Engineering Plan
Dawn Harvest Solar Energy LLC
Docket Number 9809-CE-100
Rock County, Wisconsin

Dawn Harvest

SOLAR ENERGY CENTER

An Invenergy Project

TABLE OF CONTENTS

EXHIBITS

ACRONYMS & ABBREVIATIONS

AC	Alternating Current
ATC	American Transmission Company
BESS	Battery Energy Storage System
BMP(s)	Best Management Practice(s)
CPCN	Certificate of Public Convenience and Necessity
DC	Direct Current
ECSWMP	Erosion Control and Storm Water Management Plan
ERR	Endangered Resources Review
Gen-Tie Line	Generator Transmission Tie Line
IPaC	Information for Planning and Consultation
kV	Kilovolt
MISO	Midcontinent Independent System Operator
MW	Megawatt
MWh	Megawatt-hour
NDR	Navigability Determination Request
O&M	Operations and Maintenance
PCS	Power Conversion Station
PSCW	Public Service Commission of Wisconsin
PV	Photovoltaic
USFWS	United States Fish and Wildlife Service
W	Watt
WBIC	Water Body Identification Code
WDNR	Wisconsin Department of Natural Resources
Wiscland	Wisconsin Land Cover Database

1. Introduction

Dawn Harvest Solar Energy LLC ("**Dawn Harvest Solar**"), an affiliate of Invenergy LLC ("**Invenergy**"), is preparing an application for a Certificate of Public Convenience and Necessity ("**CPCN**") to the Public Service Commission of Wisconsin ("**PSCW**") to construct and place in service the Dawn Harvest Solar Energy Center ("**Project**"), a solar electric generation facility with a generation potential of up to 150 megawatts ("**MW**") alternating current ("**AC**"). The Project may include a Battery Energy Storage System of up to 50 MW / 200-megawatt hours ("**MWh**") AC.

Invenergy is the world's leading privately held renewable energy company. Founded in 2001, Invenergy and its affiliate companies have a proven development track record of 202 large-scale energy projects representing over 30,000 MW of generation capacity.

In accordance with Wisconsin Statute § 196.491(3)(a)3a, Dawn Harvest Solar is submitting this Engineering Plan ("**EP**") to the Wisconsin Department of Natural Resources ("**WDNR**") at least 60 days before Dawn Harvest Solar will file a CPCN application with the PSCW. Dawn Harvest Solar requests that within 30 days after receipt of this EP, WDNR provide a listing of all permits or approvals, which based on the information contained in this EP, appear to be required to construct the generation facilities. In accordance with Wisconsin Statute § 30.025(1s), Dawn Harvest Solar will apply for all federal and state permits and approvals required.

All distances, widths, and descriptions below are estimates and subject to change based upon final engineering design and layout.

2. Description of the Project

2.1 Project Overview

The Project is located in the Towns of Harmony and La Prairie, Rock County, Wisconsin. A map of the general Project area is provided in **Exhibit 1**. The Project will generate electricity using silicon photovoltaic ("**PV**") panels (also referred to as solar modules) mounted to single axis trackers. The Project will be built on approximately 1,050 acres within the 2,790-acre general Project Area ("**Project Area**") and have an installed capacity of up to 150 MW AC (up to 195 MW Direct Current ("**DC**").

The Project will include the following key elements:

- Solar arrays
- An electrical collection system
- A 138 kilovolt ("**kV**") collector substation ("**Collector Substation**")
- A 138 kV generator transmission tie line ("**Gen-Tie Line**")
- The existing Sunrise 138 kV Substation ("**Interconnection Switchyard**")
- A battery energy storage system ("**BESS**")
- An operation and maintenance area ("**O&M Area**")
- Site security and fencing
- Access roads

- Temporary construction laydown yard(s).

Equipment and facilities will be designed and arranged for optimum use of the site as well as to ensure efficient operability and maintainability. A map identifying the preliminary location of the preliminary array areas, Collector Substation, Gen-Tie Line, and O&M Area is provided in **Exhibit 2**. During construction, temporary construction lay down yards and parking areas will be located on site.

2.2 Solar Modules

Solar modules consist of a series of connected PV cells comprised of semiconducting material. When light strikes a PV cell, the light energy dislodges electrons in the semiconducting material creating voltage and current as the freed electrons flow through the solar module. Individual cells are wired and mounted together to create a solar module. Each solar module is made from crystalline silicon, conductive metals, anti-reflective glass, aluminum frames, and weather-resistant wire connectors.

Solar modules produced by several manufacturers are under consideration for the Project. During the equipment procurement process, Dawn Harvest Solar will analyze current market offerings to make a final selection on specific solar module, power conversion station ("**PCS**"), and tracking system equipment. An example configuration that is representative of what could be used for the Project consists of approximately 350,000 high-efficiency solar modules with a capacity to generate approximately 555 watts ("**W**") of DC power each.

2.3 Tracking System

The solar modules will be mounted to single axis tracking systems. In this type of system, the solar arrays are arranged in north-south oriented tracker rows. An electric drive motor rotates the solar modules from east to west to follow the sun (on a single axis) throughout the day. The tracker rows will follow the sun from approximately 60 degrees east to 60 degrees west over the course of the day. When the sun is directly overhead, the solar modules will be at a zero-degree angle (level to the ground). A typical solar array layout using a single axis tracking system is provided in **Exhibit 3**. Tracking systems are typically comprised of either aluminum, galvanized steel, or stainless steel.

Tracking systems being considered for the Project include a one-module-in-portrait configuration that would consist of north-south rows of single modules in a portrait, or vertical, configuration when viewed at an angle perpendicular to the axis of the tracker system, and a two-module-in-portrait configuration that would consist of north-south rows of two modules. The one-module-in-portrait system would require foundations with approximately 4 feet of reveal (height out of the ground), an overall tip height of approximately 8 feet when the modules are tilted at maximum angle, ground clearance of approximately 18 inches, and aisles with foundations spaced approximately every 20 feet. The two-module-in-portrait system would require foundations with approximately 8 feet of reveal, an overall tip height of approximately 15 feet, the same 18 inches of ground clearance, and aisles with foundations spaced approximately every 40 feet. A final decision on the tracking systems to be used will be made based on final engineering, economic, and reliability considerations.

Dawn Harvest Solar expects to use steel, driven pile foundations to support the tracking systems. If pile refusal is expected or encountered due to shallow bedrock or other subsurface obstructions, alternate foundation installation techniques or designs such as pre-drilled, cast-in-place, or helical piles may be needed.

Meteorological stations located in the arrays will monitor wind speed and communicate with the tracking systems. This will allow for the tracking systems to rotate to a stow position during high wind activity as needed to protect the tracking systems. The meteorological stations will not exceed 15 feet in height.

2.4 Electrical Collection System

Electricity produced by the solar modules will be routed through the DC collection system to the PCSs distributed throughout the solar arrays. The DC collection system will consist of DC string wiring mounted to the tracking systems and/or below ground and use DC combiner boxes or an in-line cable management system to combine power from multiple strings of solar modules. The DC collection system will also include DC home run cabling to the inverters located at PCSs.

PCSs will convert DC power generated by the solar modules to AC power and increase system voltage to 34.5 kV. To accomplish this, each PCS will consist of a central inverter, medium-voltage transformer, and monitoring and communications equipment. The PCSs will be installed on steel skids and/or concrete pads and may have a steel driven post foundation. PCS size can vary, with approximately 3.5 to 4.6 MW AC per PCS being a representative size.

The 34.5 kV AC collection system consisting of both direct-buried underground and above-ground cabling will connect the PCSs to the Collector Substation. Junction boxes will house the connection of collection cables that are split in two or more directions. Trenches for the collection system will also include fiber optic cable for communication and control.

2.5 Collector Substation

The Collector Substation will transform electricity from the electrical collection system to the 138 kV interconnection voltage. The Collector Substation will be approximately 3 acres and include a main power transformer, transformer containment area, control enclosure, overhead bus and associated structures, circuit breakers, disconnect switches, relay panels, surge arresters, battery banks, grounding system, and relaying, metering, and communication equipment.

2.6 Gen-Tie Line

The approximately 1.1-mile 138 kV Gen-Tie Line will transmit electricity from the Collector Substation to the Interconnection Switchyard. The Gen-Tie Line will be an overhead transmission line of a single-circuit, monopole design. The conductor will be sized to carry the electricity of the Project, and to meet thermal stability, vibration resistance, or other specific technical criteria required. The Avian Power Line Interaction Committee suggested practices will be implemented to ensure that the transmission line is designed and constructed in a manner to minimize bird collision and electrocution risk. The type of pole material will likely be weathered steel. The Gen-Tie Line will terminate at the Interconnection Switchyard.

2.7 Interconnection Switchyard

The existing Sunrise 138 kV Interconnection Switchyard owned by the American Transmission Company ("**ATC**") will transmit electricity generated by the Project onto the ATC transmission system. Dawn Harvest Solar or ATC will make modifications and network upgrades as determined by the studies performed by Midcontinent Independent System Operator ("**MISO**") and ATC during the Generator Interconnection Process. These modifications will be constructed pursuant to the Generator Interconnection Agreement executed by MISO, ATC, and Dawn Harvest Solar. The Gen-Tie Line, Collector Substation, and Interconnection Switchyard are related facilities to the Dawn Harvest Solar generating facility and are essential to allowing the electricity produced by the Project to be transmitted onto the ATC transmission system.

2.8 Battery Energy Storage System

A BESS may be included with the Project to provide functions such as generation smoothing, shifting, and/or firming, capacity on demand, frequency response, and voltage support depending on the final system design. A representative system size could have a power output of 50 MW and storage capability of 200 MWh AC. The BESS would not generate electricity, but simply store it and release it to the grid when desired.

The BESS would include commercial-scale lithium-ion (or similar technology) batteries, inverters, transformers, and electrical interconnection facilities. The batteries will likely be housed in standard ISO-style steel shipping containers, outdoor-rated modular enclosures, or similar. The enclosures will be populated with battery racks that are bolted to the floor and strung together electrically. These enclosures will be fully outfitted with auxiliary systems such as HVAC, controls, and fire suppression.

The BESS may be contiguous and interconnect to the Collector Substation via underground 34.5 kV collector lines (called AC-coupled) or it may be distributed throughout the site and directly connect to the solar array PCSs (called DC-coupled). An AC-coupled BESS would have a total footprint of approximately 5 acres with rows of PCSs adjacent to the enclosures. A DC-coupled BESS would have the enclosures spread throughout the solar arrays, connecting to the solar array PCSs via DC-DC converters.

2.9 Operation and Maintenance Area

The O&M Area will include an operation and maintenance building, parking area, storage area, and other associated facilities such as a drinking water well, aboveground water storage tanks, septic system, controlled access gates, electronic security systems, lighting, and signage. The O&M Area will be approximately 2 acres in size.

If the O&M building is located within an existing water and sewerage district, potable water and wastewater needs will be served accordingly. If not, domestic water and sanitary waste needs during operations will be supplied by a new well and septic system constructed on site. Dawn Harvest Solar will work with the WDNR and the applicable local regulatory authorities, as appropriate, to either install a new septic system or connect with municipal wastewater systems to service the facility's needs.

2.10 Site Security and Fencing

The site will be fenced to facilitate Project and equipment security and public safety. The perimeter fence around the solar arrays will be up to 8 feet high and comply with applicable electrical code. No barbed wire will be used on the perimeter fence, and "agricultural" or "deer fence" will be used, unless required otherwise by applicable code or regulation. The fence will be raised 6 inches off the ground or one- foot by one-foot openings will be placed along the bottom of the fence in strategic locations to facilitate small animal movement. Fencing around the Collector Substation and O&M storage area will likely be a chain link design with barbed wire.

Gates will be installed at access road entrances on public roads and access will be limited to Project personnel, approved contractors, and emergency personnel. Security cameras will be installed at the Collector Substation, O&M Area, and entrance gates of the solar arrays. The O&M Area will include down-shielded lighting for security purposes. These lights will be turned on either by a local switch, as needed, or by motion sensors to ensure that nearby residences will not experience disturbance from constant lighting. Doors to the O&M building and gates to the O&M storage area will be secured using a key control or badge reader system.

2.11 Access Roads

Access roads will be installed to provide access to Project facilities from public roads. Access roads will be gravel-surfaced and provide access for emergency vehicles under emergency circumstances. Suitable access roads for the solar arrays will be approximately 12 feet wide with 4 feet wide shoulders. Suitable access roads for the Collector Substation and O&M Area will be approximately 20 feet wide with 2 feet wide shoulders. Access roads will be constructed to maintain existing stormwater flow patterns on the surface and comply with the construction performance standards in Wis. Admin. Code § NR 151.11. The locations of new driveway entrances from public roads, as well as access road routing within the arrays, will be designed to avoid or minimize crossings of existing wetlands and waterways, and in coordination with local road authorities. Waterway culvert crossings and at-grade low water crossings of shallow drainage paths, will be installed along access roads, as necessary.

3. Construction

3.1 Overview

On site construction activities are expected to take approximately 18 to 24 months and are anticipated to commence as early as the second quarter of 2025. Construction activities will require the services of managers, heavy equipment operators, licensed journeyman electricians, and laborers. Typical construction equipment such as scrapers, bulldozers, rollers, telehandlers, dump trucks, concrete and boom trucks, high reach bucket trucks, watering trucks, motor graders, vibratory compactors, skid steer loaders, small and medium duty cranes, backhoes, vibratory pile drivers, all-terrain forklifts, and wheeled or truck-mounted auger or drill rigs will be used during construction. Construction activities for the solar array and support facilities are described below.

3.2 General Construction Laydown Yard

The Project construction contractor will develop an approximately 15-acre temporary general construction laydown yard that will include construction trailers with administrative offices, employee parking, water service, power service, tool sheds, storage containers, and a laydown area for equipment and material delivery and storage. After completion of construction, the temporary general construction laydown yard and all associated buildings will be removed, and the land will be returned to a farmable condition.

3.3 Clearing and Grading

As the Project Area is relatively flat, much of the current topography is suitable for the placement of solar arrays with limited site preparation or improvements required. Depending on the final schedule for start of construction, if crops are standing in the fields, they may need to be removed. Dawn Harvest Solar will seek to conduct pre-construction seeding and establish vegetated ground cover in areas that do not require grading prior to installation of Project facilities. Due to schedule and weather considerations, it may not be possible to establish vegetated ground cover before the commencement of construction. For areas requiring grading, necessary stormwater pollution prevention measures will be installed, the necessary grading will then be performed, then the vegetated ground cover will be established. Dawn Harvest Solar will approach grading with the objective to achieve a balanced site, meaning a target of zero net cut and fill (cut materials are used for fill where required, with no need to import or export off site). In areas where grading is expected to exceed the depth of topsoil coverage based on geotechnical exploration, topsoil will be stripped off and replaced following subsoil material grading to maintain soil quality and stratification. The preliminary array areas consist primarily of open farmland that is clear of existing trees, therefore minimal tree clearing proposed.

3.4 Solar Arrays

Construction of each solar array will require the steps below. Sequencing will vary and any or all of these steps may be ongoing concurrently throughout the site.

1. Mobilize equipment and personnel to the site.
2. Install sensitive resource/impact avoidance signage/flagging, survey staking, and wildlife exclusion measures.
3. Install perimeter erosion control measures (silt fences, silt fence rock outlets, rock check dams, filter socks, temporary sediment basins, etc.).
4. Install permanent stormwater BMPs.
5. Construct laydown yard(s).
6. Construct access road(s) and grade array area.
7. Deliver tracking system foundations.
8. Deliver and install PCSs.
9. Deliver and install medium voltage cable.
10. Install tracking system foundations.
11. Deliver and install tracking systems.
12. Deliver and install solar modules.
13. Install miscellaneous equipment such as DC collection.

14. Testing
15. Commissioning.

Perimeter fencing may be installed at any point between steps 3 and 11.

3.5 Electrical Collection System

Collector circuits and communication cables will be installed using open-cut trenches, directional bores, or plows depending on conditions and location to provide underground connection of Project facilities. Collector circuits will typically be direct-buried in native soil arranged in a triangular configuration with 36 to 60 inches of cover in a 12 to 18-inch-wide trench depending on final engineering. Burial depths will comply with the National Electric Code and National Electric Safety Code, where applicable. Underground cable will be marked, and access will be provided, as needed, via aboveground junction boxes.

Where wetland and waterway crossings of underground cable cannot be avoided, these crossings will be directionally bored or, under limited circumstances, installed via a temporary trench where the wetland is restored to pre-construction conditions following installation. For directional borings, a frac-out plan for preventing and controlling the loss of drilling mud will be prepared and submitted for review.

Some collection system cable, particularly DC cable, will be installed above-ground in a cable management system within the array (e.g. cable tray or hanger). The cable management system may also include fiber optic cable for communication and control.

All equipment and structures will be appropriately grounded. Within the solar arrays, a grounding system will be engineered and constructed to maintain personnel safety, protect equipment, and prevent stray voltage. Electrical equipment will be inspected, tested, and commissioned prior to being connected to the grid.

3.6 Collector Substation

The Collector Substation will be graded nearly flat, and a ground grid and gravel surface will be placed in compliance with the National Electric Safety Code. The transformer containment area and equipment foundations (concrete pads, or deep foundations as necessary) will be installed, followed by steel structures, electrical equipment, and the control enclosure. Construction of the Collector Substation will require the steps below. Sequencing may vary and multiple steps may occur simultaneously.

1. Mobilize equipment and personnel to the site.
2. Install sensitive resource/impact avoidance signage/flagging, survey staking, and wildlife exclusion measures.
3. Install perimeter erosion control measures (silt fences, silt fence rock outlets, rock check dams, filter socks, temporary sediment basins, etc.).
4. Install permanent stormwater BMPs.
5. Construct access road(s) and grade Collector Substation area.

6. Install grounding and conduit.
7. Install foundations and base aggregate.
8. Perform above-grade construction of bus work and install major electrical equipment.
9. Complete all terminations.
10. Testing.
11. Commissioning.

3.7 Gen-Tie Line

Construction of the Gen-Tie Line will require the steps below. Sequencing may vary and multiple steps may occur simultaneously.

1. Mobilize equipment and personnel to the site.
2. Install sensitive resource/impact avoidance signage/flagging, survey staking, and wildlife exclusion measures.
3. Install perimeter erosion control measures (silt fences, silt fence rock outlets, rock check dams, filter socks, temporary sediment basins, etc.) (if necessary).
4. Perform right-of-way clearing (if necessary).
5. Install mats (if necessary).
6. Drill / install foundations.
7. Assemble and install structures.
8. String conductors and shield wires.
9. Testing.
10. Commissioning.

3.8 Battery Energy Storage System

Construction of the BESS may require the steps below depending on whether the BESS is AC-coupled or DC-coupled. Sequencing will vary and any or all of these steps may be ongoing simultaneously.

1. Mobilize equipment and personnel to the site.
2. Install sensitive resource/impact avoidance signage/flagging, survey staking, and wildlife exclusion measures.
3. Install perimeter erosion control measures (silt fences, silt fence rock outlets, rock check dams, filter socks, temporary sediment basins, etc.).
4. Install permanent stormwater BMPs.
5. Construct access road(s) and grade BESS area.
6. Install foundations, base aggregate, and PCSs.
7. Install conduit.
8. Install battery enclosures.
9. Install and ground battery racks.
10. Complete terminations.

11. Testing.
12. Commissioning.

3.9 Access Roads

The Project's access roads will be graded and constructed to facilitate construction and operation access from the public road network to the Project. Access road construction will use standard equipment and techniques to clear vegetation and topsoil. The access roads will be constructed with appropriate drainage and erosion control features (e.g., drainage culverts, silt fencing). The subgrade work completed to support the access roads will vary depending on soil types, weather conditions, etc. The subgrade will be compacted, geotextile fabric may be installed for additional stability, and then a gravel surface of appropriate thickness will be placed and compacted. The construction methods used will provide a stabilized foundation for all-weather access. In general, the design standards for the access roads will be consistent with the amount and type of use they will receive.

3.10 Site Stabilization, Protection, and Reclamation

The existing topography within the Project area can be described as flat to gently rolling hills with some streams and drainages present. Surface elevations range from 788 - 914 feet above mean sea level (**Exhibit 4**). Slopes within the Project Area are generally within the 0 - 10 percent range with minor areas of steeper slopes. The Project will be designed to use the existing topography to the maximum extent practicable to maintain existing drainage patterns and minimize grading. An Erosion Control and Storm Water Management Plan ("**ECSWMP**") will be developed during final engineering and document compliance with Wis. Admin. Code §§ NR 151.121 through 151.128. The ECSWMP is anticipated to consist of a combination of silt fences, filter socks, silt fence rock outlets, temporary diversion swales, rock checks, sediment traps, and temporary sediment basins. Silt fences and filter socks will be implemented in smaller drainage areas with low-velocity flow. Larger drainage areas with higher velocity sheet flow will use a combination of silt fence rock outlets, temporary diversion swales, sediment traps, and sediment basins. Vegetative buffers and additional silt fences will be implemented near sensitive areas (i.e. wetlands, etc.). Final BMPs will be determined during final engineering.

To avoid increasing runoff rates, a low impact development approach is proposed. The proposed stormwater management will consist of a vegetated filter throughout the site. All areas below the solar modules and amongst the tracking system foundations will be seeded with a vegetated filter consisting of a low-maintenance perennial seed mix. This vegetated filter will act as a permanent BMP and allow for runoff, sediment, and other pollutants to be infiltrated or captured by the vegetation.

3.10.2 Waste Materials Management

The primary waste generated at the Project during construction, operation, and maintenance will be nonhazardous solid and liquid wastes. Dawn Harvest Solar will prepare a Spill Prevention, Control and Countermeasure Plan complying with all EPA and state law requirements, which would address waste and hazardous materials management, including BMPs related to storage, spill response, transportation, and handling of materials and wastes.

Non-sanitary wastewater generated during construction and operation would include stormwater runoff and equipment wash-down water. This wastewater is typically nonhazardous and will be handled consistent with WDNR permits. Any wastewater deemed hazardous by chemical quality will be handled and disposed of in accordance with WDNR permits and other applicable regulations.

4. Operation and Maintenance

4.1 Solar Module Cleaning

Based on average precipitation levels in the area, Dawn Harvest Solar anticipates that regular panel cleaning will not be required, and any washing events will be extremely rare. If needed, cleaning the solar modules involves washing the surfaces with water containing no additive cleaners or chemicals. Wash water would drain off and infiltrate into the ground.

4.2 Electrical Equipment Maintenance

Periodic electrical equipment maintenance will include replacing air filters, testing connections with thermal imaging cameras, and sampling the mineral oil within transformers. Tracking system maintenance will include periodic battery replacement and minor greasing of internal gearbox components.

4.3 Ground Cover Maintenance

One of Dawn Harvest Solar's goals in selecting seed mixes for the vegetated ground cover is minimizing maintenance requirements. The post-construction ground cover maintenance program will consist of a combination of mowing using mechanized equipment, string trimming, and if necessary, application of localized herbicide. The Project's ground cover will be maintained and controlled throughout the life of the Project.

5. Decommissioning

At the end of commercial operations, Dawn Harvest Solar will be responsible for removing all solar arrays to a depth of 4 feet below grade. Participating landowners will not be responsible for decommissioning costs. Restored areas will be seeded to stabilize exposed soil or de-compacted and returned to agricultural use in accordance with the landowner agreements. Access roads will be removed at the discretion of the landowner. Some Project facilities, such as the O&M building, Collector Substation, and Gen-Tie Line may remain in use or be repurposed after the end of the useful life of the solar generating facility. Project facilities that remain in use or can be repurposed will not be removed during decommissioning.

6. Existing Environment

6.1 Land Cover Types

Land cover within the Project area was mapped and described using data and descriptions from the 2016 Wiscland 2.0 Land Cover Database ("**Wiscland**"), which combines ground level mapping, satellite imagery, and United States Department of Agriculture data in a product produced jointly by the WDNR, UW-Madison, and the State Cartographer's Office. A total of six

land cover types were identified and mapped within the Project Area. The majority of the Project Area is comprised of Agriculture (96.1 percent). Grassland, Forest, Urban/Developed, Wetland, and Barren comprise the remaining land cover types within the Project Area (**Exhibit 5**) (**Table 6.1**). Results of field reconnaissance conducted November 08, 2023, found Wiscland land cover mapping is generally consistent with land cover types and extent observed in the field.

Table 6.1 Wiscland Land Cover Types within the Project Area (Wiscland 2016)		
Land Cover Type	**Acres**	**Percent of Total**
Agriculture	2,683.9	96.1
Grassland	41.9	1.5
Forest	30.2	1.1
Urban/Developed	27.3	0.9
Wetland	8.9	0.3
Barren	1.0	0.0
Total	**2,793.2**	**100.0**

6.2 Wetlands and Riparian Areas

A field delineation of wetlands and waterways was completed in the Fall of 2020 and Spring of 2021 by Stantec Consulting Services, Inc. A total of seven (7) wetlands and wetland complexes totaling 4.36 acres and one waterway totaling 2.19 acres (0.66 linear miles) were delineated within a 1,610.4-acre delineation area ("**Field Delineation Area**"), a subset of the larger, 2,793.2-acre Project Area (**Exhibit 6**). The field-delineated waterway corresponds to WBIC flowline #797100. It is worth noting that the waterway acreage and mileage listed in **Table 6.2a** incorporates some of the Water Body Identification Code ("**WBIC**") flowline polyline features listed in **Table 6.2c.** The largest wetland complex with components of wet meadow, shallow marsh, hardwood swamp, and seasonally flooded basins, is associated with Blackhawk Creek along the north edge and through the center of the Project Area. The remaining field-delineated wetlands consist of wet meadow and seasonally flooded basins.

In May 2021, a Navigability Determination Request ("**NDR**") was submitted by Stantec for portions of WBIC flowlines 5040359 (WNP1), 5040565 (WNP2), 5040982 (WNP3) and 5040613 (WNP4) that were mapped within the Field Delineation Area but were not present in the field based on the data collected. On June 1, 2021, the WDNR communicated via email their concurrence that 50403569, 5040565 and 5040613 were not jurisdictional, but that 5040982 (WNP3) was jurisdictional within the Project Area unless additional information was provided that demonstrates that upstream areas are non-navigable (**Exhibit 6**).

Field-delineated wetlands categorized by Eggers and Reed Classification are summarized in **Table 6.2a.** The assigned Eggers and Reed Classification is based on the predominant Eggers and Reed type within a given wetland polygon.

Table 6.2a Field-Delineated Features within the Project Area		
Eggers and Reed Classification	**Acres**	**Number of Features**
Hardwood Swamp	1.67	1
Shallow Marsh	1.55	1

Table 6.2a Field-Delineated Features within the Project Area		
Eggers and Reed Classification	**Acres**	**Number of Features**
Wet Meadow	0.24	1
Seasonally Flooded Basin	0.9	4
Waterway	2.19 (0.66 linear miles)	1
Total	**6.55**	8

The approximately 1,182.8 acres of the Project Area that was not field delineated was assessed via a desktop evaluation ("**Desktop Delineation Area**"). In these areas, a desktop wetland delineation was performed using available public resources, including the WDNR Surface Water Data Viewer, and multiple years of historical aerial imagery. Twelve (12) wetlands totaling 8.32 acres were identified and consisted primarily of seasonally flooded basins (6). These features are summarized in **Table 6.2b.** No additional waterways were desktop delineated that aren't already represented by WBIC flowlines summarized in **Table 6.2c.** Field water resource delineations are planned for Spring of 2024 for the participating portions of the Desktop Delineation Area. The data from the field delineations will supersede the desktop-mapped information and be used in final engineering design and assessment of Project impacts.

Table 6.2b Desktop-Delineated Features within the Project Area		
Eggers and Reed Classification	**Acres**	**Number of Features**
Seasonally Flooded Basin	5.46	6
Hardwood Swamp	1.61	2
Wet Meadow	0.80	2
Shallow Marsh	0.45	2
Total	8.32	12

Six (6) WBIC flowlines from the WDNR 24k Hydrography Dataset were identified within the Project Area (**Table 6.2c**). No open water features were identified within the Project Area. The total mileage of WBIC flowlines within the Project Area is 3.15 miles, however, the NDR response from the WDNR removed 1.18 miles of mapped WBIC flowlines from regulatory jurisdiction (**Exhibit 6**).

Table 6.2c WBIC Flowlines within the Project Area		
Feature Type	**Miles**	**Number of Features**
WBIC Flowlines	1.97	6
Total	**1.97**	6

6.3 Federal and State Listed Species

The Project Area was evaluated for the potential presence of federally or state-listed species and their habitats. Federally protected species include those characterized by the United States Fish and Wildlife Service ("**USFWS**") under the authority of the ESA of 1973 (16 United States Code [USC] 1531–1544) as threatened or endangered, as well as those proposed for listing (i.e.,

candidate species). Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act enforced by the USFWS (16 U.S.C. 668-668c). The WDNR also maintains a list of threatened and endangered species for Wisconsin. Laws and regulations pertaining to state-listed endangered or threatened species are contained in Wisconsin State Statute 29.604 and Administrative Rule Chapter NR 27.

6.3.2 Federally Protected Species

A USFWS Information for Planning and Consultation ("**IPaC**") request identified seven species as potentially occurring within the Project Area. The species identified include the federally endangered northern long-eared bat (*Myotis septentrionalis*) and Hine's Emerald Dragonfly (S*omatrochlora hineana*), the federally threatened eastern prairie fringed orchid (*Platanthera leucophaea*) and Prairie Bush-clover (*Lespedeza leptostachya)*, the federal candidate species monarch butterfly (*Danaus plexippus*), the proposed for listing as federally endangered tricolored bat (*Perimyotis subflavus),* and the non-essential experimental population of whooping crane (*Grus americana*). Candidate species and species proposed for listing are not afforded regulatory protections; however, these species may need further review if they are listed. Non-essential experimental population designations are assigned to populations deemed unnecessary for the continued existence of the species (USFWS 2016). Regulatory restrictions are reduced for non-essential experimental populations.

There are no designated critical habitats identified within the Project Area for any federally protected species.

Based on a review of the WDNR Natural Heritage Inventory portal, no known bald or golden eagle nests are located within the Project Area. The closest known nest is more than five miles from the Project Area.

6.3.3 State-Protected Species

Dawn Harvest Solar requested an Endangered Resources Review ("**ERR**") from the WDNR for the Project area and received a response on December 4, 2023 (ERR Log # 23-883). The WDNR identified required actions for zero (0) species and recommended actions for one (1) state-threatened plant species in their response. If suitable habitat for the plant species is present or will be impacted, the recommended actions include site surveys to confirm presence or absence or conducting work during the plant's dormant season. One (1) species had no follow-up actions and additional recommendations were provided regarding native seed mix, erosion control matting, and wildlife permeable fencing.

6.4 Special Management Areas

A desktop evaluation was conducted using the United States Geological Survey (2023) Protected Areas Database of the United States to document special biological resource management areas such as conservation easements and state or federal lands managed for biodiversity within the Project Area and an associated 2-mile buffer. Results of this effort indicated that no public lands were identified within the Project Area. Several local public lands are located within the 2-mile buffer and primarily consist of local parks within the City of Janesville to the northwest.

7. Permits and Approvals

All potentially required federal- and state-level permits and approvals that may be necessary for the construction of the Project are identified in **Table 7** below. Permits to be applied for will be determined based on Dawn Harvest Solar's final engineering following issuance of a Final Decision in the CPCN proceeding. In addition to the permits identified in **Table 7**, Dawn Harvest Solar may apply for local permits to facilitate cooperation with local governments. In the event local permits are withheld or delayed, installation and utilization of the facility may nevertheless proceed under Wisconsin Statute § 196.491(3)(i).

Table 7 Preliminary Permits and Approvals		
Agency	**Permit/Approval**	**Notes**
Federal		
United States Army Corps of Engineers	Section 401 Water Quality Certification	Impacts to jurisdictional water resources will be avoided and minimized to the extent practicable. Field delineations within the final Project footprint will be performed to determine the presence and extent of water resources, quantify potential impacts, and determine the appropriate authorization for unavoidable impacts.
United States Army Corps of Engineers	Section 404 Wetland Permit	Impacts to jurisdictional water resources will be avoided and minimized to the extent practicable. Field delineations within the final Project footprint will be performed to determine the presence and extent of water resources, quantify potential impacts, and determine the appropriate authorization for unavoidable impacts.
United States Army Corps of Engineers	Section 10 Waterway Permit	Impacts to jurisdictional water resources will be avoided and minimized to the extent practicable. Field delineations within the final Project footprint will be performed to determine the presence and extent of water resources, quantify potential impacts, and determine the appropriate authorization for unavoidable impacts.
United States Fish and Wildlife Service	Endangered Species Act Review	Consultation is required if the Project has a federal nexus or otherwise may impact federally listed species or designated critical habitats. Endangered Species Act Review includes potential for Incidental Take Permit.

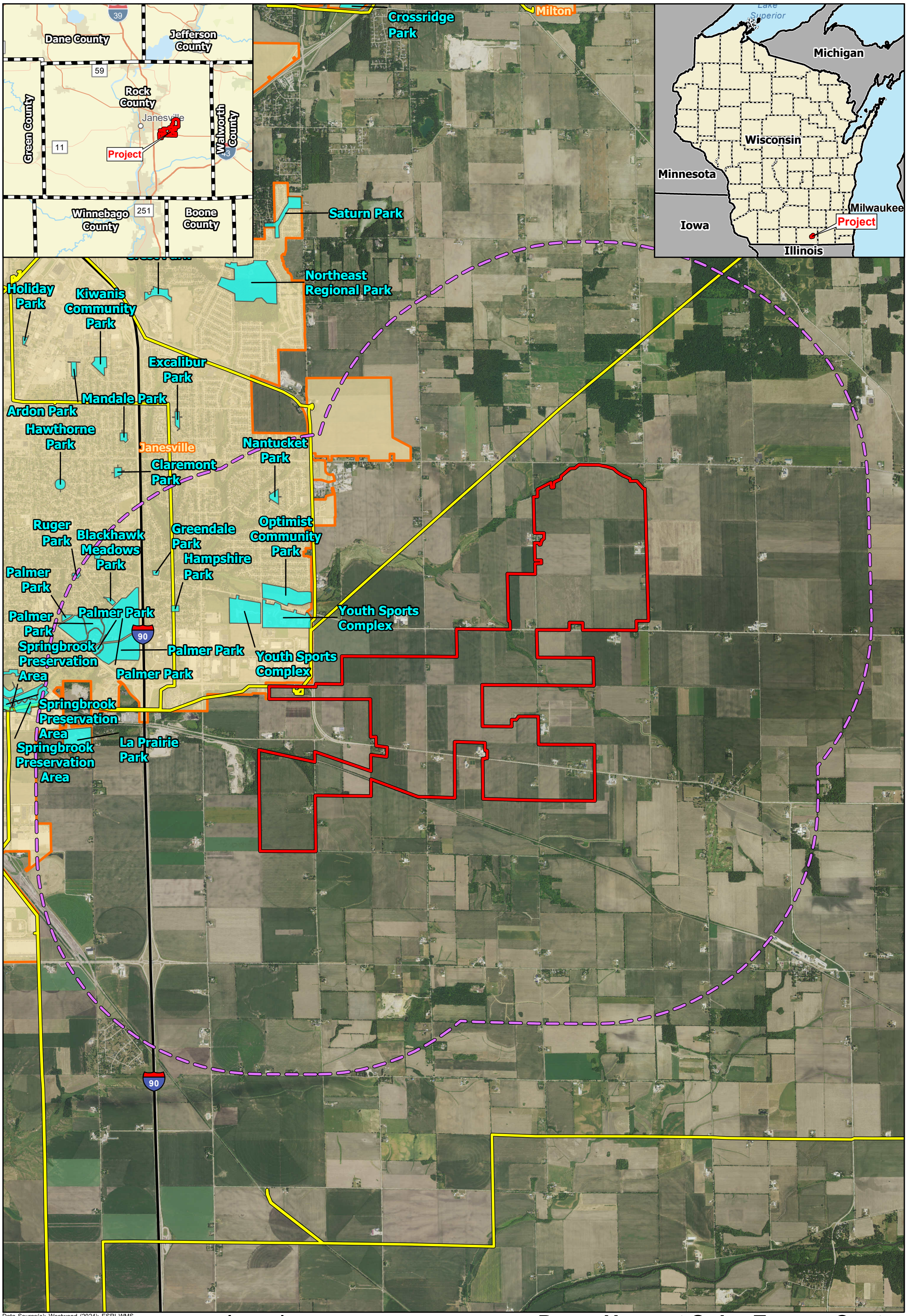
Table 7 Preliminary Permits and Approvals		
Agency	**Permit/Approval**	**Notes**
State		
Public Service Commission of Wisconsin	Certificate of Public Convenience and Necessity	Required for construction of a large electric generating facility.
Wisconsin Department of Natural Resources	Wetland Fill Permit (Wis. Stat. Ch. 281)	Impacts to jurisdictional water resources will be avoided and minimized to the extent practicable. Field delineations within the final Project footprint will be performed to determine the presence and extent of water resources, quantify potential impacts, and determine the appropriate authorization for unavoidable impacts.
Wisconsin Department of Natural Resources	Construction Affecting Navigable waterways (Wis. Stat. Ch. 30)	Impacts to jurisdictional water resources will be avoided and minimized to the extent practicable. Field delineations within the final Project footprint will be performed to determine the presence and extent of water resources, quantify potential impacts, and determine the appropriate authorization for unavoidable impacts.
Wisconsin Department of Natural Resources	Wisconsin Pollutant Discharge Elimination System Construction Stormwater General Operating Permit (Wis. Stat. Ch. 283, Wis. Admin. Code Ch. NR 216 & NR 151)	Required for land disturbance or construction activities that disturb one or more acres with a point source discharge to surface waters of the United States.
Wisconsin Department of Natural Resources	Incidental Take of Threatened or Endangered Resource (Wis. Stat. Ch. 29)	Impacts to state-listed species endangered resources will be avoided and minimized to the extent practicable.
Wisconsin Department of Natural Resources	Private Well Notification Number and Approval	Required for construction of a private well.
Wisconsin Department of Transportation	Oversize-Overweight Vehicle Permit	Required for any vehicles exceeding posted limits on state roads.
Wisconsin Department of Transportation	Connection Permit	Required for construction of driveway or public/private road on property abutting a state highway.
Wisconsin Department of Transportation	Right-of-Way Permit	Required for any construction in a state highway right-of-way.

Table 7 Preliminary Permits and Approvals		
Agency	**Permit/Approval**	**Notes**
Wisconsin Department of Transportation	Utility Permit	Required for construction or maintenance of a utility facility in state highway right-of-way.
Wisconsin Department of Safety and Professional Services	Electrical and Plumbing Plan Review	Required for installation of electrical, plumbing, and certain mechanical systems in a commercial building.

8. Schedule

Table 8 below includes a preliminary schedule for the Project.

Table 8 Preliminary Schedule	
Activity	**Date**
EP Submittal	Q1 2024
CPCN Application Submittal	Q1 2024
Start of Construction	Q2 2025
Commercial Operation Date	Q4 2026



Data Source(s): Westwood (2024); ESRI WMS World Streets Basemap (Accessed 2023), NAIP (2022), PADUS (2023), U.S. Census Bureau (2022).

Feet
0 4,200

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- Project Area
- 2-Mile Project Area Buffer
- Municipal Boundary
- PADUS Public Land
- Existing Transmission Line
- Major Road

N

Dawn Harvest Solar Energy Center

Rock County, Wisconsin

Project Area Map

EXHIBIT 1

UNKNOWN136972 to WILCOX 138kV

SUNRISE to WILCOX 138kV

TAP137906 to SUNRISE 138kV

ROCK RIVER to SUNRISE 138kV

Janesville

T3N-R13E-S25

T3N-R13E-S34

T3N-R13E-S35

T3N-R13E-S36

T2N-R13E-S4

T2N-R13E-S3

T2N-R13E-S2

T2N-R13E-S1

T2N-R13E-S9

Data Source(s): Westwood (2024); NAIP (2022), HIFLD (2023), U.S. Census Bureau (2022).

Feet

0 2,500

Westwood

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Westwood Professional Services, Inc.

Legend

- Project Area
- Municipal Boundary
- PLS Section, Township, Range Boundary
- Preliminary Array Area
- BESS
- Collector Substation
- O&M Area
- Preliminary Gen-Tie Route
- Existing Transmission Line
- Major Road

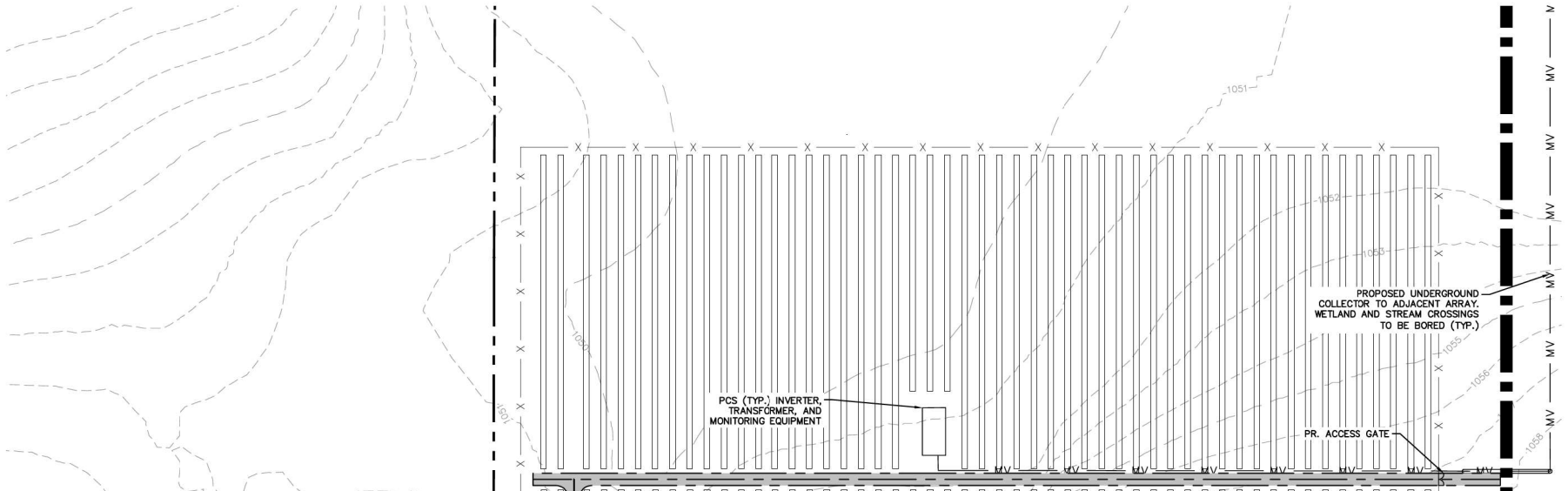
Dawn Harvest Solar Energy Center

Rock County, Wisconsin

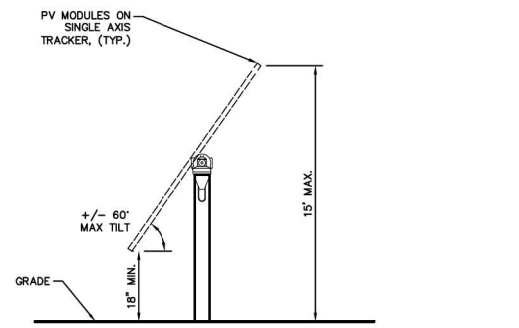
N

Preliminary Project Layout Map

EXHIBIT 2



1 TYPICAL SOLAR ARRAY PLAN VIEW
NTS



2 TYPICAL SINGLE AXIS TRACKER
NTS

PRELIMINARY - NOT FOR CONSTRUCTION

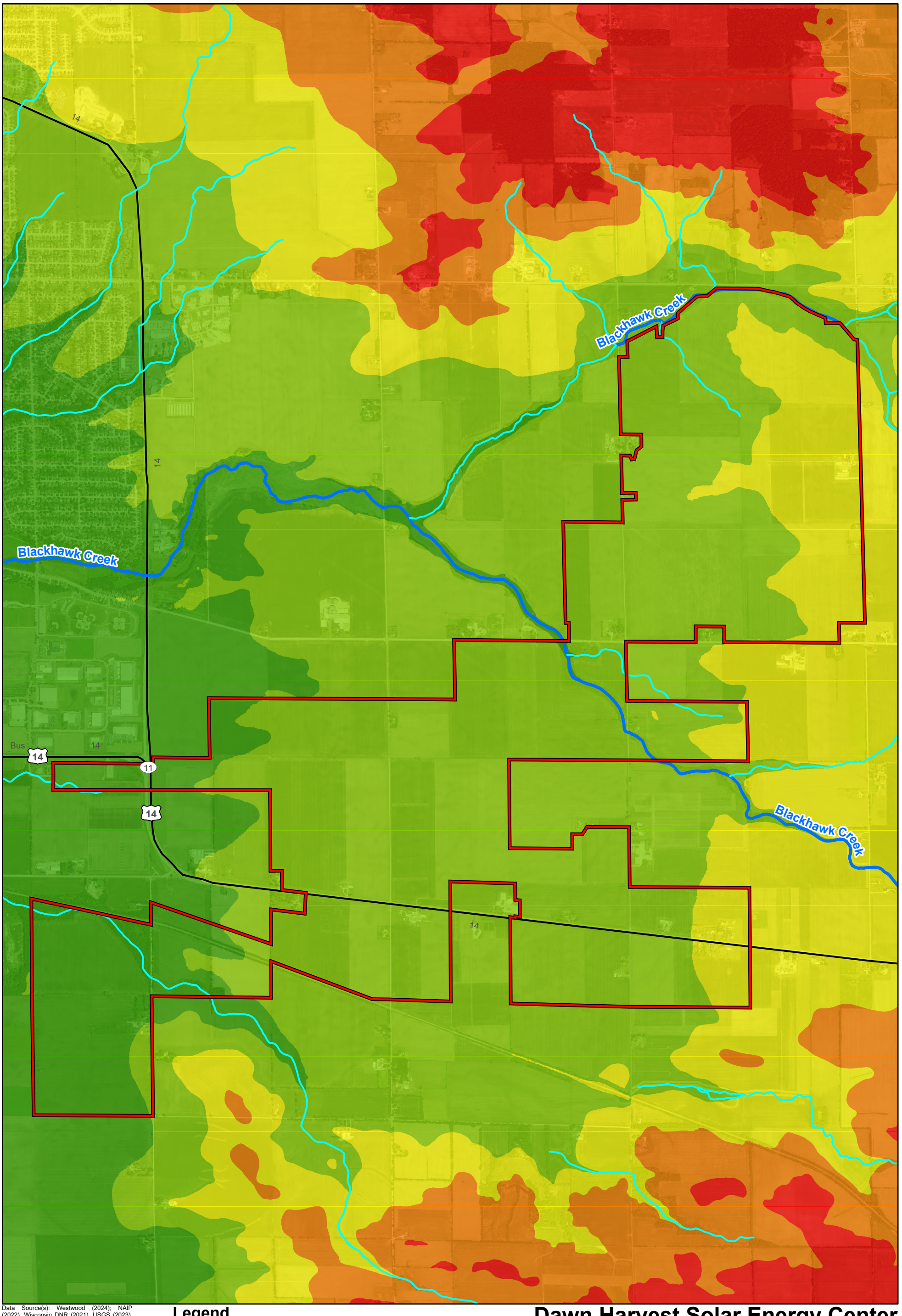
No.	REVISIONS	DATE

EXHIBIT 3
TYPICAL SOLAR ARRAY LAYOUT

DAWN HARVEST
SOLAR ENERGY CENTER

SHEET NUMBER

Map Document: N:\0046472.00_GIS_ArcPro\R0046472_040_EngineeringPlanExhibits_231031\R0046472_040_EngineeringPlanExhibits_231031.aprx 1/10/2024 11:15 AM HNemerov



Data Source(s): Westwood (2024); NAIP (2022), Wisconsin DNR (2021), USGS (2023), NHD (2023).

Feet
0 1,950

Westwood

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Westwood Professional Services, Inc.

Legend

- Project Area
- Major Drainage Feature
- Minor Drainage Feature
- Major Road

Elevation Ranges

- 788 ft - 866 ft
- 867 ft - 886 ft
- 887 ft - 914 ft
- 915 ft - 951 ft
- 952 ft - 1,051 ft

N

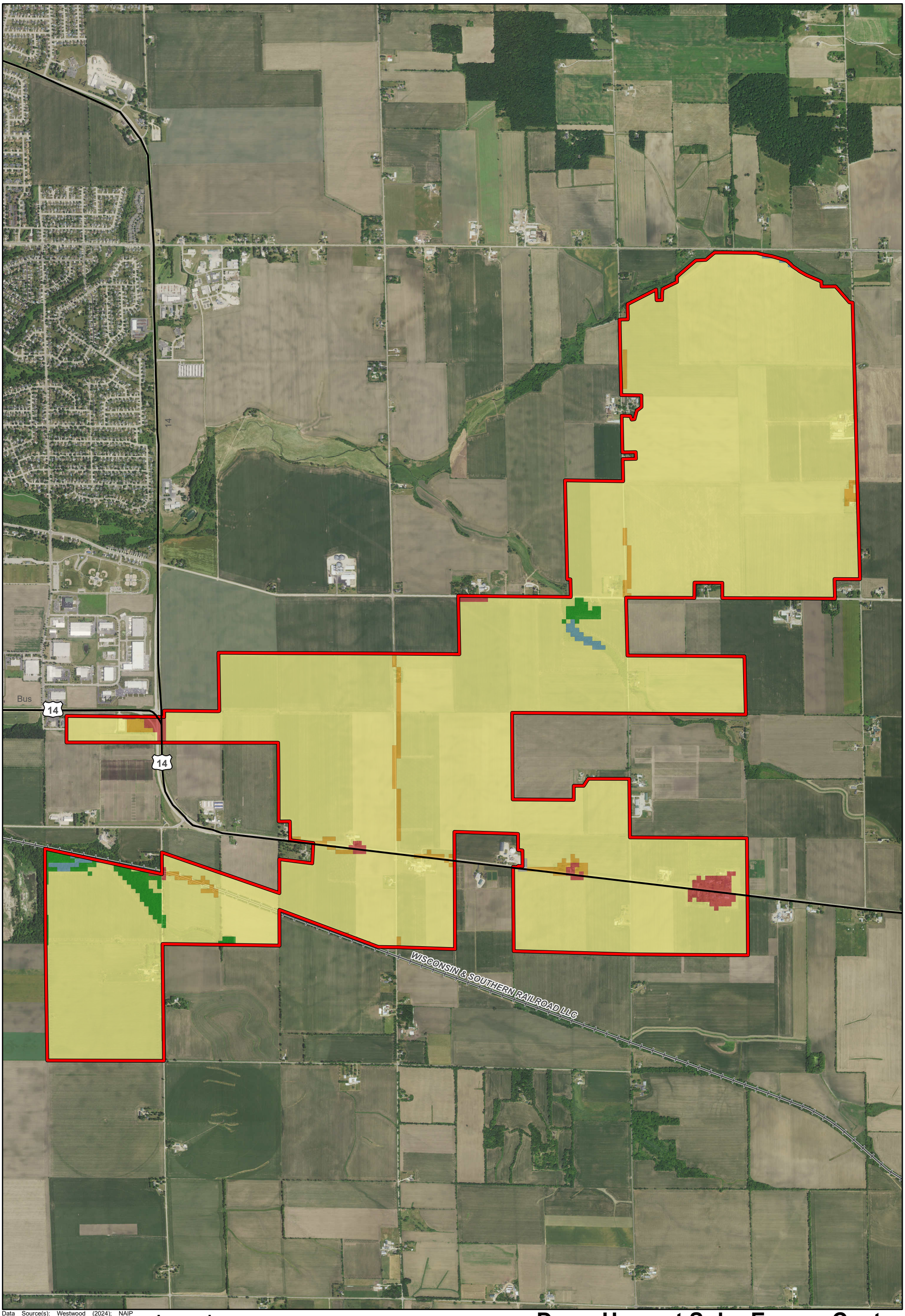
Dawn Harvest Solar Energy Center

Rock County, Wisconsin

Topography & Major Drainage Features Map

EXHIBIT 4

Map Document: N:\0046472.00_GIS_ArcPro\R0046472_040_EngineeringPlanExhibits_231031\R0046472_040_EngineeringPlanExhibits_231031.aprx 1/17/2024 10:32 AM HNemerov



Data Source(s): Westwood (2024); NAIP (2022), Wisconsin DNR (2016), U.S. Census Bureau (2022).

Feet
0 2,000

Westwood

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Westwood Professional Services, Inc.

Legend

- Project Area
- Major Road
- Railroad

Wisland Level 1 Land Cover Classifications

- Agriculture (96.09%)
- Grassland (1.5%)
- Forest (1.08%)
- Urban/Developed (0.98%)
- Wetland (0.32%)
- Barren (0.03%)

N

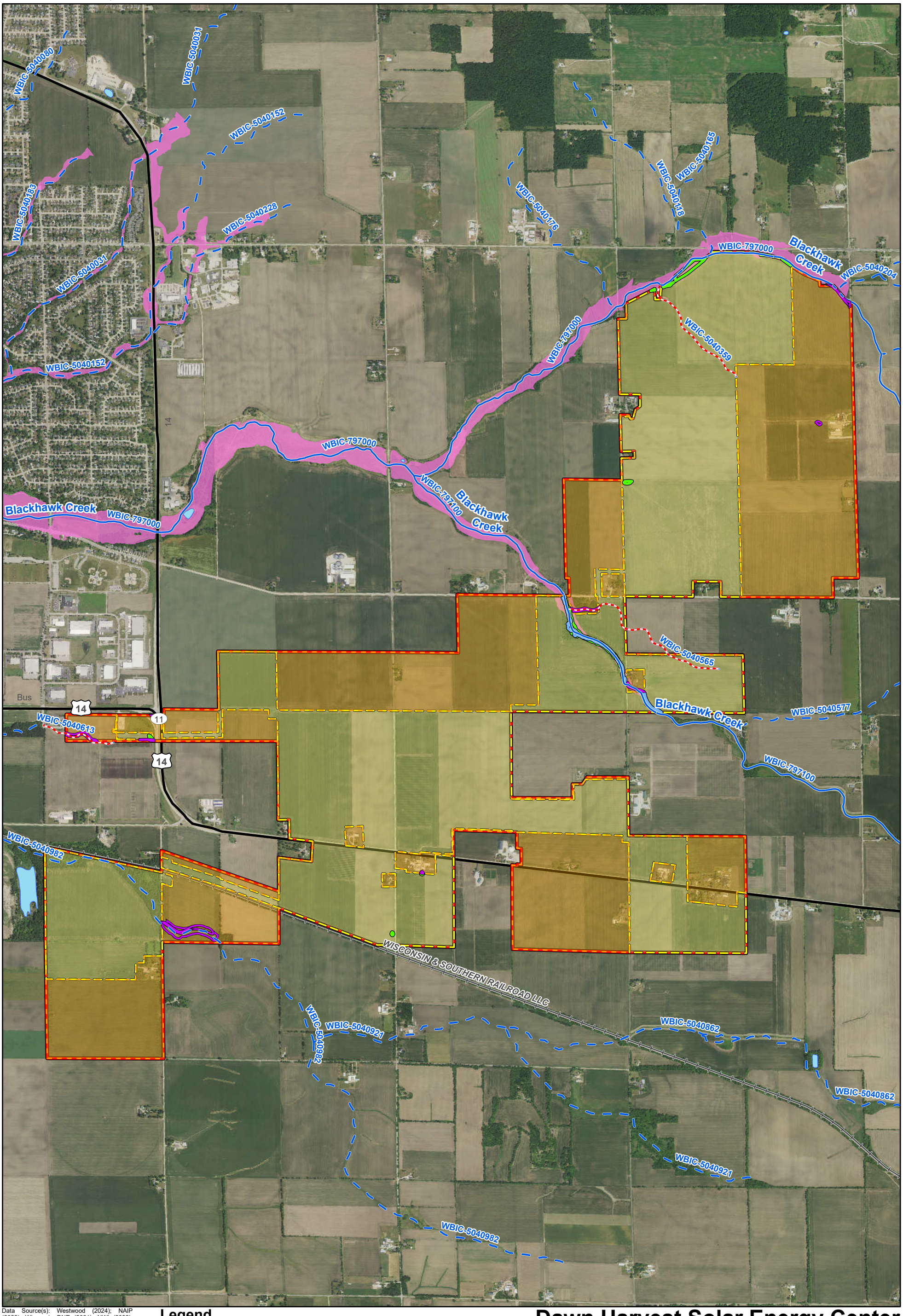
Dawn Harvest Solar Energy Center

Rock County, Wisconsin

Land Cover Map

EXHIBIT 5

Map Document: N:\0046472.00_GIS_ArcPro\R0046472_040_EngineeringPlanExhibits_231031\R0046472_040_EngineeringPlanExhibits_231031.aprx 1/15/2024 11:59 AM HNemerov



Data Source(s): Westwood (2024); NAIP (2022), Wisconsin DNR (2021), NWI (2022), NHD (2023), FEMA (2023), U.S. Census Bureau (2022).

0 2,000 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com

Westwood Professional Services, Inc.

Legend

- Project Area
- Desktop Delineation Area
- Field Delineation Area
- Field Delineated Wetland
- Field Delineated Waterway
- Desktop Delineated Wetland
- 100 Year Floodplain
- WDNR 24k WBIC Waterbody
- Major ROad
- Railroad

WDNR 24k WBIC Flowlines

- Perennial Stream
- Intermittent Stream
- Non-Juristictional WBIC Flowlines

Dawn Harvest Solar Energy Center

Rock County, Wisconsin

N

Water Resources Map

EXHIBIT 6