Project, which were evaluated in the permitting process. The final layout depicting the final arrangement of the solar panels and associated facilities shall be located within the Facility Site Control for each facility location associated with this Project. The Facility Site Control boundaries (i.e., site boundaries) serve to provide the Permittee with the flexibility to make minor adjustments to the preliminary layout to accommodate landowner requests, unforeseen conditions encountered during the detailed

engineering and design process and federal and state agency requirements. Any modification of the solar arrays and associated facilities depicted in the preliminary layout shall be done in such a manner to have comparable overall human and environmental impacts and shall be specifically identified in the site plan pursuant to Section 6.1. The Permittee shall submit the final site layouts in the site plans pursuant to Section 6.1.

#### **4.0 APPLICATION COMPLIANCE**

The Permittee shall follow those specific construction practices and material specifications described in the Aurora Distributed Solar, LLC Application to the Commission for a Site Permit for the Aurora Distributed Solar Project, dated July 9, 2014, and the record of this proceeding unless this permit establishes different requirements, in which case this permit shall prevail.

**Attachment** [4] contains a summary of compliance filings, which is provided solely for the convenience of the Permittee. If this permit conflicts or is not consistent with **Attachment** [4] the conditions in this permit will control.

#### **5.0 SETBACKS AND SITE LAYOUT RESTRICTIONS**

##### **5.1 Public Lands**

In no case shall solar panels and associated facilities including foundations, access roads, underground cable, and transformers, be located in the public lands identified in Minnesota Rules 7850.4400 Subpart 1 or federal Waterfowl Production Areas. Solar panels and associated facilities shall not be located in the public lands identified in Minnesota Rules 7850.4400 Subpart 3 unless there is no feasible and prudent alternative.

##### **5.2 Wetlands and Shoreland**

Solar panels and associated facilities including foundations, access roads, underground cable and transformers, shall not be placed in public waters wetlands as shown on the public water inventory maps prescribed by Minnesota Statute 103G except that electric collector or feeder lines may cross or be placed in public waters or public waters wetlands subject to permits and approvals by the Minnesota Department of Natural Resources (DNR) and the United States Army Corps of Engineers (USACE), and local units of government as implementers of the Minnesota Wetlands Conservation Act. Solar panels and associated facilities including foundations, access roads, underground cable and transformers, shall be located in compliance with the minimum standards for development of the shorelands of public waters as identified in Minnesota Rules 6120.3300.<sup>1</sup>

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<sup>1</sup> The definitions in Minn. Rule 6120.2500 are also hereby incorporated by reference, and are applicable to the Project.



### **5.3 Native Prairie**

The Permittee, in consultation with the Commission, Department of Commerce and DNR, shall prepare a prairie protection and management plan and file it with the Commission and DNR at least 30 days prior to the pre-construction meeting if native prairie, as defined in Minnesota Statutes, section 84.02, subdivision 5, is identified in any biological and natural resource inventories conducted pursuant to Section 7.1. The plan shall address steps that will be taken to avoid impacts to native prairie and mitigation to unavoidable impacts to native prairie by restoration or management of other native prairie areas that are in degraded condition, by conveyance of conservation easements, or by other means agreed to by the Permittee, DNR and the Commission.

Solar panels and associated facilities including foundations, access roads, collector and feeder lines, underground cable, and transformers shall not be placed in native prairie unless addressed in a prairie protection and management plan and shall not be located in areas enrolled in the Native Prairie Bank Program. Construction activities, as defined in Minnesota Statutes, section 216E.01, shall not impact native prairie unless addressed in a prairie protection and management plan.

### **5.4 Feeder Lines**

Feeder lines that carry power from an internal project interconnection point to the Project substation or interconnection point on the electrical grid may be overhead or underground. Any overhead or underground feeder lines that parallel public roads shall be placed within the public rights-of-way or on private land immediately adjacent to public roads. If the Permittee's overhead feeder lines are located within public rights-of-way, the Permittee shall obtain approval from the governmental unit responsible for the affected right-of-way.

Feeder line locations shall be located in such a manner as to minimize interference with agricultural operations including, but not limited to, existing drainage patterns, drain tile, future tiling plans, and ditches. Safety shields shall be placed on all guy wires associated with overhead feeder lines. The Permittee shall submit the engineering drawings of all collector and feeder lines in the site plans pursuant to Section 6.1.

The Permittee must fulfill, comply with, and satisfy all Institute of Electrical and Electronics Engineers, Inc. (IEEE) standards applicable to this Project including, but not limited to, IEEE 776 (Recommended Practice for Inductive Coordination of Electric Supply and Communication Lines), IEEE 519 (Harmonic Control in Electric Power Systems), IEEE 367 (Recommended Practice for Determining the Electric Power Station Ground Potential Rise and Induced Voltage from a Power Fault), and IEEE 820 (Standard Telephone Loop Performance Characteristics) provided the telephone service provider has complied with any obligations imposed on it pursuant to these standards. Upon request by the Commission, the Permittee shall report to the Commission on compliance with these standards.

## **6.0 ADMINISTRATIVE COMPLIANCE PROCEDURES**

The following administrative compliance procedures shall be executed in accordance with the Permit Compliance Filings at **Attachments** [3] and [4]. Submissions to the Commission must be made by electronic filing (eFiling).

The following conditions shall apply to the construction of the Facilities on the designated sites.

### **6.1 Site Plan**

At least fourteen (14) days prior to the pre-construction meeting for each Facility, the Permittee shall submit to the Commission:

- (a) a ready-for-construction site plan for each ~~solar site~~ Facility to include the solar panel layouts, access roads, electrical equipment, collector and feeder lines, and other associated facilities to be constructed;
- (b) engineering drawings for site preparation and construction of each of the Facilities;
- (c) a landscaping plan that describes adjacent land uses and identifies any site-specific strategies to minimize the visual impact of the Facility to adjacent land uses; and
- (d) plans for restoration of the Facility following construction.

Construction is defined under Minnesota Statutes, section 216E.01, subdivision 3. The Permittee may submit a site plan and engineering drawings for one or more Facilities if the Permittee intends to commence construction on certain Facilities before completing the site plan and engineering drawings for other Facilities. The Permittee shall document, through GIS mapping, compliance with the setbacks and site layout restrictions required by this permit, including compliance with the noise standards pursuant to Minnesota Rules, chapter 7030. The Permittee shall describe its considerations in determining the location of any fencing.

### **6.2 Notice to Local Government Agencies**

Within fourteen (14) days of issuance of this permit, the Permittee shall send a copy of the permit to the office of the auditor of each county in which a Project Facility is located and to the clerk of each city and township where a Project Facility is located. As applicable, the Permittee shall, within fourteen (14) days of permit issuance, send a printed copy of this permit to each regional development commission, local fire district, soil and water conservation district, watershed district, and watershed management district office with jurisdiction in the county where a Project Facility is located.

### **6.3 Notice of Permit Conditions**

Prior to the start of construction, the Permittee shall inform all employees, contractors, and other persons involved in the construction and ongoing operation of the Project of the terms and conditions of this permit.

#### **6.4 Agricultural Impact Mitigation Plan**

The Permittee shall, with the cooperation of the Minnesota Department of Agriculture, develop an Agricultural Impact Mitigation Plan (AIMP). The purpose of the AIMP shall be to identify measures to minimize potential impacts to agricultural uses of the land upon the decommissioning of the Project. The Permittee shall submit the AIMP to the Commission fourteen (14) days prior to submitting the first site plan for any portion of the Project. The AIMP shall include:

- (a) Measures that will be taken to segregate topsoil from subsoil during grading activities and the removal of topsoil during construction of the Project to the extent that such actions do not violate sound engineering principles or system reliability criteria.
- (b) Measures that will be taken to minimize impacts to and repair drainage tiles damaged during construction of the Project.
- (c) Measures that will be taken to prevent the introduction of non-native and invasive species.
- (d) Measures that will be taken to re-vegetate disturbed areas with appropriate low-growing vegetation to the extent that such actions do not violate sound engineering principles or system reliability criteria.
- (e) Measures that will be taken to maintain established vegetation at the facilities throughout the operational life of the facility.

#### **6.5 Vegetation Management Plan**

The Permittee shall, in cooperation with the Minnesota Department of Commerce and the DNR, develop a Vegetation Management Plan for the Project and submit it to the Commission fourteen (14) days prior to submitting the first Site Plan required by Section 6.1 of this permit. The purpose of the Vegetation Management Plan is to minimize tree clearing, prevent the introduction of noxious weeds and invasive species, revegetate disturbed areas at each Facility with appropriate low-growing species, and maintain appropriate vegetation at each Facility throughout the operating life of the Project. The Vegetation Management Plan shall:

- (a) Identify measures taken to minimize tree removal and minimize ground disturbance.
- (b) Identify a comprehensive re-vegetation plan for disturbed areas.
- (c) Identify methods to maintain appropriate vegetation throughout the operating life of the Project.
- (d) Identify vegetation control methods to be used during the operation and maintenance of the Project.

- (e) Identify measures to prevent the introduction of noxious weeds and invasive species on lands disturbed by construction activities.

## **6.6 Field Representative**

At least fourteen (14) days prior to the pre-construction meeting and continuously throughout construction, including site restoration, the Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this permit during the construction phase of this Project. This person shall be accessible by telephone during normal working hours throughout preparation, construction, cleanup, and restoration. This person's address, email, phone number, and emergency phone number shall be filed with the Commission, which may make the contact information available to affected landowners, local residents, public officials and other interested persons. The Permittee may change the field representative by notification to the Commission by eFiling.

## **6.7 Site Manager**

The Permittee shall designate a Site Manager responsible for overseeing compliance with the conditions of this permit during the commercial operation and decommissioning phases of this Project. The Site Manager shall be responsible for giving and receiving all notices, addressing compliance issues, addressing complaints, and for all other communications with the Commission and Department of Commerce for the Project, including all of the Facilities. The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the site manager fourteen (14) days prior to placing any Facility into commercial operation. This information shall be maintained current by informing the Commission of any changes by eFiling, as they become effective.

## **6.8 Pre-Construction Meeting**

Prior to the start of any construction, representatives of the Permittee, the Field Representative, Department of Commerce, and Commission shall participate in a preconstruction meeting to review pre-construction filing requirements, scheduling, and to coordinate monitoring of construction and site restoration activities. The Permittee shall file with the Commission within fourteen (14) days following the pre-construction meeting a summary of the topics reviewed and discussed and a list of attendees. The Permittee shall indicate in the filing the Project's construction start date.

## **6.9 Pre-Operation Compliance Meeting**

At least fourteen days (14) prior to commercial operation of one or more Facilities, the Permittee shall participate in a pre-operation compliance meeting with the Department of Commerce and Commission staff to coordinate field monitoring of operation activities for the Project. The Permittee shall file with the Commission within fourteen (14) days following the pre-operation meeting a summary of the topics reviewed and discussed and a list of attendees.

## **6.10 Complaints**

At least fourteen (14) days prior to the pre-construction meeting, the Permittee shall file with the Commission the company's procedures that will be used to receive and respond to complaints. The Permittee shall report to the Commission all complaints received concerning any part of the Project in accordance with the requirements of Minn. R. 7829.1500 or Minn. R. 7829.1700, and as set forth in the complaint procedures provided in **Attachments** [2] of this permit.

## **7.0 SURVEYS AND REPORTING**

### **7.1 Biological and Natural Resource Inventories**

The Permittee, in consultation with the Commission and DNR, shall design and conduct pre-construction desktop and field inventories of existing wildlife management areas, scientific and natural areas, recreation areas, native prairies and forests, wetlands, existing wildlife corridors, and any other biologically sensitive areas within the Project sites and assess the presence of state- or federally-listed or threatened species. The results of the inventories shall be filed with the Commission at least thirty (30) days prior to the pre-construction meeting to confirm compliance of conditions in this permit.

The Permittee shall file with the Commission, any biological surveys or studies conducted on this Project, including those not required under this permit.

### **7.2 Archaeological Resources**

The Permittee shall work with the State Historic Preservation Office (SHPO) and the State Archaeologist. The Permittee shall carry out a phase 1 or 1A archaeological survey for all proposed solar sites, access roads, and other areas of Project construction impact to determine whether additional archaeological work is necessary for any part of the proposed Project. The Permittee shall contract with a qualified archaeologist to complete such surveys, and shall submit the results to the Commission, the SHPO, and the State Archaeologist at least fourteen (14) days prior to the pre-construction meeting.

The SHPO and the State Archaeologist will make recommendations for the treatment of any significant archaeological sites which are identified. Any issues in the implementation of these recommendations will be resolved by the Commission in consultation with SHPO and the State Archaeologist. In addition, the Permittee shall mark and preserve any previously unrecorded archaeological sites that are found during construction and shall promptly notify the SHPO, the State Archaeologist, and the Commission of such discovery. The Permittee shall not excavate at such locations until so authorized by the Commission in consultation with the SHPO and the State Archaeologist.

If human remains are encountered during construction, the Permittee shall immediately halt construction at that Facility and promptly notify local law enforcement authorities and the State Archaeologist. Construction at the human remains location shall not proceed until authorized by local law enforcement authorities or the State Archaeologist.

If any federal funding, permit, or license is involved or required, the Permittee shall notify the SHPO as soon as possible in the planning process to coordinate section 106 (36 C.F.R. part 800) review.

Prior to construction, construction workers shall be trained about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If any archaeological sites are found during construction, the Permittee shall immediately stop work at the Facility where the archaeological site or sites were found and shall mark and preserve the archaeological site and notify the Commission the SHPO about the discovery. The Commission and the SHPO shall have three (3) working days from the time the agency is notified to conduct an inspection of the archaeological site if either agency shall choose to do so. On the fourth day after notification, the Permittee may begin work at the Facility unless the SHPO has directed that work shall cease. In such event, work shall not continue until the SHPO determines that construction can proceed.

### **7.3 Project Energy Production**

The Permittee shall, by February 1st following each complete or partial year of Project operation, file a report with the Commission on the monthly energy production of the Project (each Facility individually and in the aggregate for the Project) including:

- (a) the installed nameplate capacity of each permitted Facility;
- (b) the total monthly energy generated by each Facility in MW hours;
- (c) the monthly capacity factor of each Facility;
- (d) yearly energy production and capacity factor for each Facility;
- (e) the operational status of each Facility and any major outages, major repairs, or solar installation performance improvements occurring in the previous year; and
- (f) any other information reasonably requested by the Commission.

The permittee may submit such information it deems to be non-public pursuant to Section 12.8 of this permit.

### **7.4 Photovoltaic Resource Use**

The Permittee shall, by February 1st following each complete or partial calendar year of operation, file with the Commission the average monthly and average annual solar strength gradient measured in kWh/m<sup>2</sup>/Day observed at each solar Facility during the preceding year or partial year of operation. This information shall be considered public and must be filed electronically.

## **7.5 Extraordinary Events**

Within twenty-four (24) hours of discovery of an occurrence, the Permittee shall notify the Commission of any extraordinary event. Extraordinary events include but shall not be limited to: fires, solar panel collapse, acts of sabotage, collector or feeder line failure, wildlife injuries and fatalities, and injured worker or private person. The Permittee shall, within thirty (30) days of the occurrence, file a report with the Commission describing the cause of the occurrence and the steps taken to avoid future occurrences. Wildlife injuries and fatalities shall also be reported on a quarterly basis.

## **8.0 CONSTRUCTION AND OPERATION PRACTICES**

### **8.1 Site Clearance**

The Permittee shall disturb or clear the Facility lands only to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the Project.

### **8.2 Topsoil Protection**

The Permittee shall implement measures to protect and segregate topsoil from subsoil on all Facility lands unless otherwise negotiated with the affected landowner.

### **8.3 Soil Compaction**

The Permittee shall implement measures to minimize soil compaction of all Facility lands during all phases of the Project's life and shall confine compaction to as small an area as practicable.

### **8.4 Livestock Protection**

The Permittee shall take precautions to protect livestock during all phases of the Project's life.

### **8.5 Fences**

The Permittee shall promptly replace or repair all fences and gates removed or damaged during all phases of the Project's life unless otherwise negotiated with the affected landowner. When the Permittee installs a gate where electric fences are present, the Permittee shall provide for continuity in the electric fence circuit.

### **8.6 Drainage Tiles**

The Permittee shall take into account, avoid, promptly repair or replace all drainage tiles broken or damaged during all phases of Project's life unless otherwise negotiated with affected landowner.

### **8.7 Equipment Storage**

The Permittee shall not locate temporary equipment staging areas on lands not under its control unless negotiated with affected landowner. Temporary equipment staging areas shall not be located in wetlands, or native prairie as defined in Sections 5.2 and 5.3. Temporary equipment

staging areas shall be sited to comply with minimum standards for development of the shorelands of public waters as identified in Section 5.2.

## **8.8 Noise**

Construction and routine maintenance activities shall be limited to daytime working hours, as defined in Minn. R. 7030.0020, to ensure nighttime noise level standards will not be exceeded.

## **8.9 Interference with Communication Devices**

The Permittee shall not operate the Project so as to cause microwave, television, radio, telecommunications, or navigation interference in violation of Federal Communications Commission regulations or other law. If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the Project, the Permittee shall take whatever action is feasible to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the Project.

## **8.10 Roads**

### **8.10.1 Public Roads**

At least fourteen (14) days prior to the pre-construction meeting, the Permittee shall identify all state, county, or township roads that will be used for the Project and shall notify the Commission and the state, county, or township governing body having jurisdiction over the roads to determine if the governmental body needs to inspect the roads prior to use of these roads. Where practical, existing roadways shall be used for all activities associated with the Project. Oversize or overweight loads associated with the Project shall not be hauled across public roads without required permits and approvals.

The Permittee shall locate all perimeter fencing and vegetative screening in a manner that does not interfere with routine road maintenance activities and allows for continued safe travel on public roads.

### **8.10.2 Solar Site Access Roads**

The Permittee shall construct the least number of site access roads it can. Access roads shall not be constructed across streams and drainage ways without required permits and approvals. When access roads are constructed across streams and drainage ways, the access roads shall be designed in a manner so runoff from the upper portions of the watershed can readily flow to the lower portion of the watershed. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits.

### **8.10.3 Private Roads**

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when obtaining access to the sites, unless otherwise negotiated with the affected landowner.



### **8.11 Private Infrastructure**

The Permittee shall replace or repair all fences and gates removed or damaged as a result of preparation, construction, and restoration activities, unless otherwise negotiated with the affected landowner.

### **8.12 Cleanup**

The Permittee shall remove all waste and scrap that is the product of construction, operation, restoration, and maintenance from all sites and properly dispose of it upon completion of each task. Personal litter, bottles, and paper deposited by site personnel shall be removed on a daily basis.

### **8.13 Tree Removal**

The Permittee shall minimize the removal of trees and the Permittee shall not remove groves of trees or shelter belts without notification to the Commission and the approval of the affected landowner.

### **8.14 Soil Erosion and Sediment Control**

The Permittee shall develop a Soil Erosion and Sediment Control Plan for each Facility prior to construction and submit the Plan to the Commission at least fourteen (14) days prior to the pre-construction meeting. This Plan may be the same as the Storm Water Pollution Prevention Plan (SWPPP) submitted to the MPCA as part of the National Pollutant Discharge Elimination System (NPDES) permit application.

The Soil Erosion and Sediment Control Plan shall address what types of erosion control measures will be implemented during each Project phase and shall at a minimum identify: plans for grading, construction, and drainage of roads and solar sites; necessary soil information; detailed design features to maintain downstream water quality; a comprehensive re-vegetation plan to maintain and ensure adequate erosion control and slope stability and to restore the site after temporary project activities; and measures to minimize the area of surface disturbance. Other practices shall include containing excavated material, protecting exposed soil, and stabilizing restored material and removal of silt fences or barriers when the area is stabilized. The Plan shall identify methods for disposal or storage of excavated material. Erosion and sedimentation control measures shall be implemented prior to construction and maintained throughout the Project's life.

### **8.15 Restoration**

The Permittee shall, as soon as practical following construction of each site, considering the weather and preferences of the affected landowner, stabilize the area affected by any Project activities to the post-construction prescribed in the Site Plans filed pursuant to Section 6.1, condition that existed immediately before construction began to the extent possible. The time period may be no longer than twelve (12) months after completion of the construction, unless otherwise negotiated with the affected landowner. Restoration shall be compatible with the safe operation, maintenance and inspection of the Project.

## **8.16 Hazardous Waste**

The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean-up, and disposal of hazardous wastes generated during any phase of the Project's life.

## **8.17 Application of Herbicides**

The Permittee shall restrict herbicide use to those herbicides and methods of application approved by the Minnesota Department of Agriculture and the U.S. Environmental Protection Agency. Selective foliage or basal application shall be used when practicable. All herbicides shall be applied in a safe and cautious manner so as to not damage adjacent properties, including crops, orchards, tree farms, or gardens. The Permittee shall also, at least fourteen (14) days prior to the application, notify beekeepers known to Permittee to have an active apiary within one mile of the proposed application site of the day the Permittee intends to apply herbicide so that precautionary measures may be taken by the beekeeper.

## **8.18 Public Safety**

The Permittee shall provide educational materials to landowners adjacent to each Facility Site Control Boundary and, upon request, to interested persons about the Project and any restrictions or dangers associated with the Project. The Permittee shall also provide any necessary safety measures, such as warning signs and gates for traffic control or to restrict public access. The Permittee shall submit the location of all underground facilities, as defined in Minnesota Statutes, section 216D.01, subdivision 11, to Gopher State One Call following the completion of construction at each site.

## **8.19 Emergency Response**

The Permittee shall prepare an Emergency Response Plan (fire protection and medical emergency) in consultation with the emergency responders having jurisdiction over each Facility prior to Project construction. The Permittee shall submit a copy of the Plan(s) to the Commission at least fourteen (14) days prior to the pre-construction meeting and a revised plan(s), if any, at least fourteen (14) days prior to the pre-operation compliance meeting. The Permittee shall also register the Project with the local governments' emergency 911 services.

## **8.20 Solar Site Identification**

All solar sites shall be marked with a visible identification number and or street address.

# **9.0 FINAL CONSTRUCTION**

## **9.1 As-Built Plans and Specifications**

Within sixty (60) days after completion of construction of the entire Project, the Permittee shall file with the Commission a copy of the as-built plans and specifications for the Project. The Permittee must also file this data in a GIS compatible format so that the Commission can place it

into the Minnesota Geospatial Information Office's geographic data clearinghouse located in the Office of Enterprise Technology.

## **9.2 Final Boundaries**

After completion of construction, the Commission shall determine the need to adjust the final Facility boundaries required for this Project. If done, this permit may be modified, after notice and opportunity for public hearing, to represent the actual sites required by the Permittee to operate the Project authorized by this permit.

## **9.3 Expansion of Site Boundaries**

No expansion of the site boundaries described in this permit shall be authorized without the approval of the Commission. The Permittee may submit to the Commission a request for a change in the boundaries of the sites for the Project. The Commission will respond to the requested change in accordance with applicable statutes and rules.

## **9.4 Notification to the Commission**

At least three (3) days before each Facility is to commence commercial operation, the Permittee shall file with the Commission the date on which the Facility will commence commercial operation and the date on which construction was completed for the Facility.

## **10.0 DECOMMISSIONING, RESTORATION, AND ABANDONMENT**

### **10.1 Decommissioning Plan**

At least fourteen (14) days prior to the pre-operation compliance meeting, the Permittee shall submit to the Commission a Decommissioning Plan documenting the manner in which the Permittee anticipates decommissioning the Project. The Permittee shall ensure that it carries out its obligations to provide for the resources necessary to fulfill its requirements to properly decommission the Project at the appropriate time. The Commission may at any time request the Permittee to file a report with the Commission describing how the Permittee is fulfilling this obligation.

### **10.2 Site Restoration**

Upon expiration of this permit or upon earlier termination of operation of the Project, or any solar Facilities within the Project, the Permittee shall have the obligation to dismantle and remove from the sites all solar panels, mounting steel posts and beams, inverters, transformers, overhead and underground cables and lines, foundations, buildings, and ancillary equipment to a depth of four feet. To the extent feasible, the Permittee shall restore and reclaim the sites to pre-project topography and topsoil quality. All access roads shall be removed unless written approval is given by the affected landowner requesting that one or more roads, or portions thereof, be retained. Any agreement for removal to a lesser depth or no removal shall be recorded with the county and shall show the locations of all such foundations. All such agreements between the Permittee and the affected landowner shall be submitted to the

Commission prior to completion of restoration activities. The sites shall be restored in accordance with the requirements of this condition within eighteen (18) months after expiration.

### **10.3 Abandoned Solar Installations**

The Permittee shall advise the Commission of any solar arrays or facilities that are abandoned prior to termination of operation of the Project. The Project, or any equipment within the Project, shall be considered abandoned after one (1) year without energy production and the land restored pursuant to Section 10.2 unless a plan is developed and submitted to the Commission outlining the steps and schedule for returning the Project, or any equipment within the Project, to service.

## **11.0 AUTHORITY TO CONSTRUCT DISTRIBUTED PHOTOVOLTAIC SOLAR ENERGY GENERATING SYSTEM**

### **11.1 Power Purchase Agreement**

In the event the Permittee does not have a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the Project at the time this permit is issued, the Permittee shall provide notice to the Commission when it obtains a commitment for sale of the power pursuant to a power purchase agreement, or some other enforceable mechanism. This permit does not authorize construction of the Project until the Permittee has obtained a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the Project. In the event the Permittee does not obtain a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the Project within four years of the issuance of this permit, the Permittee must advise the Commission of the reason for not having such commitment. In such event, the Commission may determine whether this permit should be amended or revoked. No amendment or revocation of this permit may be undertaken except in accordance with applicable statutes and rules, including Minnesota Rules, parts 7850.4900 and 7850.5100.

### **11.2 Failure to Commence Construction**

If the Permittee has not completed the pre-construction surveys required under this permit and commenced construction of the Project within four years of the issuance of this permit, the Permittee must advise the Commission of the reason construction has not commenced. In such event, the Commission shall make a determination as to whether this permit should be amended or revoked. No revocation of this permit may be undertaken except in accordance with applicable statutes and rules, including Minnesota Rules, part 7850.5100.

### **11.3 Preemption of Other Laws**

Pursuant to Minnesota Statutes, section 216E.10, this permit shall be the only site approval required for the location of this Project, and this permit shall supersede and preempt all zoning, building, and land use rules, regulations, and ordinances adopted by regional, county, local, and special purpose governments. Nothing in this permit shall release the Permittee from any obligation imposed by law that is not superseded or preempted by law.

## **11.4 Other Permits**

The Permittee shall be responsible for acquiring any other federal, state, or local permits or authorizations that may be required to construct and operate a Distributed Photovoltaic Solar Energy Generating System within the authorized sites. The Permittee shall submit a copy of such permits and authorizations to the Commission upon request.

### **11.4.1 Compliance with Federal and State Agency Permits**

The Permittee shall comply with all terms and conditions of permits or licenses issued by federal, state, or tribal authorities including but not limited to the requirements of the MPCA (Section 401 Water Quality Certification, NPDES/State Disposal System (SDS) stormwater permit for construction activity, and other site specific discharge approvals), DNR (License to Cross Public Lands and Water, Public Water Works Permit, and state protected species consultation), SHPO (Section 106 National Historic Preservation Act), FAA determinations, and Mn/DOT (Utility Access Permit, Highway Access Permit, Oversize and Overweight).

### **11.4.2 Compliance with County, City, or Municipal Permits**

The Permittee shall comply with all terms and conditions of permits or licenses issued by the counties, cities, and municipalities affected by the Project that do not conflict with or are not preempted by federal or state permits and regulations.

## **12.0 COMMISSION POST-ISSUANCE AUTHORITIES**

### **12.1 Periodic Review**

The Commission shall initiate a review of this permit and the applicable conditions at least once every five (5) years. The purpose of the periodic review is to allow the Commission, the Permittee, and other interested persons an opportunity to consider modifications in the conditions of this permit. No modification may be made except in accordance with applicable statutes and rules.

### **12.2 Modification of Conditions**

After notice and opportunity for hearing, this permit may be modified or amended, for cause, including but not limited to the following:

- (a) violation of any condition in this permit;
- (b) endangerment of human health or the environment by operation of the Project; or
- (c) existence of other grounds established by rule.

### **12.3 Revocation or Suspension of Permit**

The Commission may take action to suspend or revoke this permit upon the grounds that:

- (a) a false statement was knowingly made in the application or in accompanying statements or studies required of the Permittee, and a true statement would have warranted a change in the Commission's findings;
- (b) there has been a failure to comply with material conditions of this permit, or there has been a failure to maintain health and safety standards; or
- (c) there has been a material violation of a provision of an applicable statute, rule, or an order of the Commission.

In the event the Commission determines that it is appropriate to consider revocation or suspension of this permit, the Commission shall proceed in accordance with the requirements of Minnesota Rules, part 7850.5100 to determine the appropriate action. Upon a finding of any of the above, the Commission may require the Permittee to undertake corrective measures in lieu of having this permit suspended or revoked.

#### **12.4 More Stringent Rules**

The Commission's issuance of this permit does not prevent the future adoption by the Commission of rules or orders more stringent than those now in existence and does not prevent the enforcement of these more stringent rules and orders against the Permittee.

#### **12.5 Transfer of Permit**

The Permittee may not transfer this permit without the approval of the Commission. If the Permittee desires to transfer this permit, the holder shall advise the Commission in writing of such desire. The Permittee shall provide the Commission with such information about the transfer as the Commission requires reaching a decision. The Commission may impose additional conditions on any new Permittee as part of the approval of the transfer.

#### **12.6 Notice of Ownership**

Within 20 days after the date of the last Facility notice provided in Section 9.4, the Permittee shall file a notice describing its ownership structure, identifying, as applicable:

- (a) the owner(s) of the financial and governance interests of the Permittee;
- (b) the owner(s) of the majority financial and governance interests of the Permittee's owners; and
- (c) the Permittee's ultimate parent entity (meaning the entity which is not controlled by any other entity).

The Permittee shall notify the Commission of:

- (a) A change in owner(s) of the majority financial or governance interests in the Permittee;

(b) A change in owner(s) of the majority interest financial or governance interests of the Permittee's owners; or

(c) A sale which changes the parent entity of the Permittee.

\*\* When there are only co-equal 50/50 percent interests, any change shall be considered a change in majority interest.

### **12.7 Right of Entry**

Upon reasonable notice, presentation of credentials and at all times in compliance with the Permittee's site safety standards, the Permittee shall allow representatives of the Commission to perform the following:

- (a) to enter upon the site property for the purpose of obtaining information, examining records, and conducting surveys or investigations;
- (b) to bring such equipment upon the site property as is necessary to conduct such surveys and investigations;
- (c) to sample and monitor upon the site property; and
- (d) to examine and copy any documents pertaining to compliance with the conditions of this permit.

### **12.8 Proprietary Information**

Certain information required to be filed with the Commission under this permit may constitute trade secret information or other type of proprietary information under the Data Practices Act or other law. The Permittee must satisfy requirements of applicable law to obtain the protection afforded by the law.

### **13.0 EXPIRATION DATE**

This permit shall expire 40 years after the date this permit was approved and adopted.

### **14.0 SPECIAL CONDITIONS**

Special conditions shall take precedence over any of the other conditions of this permit if there should be a conflict between the two.

### **14.1 Blanding's Turtle**

The Permittee shall follow the fact sheet of recommendations for avoiding and minimizing impacts to the Blanding's turtle at the Chisago County, Scandia and Wyoming Facilities. The summary of recommendations for avoiding and minimizing impacts to Blanding's turtle populations, including the attached colored photocopies of the Blanding's turtles, shall be made available to all contractors and its employees. **Attachment** [5] contains the fact sheet

recommendations and summary. The Permittee shall use wildlife friendly erosion mesh during construction at the Chisago County, Scandia and Wyoming Facilities.

#### **14.2 Rare and Unique Natural Resources**

The Permittee shall use the information in the biological surveys required by Section 7.1 of this permit to ensure that facility designs avoids impacts to the following identified rare and unique natural communities:

Dodge Center Facility: The facility shall be designed and operated in a manner that avoids impacts to the Southern Wet-Mesic Hardwood Forest located at or adjacent to this site;

Paynesville Facility: The facility shall be designed and operated in a manner that avoids impacts to the floodplain forest located at or adjacent to this site; and

Pine Island Facility: The facility shall be designed and operated in a manner that avoids impacts to the Elm-Ash-Basswood Terrace Forest located at or adjacent to this site.

#### **14.3 Demonstration of Compliance with Shoreland Standards**

The Permittee shall demonstrate compliance with the minimum standards for development of shoreland areas as specified in section 5.2 of this permit, in the site plans filed in accordance with Section 6.1 of this permit, for the following facilities: Annandale, Chisago, Lake Emily, Lake Pulaski, Pine Island, West Waconia, and Zumbrota.

#### **14.4 Security Fence Design**

The security fence surrounding each Facility shall be comprised of a chain link fence of up to seven (7) feet, topped by a 1- to 2-foot extension, tilted 45 degrees outward from the vertical plane of the chain link portion, carrying monofilament cables or barbless wire,



**LEGEND:**

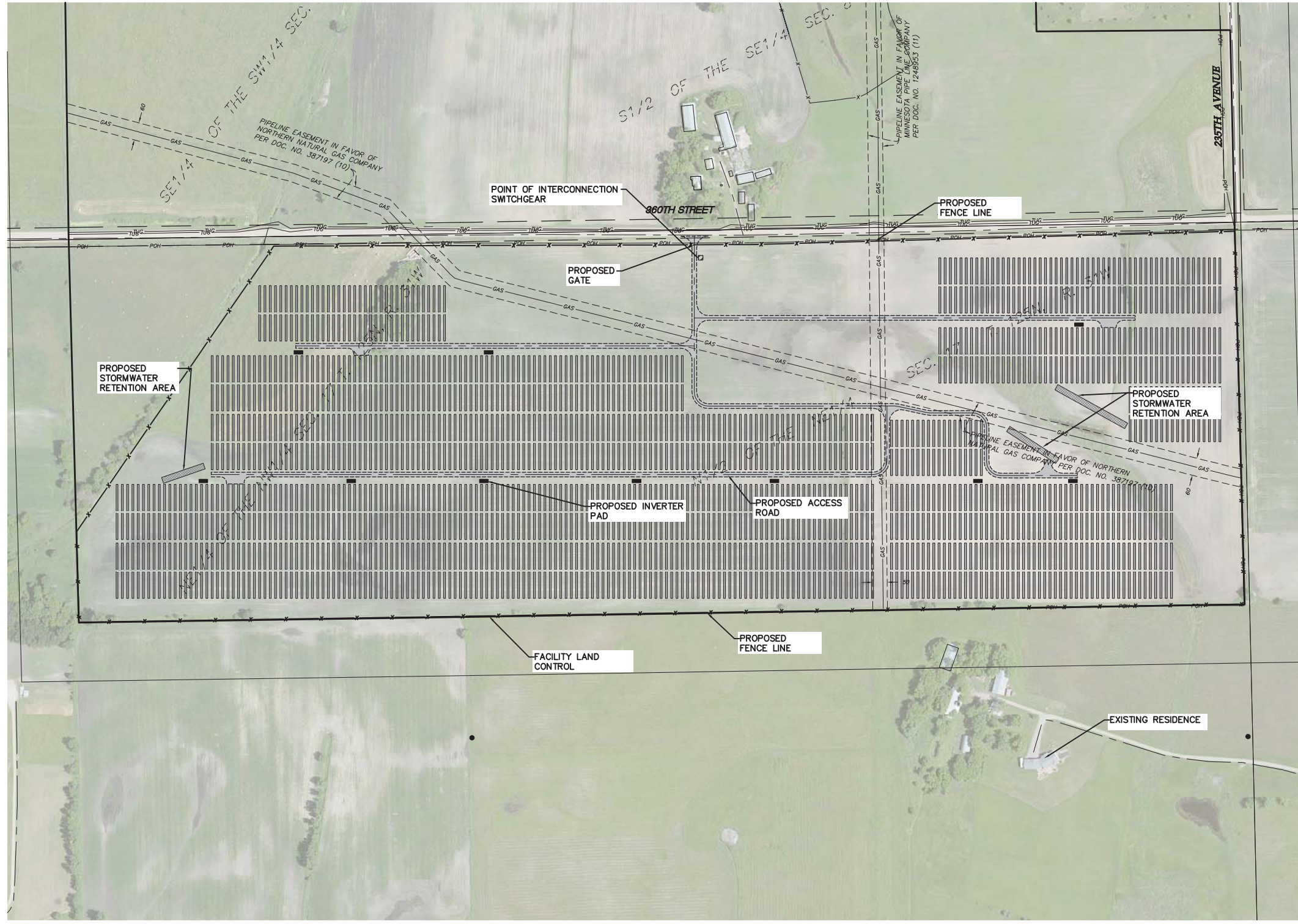
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- PROPOSED SOLAR ARRAY
- PROPOSED ACCESS ROAD
- PROPOSED INVERTER PAD
- PROPOSED FENCE LINE
- PROPOSED STORMWATER RETENTION
- EXISTING GAS LINE
- EXISTING UNDERGROUND TELEPHONE LINE
- EXISTING OVERHEAD POWER LINE
- EXISTING RIGHT OF WAY LINE
- EXISTING EASEMENT LINE

PROJECT LOCATION:  
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 LON: -94.6019

Designed:	MPG	
Checked:	ADC	
Drawn:	MPG	
Record Drawing by/date:		
Revisions:		
#	DATE	DESCRIPTION

Prepared for:

Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



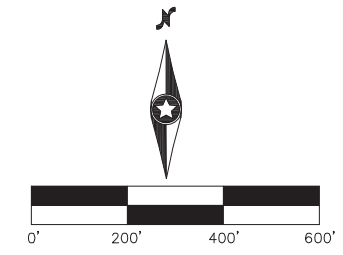
# Albany Solar

Stearns County

Site Plan

**Not for Construction**

Date: 06/24/14  
 Drawing No: C.200



**LEGEND:**

- PROPOSED LEASED AREA
- PROPOSED SOLAR ARRAY
- PROPOSED ACCESS ROAD
- PROPOSED INVERTER PAD
- PROPOSED FENCE LINE
- PROPOSED STORMWATER RETENTION
- EXISTING OVERHEAD POWER LINE
- EXISTING EASEMENT LINE
- EXISTING RIGHT OF WAY LINE

PROJECT LOCATION:  
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 LON: -94.7730

Designed:	MPG	
Checked:	ADC	
Drawn:	MPG	
Record Drawing by/date:		
Revisions:		
#	DATE	DESCRIPTION

Prepared for:

Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810









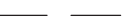


# Atwater Solar

Kandiyohi County

Overall Site Plan

Issued for Permit

Date: 06/23/14  
 Drawing No: C.200

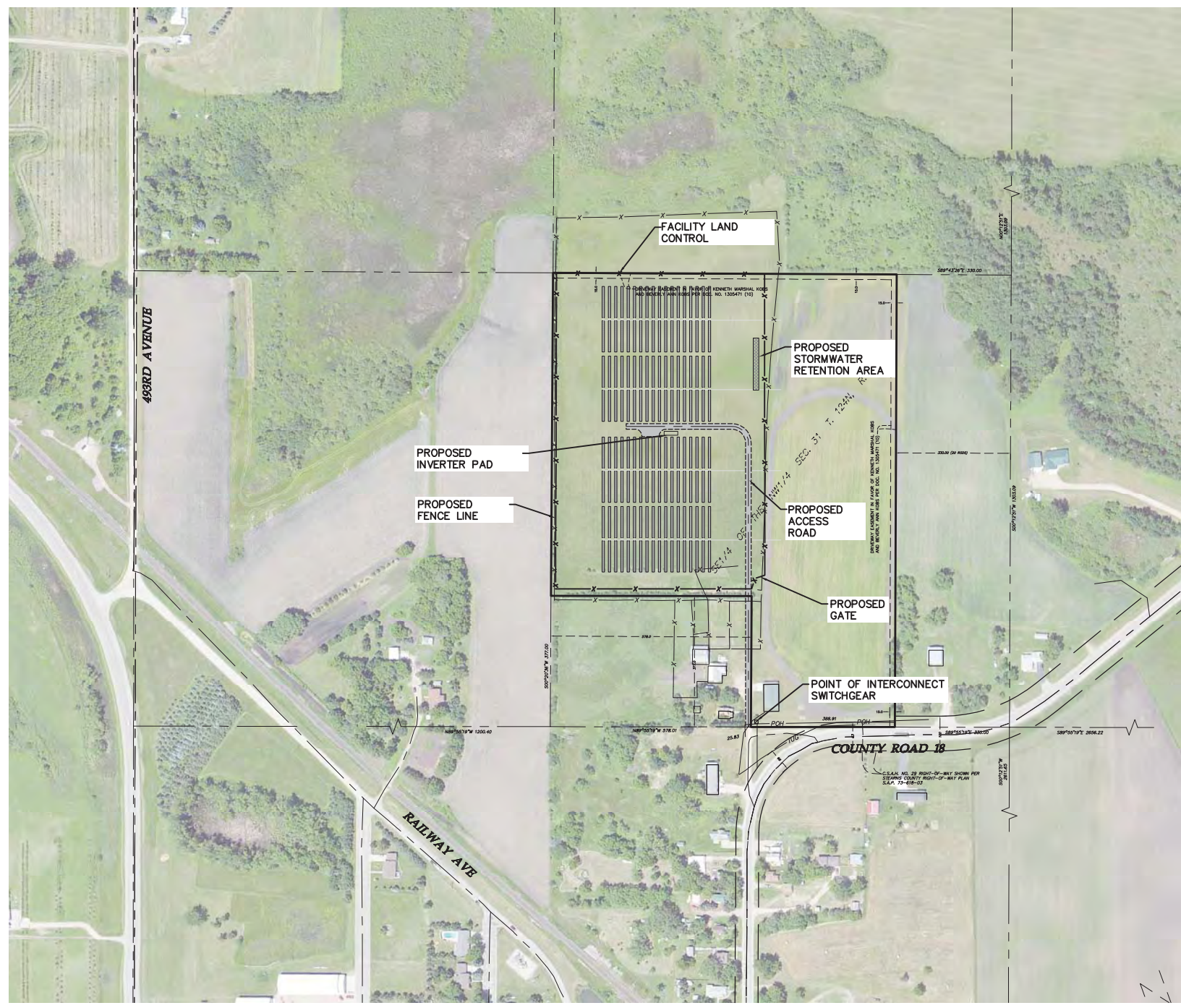
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- PROJECT LOCATION:  
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 LON: -95.1256

Designed:	MPG	
Checked:	ADC	
Drawn:	MPG	
Record Drawing by/date:		
Revisions:		
#	DATE	DESCRIPTION

Prepared for:



**AURORA SOLAR**  
 Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



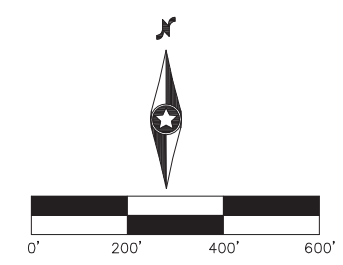
# Brooten Solar

Stearns County






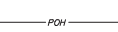



## Overall Site Plan

**Not for Construction**

Date: 06/24/14  
 Drawing No: C.200




**LEGEND:**

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  -  PROPOSED SOLAR ARRAY
  -  PROPOSED ACCESS ROAD
  -  PROPOSED INVERTER PAD
  -  PROPOSED FENCE LINE
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- PROJECT LOCATION:  
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 LON: -92.9024

Designed: MPG  
 Checked: ADC  
 Drawn: MPG

Record Drawing by/date: \_\_\_\_\_

Revisions #	DATE	DESCRIPTION

Prepared for:  
  
 Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810

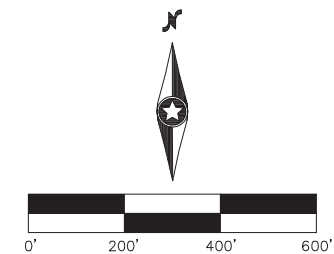






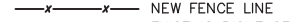



**Chisago Solar**  
 Chisago County

**Overall Site Plan**

**Not for Construction**

Date: 06/24/14  
 Drawing No: C.200




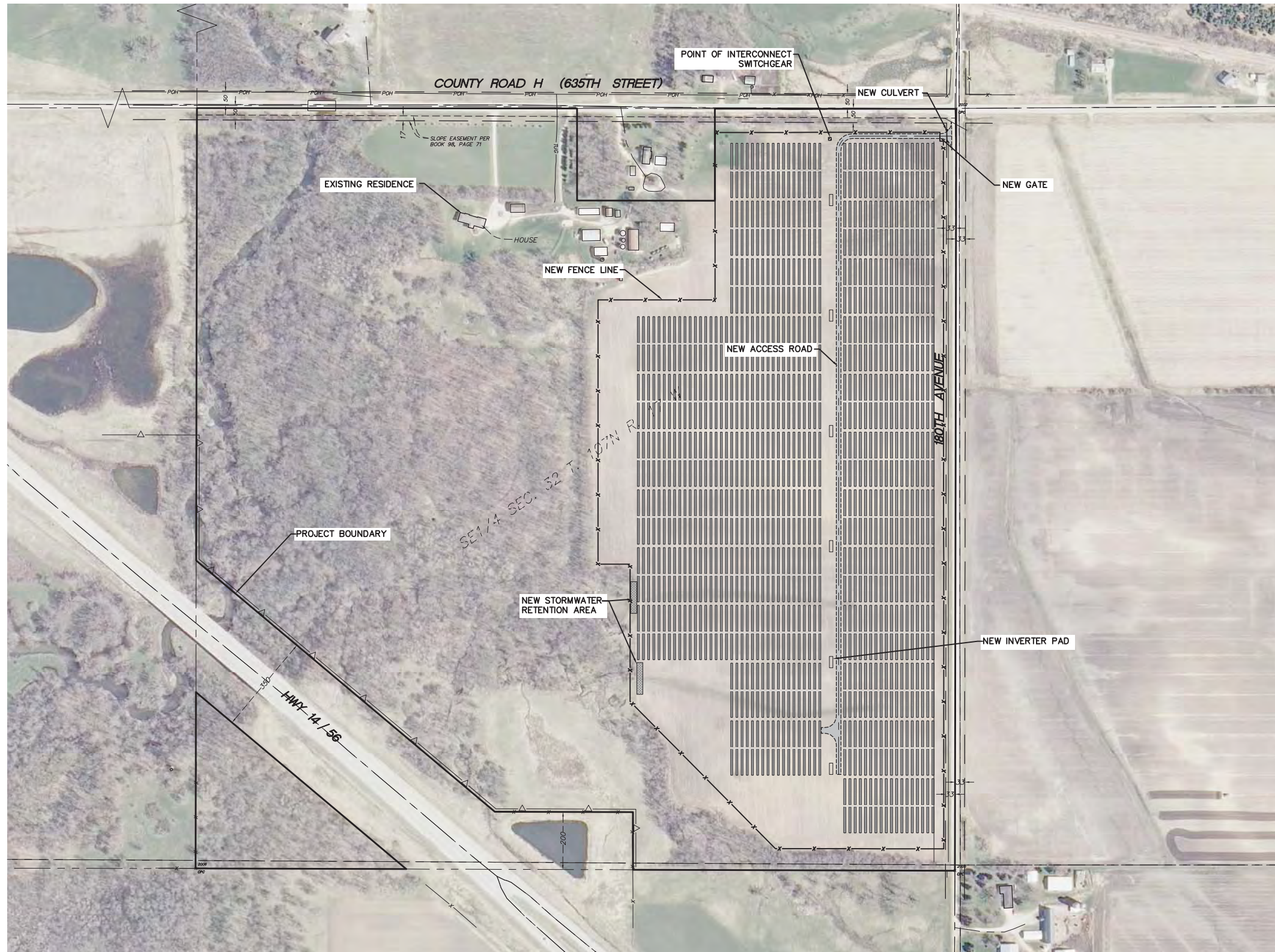
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  -  NEW STORMWATER RETENTION
- PROJECT LOCATION:  
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 LON: -92.8816

Designed: MPG  
 Checked: ADC  
 Drawn: MPG

Record Drawing by/date: \_\_\_\_\_

Revisions #	DATE	DESCRIPTION

Prepared for:  
  
 Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



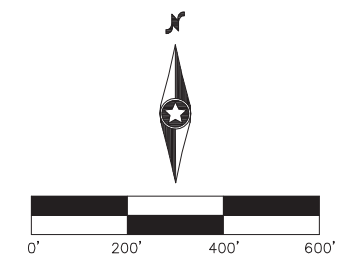
# Dodge Center Solar







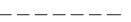

Dodge County

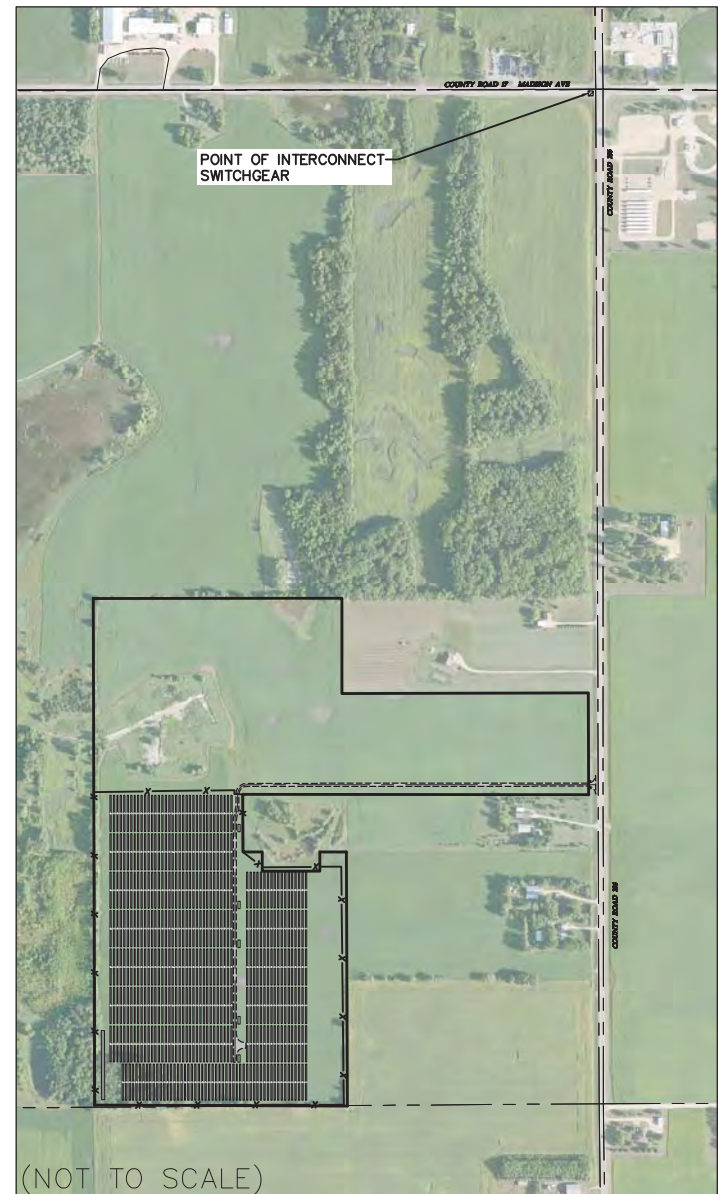
Overall Site Plan

Not for Construction

Date: 06/26/14  
 Drawing No: C.200



- LEGEND:**
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  -  PROPOSED ACCESS ROAD
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  -  EXISTING RIGHT OF WAY LINE
  -  EXISTING EASEMENT LINE
- PROJECT LOCATION:  
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Designed:	MPG	
Checked:	ADC	
Drawn:	MPG	
Record Drawing by/date:		
Revisions:		
#	DATE	DESCRIPTION

Prepared for:



Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810

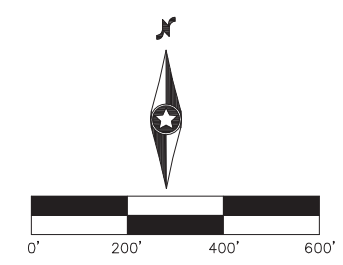
# Eastwood Solar

Blue Earth County









Overall Site Plan

Not for Construction

Date: 06/24/14  
 Drawing No: C.200



**LEGEND:**

-  PROPOSED LEASED AREA
-  PROPOSED SOLAR ARRAY
-  PROPOSED ACCESS ROAD
-  PROPOSED INVERTER PAD
-  PROPOSED FENCE LINE
-  PROPOSED STORMWATER RETENTION
-  EXISTING RIGHT OF WAY LINE
-  EXISTING EASEMENT LINE

PROJECT LOCATION:  
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Designed:	MPG	
Checked:	ADC	
Drawn:	MPG	
Record Drawing by/date:		
Revisions:		
#	DATE	DESCRIPTION

Prepared for:



Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



# Fiesta City Solar









Chippewa County

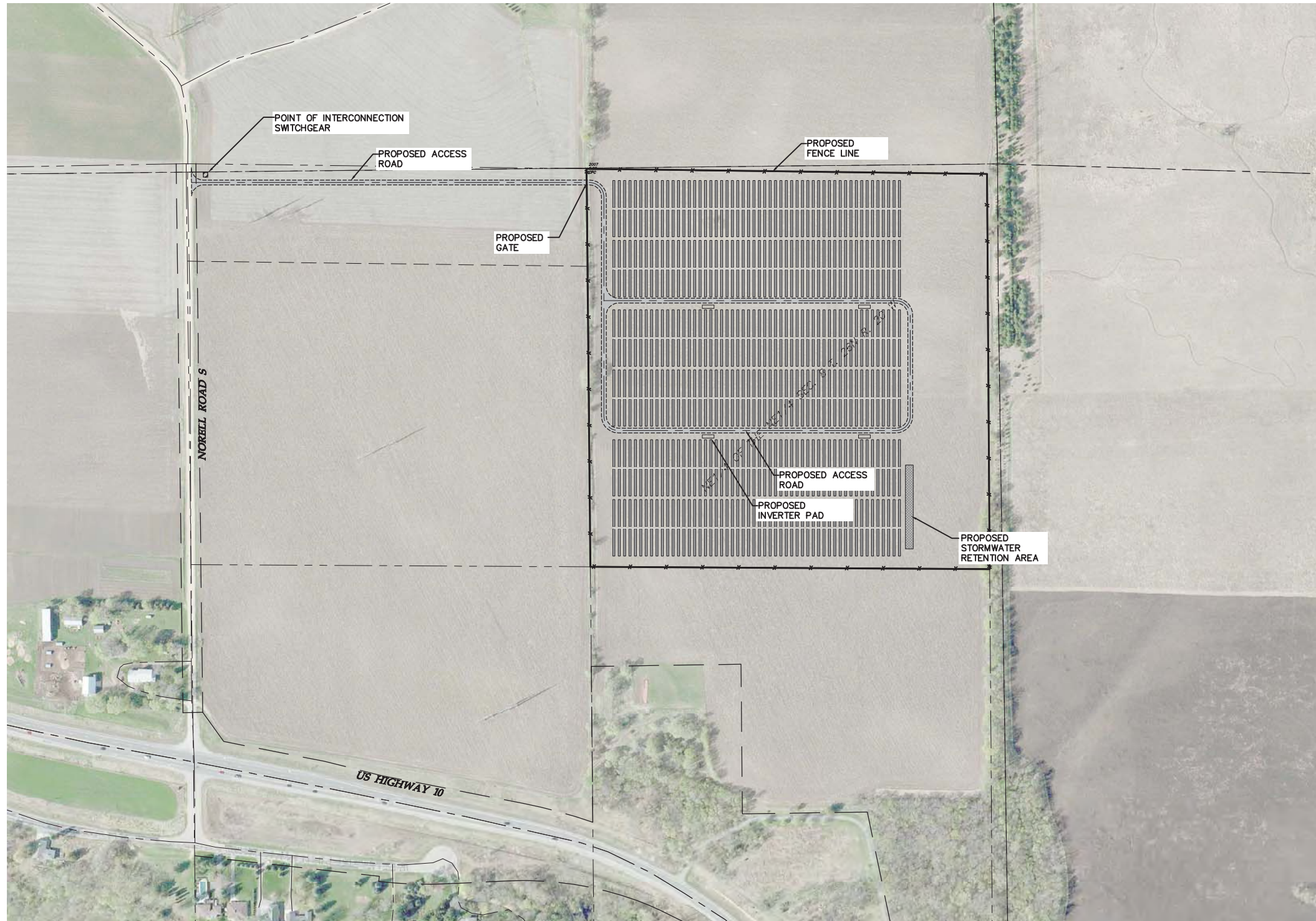
Overall Site Plan

Not for Construction

Date: 06/24/14  
 Drawing No: C.200

**LEGEND:**

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  -  PROPOSED ACCESS ROAD
  -  PROPOSED INVERTER PAD
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  -  EXISTING EASEMENT LINE
- PROJECT LOCATION:  
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 LON: -92.8253




Designed:	MPG
Checked:	ADC
Drawn:	MPG

Record Drawing by/date:

Revisions #	DATE	DESCRIPTION

Prepared for:



Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810

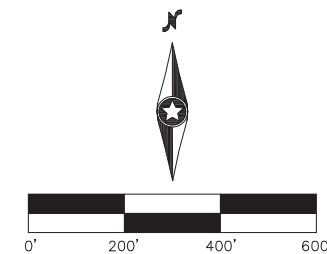
# Hastings Solar

## Washington County

Site Plan







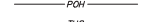



**Not for Construction**

Date: 06/24/14  
 Drawing No: C.200





**LEGEND:**

-  PROPOSED LEASED AREA
  -  PROPOSED SOLAR ARRAY
  -  PROPOSED ACCESS ROAD
  -  PROPOSED INVERTER PAD
  -  PROPOSED FENCE LINE
  -  PROPOSED STORMWATER RETENTION
  -  EXISTING OVERHEAD POWER LINE
  -  EXISTING TELEPHONE UNDERGROUND LINE
  -  EXISTING RIGHT OF WAY LINE
  -  EXISTING EASEMENT LINE
- PROJECT LOCATION:  
 LAT: 44.3205  
 LON: -93.9040

**Designed:** MPG  
**Checked:** ADC  
**Drawn:** MPG

**Record Drawing by/date:**

Revisions #	DATE	DESCRIPTION

Prepared for:  
  
 Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810

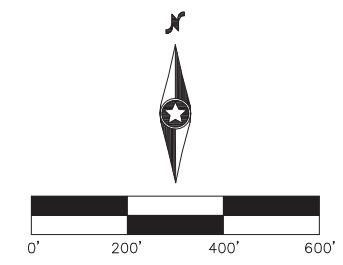


**Lake Emily Solar**  
 Le Sueur County










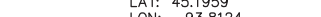
**Overall Site Plan**

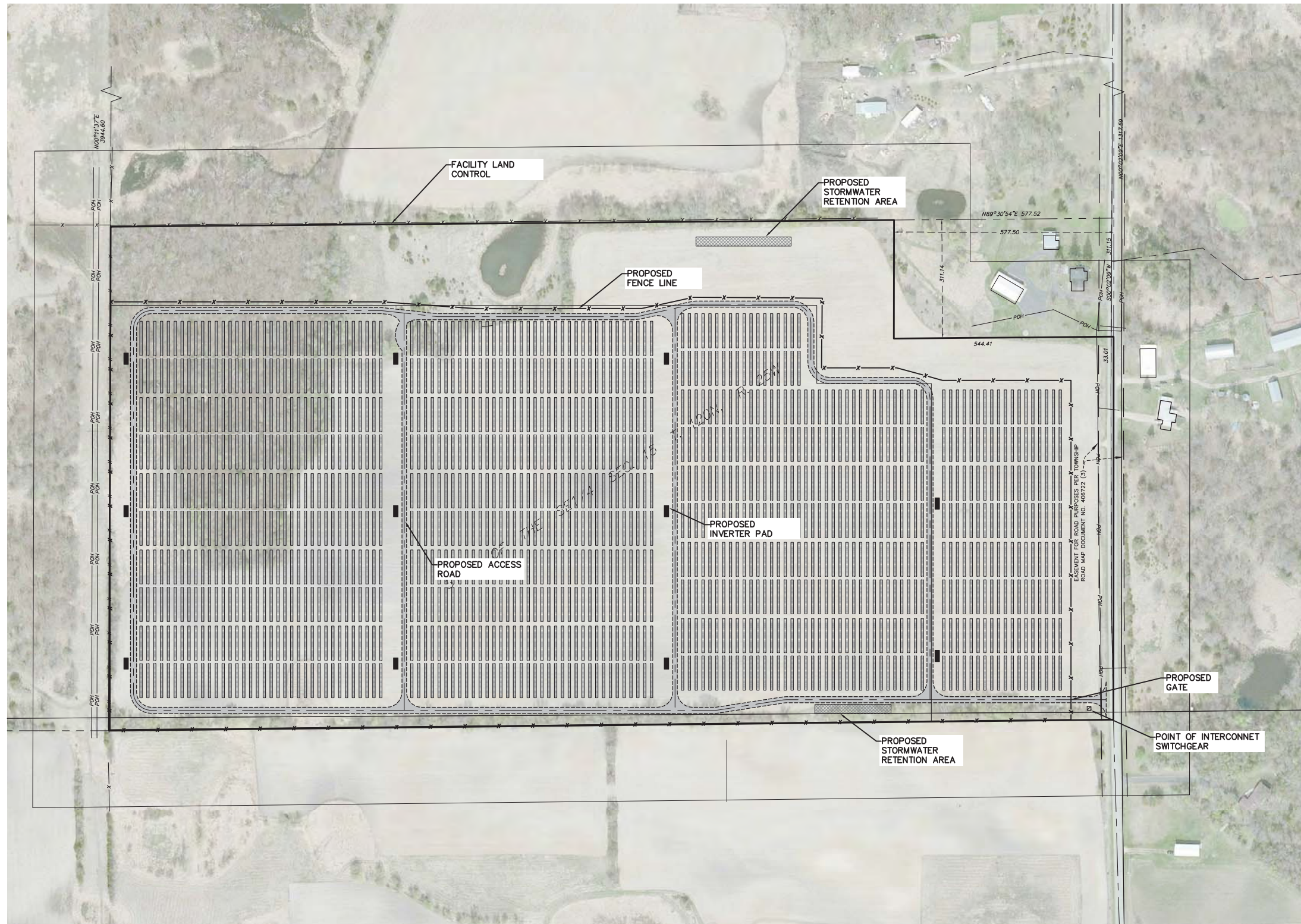
**Not for Construction**

Date: 06/24/14  
 Drawing No: C.200



**LEGEND:**


-  SOLAR LEASED AREA
  -  PROPOSED SOLAR ARRAY
  -  PROPOSED ACCESS ROAD
  -  PROPOSED INVERTER PAD
  -  PROPOSED FENCE LINE
  -  PROPOSED STORMWATER RETENTION
  -  EXISTING OVERHEAD POWER
  -  EXISTING RIGHT OF WAY LINE
  -  EXISTING FENCE LINE
  -  EXISTING EASEMENT LINE
- PROJECT LOCATION:  
 LAT: 45.1959  
 LON: -93.8124



Designed:	MPG
Checked:	ADC
Drawn:	MPG

Record Drawing by/date:

Revisions #	DATE	DESCRIPTION

Prepared for:  
  
 Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810

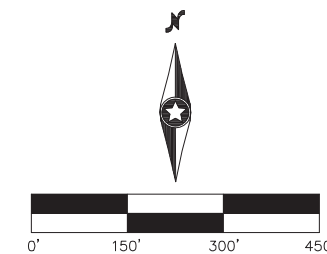
# Lake Pulaski Solar








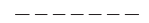

Wright County

Overall Site Plan

Issued for Permit

Date: 06/23/14  
 Drawing No: C.200



- LEGEND:**
-  PROPOSED LEASED AREA
  -  PROPOSED SOLAR ARRAY
  -  PROPOSED ACCESS ROAD
  -  PROPOSED INVERTER PAD
  -  PROPOSED FENCE LINE
  -  PROPOSED STORMWATER RETENTION
  -  EXISTING FENCE LINE
  -  EXISTING RIGHT OF WAY LINE
  -  EXISTING EASEMENT LINE
- PROJECT LOCATION:  
 LAT: 45.4020  
 LON: -92.6942

Designed: MPG  
 Checked: ADC  
 Drawn: MPG

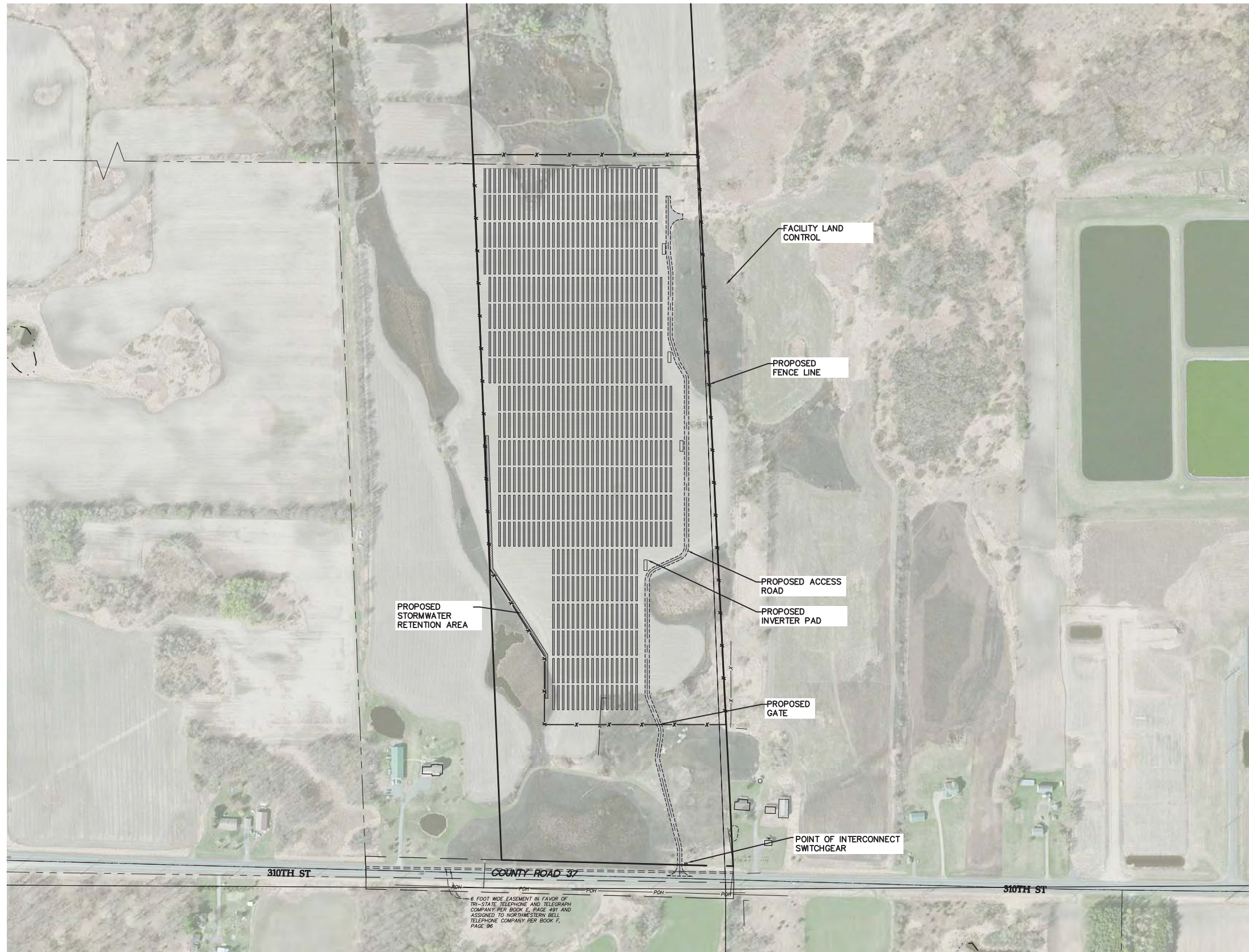
Record Drawing by/date: \_\_\_\_\_

Revisions #	DATE	DESCRIPTION

Prepared for:



Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



6 FOOT WIDE EASEMENT IN FAVOR OF TRI-STATE TELEPHONE AND TELEGRAPH COMPANY PER BOOK E, PAGE 491 AND ASSIGNED TO NORTHWESTERN BELL TELEPHONE COMPANY PER BOOK F, PAGE 96










# Lawrence Creek Solar

Chisago County

Overall Site Plan

Not for Construction

Date: 06/24/14  
 Drawing No: C.200

- LEGEND:**
-  PROPOSED LEASED AREA
  -  PROPOSED SOLAR ARRAY
  -  PROPOSED ACCESS ROAD
  -  PROPOSED INVERTER PAD
  -  PROPOSED FENCE LINE
  -  PROPOSED STORMWATER RETENTION
  -  EXISTING FENCE LINE
  -  EXISTING RIGHT OF WAY LINE
  -  EXISTING EASEMENT LINE
- PROJECT LOCATION:  
 LAT: 44.9090  
 LON: -94.0274

Designed: MPG  
 Checked: ADC  
 Drawn: MPG

Record Drawing by/date: \_\_\_\_\_

Revisions #	DATE	DESCRIPTION

Prepared for:



Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



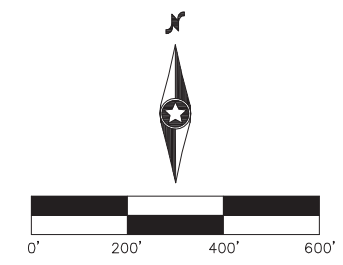
# Lester Prairie Solar

## McLeod County

Overall Site Plan

Not for Construction

Date: 06/24/14  
 Drawing No: C.200



**LEGEND:**

- SOLAR LEASED AREA
- PROPOSED SOLAR ARRAY
- PROPOSED ACCESS ROAD
- PROPOSED INVERTER PAD
- PROPOSED FENCE LINE
- PROPOSED STORMWATER RETENTION
- EXISTING OVERHEAD POWER
- EXISTING RIGHT OF WAY LINE
- EXISTING SANITARY LINE
- EXISTING EASEMENT LINE

PROJECT LOCATION:  
 LAT: 45.0560  
 LON: -93.9234

Designed:	MPG
Checked:	ADC
Drawn:	MPG

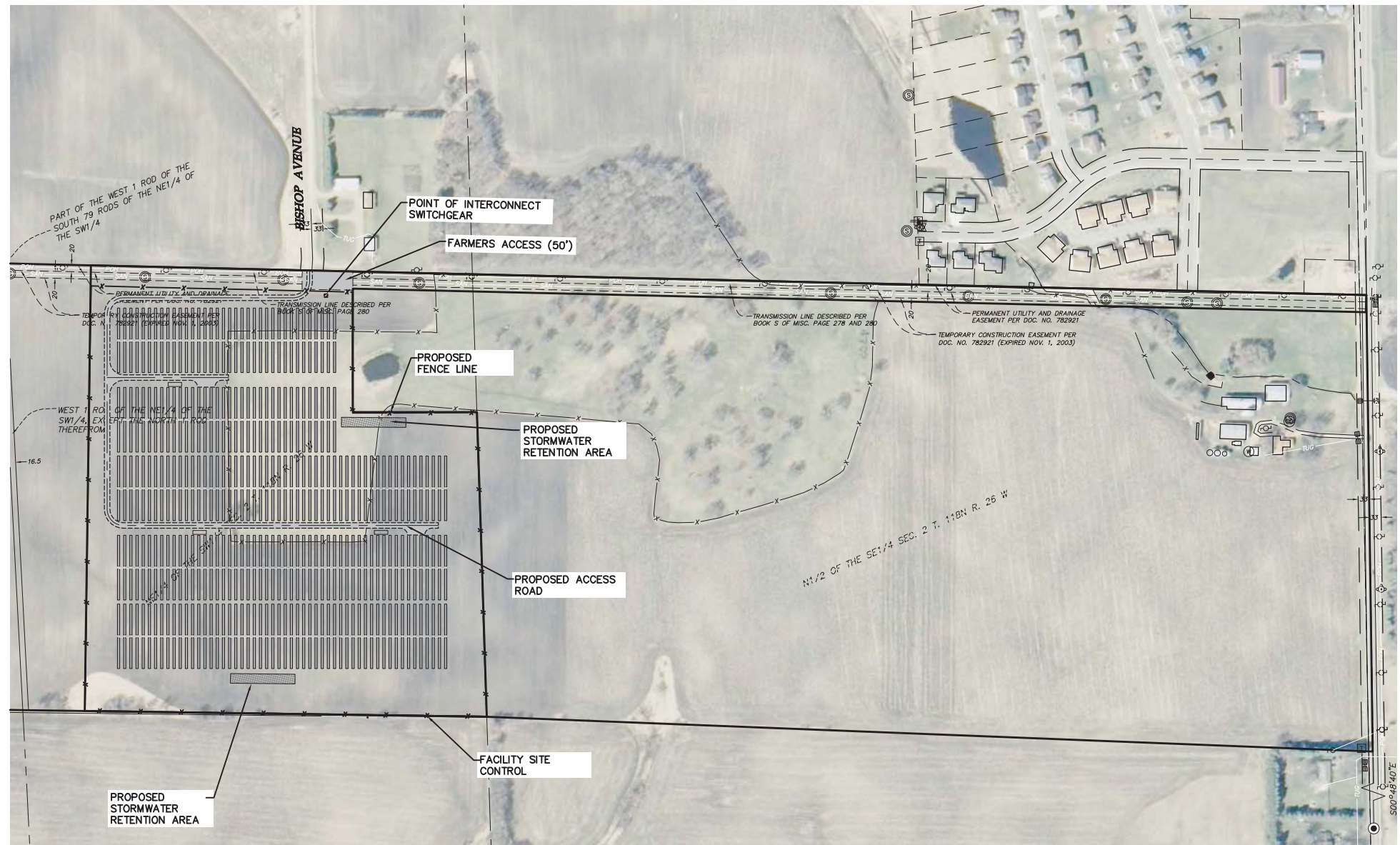
Record Drawing by/date:

Revisions #	DATE	DESCRIPTION

Prepared for:



**AURORA SOLAR**  
 Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



# Montrose Solar

Wright County

Overall Site Plan

Not for Construction

Date: 06/23/14  
 Drawing No: C.200

**LEGEND:**

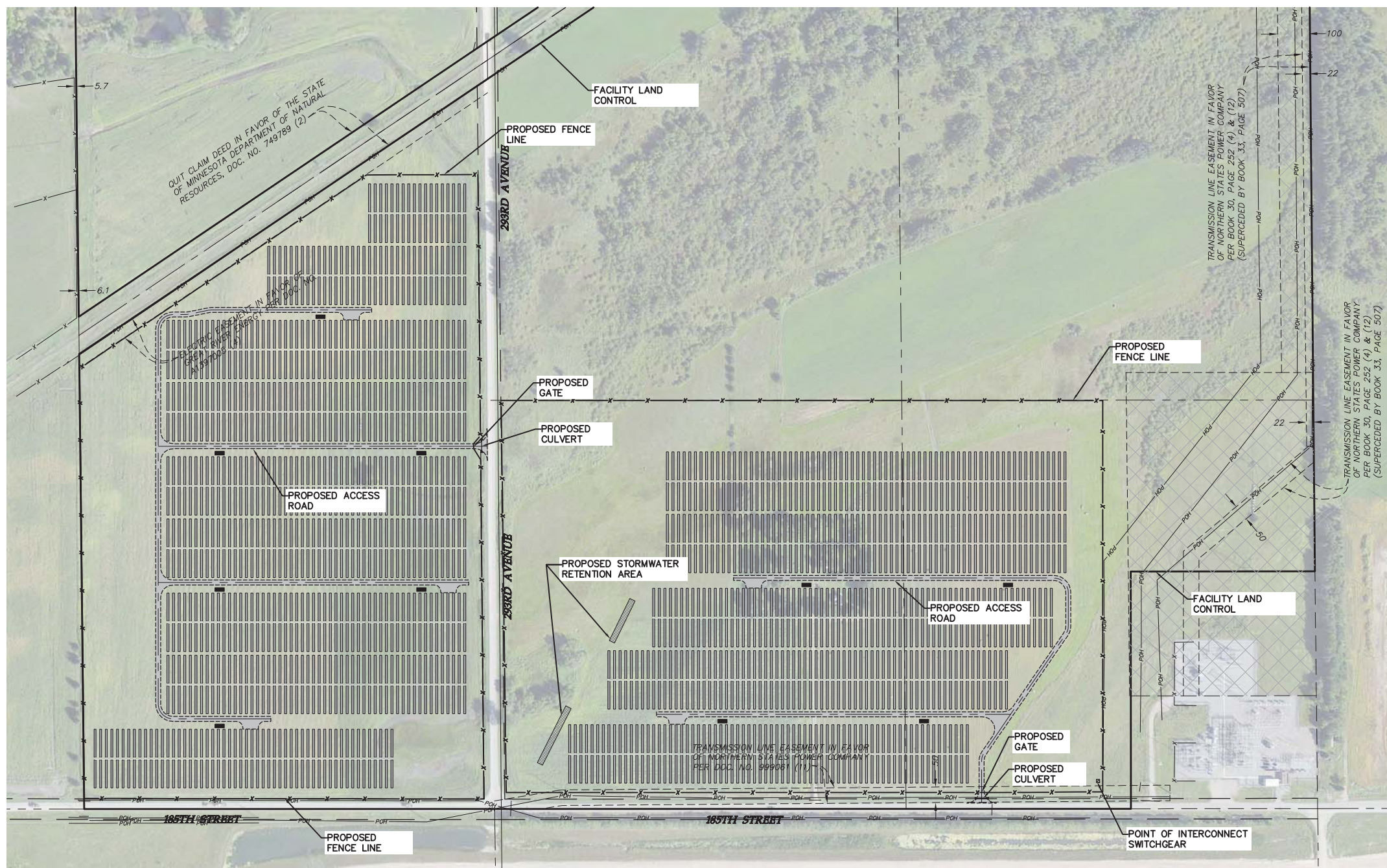
- SOLAR LEASED AREA
- PROPOSED SOLAR ARRAY
- PROPOSED ACCESS ROAD
- PROPOSED INVERTER PAD
- PROPOSED FENCE LINE
- PROPOSED STORMWATER RETENTION
- EXISTING OVERHEAD POWER
- EXISTING EASEMENT LINE

PROJECT LOCATION:  
 LAT: 45.3923  
 LON: -92.47214

Designed:	MPG	
Checked:	ADC	
Drawn:	MPG	
Record Drawing by/date:		
Revisions:		
#	DATE	DESCRIPTION

Prepared for:

Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



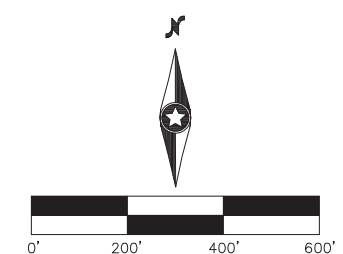
# Paynesville Solar




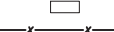
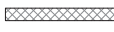
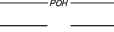



Stearns County

Overall Site Plan

Not for Construction

Date: 06/24/14  
 Drawing No: C.200



- LEGEND:**
-  SOLAR LEASED AREA
  -  PROPOSED SOLAR ARRAY
  -  PROPOSED ACCESS ROAD
  -  PROPOSED INVERTER PAD
  -  PROPOSED FENCE LINE
  -  PROPOSED STORMWATER RETENTION
  -  EXISTING OVERHEAD POWER
  -  EXISTING RIGHT OF WAY LINE
  -  EXISTING EASEMENT LINE
- PROJECT LOCATION:  
 LAT: 44.2048  
 LON: -92.6638

Designed: MPG  
 Checked: ADC  
 Drawn: MPG

Record Drawing by/date: \_\_\_\_\_

Revisions #	DATE	DESCRIPTION

Prepared for:



**AURORA SOLAR**  
 Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



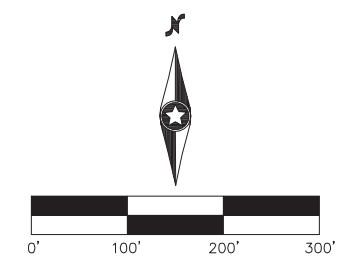
# Pine Island Solar

## Goodhue County









Overall Site Plan

Issued for Permit

Date: 06/23/14  
 Drawing No: C.200




**LEGEND:**

-  PROPOSED LEASED AREA
-  PROPOSED SOLAR ARRAY
-  PROPOSED ACCESS ROAD
-  PROPOSED INVERTER PAD
-  PROPOSED FENCE LINE
-  EXISTING RIGHT OF WAY LINE
-  EXISTING EASEMENT LINE
-  PROPOSED STORMWATER RETENTION

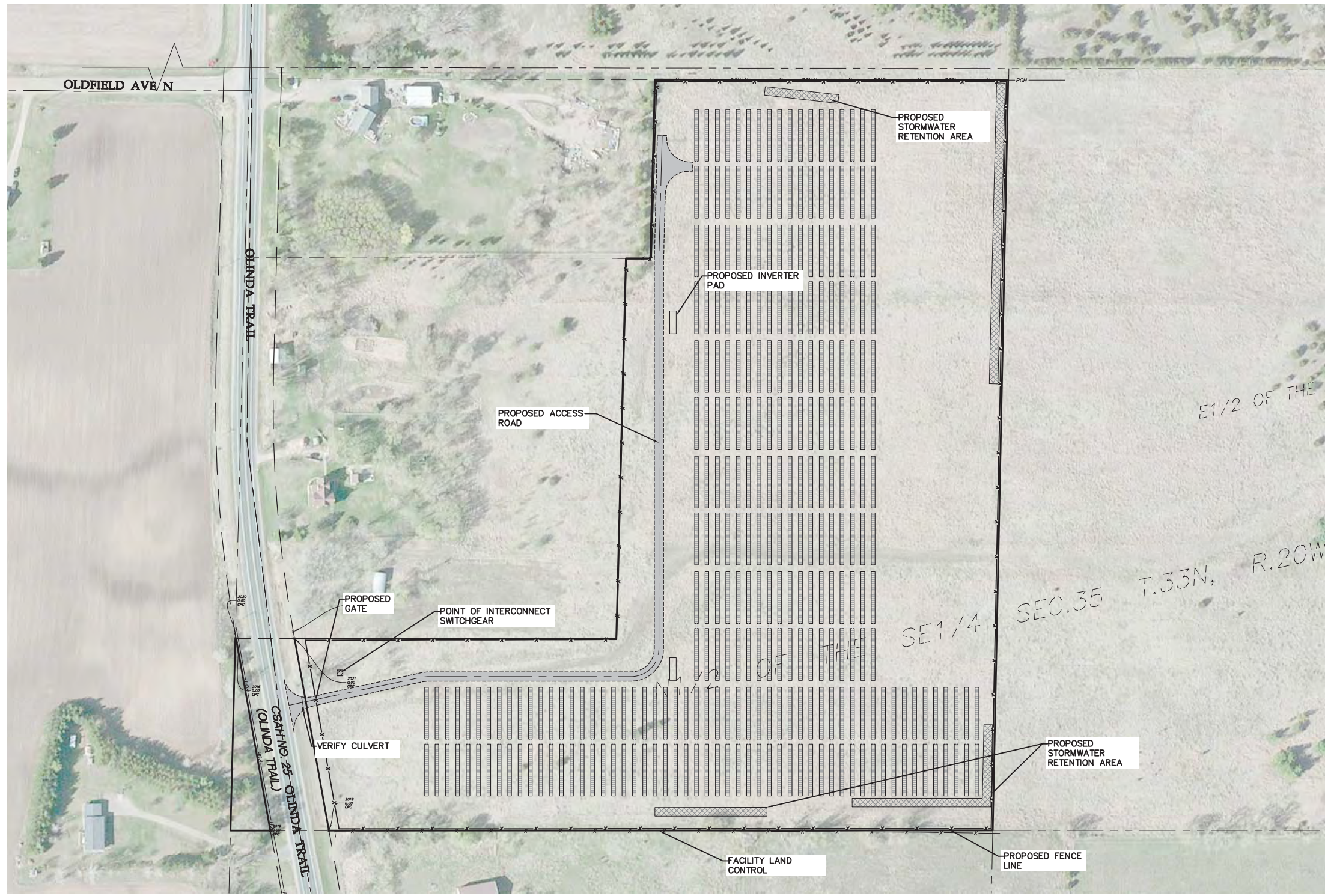
PROJECT LOCATION:  
 LAT: 45.3009  
 LON: -92.8014

Designed:	MPG	
Checked:	ADC	
Drawn:	MPG	
Record Drawing by/date:		
Revisions:		
#	DATE	DESCRIPTION

Prepared for:



Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



# Scandia Solar

Chisago County







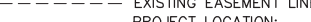
## Overall Site Plan

**Not for Construction**

Date: 06/23/14  
 Drawing No: C.200



**LEGEND:**

-  PROPOSED LEASED AREA
-  PROPOSED SOLAR ARRAY
-  PROPOSED ACCESS ROAD
-  PROPOSED INVERTER PAD
-  PROPOSED FENCE LINE
-  PROPOSED STORMWATER RETENTION
-  EXISTING EASEMENT LINE

PROJECT LOCATION:  
 LAT: 44.0923  
 LON: -93.5305

Designed: MPG  
 Checked: ADC  
 Drawn: MPG

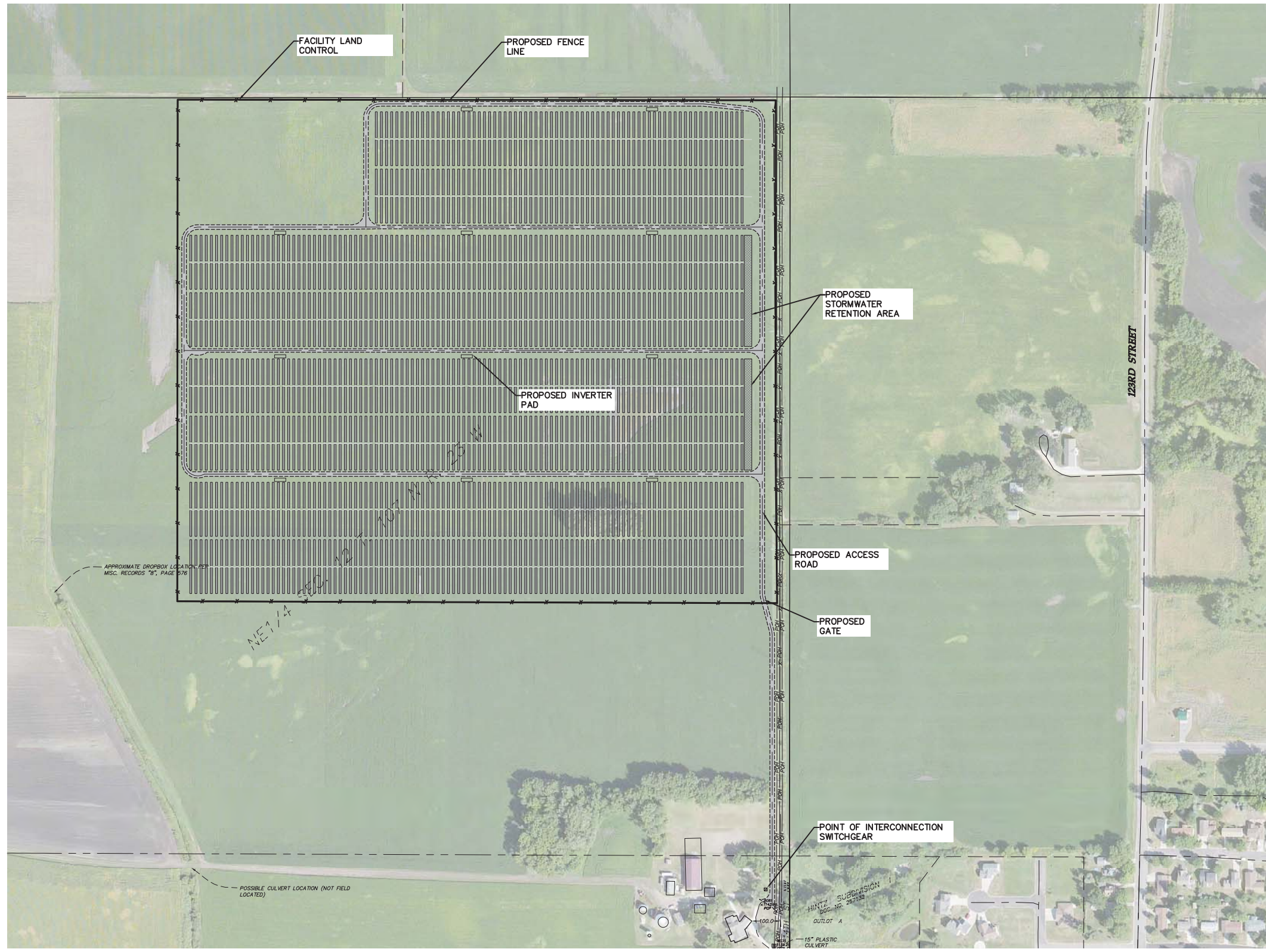
Record Drawing by/date: \_\_\_\_\_

Revisions #	DATE	DESCRIPTION

Prepared for:



Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



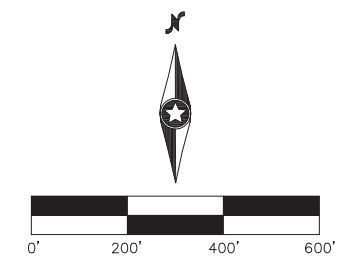
# Waseca Solar

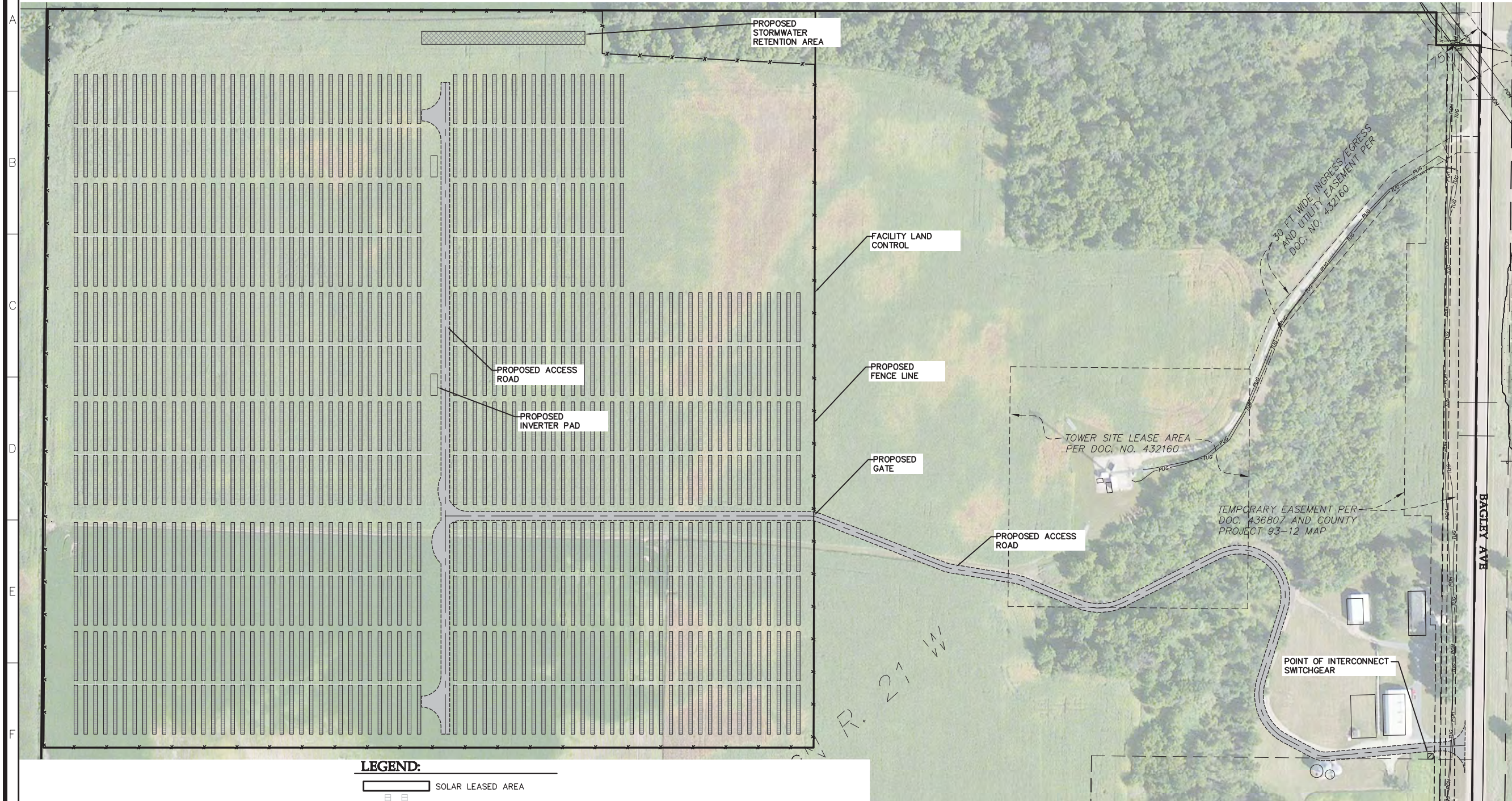
## Waseca County

### Overall Site Plan

**Not for Construction**

Date: **06/25/14**  
 Drawing No: **C.200**





**LEGEND:**

- SOLAR LEASED AREA
- PROPOSED SOLAR ARRAY
- PROPOSED ACCESS ROAD
- PROPOSED INVERTER PAD
- PROPOSED FENCE LINE
- PROPOSED STORMWATER RETENTION
- EXISTING OVERHEAD POWER
- EXISTING TELEPHONE UNDERGROUND LINE
- EXISTING EASEMENT LINE

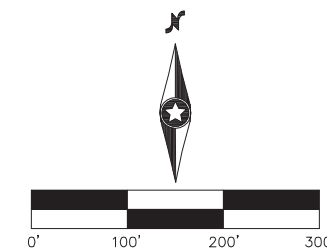
PROJECT LOCATION:  
 LAT: 44.2743  
 LON: -93.3104

**West Faribault  
 Solar**  
 Rice County









**Overall Site Plan**

**Issued for Permit**

Date: 06/23/14  
 Drawing No: C.200



**LEGEND:**

-  PROPOSED LEASED AREA
-  PROPOSED SOLAR ARRAY
-  PROPOSED ACCESS ROAD
-  PROPOSED INVERTER PAD
-  PROPOSED FENCE LINE
-  EXISTING RIGHT OF WAY LINE
-  EXISTING EASEMENT LINE
-  PROPOSED STORMWATER RETENTION

PROJECT LOCATION:  
 LAT: 44.7958  
 LON: -93.9007

Designed: MPG

Checked: ADC

Drawn: MPG

Record Drawing by/date: \_\_\_\_\_

Revisions #	DATE	DESCRIPTION

Prepared for:



Aurora Distributed Solar, LLC  
 One Tech Drive, Suite 220  
 Andover, MA 01810



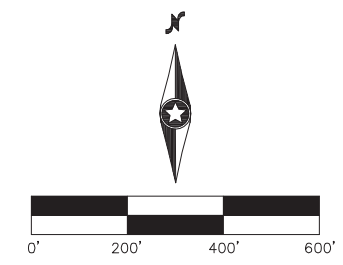
# West Waconia Solar

Carver County

Overall Site Plan

Not for Construction

Date: 06/26/14  
 Drawing No: C.200



**MINNESOTA PUBLIC UTILITIES COMMISSION  
COMPLAINT HANDLING PROCEDURES FOR  
SOLAR ENERGY FACILITIES**

**A. Purpose**

To establish a uniform and timely method of reporting complaints received by the permittee concerning permit conditions for site preparation, construction, cleanup and restoration, operation, and resolution of such complaints.

**B. Scope**

This document describes complaint reporting procedures and frequency.

**C. Applicability**

The procedures shall be used for all complaints received by the permittee and all complaints received by the Minnesota Public Utilities Commission (Commission) under Minn. R. 7829.1500 or Minn. R. 7829.1700 relevant to this permit.

**D. Definitions**

**Complaint:** A verbal or written statement presented to the permittees by a person expressing dissatisfaction or concern regarding site preparation, cleanup or restoration or other route and associated facilities permit conditions. Complaints do not include requests, inquiries, questions or general comments.

**Substantial Complaint:** A written complaint alleging a violation of a specific permit condition that, if substantiated, could result in permit modification or suspension pursuant to the applicable regulations.

**Unresolved Complaint:** A complaint which, despite the good faith efforts of the permittee and a person, remains to both or one of the parties unresolved or unsatisfactorily resolved.

**Person:** An individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private, however organized.

**E. Complaint Documentation and Processing**

1. The permittee shall designate an individual to summarize complaints for the Commission. This person's name, phone number and email address shall accompany all complaint submittals.
2. A person presenting the complaint should to the extent possible, include the following information in their communications:
  - a. name, address, phone number, and email address;
  - b. date of complaint;
  - c. tract or parcel number; and
  - d. whether the complaint relates to a permit matter or a compliance issue.
3. The permittee shall document all complaints by maintaining a record of all applicable information concerning the complaint, including the following:
  - a. docket number and project name;
  - b. name of complainant, address, phone number and email address;
  - c. precise description of property or parcel number;
  - d. name of permittee representative receiving complaint and date of receipt;
  - e. nature of complaint and the applicable permit condition(s);
  - f. activities undertaken to resolve the complaint; and
  - g. final disposition of the complaint.

**F. Reporting Requirements**

The permittee shall commence complaint reporting at the beginning of project construction and continue through the term of the permit. The permittee shall report all complaints to the Commission according to the following schedule:

**Immediate Reports:** All substantial complaints shall be reported to the Commission the same day received, or on the following working day for complaints received after working hours. Such reports are to be directed to the Commission's Consumer Affairs Office at 1-800-657-3782 (voice messages are acceptable) or [consumer.puc@state.mn.us](mailto:consumer.puc@state.mn.us). For e-mail reporting, the email subject line should read "PUC EFP Complaint" and include the appropriate project docket number.

**Monthly Reports:** By the 15th of each month, a summary of all complaints, including substantial complaints received or resolved during the preceding month, shall be filed to Dr. Burl W. Haar, Executive Secretary, Public Utilities Commission, using the eDockets system. The eDockets system is located at: <http://mn.gov/puc/>

If no complaints were received during the preceding month, the permittee shall file a summary indicating that no complaints were received.

**G. Complaints Received by the Commission**

Complaints received directly by the Commission from aggrieved persons regarding site preparation, construction, cleanup, restoration, operation and maintenance shall be promptly sent to the permittee.

**H. Commission Process for Unresolved Complaints**

Commission staff shall perform an initial evaluation of unresolved complaints submitted to the Commission. Complaints raising substantial permit issues shall be processed and resolved by the Commission. Staff shall notify the permittee and appropriate persons if it determines that the complaint is a substantial complaint. With respect to such complaints, each party shall submit a written summary of its position to the Commission no later than ten (10) days after receipt of the staff notification. The complaint will be presented to the Commission for a decision as soon as practicable.

**I. Permittee Contacts for Complaints and Complaint Reporting**

Complaints may be filed by mail or email to the contact listed in the company's complaint report compliance filing. This information shall be maintained current by informing the Commission of any changes by eFiling, as they become effective.

**MINNESOTA PUBLIC UTILITIES COMMISSION  
COMPLIANCE FILING PROCEDURE FOR  
PERMITTED ENERGY FACILITIES**

**A. Purpose**

To establish a uniform and timely method of submitting information required by the Commission energy facility permits.

**B. Scope and Applicability**

This procedure encompasses all compliance filings required by permit.

**C. Definitions**

**Compliance Filing:** A filing of information to the Commission, where the information is required by a Commission site or route permit.

**D. Responsibilities**

1. The permittee shall eFile all compliance filings with Dr. Burl W. Haar, Executive Secretary, Public Utilities Commission, through the eDockets system. The eDockets system is located at: <https://www.edockets.state.mn.us/EFiling/home.jsp>

General instructions are provided on the eDockets website. Permittees must register on the website to eFile documents.

2. All filings must have a cover sheet that includes:
  - a. Date
  - b. Name of submitter/permittee
  - c. Type of permit (site or route)
  - d. Project location
  - e. Project docket number
  - f. Permit section under which the filing is made
  - g. Short description of the filing

3. Filings that are graphic intensive (e.g., maps, engineered drawings) must, in addition to being eFiled, be submitted as paper copies and on CD. Paper copies and CDs should be sent to: 1) Dr. Burl W. Haar, Executive Secretary, Minnesota Public Utilities Commission, 121 7th Place East, Suite 350, St. Paul, MN 55101-2147, and 2) Department of Commerce, Energy Environmental Review and Analysis, 85 7th Place East, Suite 500, St. Paul, MN 55101-2198.

The Commission may request a paper copy of any eFiled document.



**PERMIT COMPLIANCE FILINGS<sup>1</sup>**

**PERMITTEE:** Aurora Distributed Solar, LLC  
**PERMIT TYPE:** Site Permit  
**PROJECT LOCATION:** Multiple Counties  
**COMMISSION DOCKET:** E-6928/GS-14-515

**PRE-CONSTRUCTION MEETING**

<b>Permit Section</b>	<b>Description</b>	<b>Due Date</b>	<b>Notes</b>	<b>eDocket Doc. ID</b>	<b>Date Filed</b>
5.3	Native Prairie Protection Plan	30 days prior to first pre-construction meeting, if required.	Develop in consultation with Commission, Department of Commerce and DNR.		
6.1	Site Plan	14 days prior to first pre-construction meeting.			
6.4	Agricultural Impact Mitigation Plan	14 days prior to first site plan.	Developed in consultation with the Department of Agriculture		
6.5	Vegetation Management Plan	14 days prior to first site plan.	Develop in consultation with Commission, Department of Commerce and DNR.		
6.6	Field Representative	14 days prior to first pre-construction meeting.			
7.1	Biological & Natural Resource Inventories	30 days prior to first pre-construction Meeting.	Developed in consultation with Department of Commerce and DNR; Results may trigger need for a Native Prairie Protection Plan.		
7.2	Archaeological Resources	14 days prior to first pre-construction meeting and as recommended by the State Historic Preservation Office.			

<sup>1</sup> This compilation of permit compliance filings is provided for the convenience of the permittee and the Commission. However, it is not a substitute for the permit; the language of the permit controls.

8.10	Road Identification	14 days prior to first pre-construction meeting.			
8.14	Soil Erosion & Sediment Control Plan	14 days prior to first pre-construction.	May be the same as NPDES SWPPP.		
8.19	Emergency Response	14 days prior to first pre-construction meeting.	Must register in 911 Program.		

**PRE-OPERATION COMPLIANCE MEETING**

<b>Permit Section</b>	<b>Description</b>	<b>Due Date</b>	<b>Notes</b>	<b>eDocket Doc. ID</b>	<b>Date Filed</b>
6.7	Site Manager	14 days prior to commercial operation of first facility			
6.9	Pre-operation compliance meeting	14 days prior to commercial operation of first facility			
6.10	Complaint Reporting Procedures	14 days prior to pre-construction meeting.			
10.1	Decommission-ing Plan	14 days prior to pre-construction meeting			

**OTHER REQUIREMENTS**

<b>Permit Section</b>	<b>Description</b>	<b>Due Date</b>	<b>Notes</b>	<b>eDocket Doc. ID</b>	<b>Date Filed</b>
6.2	Notice to Local Government Agencies	14 days following issuance of permit			
6.10	Complaints	Complaint submittals on the 15 <sup>th</sup> of each month or within 24 hours.	Must eFile report even if no complaints.		
7.3	Project Energy Production	Due 2/1 each year.			
6.9	Photovoltaic Resource Use	Due 2/1 each year			
6.10	Extraordinary Events	Within 24 hours of discovery; wildlife incidents reported quarterly			
9.1	As Builts	Within 60 days of completion of construction of the Project.			
9.4	Notification of Commercial Operation	At least 3 days before each facility begins commercial operation			
10.2	Completion of Site Restoration	Upon restoration			
11.1	PPA or Enforceable Mechanism	Within 4 years of permit issuance.	If no PPA or other enforceable mechanism at time of permit issuance.		
11.2	Failure to Start Construction	Within 4 years of permit issuance.			
12.5	Transfer of Permit	As applicable			
12.6	Notice of Ownership	Within 20 days of last facility becoming operational			

# CAUTION



## BLANDING'S TURTLES MAY BE ENCOUNTERED IN THIS AREA

The unique and rare Blanding's turtle has been found in this area. Blanding's turtles are state-listed as Threatened and are protected under Minnesota Statute 84.095, Protection of Threatened and Endangered Species. Please be careful of turtles on roads and in construction sites. For additional information on turtles, or to report a Blanding's turtle sighting, contact the DNR Nongame Specialist nearest you: Bemidji (218-308-2653); Grand Rapids (218-327-4518); New Ulm (507-359-6033); Rochester (507-206-2820); or St. Paul (651-259-5772).

**DESCRIPTION:** The Blanding's turtle is a medium to large turtle (5 to 10 inches) with a black or dark blue, dome-shaped shell with muted yellow spots and bars. The bottom of the shell is hinged across the front third, enabling the turtle to pull the front edge of the lower shell firmly against the top shell to provide additional protection when threatened. The head, legs, and tail are dark brown or blue-gray with small dots of light brown or yellow. A distinctive field mark is the bright yellow chin and neck.

**BLANDING'S TURTLES DO NOT MAKE GOOD PETS  
IT IS ILLEGAL TO KEEP THIS THREATENED SPECIES IN CAPTIVITY**

## **SUMMARY OF RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS TO BLANDING'S TURTLE POPULATIONS**

*(see Blanding's Turtle Fact Sheet for full recommendations)*

- This flyer should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.
- Turtles that are in imminent danger should be moved, by hand, out of harm's way. Turtles that are not in imminent danger should be left undisturbed to continue their travel among wetlands and/or nest sites.
- If a Blanding's turtle nests in your yard, do not disturb the nest and do not allow pets near the nest.
- Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.
- Small, vegetated temporary wetlands should not be dredged, deepened, or filled.
- All wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.
- Roads should be kept to minimum standards on widths and lanes.
- Roads should be ditched, not curbed or below grade. If curbs must be used, 4" high curbs at a 3:1 slope are preferred.
- Culverts under roads crossing wetland areas, between wetland areas, or between wetland and nesting areas should be at least 36 in. diameter and flat-bottomed or elliptical.
- Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.
- Utility access and maintenance roads should be kept to a minimum.
- Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.
- Terrain should be left with as much natural contour as possible.
- Graded areas should be revegetated with native grasses and forbs.
- Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1<sup>st</sup> and before June 1<sup>st</sup>).

**Endangered, Threatened, and Special Concern Species of Minnesota**

**Blanding's Turtle**  
*(Emydoidea blandingii)*

Minnesota Status: Threatened  
Federal Status: none

State Rank<sup>1</sup>: S2  
Global Rank<sup>1</sup>: G4

**HABITAT USE**

Blanding's turtles need both wetland and upland habitats to complete their life cycle. The types of wetlands used include ponds, marshes, shrub swamps, bogs, and ditches and streams with slow-moving water. In Minnesota, Blanding's turtles are primarily marsh and pond inhabitants. Calm, shallow water bodies (Type 1-3 wetlands) with mud bottoms and abundant aquatic vegetation (e.g., cattails, water lilies) are preferred, and extensive marshes bordering rivers provide excellent habitat. Small temporary wetlands (those that dry up in the late summer or fall) are frequently used in spring and summer -- these fishless pools are amphibian and invertebrate breeding habitat, which provides an important food source for Blanding's turtles. Also, the warmer water of these shallower areas probably aids in the development of eggs within the female turtle. Nesting occurs in open (grassy or brushy) sandy uplands, often some distance from water bodies. Frequently, nesting occurs in traditional nesting grounds on undeveloped land. Blanding's turtles have also been known to nest successfully on residential property (especially in low density housing situations), and to utilize disturbed areas such as farm fields, gardens, under power lines, and road shoulders (especially of dirt roads). Although Blanding's turtles may travel through woodlots during their seasonal movements, shady areas (including forests and lawns with shade trees) are not used for nesting. Wetlands with deeper water are needed in times of drought, and during the winter. Blanding's turtles overwinter in the muddy bottoms of deeper marshes and ponds, or other water bodies where they are protected from freezing.

**LIFE HISTORY**

Individuals emerge from overwintering and begin basking in late March or early April on warm, sunny days. The increase in body temperature which occurs during basking is necessary for egg development within the female turtle. Nesting in Minnesota typically occurs during June, and females are most active in late afternoon and at dusk. Nesting can occur as much as a mile from wetlands. The nest is dug by the female in an open sandy area and 6-15 eggs are laid. The female turtle returns to the marsh within 24 hours of laying eggs. After a development period of approximately two months, hatchlings leave the nest from mid-August through early-October. Nesting females and hatchlings are often at risk of being killed while crossing roads between wetlands and nesting areas. In addition to movements associated with nesting, all ages and both sexes move between wetlands from April through November. These movements peak in June and July and again in September and October as turtles move to and from overwintering sites. In late autumn (typically November), Blanding's turtles bury themselves in the substrate (the mud at the bottom) of deeper wetlands to overwinter.

**IMPACTS / THREATS / CAUSES OF DECLINE**

- loss of wetland habitat through drainage or flooding (converting wetlands into ponds or lakes)
- loss of upland habitat through development or conversion to agriculture
- human disturbance, including collection for the pet trade\* and road kills during seasonal movements
- increase in predator populations (skunks, raccoons, etc.) which prey on nests and young

\*It is illegal to possess this threatened species.

## RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS

These recommendations apply to typical construction projects and general land use within Blanding's turtle habitat, and are provided to help local governments, developers, contractors, and homeowners minimize or avoid detrimental impacts to Blanding's turtle populations. **List 1** describes minimum measures which we recommend to prevent harm to Blanding's turtles during construction or other work within Blanding's turtle habitat. **List 2** contains recommendations which offer even greater protection for Blanding's turtles populations; this list should be used *in addition to the first list* in areas which are known to be of state-wide importance to Blanding's turtles (contact the DNR's Natural Heritage and Nongame Research Program if you wish to determine if your project or home is in one of these areas), or in any other area where greater protection for Blanding's turtles is desired.

List 1. Recommendations for all areas inhabited by Blanding's turtles.	List 2. Additional recommendations for areas known to be of state-wide importance to Blanding's turtles.
GENERAL	
A flyer with an illustration of a Blanding's turtle should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.	Turtle crossing signs can be installed adjacent to road-crossing areas used by Blanding's turtles to increase public awareness and reduce road kills.
Turtles which are in imminent danger should be moved, by hand, out of harms way. Turtles which are not in imminent danger should be left undisturbed.	Workers in the area should be aware that Blanding's turtles nest in June, generally after 4pm, and should be advised to minimize disturbance if turtles are seen.
If a Blanding's turtle nests in your yard, do not disturb the nest.	If you would like to provide more protection for a Blanding's turtle nest on your property, see "Protecting Blanding's Turtle Nests" on page 3 of this fact sheet.
Silt fencing should be set up to keep turtles out of construction areas. It is <u>critical</u> that silt fencing be removed after the area has been revegetated.	Construction in potential nesting areas should be limited to the period between September 15 and June 1 (this is the time when activity of adults and hatchlings in upland areas is at a minimum).
WETLANDS	
Small, vegetated temporary wetlands (Types 2 & 3) should not be dredged, deepened, filled, or converted to storm water retention basins (these wetlands provide important habitat during spring and summer).	Shallow portions of wetlands should not be disturbed during prime basking time (mid morning to mid- afternoon in May and June). A wide buffer should be left along the shore to minimize human activity near wetlands (basking Blanding's turtles are more easily disturbed than other turtle species).
Wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.	Wetlands should be protected from road, lawn, and other chemical run-off by a vegetated buffer strip at least 50' wide. This area should be left unmowed and in a natural condition.
ROADS	
Roads should be kept to minimum standards on widths and lanes (this reduces road kills by slowing traffic and reducing the distance turtles need to cross).	Tunnels should be considered in areas with concentrations of turtle crossings (more than 10 turtles per year per 100 meters of road), and in areas of lower density if the level of road use would make a safe crossing impossible for turtles. Contact your DNR Regional Nongame Specialist for further information on wildlife tunnels.
Roads should be ditched, not curbed or below grade. If curbs must be used, 4 inch high curbs at a 3:1 slope are preferred (Blanding's turtles have great difficulty climbing traditional curbs; curbs and below grade roads trap turtles on the road and can cause road kills).	Roads should be ditched, not curbed or below grade.

ROADS cont.	
Culverts between wetland areas, or between wetland areas and nesting areas, should be 36 inches or greater in diameter, and elliptical or flat-bottomed.	Road placement should avoid separating wetlands from adjacent upland nesting sites, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details).
Wetland crossings should be bridged, or include raised roadways with culverts which are 36 in or greater in diameter and flat-bottomed or elliptical (raised roadways discourage turtles from leaving the wetland to bask on roads).	Road placement should avoid bisecting wetlands, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details). This is especially important for roads with more than 2 lanes.
Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.	Roads crossing streams should be bridged.
UTILITIES	
Utility access and maintenance roads should be kept to a minimum (this reduces road-kill potential).	
Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.	
LANDSCAPING AND VEGETATION MANAGEMENT	
Terrain should be left with as much natural contour as possible.	As much natural landscape as possible should be preserved (installation of sod or wood chips, paving, and planting of trees within nesting habitat can make that habitat unusable to nesting Blanding's turtles).
Graded areas should be revegetated with native grasses and forbs (some non-natives form dense patches through which it is difficult for turtles to travel).	Open space should include some areas at higher elevations for nesting. These areas should be retained in native vegetation, and should be connected to wetlands by a wide corridor of native vegetation.
Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1 <sup>st</sup> and before June 1 <sup>st</sup> ).	Ditches and utility access roads should not be mowed or managed through use of chemicals. If vegetation management is required, it should be done mechanically, as infrequently as possible, and fall through spring (mowing can kill turtles present during mowing, and makes it easier for predators to locate turtles crossing roads).

**Protecting Blanding's Turtle Nests:** Most predation on turtle nests occurs within 48 hours after the eggs are laid. After this time, the scent is gone from the nest and it is more difficult for predators to locate the nest. Nests more than a week old probably do not need additional protection, unless they are in a particularly vulnerable spot, such as a yard where pets may disturb the nest. Turtle nests can be protected from predators and other disturbance by covering them with a piece of wire fencing (such as chicken wire), secured to the ground with stakes or rocks. The piece of fencing should measure at least 2 ft. x 2 ft., and should be of medium sized mesh (openings should be about 2 in. x 2 in.). It is *very important* that the fencing be **removed before August 1<sup>st</sup>** so the young turtles can escape from the nest when they hatch!

## REFERENCES

- <sup>1</sup>Association for Biodiversity Information. "Heritage Status: Global, National, and Subnational Conservation Status Ranks." NatureServe. Version 1.3 (9 April 2001). <http://www.natureserve.org/ranking.htm> (15 April 2001).
- Coffin, B., and L. Pfanmuller. 1988. Minnesota's Endangered Flora and Fauna. University of Minnesota Press, Minneapolis, 473 pp.



### **REFERENCES (cont.)**

- Moriarty, J. J., and M. Linck. 1994. Suggested guidelines for projects occurring in Blanding's turtle habitat. Unpublished report to the Minnesota DNR. 8 pp.
- Oldfield, B., and J. J. Moriarty. 1994. Amphibians and Reptiles Native to Minnesota. University of Minnesota Press, Minneapolis, 237 pp.
- Sajwaj, T. D., and J. W. Lang. 2000. Thermal ecology of Blanding's turtle in central Minnesota. *Chelonian Conservation and Biology* 3(4):626-636.