

APPLICANT & PROPERTY OWNER INFORMATION (Print or Type):

Applicant/Petitioner information: SDG IL DG LLC

Company Name: Solar Development Group LLC

Contact Name and Title: Luis Gonzalez - Development Manager

Phone number: (407)-232-7440

Mailing address for all official correspondence unless a Legal Representative is designated in which case all correspondence and contact will be made with that Legal Representative:

2250 Lucien Way suite 305, Matiland FL Zip: 32751

Property Owner Name(s): Elm Lawn Memorial Park Inc

Phone number: (217)-825-5197

Mailing address: PO Box 588, Taylorville, IL Zip: 62568

Designated Legal Representative (*licensed to practice law in the State of IL*) of Applicant (*if any*)

Name: _____ Phone: _____

Address: _____ Zip: _____

Designated Contact Person (*if different from Applicant*), to whom all phone calls, requests for information, clarifications, and coordinator for all actions regarding this Petition, who has the authority to act on behalf of the Petitioner in regard to this Petition/Application/Request. *This does not apply if a Legal Representative has been designated in which case all contact will be made through that Legal Representative.*

Name: _____ Phone: _____

Address: _____ Zip: _____

PROPERTY INFORMATION:

Note: If additional space is needed, please attach additional sheets to the application and reference attachment description in application.

1. Location of the proposed use or structure, and its relationship to existing adjacent uses or structures:

An agricultural field situated in North Litchfield township. Additional and adjacent land to Elm Lawn

Memorial Park

2. Legal Description and Acreage: _____

PARCEL ID NO.: 10-34-100-019 (27.42 acres) E Clark Street, North Litchfield Township, IL 62056

3. Area and dimensions of the site for the proposed structure(s) or uses.

Approximately 15 acres

4. Present Use of property:

Agricultural field with rotating commodity crops

5. Present Land Classification: Agricultural A-1
-

6. Proposed Land Use Activity / Nature of the Proposed Use, including type of activity, manner of operation, number of occupants or employees, and similar matters:

Elm Lawn Solar Park - 15 acres solar energy farm

7. Height, setbacks, and property lines of the proposed uses and/or structure(s).

Meeting and exceeding county 's approved solar ordinance design standards

8. Location and number of proposed parking/loading spaces by type of vehicles, to include Weight Classifications and size of access drives/ways.

2 proposed parking parking areas. 20ft wide gravel access roads.

9. Existing and proposed screening, lighting (including intensity) landscaping, erosion control, and drainage) features on the site, including the parking areas.

Existing or planted vegetative screening buffer surrounding the solar facilities.

See narrative and preliminary site plan package for additional details

10. Disclosure of any potential environmental issues and methods for dealing with them.

None identified. See narrative's supporting analysis section for more details.

11. Disclosure of any activities requiring outside agency permits and the names, addresses, and phone numbers of the agency points of contact and how those requirements are being met.

Road use agreement with North Litchfield township. NPDES with the IEPA. Siting Waiver
~~agreement with City of Litchfield~~

12. Indicate the suitability of the property in question for Construction:

Highly suitable for solar development

13. Adjacent Land Use:

A. North: Agricultural residential

B. South: Agricultural

C. East: Elm Lawn Memorial Park - Cemetery

D. West: Agricultural residential

15. Should this Use be valid only for a specific time period? Yes _____ No ☒

If Yes, what length of time? _____

16. Does the proposed Permit meet the following standards? Yes ☒ No _____ (If not, attach a separate sheet explaining why.)

A. Will the proposed design, location and manner of operation of the proposed Solar Garden or Solar Farm adequately protect the public health, safety and welfare, and the physical environment? _____

B. Will the proposed Solar Garden or Solar Farm have a negative impact on the value of neighboring property? _____

C. Will the proposed Solar Garden or Solar Farm have a negative impact on public utilities and on traffic circulation? _____

D. Will the proposed Solar Garden or Solar Farm have an impact on the facilities near the proposed Solar Garden or Solar Farm, such as schools or hospitals or airports that require special protection? _____

ATTACHMENTS REQUIRED:

1. At the time the application is filed, a non-refundable fee is to be paid by the applicant. The application fee \$2,500 per megawatt (MW) of proposed nameplate capacity, up to a maximum fee of \$250,000.
2. For entities governed by governing boards, a copy of the Board Resolution or Board Meeting Minutes authorizing the governing board's approval to carry out the requested project and to authorize the submission to Montgomery County by a designated entity officer of the required specific requests / applications / petitions is required to be submitted.
3. An area map and site plan from a certified Illinois licensed Engineer.
4. List of the names, current property tax addresses and property tax PIN numbers of property owners located within two-hundred feet and fifty (250') of the property.
5. A Decommissioning plan including:
 - A. Process details and cost estimate of decommission.
 - B. Anticipated life expectancy of the Solar Farm.
 - C. Method of insuring funds will be available for decommissioning and restoration of the project site to its original, natural condition prior to the solar farm construction.
 1. This includes a proposed schedule of payments to be deposited into an escrow account, on a minimum of a yearly basis, held by Montgomery County as assurance for available decommissioning funds.
 - D. The cost estimate of decommissioning will be reviewed every five (5) years, by the County's chosen Independent Engineer, and revised if necessary, at the Developers expense. The review and revised plan shall be sent to the Montgomery County Coordinating Office for Board review. If necessary, provisions will be made to the escrow account balance for the decommissioning of the Solar Garden or Solar Farm.

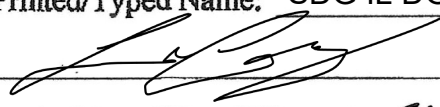
CERTIFICATION OF A SOLAR GARDEN OR SOLAR FARM PERMIT PETITION / APPLICATION / REQUEST

I/We the undersigned, agree that the information herein and attached is true. I/We, the undersigned, do hereby permit officials and/or consultants of Montgomery County, to enter the property described herein to complete a thorough review of this application.

Address: 173 Yaeger Lake Tr, Litchfield, IL 62056

Parcel ID # APN:10-34-100-019 TWP 09 Range 05 Section 34

Applicant's Printed/Typed Name: SDG IL DG LLC - Luis Gonzalez

Signature:  Date: 08/24/2026

Property Owner's Printed/Typed Name: ELM LAWN MEMORIAL PARK INC.

Signature:  Date: 3/10/26

Applicant's Legal or other Representative's Printed/Typed Name (*if applicable*):

Signature: _____

Date: _____

STATEMENT OF CONFORMANCE:

I/We, the undersigned, in making a Petition/ Application / Request to Montgomery County for approval of a Solar Farm or Solar Garden Construction Permit described in this application have reviewed the laws and regulations of Montgomery County to the extent that they are applicable to this proposal and understand that: I/We, the undersigned have no reasonable expectation of approval of this request until such time that a Solar Farm or Solar Garden Construction Permit is actually issued by the Montgomery County and have been so notified of issuance in writing. I/We hereby acknowledge, attest to, and accept the following as conditions of obtaining a Solar Farm or Solar Garden Construction Permit in Montgomery County, Illinois.

- **NO** building, construction, alteration, or use may be started prior to the issuance of a Solar Farm or Solar Garden Construction Permit.
- **All** building construction and all site construction must conform to the plans and specifications approved by the Montgomery County Board. No deviation from or revision to an approved plan may take place without the prior written approval of the Montgomery County Board.
- Any Permit, once issued, is non-transferrable to any other legal entity without the express prior written approval of the Montgomery County Board.
- That **ALL** actions associated with this Permit process shall be taken, processed, and interpreted under the Laws of the State of Illinois and Montgomery County and any legal remedies sought by any party in connection with this Solar Farm or Solar Garden Construction Permit shall be brought forth in the Courts of Montgomery County, Illinois for adjudication.
- That if the applicant is an Agent representing the actual owners of multiple properties, or is a lessor, that the Agent has in their possession signed documentation that the actual property owners are aware of their legal responsibilities to be personally liable for the costs associated with Decommissioning if said lessor or Agent fails for any reason to meet this requirement of the Solar Farm or Solar Garden Construction Permit.

Applicant's Printed/Typed Name: SDG IL DG LLC

Signature:  _____

Date: 08/24/2026

Applicant's Legal Representative Printed/Typed Name Signature and Date (*If applicable*):

Signature: _____

Date: _____

NOTE: It is the responsibility of the Applicant to notify the Montgomery County Coordinating Office at each stage of work completed once the Permit is issued. **Email:** cbadmins@montgomerycountyl.gov
Phone: 217-532-9577

Address: Montgomery County Coordinator
#1 Courthouse Square – Room 202
Hillsboro, IL 62049

Elm Lawn Solar Park

Request for Solar Farm Development Permit
Montgomery County, IL





August 2026

Elm Lawn Solar Park

Montgomery County, IL

Solar Farm Development Permit Application Narrative

Applicant:

SDG IL DG, LLC (New office location starting September 1)
1135 Townpark Ave, Suite #2125
Lake Mary, FL 32746

Contacts/Agents:

Luis Gonzalez, Project Development Manager (lgonzalez@esa-solar.com)
Wes Shaffer, Director of Planning & Engagement (wshaffer@esa-solar.com)

Contents

- Introduction 4**
 - Our Request..... 4
 - Subject Site and Context 4
 - Applicant Overview 4
- Project Details 6**
 - Site Access 6
 - Utility Connection 6
 - System Components..... 6
 - Design Standards 7
 - Visual Renderings 8
- Project Management 10**
 - Construction..... 10
 - Operation..... 10
 - Decommissioning 11
- Adherence to Zoning Code 12**
 - Ordinance for Solar Energy Farm and Solar Garden Installations 12
- Findings of Fact 16**
 - Q1: Will the proposal protect public health, safety, welfare, and the physical environment? 16
 - Q2: Will the proposal negatively impact on the value of neighboring property? 16
 - Q3: Will the proposal negatively impact on public utilities and traffic circulation? 17
 - Q4: Will the proposal impact on nearby facilities such as schools, hospitals, or airports?..... 17
- Additional Plans & Analysis 18**
 - Vegetation Management Plan 18
 - USFWS Information for Planning and Consultation (IPaC)..... 19
 - ForgeSolar Glare Analysis & Visual Impact Assessment..... 19

Introduction

Our Request

SDG IL DG, LLC (the “Applicant”) requests approval of a Solar Farm Development Permit for a 2-megawatt alternating current (MW-AC) / 3-megawatt direct current (MW-DC) community solar energy facility (the “Project”) in unincorporated Montgomery County, Illinois. The Project will be a ground-mounted, tracking solar array located on no greater than 15 acres of a 27.42-acre parcel along E Clark St, west of Yaeger Lake Tr (APN 10-34-100-019). The Applicant has entered into a lease agreement with the property owner, Elm Lawn Memorial Park, Inc., for the portion of the parcel needed for the proposed facility (see **Appendix A**).

The Project will have a nameplate capacity of 2 MW-AC, delivering renewable energy to the Ameren Illinois distribution grid. It is sized and designed to be eligible for Illinois’s community solar programs established under the Climate and Equitable Jobs Act (Public Act 102-0662), expanding access to renewable energy for local homes and businesses, including low- and moderate-income households.

Subject Site and Context

The project parcel occupies both the north (Operational Area 1) and south (Operational Area 2) sides of E Clark St in southeastern Montgomery County, approximately 1.25 miles northeast of Downtown Litchfield. The parcel is currently used for agricultural purposes, just outside City of Litchfield jurisdictional boundary. Surrounding land uses include rural residences to the north, cemetery and wooded habitat to the east, farmland to the south, and the Wildflower subdivision to the west. Lake Lou Yaeger, a small recreational lake, is located to the northeast of the parcel. The site is generally flat within the proposed project area, consistent with the agricultural character of the surrounding landscape.

The Applicant has evaluated the site for environmental and physical constraints. The proposed project footprint avoids identified wetland features located at the northeast corner of the parcel, and the project will maintain appropriate buffers from these features throughout construction and operation. The parcel does not contain known floodplains (see **Appendix M**) or critical habitats within the proposed project footprint.

Applicant Overview

SDG IL DG, LLC is a solar energy development company focused on distributed generation solar projects in Illinois. The Applicant is committed to developing the Project in full compliance with all applicable federal, state, and local regulations and to working collaboratively with Montgomery County throughout the permitting process.

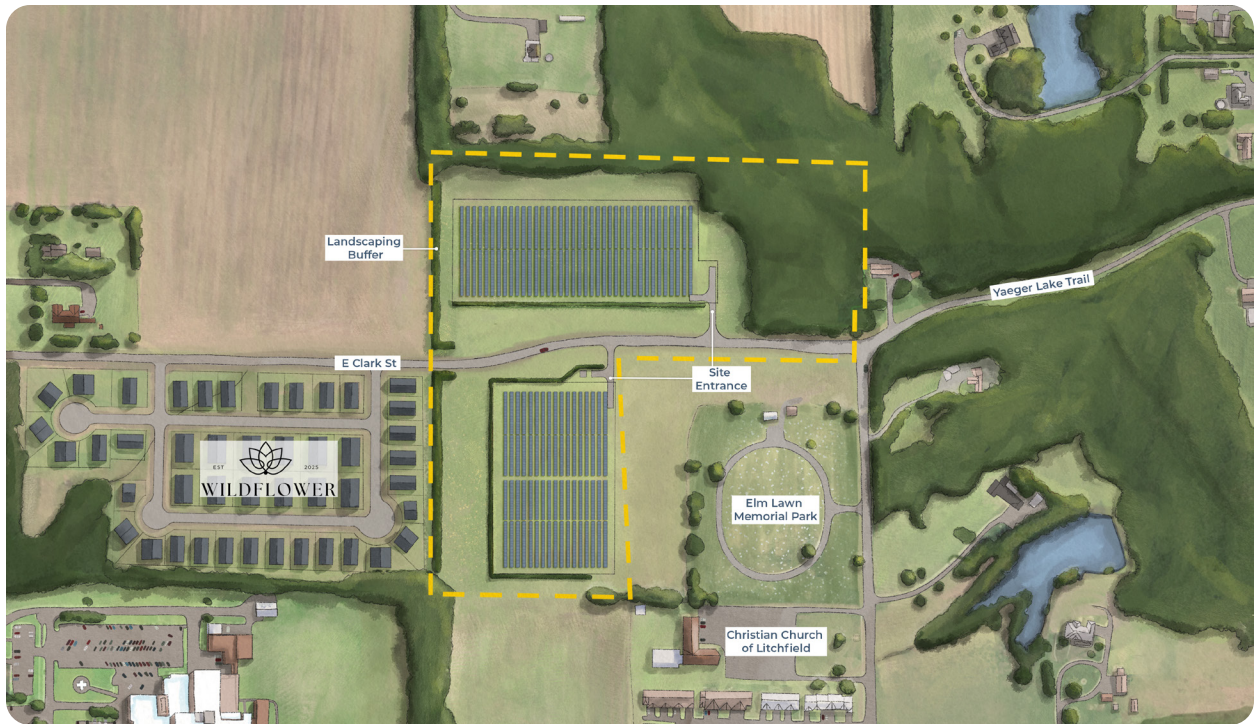


Fig 1. Illustrative site plan

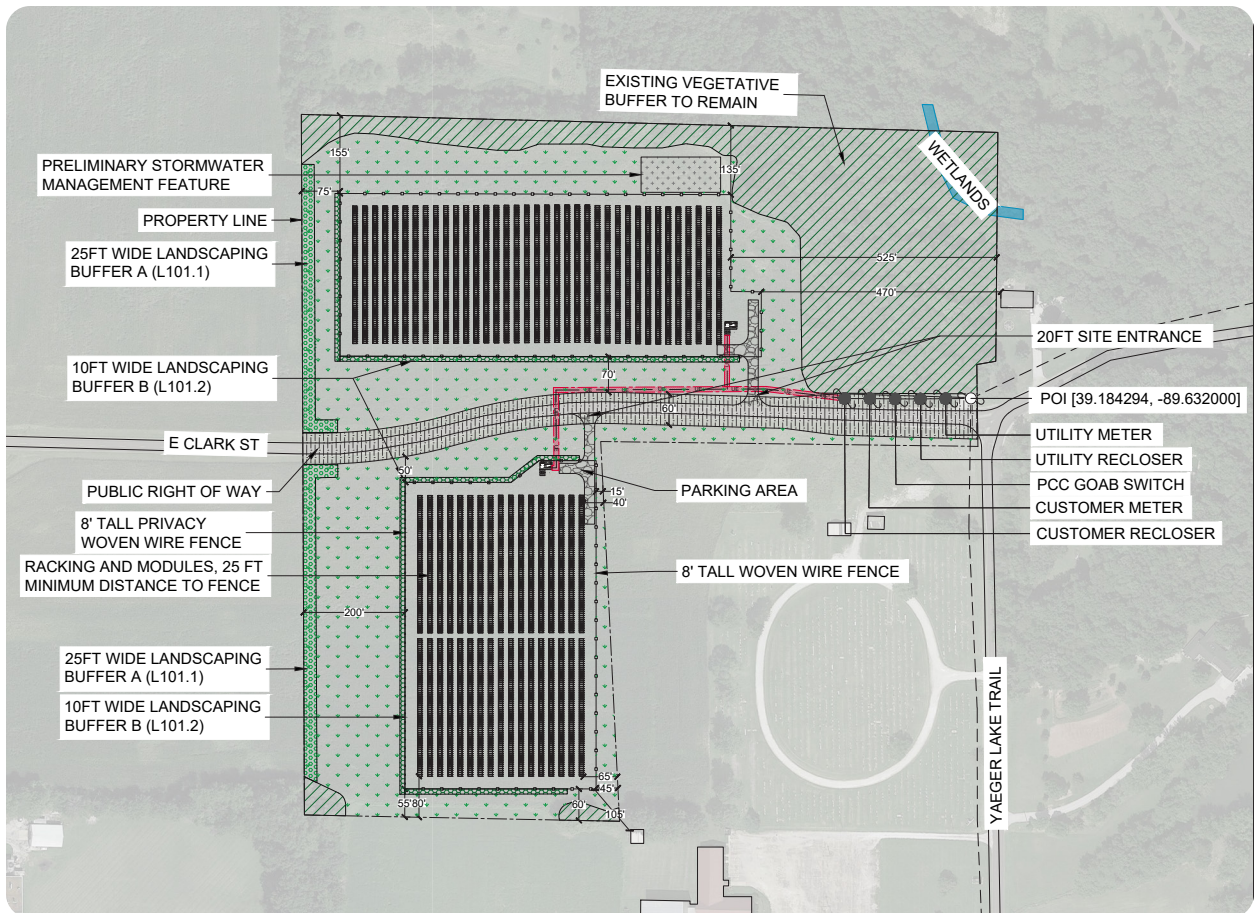


Fig 2. Site Plan (Sheet G101)

Project Details

Site Access

The site is split into two operational areas, #1 to the north and #2 to the south. Each will have access from E Clark St. Both driveways will consist of all-weather aggregate surface over geotextile fabric and accommodate maintenance and emergency vehicles.

Utility Connection

The Project will connect to Ameren Illinois's 12.47kV distribution system at a point of interconnection on E Clark St near Yaeger Lake Tr (see **Appendix B**). The Applicant will install the required on-site underground wiring to deliver electricity from the solar arrays to a step-up transformer and associated metering and switching equipment. Ameren Illinois will own and install five overhead utility poles along E Clark St to complete the interconnection, appearing as a visual extension of the existing overhead distribution infrastructure. As identified in Ameren's Level 4 Feasibility and System Impact Study (DER-63100), Ameren will upgrade approximately 1,000 feet of existing distribution line, benefiting local customers along this corridor. Ameren will perform all utility-side work in accordance with its interconnection standards. Electricity produced by this solar project will serve the Litchfield Substation.

System Components

Solar Panels. The Project will use bifacial, anti-reflective photovoltaic (PV) panels to maximize energy yield and minimize glare. All modules will feature tempered, anti-glare, non-reflective surfaces, consistent with Section F.2.h of the Solar Ordinance.

Racking. The Project will mount PV panels on a single-axis tracking system, engineered for durability and optimized for the site's solar exposure. No PV equipment will exceed 30 feet in height at full tilt, in compliance with state statute 55 ILCS § 5/5-12020(e)(5)

Inverters and Transformer. String inverters will convert DC electricity to AC, and two step-up transformers will adjust voltage for grid delivery. The Applicant will place this equipment on concrete pads within the fenced area, locating them to minimize impacts on adjacent properties.

Control System. The facility will use a monitoring system to track performance and allow for remote diagnostics and control.

Fencing. The Applicant will install an eight-foot woven security fence around the perimeter of the solar equipment, in accordance with Ordinance Section F.2.i. Fencing along the entire western side of Operational Area 2 will include privacy inserts to further conceal the project from view.

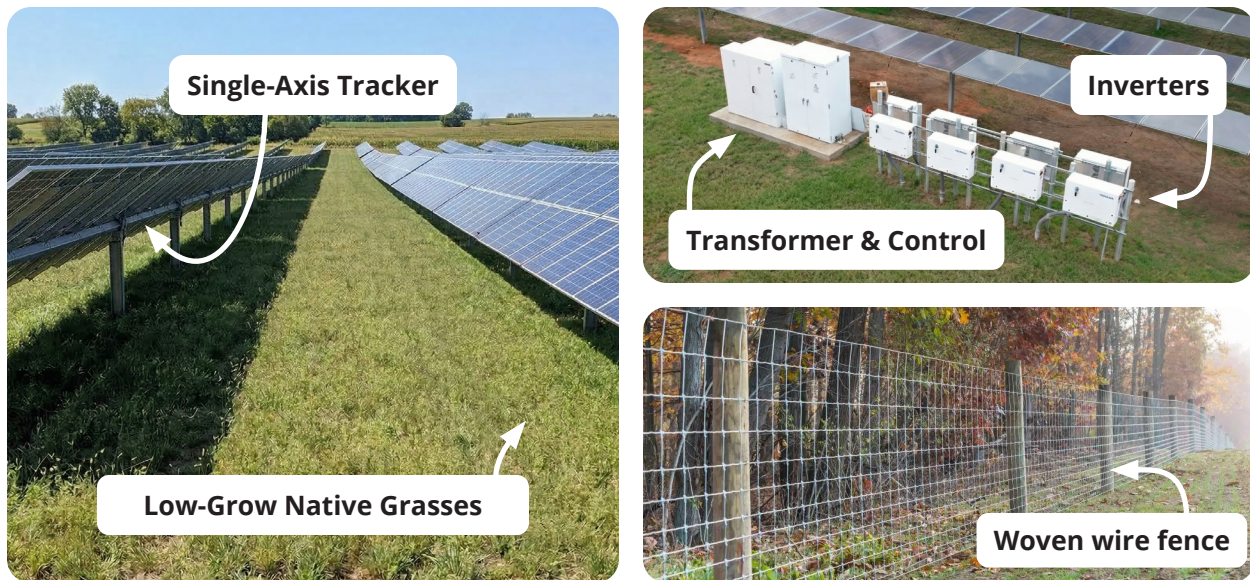


Fig 3. Examples of system components

Design Standards

Lot Coverage

The Ordinance exempts ground-mount solar systems from impervious surface calculations where the operator does not compact the soil under the collector and maintains it in vegetation (Section F.2.a). The Applicant will maintain perennial vegetative ground cover beneath and between the arrays, consistent with code.

Setbacks

The facility meets or exceeds Ordinance Section F.2.f and 55 ILCS 5/5-12020(e) with at least 50 feet from non-participating property lines and rights-of-way, and 150 feet from occupied dwellings. The Elm Lawn Cemetery property (PID: 10-34-100-016) is included in the Project's overall site plan (Sheet G102) as an adjoining parcel. As the landowner of both properties has consented to their treatment as one integrated project plan, the setback at this point of connection is reduced to 15 feet.

Height

All PV equipment will remain under 30 feet in height, measured from natural grade to the top of the solar panels at full tilt, as specified in the County ordinance Section C.9.

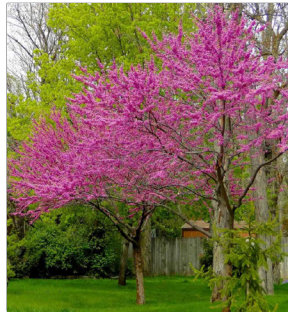
Landscaping

The Applicant will maintain vegetative buffers per Ordinance Section F.2.a and the landscaping commitments in the City of Litchfield Compensation and Waiver of Siting Authority Agreement (**Appendix N**). Sheet L101 shows a 25-foot-wide perimeter buffer of Serbian Spruce, Serviceberry, and Rising Sun Redbud (or similar species) along the western boundary, plus a single-row shrub screen along the fence line. A separate Habitat and Pollinator Buffer of native warm-season grasses will be established along the west property line. Existing tree cover outside the limits of disturbance will be preserved.

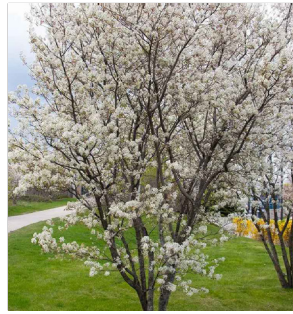
Proposed Landscaping Schedule

The following landscaping plan integrate both requirements from the County ordinance as well as special conditions dictated by the Applicant's agreement with City of Litchfield.

LANDSCAPING BUFFER WILL USE A VARIETY OF NATIVE SPECIES WITH EXISTING VEGETATION USED WHERE POSSIBLE. NATIVE POLLINATOR FRIENDLY VEGETATION WILL BE USED. SPECIES AND SEED MIXES LISTED ARE ILLUSTRATIVE EXAMPLES AND MAY BE SUBJECT TO CHANGE BASED ON REVIEW FROM SUPPLIERS ON FEASIBILITY AND AVAILABILITY.



Rising Sun Redbud



Serviceberry



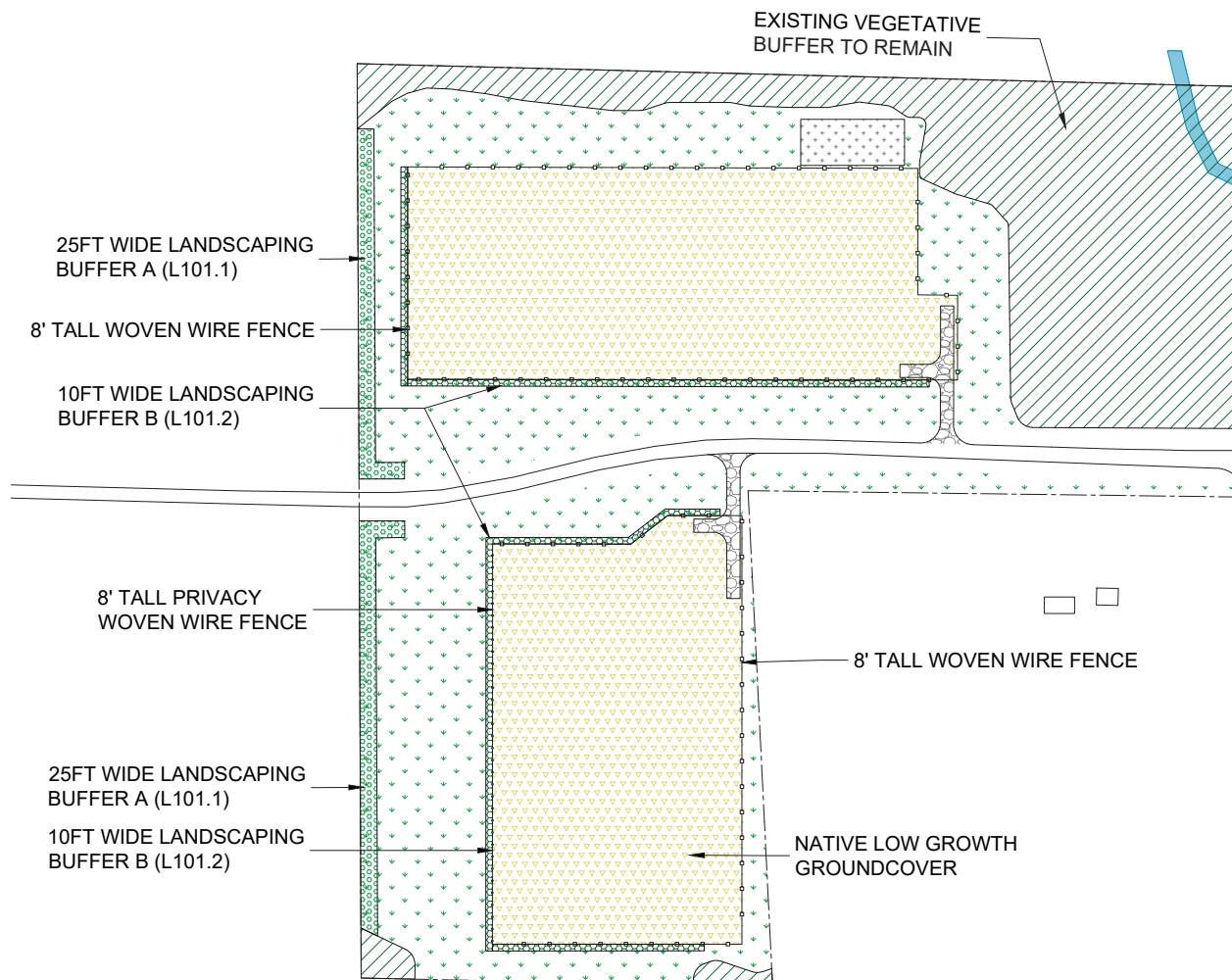
Serbian Spruce



Techny Arbovitae

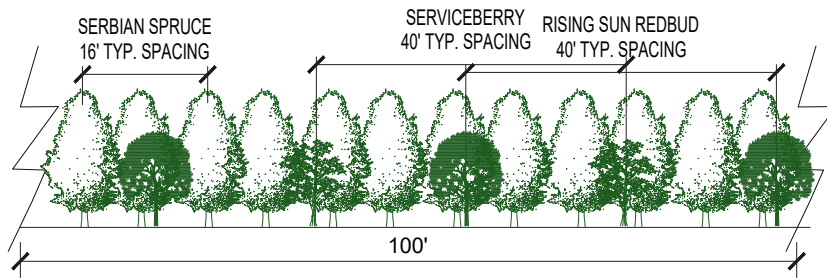
L101.4 :LANDSCAPING PLAN

SCALE: 1"=105'



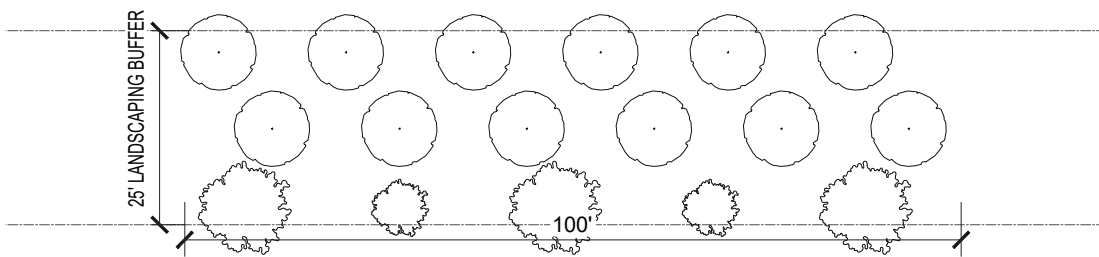
LANDSCAPE ELEVATION

SCALE: 1"=10'



LANDSCAPE PLAN

SCALE: 1"=10'



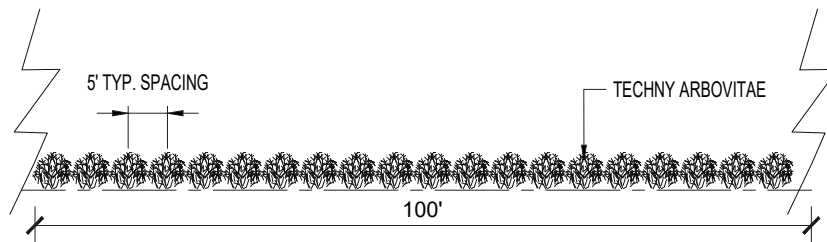
"Per one hundred (100) linear feet"

- 12 Serbian Spruce
- 3 Rising Sun Red Bud
- 2 Serviceberry
- Vegetative Groundcover

L101.2 :BUFFER OPTION B

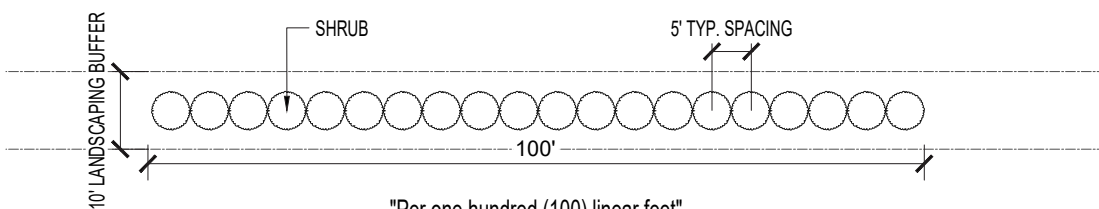
LANDSCAPE ELEVATION

SCALE: 1"=10'



LANDSCAPE PLAN

SCALE: 1"=10'



"Per one hundred (100) linear feet"

- 20 Techny Arbovitae
- Vegetative Groundcover

Project Management

Construction

Construction will begin once the Applicant secures all required federal, state, and local permits, including the Montgomery County Solar Farm Development Permit and Construction Permit. The buildout is expected to take approximately 6 to 9 months. Construction access will be from Yaeger Lake Trail via an existing or improved access road. The Applicant will coordinate any road use agreements with the appropriate road authority.

Prior to any ground disturbance, the Applicant will install erosion and sediment control measures in accordance with an approved Stormwater Pollution Prevention Plan (SWPPP) and Illinois EPA standards (see **Appendix C** for a Preliminary SWPPP). The Applicant will obtain an IEPA NPDES ILR10 general permit for stormwater discharges associated with construction activity. Measures may include silt fencing, sediment traps, and stabilized construction entrances to control runoff and protect nearby properties and waterways, including Yaeger Lake. A final SWPPP will be completed to reflect final designs for building permit submission.

Operation

The owner/operator will monitor the facility remotely and conduct periodic on-site inspections. Locked gates, warning signage, and an emergency contact posting will be maintained at the site entrance. Emergency shutdown procedures will be made available to local first responders. String inverters produce minimal sound during daytime operation and no sound at night.

Table A. Peak daily traffic estimates throughout the life of the Project

Phase	Duration	CDL Trips/Day	Non-CDL Trips/Day	Total Trips/Day
Site Preparation	2–4 weeks	2	5	7
Racking & Panel Delivery	2–6 weeks	5	20	25
Installation	8–16 weeks	1	30	31
Operation	35+ years	0	1	1
Decommissioning	6–8 weeks	8	20	28

Note: Some construction phases may overlap. CDL = Commercial Driver's License. Trip counts represent peak daily estimates.

Decommissioning

The Applicant has submitted a decommissioning plan (also referred to as a deconstruction plan; see **Appendix D**) consistent with the Illinois Department of Agriculture's (IDOA) standard Solar Agricultural Impact Mitigation Agreement (AIMA) template in effect on December 31, 2022, as required by Section G.2 of the Ordinance. On March 4, 2026, the Applicant and IDOA entered into an AIMA (see **Appendix E**)

The anticipated operational life is 35-40 years. At the end of its useful life, all above-ground and below-ground components will be removed and the site restored for agricultural use. Financial assurance will be provided through escrow payments deposited with Montgomery County. The County may reevaluate the estimated deconstruction costs after 10 years of commercial operation, and every five years after that.



Site Prep

Stake, install erosion control, build access drive, clear/spot grade.



Seed as needed

Seed to reestablish groundcover before pile delivery.



Deliver piles/racking

Flatbed trucks deliver piles and racking pieces.



Install posts

GPS enabled pile driver installs posts.



Assemble racking

Construction workers assemble racking.



Deliver modules

Flatbed trucks deliver solar modules.



Module installation

Workers install and wire panels, inverters, and transformer.



Interconnection

Test and connect the facility to the grid for power distribution.

Fig 4. General construction sequence

Adherence to Zoning Code

Ordinance for Solar Energy Farm and Solar Garden Installations

Montgomery County first adopted a solar ordinance in 2018 with multiple revisions in the interim, including the most recent from March 10, 2026. Tables B and C summarize the Project's adherence and compliance with the ordinance.

Table B. Requirements for Principle Use Solar Farms (Section E)

Subsection	Statement of Adherence
1. Approved Solar Components.	The Applicant will install solar modules, inverters, and racking components that carry UL listing or an approved equivalent certification. All photovoltaic modules will hold UL 61730 (or UL 1703) certification. String inverters will carry UL 1741 certification. The Nextracker NX Gemini single-axis tracker racking system holds UL 2703 / UL 3703 / IEC 62817 certification. The Applicant will confirm all component certifications and submit specification sheets to the County prior to construction as part of the building permit application.
2. Compliance with Building Code.	The Applicant will design, construct, and commission the Elm Lawn Solar Park in compliance with the International Building Code, as amended. The Applicant will obtain approval from the county building code official consistent with the building codes in existence at the time of application. Full code compliance documentation will be addressed at the building permit stage.
3. Compliance with State Electric Code.	The Applicant will design and install the photovoltaic system in compliance with the National Electrical Code (NEC), as amended. A licensed Professional Engineer will prepare and seal the electrical design drawings. Sheets E101 and E102 include an electrical plan and single-line diagram details that conform to NEC Article 690 (Solar Photovoltaic Systems) and Article 705 (Interconnected Electric Power Production Sources).
4. Compliance with State Plumbing Code.	This requirement does not apply to the Elm Lawn Solar Park. The Project does not include solar thermal systems or any components that interface with plumbing infrastructure. No hot water systems are proposed as part of this installation.
5. Compliance with State Energy Code.	The Applicant will design and install the photovoltaic system in compliance with the Illinois State Energy Code. All solar modules, inverters, and associated electrical equipment will meet or exceed the performance and safety standards prescribed by the Code.

Table B. Requirements for Principle Use Solar Farms (Section E)

Subsection	Statement of Adherence
6. Compliance with State Drainage Laws.	The Applicant will design and operate the Elm Lawn Solar Park in compliance with all applicable State Drainage Laws. Appendix C includes a preliminary Stormwater Pollution Prevention Plan (SWPPP). The plan addresses stormwater conveyance through a northeast stormwater feature and accounts for identified wetland features on the Property. The Applicant will finalize the SWPPP following completion of field surveys and wetland delineation, and will obtain coverage under IEPA General NPDES Permit No. ILR10 prior to initiating construction.
7. Utility Notification.	The Applicant has completed the Ameren Illinois interconnection study process for the Elm Lawn Solar Park (DER-63100). The Project will interconnect to Ameren Illinois's 12.47 kV distribution system on the Litchfield N95-823 feeder. The Applicant will execute all interconnection agreements and complete all utility-required upgrades prior to energizing the facility (see Appendix B).
8. Agricultural Protection.	The Applicant has executed an Agricultural Impact Mitigation Agreement (AIMA) with the Illinois Department of Agriculture (IDOA) pursuant to the Renewable Energy Facilities Agricultural Impact Mitigation Act (505 ILCS 147). The AIMA (see Appendix E) establishes minimum standards for topsoil segregation, rock removal, drainage tile repair, weed control, and site restoration during construction and decommissioning. The Applicant will file the executed AIMA with the County prior to commencement of construction and will incorporate all AIMA provisions into the construction and decommissioning plans.
9. Endangered Species and Wetlands.	The Applicant has initiated consultation with the Illinois Department of Natural Resources (IDNR) through the Ecological Compliance Assessment Tool (EcoCAT). The IDNR review (see Appendix F) identified no records of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the Project. The Applicant consulted the USFWS Information for Planning and Consultation (IPaC) tool, showing the project is outside any wildlife protection areas (see Appendix G).
10. Stormwater and NPDES	The Applicant will obtain coverage under the Illinois General NPDES Permit for Storm Water Discharges from Construction Site Activities (ILR10) prior to initiating Project construction. The Project disturbs more than one acre of land and therefore triggers NPDES permitting requirements. The Applicant has prepared a preliminary SWPPP that identifies structural and non-structural best management practices (BMPs) including silt fencing, stabilized construction entrances, sediment basins, and erosion control blankets. The Applicant will finalize the SWPPP and file a Notice of Intent (NOI) with IEPA prior to any soil-disturbing activities.

Table C. Requirements for Principle Use Solar Farms (Section F.2.)

Subsection	Statement of Adherence
a. Ground Cover and Buffer Areas.	Top soils will not be removed during development. The Applicant will plant and maintain the site in perennial, native vegetation to prevent erosion, manage runoff, and build soil, in compliance with the Illinois Noxious Weed Law (505 ILCS 100) and the Illinois Endangered Species Protection Act (520 ILCS 10/11(b)). A managed vegetative buffer will be maintained around the exterior perimeter of fencing and gates at all times. Per the site plan (Sheets G101/L101) and Appendix N a 25-foot-wide perimeter buffer (Buffer A) of Serbian Spruce, Serviceberry, and Rising Sun Redbud along the west side of both operational areas; a single-row shrub screen along the project fence line; 10-foot-wide landscaping (Buffer B) along both sides of E Clark St; a Habitat and Pollinator Buffer of native warm-season grasses along the west property line; and preserved existing vegetation to the north and east of Operational Area 1. Ground-mount areas with non-compacted soil maintained in vegetation are exempt from impervious surface calculations. Access roads use crushed aggregate on geotextile fabric with 2–4% slope for proper drainage.
b. Foundations.	Prior to construction, a qualified Illinois-licensed Professional Engineer will certify that the foundation and design of the solar panel racking and support is within accepted professional standards given local soil and climate conditions. The project utilizes single-axis tracker racking systems with driven steel piles. The maximum panel height will not exceed twenty (20) feet at full tilt (55°), well within the 30-foot ordinance maximum. Racking details are shown on Sheet Q501.
c. Other Standards and Codes.	The Project will comply with all applicable local, state, and federal regulatory codes, including: the International Building Code (as amended), the National Electric Code (as amended), the Illinois State Energy Code, all County building codes in effect at the time of application, ANSI standards, and UL listings (or approved equivalent). All solar energy system components will have a UL listing or approved equivalent. The inverter equipment is compliant with IEEE 1547 and UL 1741 per the Ameren feasibility study.
d. Power and Communication Lines.	Power and communication lines running between banks of solar panels and to the point of interconnection (POI) will be buried underground per the National Electric Code. The site plan (Sheet G101/E102) shows both underground and overhead interconnection paths. Underground electrical lines run from the inverters/MV transformers to the POI area near Yaeger Lake Trail. The overhead interconnection connects to the existing 12.47kV Ameren distribution line (Circuit N95-823). The POI is located at coordinates [39.184294, -89.632000].

Table C. Requirements for Principle Use Solar Farms (Section F.2.)

Subsection	Statement of Adherence
e. Site Plan Required.	A detailed site plan has been prepared by ESA Solar Energy, LLC, sealed by David K. Click, PE (IL License #062.076524, NABCEP PVIP #041704-8). The plan set (dated August 13, 2026) includes: Cover Sheet (G001), General Notes (G002), Site Plan (G101) at 1"=105' scale, Project Area Plan (G102) with adjacent property owners identified by PID, Contour Map (C101) showing existing topography (200'-210' elevation), Traffic Turning Plan (C103) for semi-trailer truck access, Landscaping Plan (L101) with buffer and species details, Racking Details (Q501), Panel Specifications (Q502), Single Line Diagram (E101), and Electrical Plan (E102). The plans show location of all solar arrays, property lines, rights-of-way, fencing, access roads, wetlands, topography, stormwater features, setback dimensions, and all electric equipment.
f. Setbacks.	The project meets or exceeds all required setbacks per the ordinance. Per the site plan (Sheet G101): the project maintains a 50-foot minimum setback from all non-participating property lines; a 50-foot minimum setback from the right-of-way of Yaeger Lake Trail and E. Clark Street; and a 150-foot minimum setback from the nearest occupied (or planned) dwelling. Elm Lawn Cemetery (PID: 10-34-100-016) is under common ownership with the project parcel and is included as a participating property; per Section F.2.f, the 50-foot setback does not apply at the point of connection between adjoining participating properties. The setback from the cemetery boundary to the perimeter fence is 15 feet or more. All setbacks are measured from the exterior of the required perimeter fencing.
g. Aviation Protection.	The project site is not located within 500 feet of an airport or within approach zones of an airport (see Appendix H for FAA Notice Criteria). Solar glare analysis is not required, but the Applicant has included one as Appendix I .
h. Glare.	The solar panels will have tempered, anti-glare, non-reflective surfaces (per General Note #5, Sheet G002).
i. Safety Fencing	An 8-foot-high woven fence will be installed around the entire exterior perimeter of the solar farm, on the interior side of the vegetative buffer (per General Note #2, Sheet G002). The Applicant will install a privacy fence along the entire western side of Operational Area 2 (noted on Sheet L101). Fencing will be maintained in serviceable condition for the life of the project and will remain in place until the facility is decommissioned.
j. Gates and Locks.	Gates will be equipped with locks and will remain locked at all times except during authorized ingress/egress or when the owner/operator or their agents are present and monitoring the facility. An emergency contact name and phone number will be posted at the point of access (per Section D.6 of the ordinance).

Findings of Fact

The Montgomery County application requires the Applicant to address four specific questions regarding the proposed Project. The Applicant's responses to each are provided below.

Q1: Will the proposal protect public health, safety, welfare, and the physical environment?

Yes. The Applicant designed and sited the Project, and will operate it, to protect public health, safety, welfare, and the environment. Solar PV systems generate electricity from sunlight without combustion, emissions, fuel storage, or water use. Research from the NC State University Clean Energy Technology Center (**Appendix J**) shows modern solar panels pose no meaningful risk of toxicity, EMF exposure, fire, or shock under normal operation, since manufacturers encapsulate them in tempered glass and sealed frames that prevent trace-material leaching. All equipment will carry UL listing or an approved equivalent and meet IEEE standards, and the Applicant will comply with the International Building Code and National Electric Code. The Applicant will install security fencing, locked gates, and warning signage, post an emergency contact at the site entrance, and coordinate with local emergency services on safety training and materials. The Applicant will preserve topsoil and revegetate disturbed areas with perennial, pollinator-friendly groundcover under the Illinois Pollinator-Friendly Solar Site Act (525 ILCS 55) and IDNR guidance, and will manage stormwater under an approved SWPPP and NPDES ILR10 permit. IDNR's EcoCAT consultation (**Appendix F**) and the USFWS IPaC review (**Appendix G**) confirm the Project will not adversely affect endangered species or sensitive habitats; IDNR terminated the consultation with no further action required.

Q2: Will the proposal negatively impact the value of neighboring property?

No. MaRous & Company prepared a market impact analysis specifically for the Project (see **Appendix K**) and concluded that no market data indicates the Project will have a negative impact on rural residential or agricultural property values in the surrounding area. MaRous & Company has conducted market impact studies for more than 45 years and has advised on more than 120 solar, wind, and battery storage projects nationwide. The firm based its conclusion on matched-pair sales comparisons at existing Illinois solar farms, including projects in Clay, LaSalle, Perry, and Logan counties. The analysis also reviewed residential sales located as close as 165 feet from operating photovoltaic panels and included interviews with more than 150 assessors, assessment officials, and real estate professionals across twelve states, none of whom identified any resulting reduction in residential assessed valuations.

The study specifically examined market data for the proposed Wildflower Subdivision west of the Project and found no evidence that the Project will affect that development. The Project's setbacks (50 feet from property lines, 150 feet from dwellings), perimeter fencing, and maintained vegetative buffers will further provide visual and physical separation from neighboring properties. The City of Litchfield has acknowledged, in a signed agreement (**Appendix N**), that the Project has no adverse impact on neighboring property, conditioned on the Applicant's monetary consideration and landscaping obligations.

Q3: Will the proposal negatively impact public utilities and traffic circulation?

No. Once operational, the Project will generate minimal traffic. Routine maintenance will require, at most, a few vehicle trips per month, comparable to typical agricultural activity on the parcel. The facility will operate autonomously with remote monitoring and will not require on-site staff. During the construction phase (approximately 6–9 months), the Applicant anticipates temporary and manageable construction traffic along E Clark St. The Applicant does not anticipate any oversized or overweight loads. The **Table A** on page 10 summarizes the Applicant's peak daily traffic estimates throughout the life of the Project. With respect to public utilities, the Project will interconnect with the existing Ameren Illinois distribution system and will not require upgrades to public water, sewer, or other municipal utility infrastructure. The facility will improve local grid reliability by generating clean energy close to the point of consumption.

Q4: Will the proposal impact nearby facilities such as schools, hospitals, or airports?

No. The Project will not adversely impact nearby schools, hospitals, or airports. The nearest hospital, HSHS St. Francis Hospital, is located approximately 1,000 feet southwest of the project site. The passive nature of solar operations (no combustion, no emissions, no hazardous materials storage, no significant noise, and no increase in sustained traffic) means the Project will not interfere with hospital operations or emergency access routes. The nearest public schools are located approximately 1 mile from the project site. The Applicant has completed the FAA Notice Criteria Tool screening for the Elm Lawn site (coordinates 39.184913, -89.634755), which confirms that the Project does not exceed notice criteria for proximity to aviation facilities. The Litchfield Municipal Airport is located approximately 2 miles west of the site. The FAA tool result is included as **Appendix H**. Given the distances involved and the passive nature of solar operations, the Project will have no impact on any nearby school, hospital, or airport.

Additional Plans & Analysis

Vegetation Management Plan

1. Vegetation Goals

The Applicant will establish and maintain native grass and prairie vegetation within the solar array to minimize erosion, maintain low-growing ground cover compatible with facility operations, promote soil health and pollinator habitat, and comply with the Illinois Pollinator-Friendly Solar Site Act (525 ILCS 55), the Illinois Noxious Weed Law (505 ILCS 100), and IDNR recommendations.

2. Recommended Seed Mix

The Applicant will seed under-array areas with a native cool-season grass base (including Virginia Wildrye, Canada Wildrye, Prairie Junegrass, and Cluster Fescue) to establish rapid ground cover and long-term soil stabilization. The Applicant will supplement this base with compatible warm-season grasses and native forbs consistent with Natural Resources Conservation Service (NRCS) Practice Code 327 (**Appendix L**) to improve habitat value and ecological diversity as the stand matures. Perimeter landscaping buffers will follow the separate species palette detailed in the Landscaping Plan (Sheet L101). Species and seed mixes listed are illustrative and may change based on supplier availability and consultation with the Montgomery County Soil and Water Conservation District (SWCD).

3. Establishment and Maintenance

The Applicant will prepare the site by removing existing vegetation through mowing, herbicide application, or other standard methods, and will seed during late fall or early spring consistent with NRCS planting windows. The Applicant will test soil pH prior to seeding and apply phosphorus, potassium, and lime as needed (but will not apply nitrogen) per NRCS guidance. During the first two growing seasons, the Applicant will mow three to four times per season to control broadleaf weeds, keeping mowing height above the native grass canopy and never below 10 inches in the second year. Native warm-season grasses typically require three to five years to fully establish; the Applicant will not consider a stand unsuccessful until after the third growing season.

4. Long-Term Vegetation Management

Once established, the Applicant will mow one to two times per year and conduct seasonal inspections for invasive or noxious weed management. The Applicant will manage all vegetation in compliance with the AIMA, the Illinois Noxious Weed Law (505 ILCS 100), and Section F.2.a of the Montgomery County Solar Ordinance, using licensed pesticide applicators for any chemical weed control.

USFWS Information for Planning and Consultation (IPaC)

This project occurs within a region that serves as potential habitat for the Endangered Indiana Bat and the Proposed Endangered Tricolored Bat, both of which rely on wooded corridors for roosting and foraging. To eliminate the risk of habitat loss or direct impact on these species, the facility's site plan strictly avoids any clearing of existing trees. Furthermore, by requiring only minimal site work and maintaining existing topography, the project protects the soil integrity of the region and prevents the disruption of local drainage patterns that might affect off-site aquatic habitats (see **Appendix G**).

To promote best practices specific to this region, the project will increase and enhance native vegetation, including polinator plan species which, directly address the conservation needs of the Monarch Butterfly, which is a candidate for federal listing and is known to be present in the area. The integration of native milkweed and nectar-rich forbs into the landscaping will promote a self-sustaining ecosystem that supports local biodiversity while meeting the standards of the Illinois Pollinator-Friendly Solar Site Act.

ForgeSolar Glare Analysis & Visual Impact Assessment

The Applicant conducted a glare analysis using the ForgeSolar Radiometric Physics Engine (v3.1.0). Sensitive potential observers include drivers along E. Clark Street, existing and future residential neighbors to the south and west, and hospital occupants to the southwest.

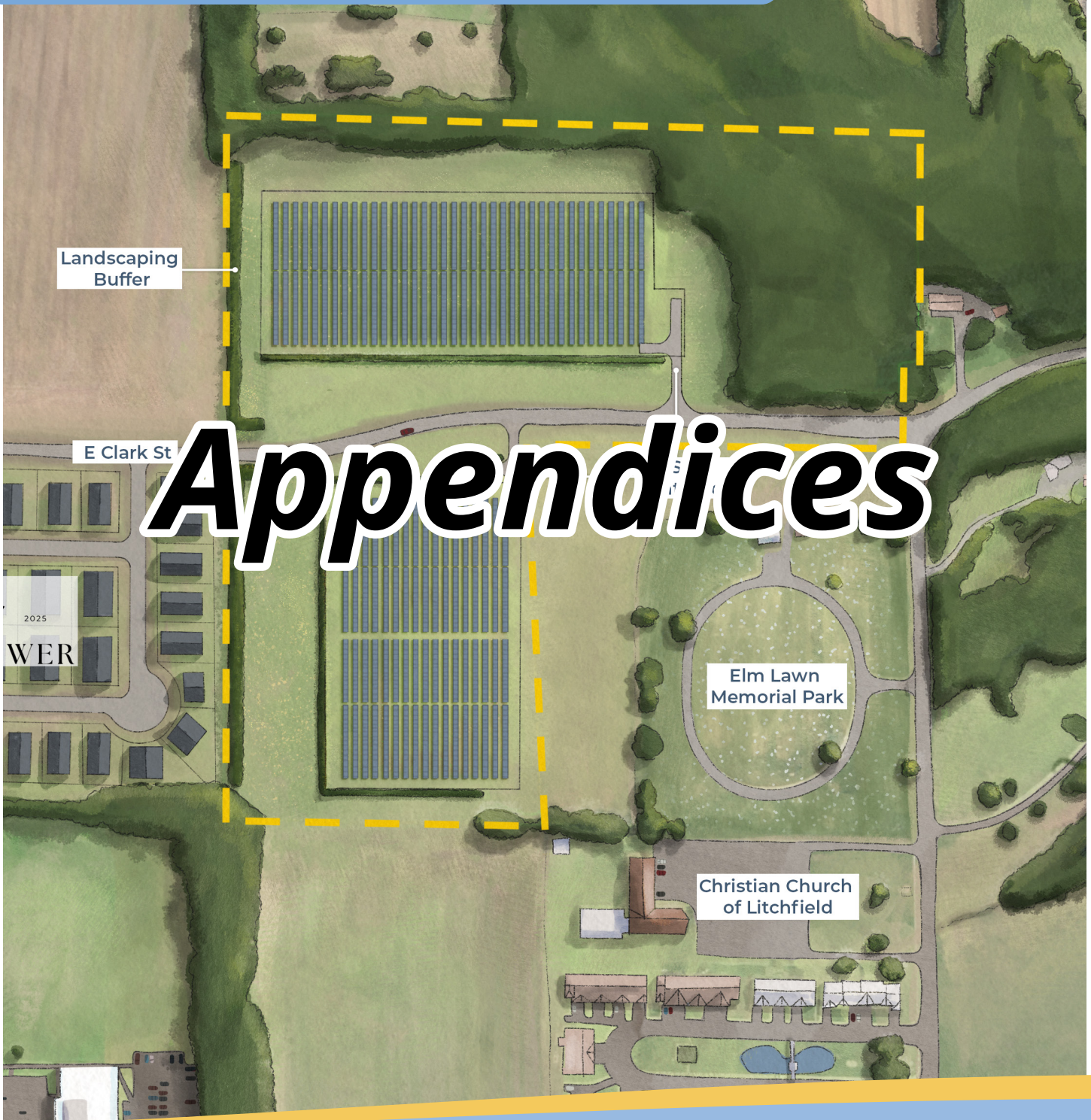
The Glare Analysis (see **Appendix I**) confirms that the project is not expected to produce any glare (green or yellow) at any receptor. Zero minutes of annual glare were predicted for project across all four airport flight paths, the E. Clark Street route receptor, and all thirteen discrete observation points representing nearby and future residences.

The Applicant also rendered the project into existing-conditions photographs to evaluate the potential for glare or visual impact.

Pages 8 and 9 of this Narrative include renderings of the project site from key vantage points along E. Clark Street. Aspects of the project will be visible from certain locations; however, a combination of native landscape buffering and the 8-foot woven wire perimeter fencing soften the visual impact of the system and contribute positively to the site's character and appearance.

Elm Lawn Solar Park

Request for Solar Farm Development Permit
Montgomery County, IL





March 2026

Elm Lawn Solar Park

Montgomery County, IL

Solar Farm Development Permit Application Appendices

Applicant:

SDG IL DG, LLC
2250 Lucien Way, Suite 305
Maitland, FL 32751

Contacts/Agents:

Luis Gonzalez, Project Development Manager (lgonzalez@esa-solar.com)
Wes Shaffer, Director of Planning & Engagement (wshaffer@esa-solar.com)

Contents

Appendix A: Lease Memorandum.....5

Appendix B: Interconnection Agreement..... 13

Appendix C: Preliminary Stormwater Pollution Prevention Plan (SWPPP) 55

Appendix D: Decommissioning Plan..... 91

Appendix E: Agricultural Impact Mitigation Agreement.....99

Appendix F: EcoCAT Consultation 117

Appendix G: IPaC Consultation.....123

Appendix H: FAA Pre-screening Results135

Appendix I: ForgeSolar Glare Analysis..... 139

Appendix J: Health and Safety Impacts of Solar PV155

Appendix K: Market Impact Analysis..... 179

Appendix L: NRCS Practice Code 327 381

Appendix M: FIRMette.....387

Appendix N: Compensation and Waiver of Siting Authority Agreement..... 391



Appendix A:

Lease Memorandum

202500001539
Filed for Record in
MONTGOMERY COUNTY, IL
SANDY LEITHEISER
06/11/2025 11:05 AM
DT0027 70.00
RHSP Surcharge 18.00
Page Count: 6

SPACE ABOVE THIS LINE FOR RECORDER'S USE

Prepared by &

Return to: Attn: Brent Silvester
SDG IL DG, LLC, LLC
2250 Lucien Way, Suite 305
Maitland, FL 32751
Phone: 407-232-7440

MEMORANDUM OF ENERGY OPTION AND LAND LEASE

THIS MEMORANDUM OF ENERGY OPTION AND LAND LEASE ("Memorandum") executed as of the 28 day of May, 2025 by and **ELM LAWN MEMORIAL PARK, INC.**, an Illinois corporation ("**Lessor**" or "**Grantor**"), and **SDG IL DG, LLC**, a Delaware limited liability company ("**Lessee**" or "**Grantee**"). Lessor and Lessee may hereafter be referred to as, together, the "**Parties**".

RECITALS

A. Lessor and Lessee have entered into a certain a Energy Option and Land Lease ("**Lease**"), dated May 28, 2025 ("**Effective Date**"), whereby Lessor has agreed to lease to Lessee certain real property, together with access easement rights and an easement for the free and unobstructed collection and conversion of solar energy across said premises in Montgomery County, Illinois, bearing parcel identification number 10-34-100-019, and being more particularly described on the attached Exhibit A ("**Premises**").

B. The Parties desire to enter into and record this Memorandum so that third parties will have notice of the interests of the Lessee in the Premises. Capitalized terms used in this, but not otherwise defined in this Memorandum shall have the meanings ascribed to them in the Lease.

NOW, THEREFORE, in consideration of the mutual covenants and obligations of the Parties contained in this Memorandum and in the Lease, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Lessor and Lessee have entered into the Lease to lease and demise the Premises for solar energy purposes and to grant access and solar easements, which include prohibiting any

obstruction to the open and unobstructed access to the sun ("**Solar Easement**") throughout the entire Premises to and for the benefit of the area existing horizontally three hundred and sixty degrees (360°) from any point where any "**Solar Facility**" is or may be located at any time from time to time (each such point referred to as a "**Site**") and for a distance from each Site to the boundaries of the Premises, together vertically through all space located above the surface of the Premises, that is, one hundred eighty degrees (180°) or such greater number or numbers of degrees as may be necessary to extend from each point on and along a line drawn along the surface from each point along the exterior boundary of the Premises through each Site to each point and on and along such line to the opposite exterior boundary of the Premises. Pursuant to the Lease, Lessee has the exclusive right to use the Premises for solar energy purposes, together with certain related solar, access and other easement rights and other rights related to the Premises, all as more fully described in the Lease.

2. The initial term of the Lease ("**Option Period**") commences on the Effective Date and continues for a period of five years. If, prior to the expiration of the Option Period, Lessee has provided written notice to Lessor that it elects to extend the Lease term, the Lease shall be automatically extended for the Extended Term. The Extended Term shall commence on the Extended Term Date included in the Option Notice and continue until a date that is 20 years after the Extended Term Date unless sooner terminated in accordance with the terms of the Lease. Lessee has the right and option to extend the Extended Term for four additional periods of five years (each a "**Renewal Term**").

3. Subject in all respects to the terms and conditions of the Lease, Lessor has agreed that, from and after the Effective Date of the Lease, any right, title or interest created by Lessor in favor of or granted to any third party shall be subject to (i) the Lease and all of Lessee's rights, title and interests created thereby, (ii) any lien of any lender of Lessee's then in existence on the leasehold estate created by the Lease, and (iii) Lessee's right to create a lien in favor of any lender of Lessee's.

4. Lessee and any successor or assign of Lessee has the right under the Lease, without need for Lessor's consent, to do any of the following, conditionally or unconditionally, with respect to all or any portion of Lessee's right, title or interest in the Lease: hypothecate, mortgage, grant or pledge, or assign, sublease, transfer, or convey, provided that (i) any such assignment, transfer or conveyance shall not be for a period beyond the Term of the Lease; (ii) the assignee or transferee shall be subject to all of the obligations, covenants and conditions applicable to the Lessee; and (iii) Lessee shall be fully relieved from liability as to the rights, title and interest and obligations so assigned.

5. The solar photovoltaic power generating facility and/or energy storage facilities and all related equipment installed, owned and operated by Lessee and located at the Premises (collectively, the "**Facilities**") shall not be deemed a fixture. The Facilities are Lessee's personal property and Lessor has no right, title or interest in the Facilities. Further, Lessor has waived any and all rights it may have to place a lien on the Facilities.

6. The Premises shall be held, conveyed, assigned, hypothecated, encumbered, leased, used and occupied subject to the covenants, terms and provisions set forth in this Memorandum and in the Lease, which covenants, terms and provisions shall run with the Premises, and shall be binding upon and inure to the benefit of the Parties, and the Parties' respective heirs, executors, administrators, successors and assigns.

7. The terms and conditions of the Lease are incorporated by reference into this Memorandum as if set forth fully herein at length. In the event of any conflict between the terms and provisions of the Lease and this Memorandum, the Lease shall control.

8. Lessee is authorized to unilaterally correct typographical and scrivener's errors and add statements and information to this Memorandum to satisfy recording requirements, without obtaining Lessor's consent or signature, so long as such corrections and additions do not substantively affect the terms of the Lease or the rights or obligations of the parties. Lessee shall provide to Lessor a copy of the Memorandum with any such corrections and additions.

9. This Memorandum may be executed in counterparts, each of which shall be deemed an original and all of which when taken together shall constitute one and the same document.

[Signature page(s) follow]

IN WITNESS WHEREOF, each of the Parties hereto has caused this Memorandum to be duly executed as of the day and year first above written.

LESSOR:

ELM LAWN MEMORIAL PARK, INC., an Illinois corporation

Signature: Karl Krumsiek Pres./Sec.

Name: **KARL I. KRUMSIEK**

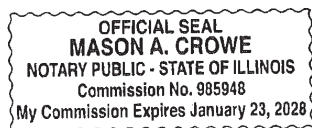
Title: **President & Secretary**

STATE OF ILLINOIS

ss.

COUNTY OF Christian

On the 22nd day of May, in the year 2025 before me, the undersigned, personally appeared **KARL I. KRUMSIEK**, in his capacity as **President & Secretary** of **ELM LAWN MEMORIAL PARK, INC.**, an Illinois corporation, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity and that by his/her signature on the instrument, the entity upon behalf of which the individual acted, executed the instrument.



Mason A. Crowe
Notary Public

Printed Notary Name: Mason A Crowe

My Commission Expires: 01/23/2028

Lessor's Signature Page to Memorandum of Lease

IN WITNESS WHEREOF, each of the Parties hereto has caused this Memorandum to be duly executed as of the day and year first above written.

LESSEE:

SDG IL DG, LLC, a Delaware limited liability company

By: _____

Name: _____

Title: _____

STATE OF FLORIDA)
) ss:
COUNTY OF ORANGE)

The foregoing instrument was acknowledged before me by means of ☒ physical presence or ☐ online notarization, this 28 day of May, 2025, by Morgan Brawner, the Manager, of **SDG IL DG, LLC**, a Delaware limited liability company, on behalf of such entity. Such person is ☒ personally known to me or ☐ has produced _____ as identification.

SM

(Signature of Notary Public)

Printed Name: Stacey Madden

My Commission Expires: 2/9/27

[Affix Notary Seal]



Lessee's Signature Page to Memorandum of Lease

Exhibit A

Legal Description

The following tracts or parcels of land, situated in Montgomery County, State of Illinois.

The Southeast Quarter of the Northwest Quarter of Section 34, Township 9 North, Range 5 West of the Third Principal Meridian,

EXCEPTING THEREFROM the following described real estate: Commencing at a stone located in the Southwest corner of the Northwest Quarter of the Northwest Quarter of Section 34, thence South 88°28' East 1343.1 feet; thence South 0°23'30" East 1344.34 feet; thence South 88°28' East 857.87 feet for a point of beginning; thence South 88°28' East 481.03 feet to the center of said Section; thence South 0°17' East 584 feet; thence North 88°28' West 493.1 feet; thence South 0°54' East 584.38 feet to the place of beginning,

ALSO EXCEPTING THEREFROM the following described real estate: Commencing on the South line of the Southeast Quarter of the Northwest Quarter of said Section 34, at the Southwest corner of Elm Lawn Cemetery, measure West 250 feet along the Quarter Quarter Section line to a point; thence North 733 feet along a line 250 feet West of and parallel to the West line of Elm Lawn Cemetery to a point; thence East 760 feet along a line 153 feet North of and parallel to the North line of Elm Lawn Cemetery to a point; thence South 153 feet (along the east line of Elm Lawn Cemetery extended northward) to the Northeast corner of Elm Lawn Cemetery; thence West along the north line of Elm Lawn Cemetery to the northwest corner of said Cemetery; thence South 580 feet along the west line of said Cemetery to the place of beginning, approximately 6 acres.

PARCEL ID NO.: 10-34-100-019 (27.42 acres)

E Clark Street, North Litchfield Township, IL 62056

Memorandum of Lease – Exhibit A



Appendix B:

Interconnection Agreement

STANDARD AGREEMENT FOR INTERCONNECTION OF DISTRIBUTED ENERGY RESOURCES FACILITIES WITH A CAPACITY LESS THAN OR EQUAL TO 10 MVA

This agreement (together with all attachments, the “Agreement”) is made and entered into this 03 day of March 2026, by and between **SDG IL DG, LLC** (“interconnection customer”), as a **Limited Liability Company** organized and existing under the laws of the State of **Delaware** and Ameren Illinois Company, (“Electric Distribution Company” or “EDC”), a corporation existing under the laws of the State of Illinois. Interconnection customer and EDC each may be referred to as a “Party”, or collectively as the “Parties”.

Recitals:

Whereas, interconnection customer is proposing to install or direct the installation of a distributed energy resources (DER) facility, or is proposing a generating capacity addition to an existing distributed energy resources (DER) facility, consistent with the interconnection request application form completed by interconnection customer on **06/27/2025**; and

Whereas, the interconnection customer will operate and maintain, or cause the operation and maintenance of, the DER facility; and

Whereas, interconnection customer desires to interconnect the DER facility with EDC's electric distribution system.

Now, therefore, in consideration of the premises and mutual covenants set forth in this Agreement, and other good and valuable consideration, the receipt, sufficiency and adequacy of which are hereby acknowledged, the Parties covenant and agree as follows:

Article 1. Scope and Limitations of Agreement

- 1.1 This Agreement shall be used for all approved interconnection requests for DER facilities that fall under Levels 2, 3 and 4 according to the procedures set forth in Part 466 of the Commission's rules (83 Ill. Adm. Code 466) (referred to as the Illinois Distributed Energy Resources Interconnection Standard).
- 1.2 This Agreement governs the terms and conditions under which the DER facility will interconnect to, and operate in parallel with, the EDC's electric distribution system.
- 1.3 This Agreement does not constitute an agreement to purchase or deliver the interconnection customer's power.
- 1.4 Nothing in this Agreement is intended to affect any other agreement between the EDC and the interconnection customer.

- 1.5 Terms used in this agreement are defined as in Section 466.20 of the Illinois Distributed Energy Resources Interconnection Standard unless otherwise noted.
- 1.6 Responsibilities of the Parties
- 1.6.1 The Parties shall perform all obligations of this Agreement in accordance with all applicable laws and regulations.
- 1.6.2 The EDC shall construct, own, operate, and maintain its interconnection facilities in accordance with this Agreement.
- 1.6.3 The interconnection customer shall construct, own, operate, and maintain its distributed energy resources (DER) facility and interconnection facilities in accordance with this Agreement.
- 1.6.4 Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for, the facilities that it now or subsequently may own unless otherwise specified in the attachments to this Agreement. Each Party shall be responsible for the safe installation, maintenance, repair and condition of its respective lines and appurtenances on its respective sides of the point of interconnection.
- 1.6.5 The interconnection customer agrees to design, install, maintain and operate its DER facility so as to minimize the likelihood of causing an adverse system impact on the electric distribution system or any other electric system that is not owned or operated by the EDC.
- 1.7 Parallel Operation Obligations
Once the DER facility has been authorized to commence parallel operation, the interconnection customer shall abide by all operating procedures established in IEEE Standard 1547 and any other applicable laws, statutes or guidelines, including those specified in Attachment 4 of this Agreement.
- 1.8 Metering
The interconnection customer shall be responsible for the cost to purchase, install, operate, maintain, test, repair, and replace metering and data acquisition equipment specified in Attachments 5 and 6 of this Agreement.
- 1.9 Reactive Power
- 1.9.1 Interconnection customers with a DER facility larger than or equal to 1 MVA shall design their DER facilities to maintain a power factor at the point of interconnection between .95 lagging and .95 leading at all times. Interconnection customers with a DER facility smaller than 1 MVA shall design their DER

facility to maintain a power factor at the point of interconnection between .90 lagging and .90 leading at all times.

- 1.9.2 Any EDC requirements for meeting a specific voltage or specific reactive power schedule as a condition for interconnection shall be clearly specified in Attachment 4. Under no circumstance shall the EDC's additional requirements for voltage or reactive power schedules exceed the normal operating capabilities of the DER facility.
- 1.9.3 If the interconnection customer does not operate the distributed energy resources (DER) facility within the power factor range specified in Attachment 4, or does not operate the distributed generation facility in accordance with a voltage or reactive power schedule specified in Attachment 4, the interconnection customer is in default, and the terms of Article 6.5 apply.

1.10 Standards of Operations

The interconnection customer must obtain all certifications, permits, licenses and approvals necessary to construct, operate and maintain the facility and to perform its obligations under this Agreement. The interconnection customer is responsible for coordinating and synchronizing the DER facility with the EDC's system. The interconnection customer is responsible for any damage that is caused by the interconnection customer's failure to coordinate or synchronize the DER facility with the electric distribution system. The interconnection customer agrees to be primarily liable for any damages resulting from the continued operation of the DER facility after the EDC ceases to energize the line section to which the DER facility is connected. In Attachment 4, the EDC shall specify the shortest reclose time setting for its protection equipment that could affect the DER facility. The EDC shall notify the interconnection customer at least 10 business days prior to adopting a faster reclose time on any automatic protective equipment, such as a circuit breaker or line recloser, that might affect the DER facility.

Article 2. Inspection, Testing, Authorization, and Right of Access

2.1 Equipment Testing and Inspection

The interconnection customer shall test and inspect its DER facility including the interconnection equipment prior to interconnection in accordance with IEEE Standard 1547 (2003) and IEEE Standard 1547.1 (2005). The interconnection customer shall not operate its DER facility in parallel with the EDC's electric distribution system without prior written authorization by the EDC as provided for in Articles 2.1.1-2.1.3.

2.1.1 The EDC shall perform a witness test after construction of the DER facility is completed, but before parallel operation, unless the EDC specifically waives the witness test. The interconnection customer shall provide the EDC at least 15 business days' notice of the planned commissioning test for the DER facility. If the EDC performs a witness test at a time that is not concurrent with the commissioning test, it shall contact the interconnection customer to schedule the witness test at a mutually agreeable time within 10 business days after the scheduled commissioning test designated on the application. If the EDC does not perform the witness test within 10 business days after the commissioning test, the witness test is deemed waived unless the Parties mutually agree to extend the date for scheduling the witness test, or unless the EDC cannot do so for good cause, in which case, the Parties shall agree to another date for scheduling the test within 10 business days after the original scheduled date. If the witness test is not acceptable to the EDC, the EDC shall deliver in writing a detailed technical description of all deficiencies of the DER facility identified by the EDC during the witness test. The interconnection customer has 30 business days after receipt of the written description to address and resolve any deficiencies. This time period may be extended upon agreement between the EDC and the interconnection customer. If the interconnection customer fails to address and resolve the deficiencies to the satisfaction of the EDC, the applicable cure provisions of Article 6.5 shall apply. The interconnection customer shall, if requested by the EDC, provide a copy of all documentation in its possession regarding testing conducted pursuant to IEEE Standard 1547.1.

2.1.2 If the interconnection customer conducts interim testing of the DER facility prior to the witness test, the interconnection customer shall obtain permission from the EDC before each occurrence of operating the DER facility in parallel with the electric distribution system. The EDC may, at its own expense, send qualified personnel to the DER facility to observe such interim testing, but it cannot mandate that these tests be considered in the final witness test. The EDC is not required to observe the interim testing or precluded from requiring the tests be repeated at the final witness test. During and leading up to the witness test, the EDC shall not limit the interconnection customer's ability to test the DER facility during normal working hours except for safety and reliability reasons.

- 2.1.3 After the DER facility passes the witness test, the EDC shall affix an authorized signature to the certificate of completion and return it to the interconnection customer approving the interconnection and authorizing parallel operation. The authorization shall not be conditioned or delayed and the EDC shall return the signed certificate of completion to the interconnection customer no more than 10 business days after the date that the DER facility passes the witness test.
- 2.2 Commercial Operation
The interconnection customer shall not operate the DER facility, except for interim testing as provided in Article 2.1, until such time as the certificate of completion is signed by all Parties.
- 2.3 Right of Access
The EDC must have access to the disconnect switch and metering equipment of the DER facility at all times. When practical, the EDC shall provide notice to the customer prior to using its right of access.

Article 3. Effective Date, Term, Termination, and Disconnection

- 3.1 Effective Date
This Agreement shall become effective upon execution by all Parties.
- 3.2 Term of Agreement
This Agreement shall become effective on the effective date and shall remain in effect unless terminated in accordance with Article 3.3 of this Agreement.
- 3.3 Termination
 - 3.3.1 The interconnection customer may terminate this Agreement at any time by giving the EDC 30 calendar days prior written notice.
 - 3.3.2 Either Party may terminate this Agreement after default pursuant to Article 6.5.
 - 3.3.3 The EDC may terminate, upon 60 calendar days' prior written notice, for failure of the interconnection customer to complete construction of the DER facility within 12 months after the in-service date as specified by the Parties in Attachment 2, which may be extended by agreement between the Parties.
 - 3.3.4 The EDC may terminate this Agreement, upon 60 calendar days' prior written notice, if the interconnection customer has abandoned, cancelled, permanently disconnected or stopped development, construction, or operation of the DER facility, or if the interconnection customer fails to operate the DER facility in parallel with the EDC's electric system for three consecutive years.
 - 3.3.5 Upon termination of this Agreement, the DER facility will be disconnected from the EDC's electric distribution system. Terminating this Agreement does not

relieve either Party of its liabilities and obligations that are owed or continuing when the Agreement is terminated.

- 3.3.6 If the Agreement is terminated, the interconnection customer loses its position in the interconnection queue.

3.4 Temporary Disconnection

A Party may temporarily disconnect the DER facility from the electric distribution system in the event one or more of the following conditions or events occurs:

- 3.4.1 Emergency conditions – shall mean any condition or situation: (1) that in the judgment of the Party making the claim is likely to endanger life or property; or (2) that the EDC determines is likely to cause an adverse system impact, or is likely to have a material adverse effect on the EDC's electric distribution system, interconnection facilities or other facilities, or is likely to interrupt or materially interfere with the provision of electric utility service to other customers; or (3) that is likely to cause a material adverse effect on the DER facility or the interconnection equipment. Under emergency conditions, the EDC or the interconnection customer may suspend interconnection service and temporarily disconnect the DER facility from the electric distribution system. The EDC must notify the interconnection customer when it becomes aware of any conditions that might affect the interconnection customer's operation of the DER facility. The interconnection customer shall notify the EDC when it becomes aware of any condition that might affect the EDC's electric distribution system. To the extent information is known, the notification shall describe the condition, the extent of the damage or deficiency, the expected effect on the operation of both Parties' facilities and operations, its anticipated duration, and the necessary corrective action.
- 3.4.2 Scheduled maintenance, construction, or repair – the EDC may interrupt interconnection service or curtail the output of the DER facility and temporarily disconnect the DER facility from the EDC's electric distribution system when necessary for scheduled maintenance, construction, or repairs on EDC's electric distribution system. The EDC shall provide the interconnection customer with notice no less than 5 business days before an interruption due to scheduled maintenance, construction, or repair, or the EDC shall provide notice immediately if the scheduled maintenance, construction, or repair is scheduled less than 5 business days in advance. The EDC shall coordinate the reduction or temporary disconnection with the interconnection customer; however, the interconnection customer is responsible for out-of-pocket costs incurred by the EDC for deferring or rescheduling maintenance, construction or repair at the interconnection customer's request.

- 3.4.3 Forced outages – The EDC may suspend interconnection service to repair the EDC's electric distribution system. The EDC shall provide the interconnection customer with prior notice, if possible. If prior notice is not possible, the EDC shall, upon written request, provide the interconnection customer with written documentation, after the fact, explaining the circumstances of the disconnection.
- 3.4.4 Adverse system impact – the EDC must provide the interconnection customer with written notice of its intention to disconnect the DER facility, if the EDC determines that operation of the DER facility creates an adverse system impact. The documentation that supports the EDC's decision to disconnect must be provided to the interconnection customer. The EDC may disconnect the DER facility if, after receipt of the notice, the interconnection customer fails to remedy the adverse system impact, unless emergency conditions exist, in which case, the provisions of Article 3.4.1 apply. The EDC may continue to leave the generating facility disconnected until the adverse system impact is corrected.
- 3.4.5 Modification of the DER facility – The interconnection customer must receive written authorization from the EDC prior to making any change to the DER facility, other than a minor equipment modification. If the interconnection customer modifies its facility without the EDC's prior written authorization, the EDC has the right to disconnect the DER facility until such time as the EDC concludes the modification poses no threat to the safety or reliability of its electric distribution system.
- 3.4.6 The EDC's compliance with Article 3 shall preclude any claim for damages for any lost opportunity or other costs incurred by the interconnection customer as a result of an interruption of service under Article 3. Any dispute over whether the EDC complied with Article 3 shall be resolved in accordance with the dispute resolution mechanism set forth in Article 8.

Article 4. Cost Responsibility for Interconnection Facilities and Distribution Upgrades

4.1 Interconnection Facilities

- 4.1.1 The interconnection customer shall pay, or reimburse the EDC, as applicable, for the cost of the interconnection facilities itemized in Attachment 3. The EDC shall identify the additional interconnection facilities necessary to interconnect the DER facility with the EDC's electric distribution system, the cost of those facilities, and the time required to build and install those facilities, as well as an estimated date of completion of the building or installation of those facilities.

- 4.1.2 The interconnection customer is responsible for its expenses, including overheads, associated with owning, operating, maintaining, repairing, and replacing its interconnection equipment.
- 4.2 **Distribution Upgrades**
The EDC shall design, procure, construct, install, and own any distribution upgrades. The actual cost of the distribution upgrades, including overheads, shall be directly assigned to the interconnection customer whose distributed energy resources (DER) facility caused the need for the distribution upgrades.

Article 5. Billing, Payment, Milestones, and Financial Security

- 5.1 **Billing and Payment Procedures and Final Accounting (Applies to supplemental reviews conducted under Level 2 or 3 review with EDC construction necessary for accommodating the DER facility, and Level 4 reviews)**
 - 5.1.1 The EDC shall bill the interconnection customer for the design, engineering, construction, and procurement costs of EDC-provided interconnection facilities and distribution upgrades contemplated by this Agreement as set forth in Attachment 3. The billing shall occur on a monthly basis, or as otherwise agreed to between the Parties. The interconnection customer shall pay each bill within 30 calendar days after receipt, or as otherwise agreed to between the Parties.
 - 5.1.2 Unless waived by the interconnection customer, within 90 calendar days after completing the construction and installation of the EDC's interconnection facilities and distribution upgrades described in Attachments 2 and 3 to this Agreement, the EDC shall provide the interconnection customer with a final accounting report of any difference between (1) the actual cost incurred to complete the construction and installation of the EDC's interconnection facilities and distribution upgrades; and (2) the interconnection customer's previous deposit and aggregate payments to the EDC for the interconnection facilities and distribution upgrades. If the interconnection customer's cost responsibility exceeds its previous deposit and aggregate payments, the EDC shall invoice the interconnection customer for the amount due and the interconnection customer shall pay the EDC within 30 calendar days. If the interconnection customer's previous deposit and aggregate payments exceed its cost responsibility under this Agreement, the EDC shall refund to the interconnection customer an amount equal to the difference within 30 calendar days after the final accounting report. Upon request from the interconnection customer, if the difference between the budget estimate and the actual cost exceeds 20%, the EDC will provide a written explanation for the difference.

5.1.3 If a Party disputes any portion of its payment obligation pursuant to this Article 5, the Party shall pay in a timely manner all non-disputed portions of its invoice, and the disputed amount shall be resolved pursuant to the dispute resolution provisions contained in Article 8. A Party disputing a portion of an Article 5 payment shall not be considered to be in default of its obligations under this Article.

5.2 Interconnection Customer Deposit

Within 15 business days after signing and returning the interconnection agreement to the EDC, the interconnection customer shall provide the EDC with a deposit equal to 100% of the estimated, non-binding cost to procure, install, or construct any such facilities. However, when the estimated date of completion of the building or installation of facilities exceeds three months from the date of notification, pursuant to Article 4.1.1 of this Agreement, this deposit may be held in escrow by a mutually agreed-upon third-party, with any interest to inure to the benefit of the interconnection customer. To the extent that this interconnection agreement is terminated for any reason, the EDC shall return all deposits provided by the interconnection customer, less any actual costs incurred by the EDC.

Article 6. Assignment, Limitation on Damages, Indemnity, Force Majeure, and Default

6.1 Assignment

This Agreement may be assigned by either Party. If the interconnection customer attempts to assign this Agreement, the assignee must agree to the terms of this Agreement in writing and such writing must be provided to the EDC. Any attempted assignment that violates this Article is void and ineffective. Assignment shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason of the assignment. An assignee is responsible for meeting the same obligations as the assignor.

6.1.1 Either Party may assign this Agreement without the consent of the other Party to any affiliate (including mergers, consolidations or transfers, or a sale of a substantial portion of the Party's assets, between the Party and another entity), of the assigning Party that has an equal or greater credit rating and the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement.

6.1.2 The interconnection customer can assign this Agreement, without the consent of the EDC, for collateral security purposes to aid in providing financing for the DER facility.

6.2 Limitation on Damages

Except for cases of gross negligence or willful misconduct, the liability of any Party to this Agreement shall be limited to direct actual damages and reasonable attorney's fees,

and all other damages at law are waived. Under no circumstances, except for cases of gross negligence or willful misconduct, shall any Party or its directors, officers, employees and agents, or any of them, be liable to another Party, whether in tort, contract or other basis in law or equity for any special, indirect, punitive, exemplary or consequential damages, including lost profits, lost revenues, replacement power, cost of capital or replacement equipment. This limitation on damages shall not affect any Party's rights to obtain equitable relief, including specific performance, as otherwise provided in this Agreement. The provisions of this Article 6.2 shall survive the termination or expiration of the Agreement.

6.3 Indemnity

- 6.3.1 This provision protects each Party from liability incurred to third parties as a result of carrying out the provisions of this Agreement. Liability under this provision is exempt from the general limitations on liability found in Article 6.2.
- 6.3.2 The interconnection customer shall indemnify and defend the EDC and the EDC's directors, officers, employees, and agents, from all damages and expenses resulting from a third party claim arising out of or based upon the interconnection customer's (a) negligence or willful misconduct or (b) breach of this Agreement.
- 6.3.3 The EDC shall indemnify and defend the interconnection customer and the interconnection customer's directors, officers, employees, and agents from all damages and expenses resulting from a third party claim arising out of or based upon the EDC's (a) negligence or willful misconduct or (b) breach of this Agreement.
- 6.3.4 Within 5 business days after receipt by an indemnified Party of any claim or notice that an action or administrative or legal proceeding or investigation as to which the indemnity provided for in this Article may apply has commenced, the indemnified Party shall notify the indemnifying Party of such fact. The failure to notify, or a delay in notification, shall not affect a Party's indemnification obligation unless that failure or delay is materially prejudicial to the indemnifying Party.
- 6.3.5 If an indemnified Party is entitled to indemnification under this Article as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under this Article, to assume the defense of such claim, that indemnified Party may, at the expense of the indemnifying Party, contest, settle or consent to the entry of any judgment with respect to, or pay in full, the claim.

- 6.3.6 If an indemnifying Party is obligated to indemnify and hold any indemnified Party harmless under this Article, the amount owing to the indemnified person shall be the amount of the indemnified Party's actual loss, net of any insurance or other recovery.

6.4 Force Majeure

- 6.4.1 As used in this Article, a force majeure event shall mean any act of God, labor disturbance, act of the public enemy, war, acts of terrorism, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment through no direct, indirect, or contributory act of a Party, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A force majeure event does not include an act of gross negligence or intentional wrongdoing by the Party claiming force majeure.
- 6.4.2 If a force majeure event prevents a Party from fulfilling any obligations under this Agreement, the Party affected by the force majeure event ("Affected Party") shall notify the other Party of the existence of the force majeure event within one business day. The notification must specify the circumstances of the force majeure event, its expected duration, and the steps that the Affected Party is taking and will take to mitigate the effects of the event on its performance. If the initial notification is verbal, it must be followed up with a written notification within one business day. The Affected Party shall keep the other Party informed on a continuing basis of developments relating to the force majeure event until the event ends. The Affected Party may suspend or modify its obligations under this Agreement (other than the obligation to make payments) only to the extent that the effect of the force majeure event cannot be otherwise mitigated.

6.5 Default

- 6.5.1 No default shall exist when the failure to discharge an obligation (other than the payment of money) results from a force majeure event as defined in this Agreement, or the result of an act or omission of the other Party.
- 6.5.2 A Party shall be in default ("Default") of this Agreement if it fails in any material respect to comply with, observe or perform, or defaults in the performance of, any covenant or obligation under this Agreement and fails to cure the failure within 60 calendar days after receiving written notice from the other Party. Upon a default of this Agreement, the non-defaulting Party shall give written notice of the default to the defaulting Party. Except as provided in Article 6.5.3, the defaulting Party has 60 calendar days after receipt of the default notice to cure the default; provided, however, if the default cannot be cured within 60 calendar days, the defaulting Party shall commence the cure within 20 calendar days after original

notice and complete the cure within six months from receipt of the default notice; and, if cured within that time, the default specified in the notice shall cease to exist.

- 6.5.3 If a Party has assigned this Agreement in a manner that is not specifically authorized by Article 6.1, fails to provide reasonable access pursuant to Article 2.3, and is in default of its obligations pursuant to Article 7, or if a Party is in default of its payment obligations pursuant to Article 5 of this Agreement, the defaulting Party has 30 days from receipt of the default notice to cure the default.
- 6.5.4 If a default is not cured as provided for in this Article, or if a default is not capable of being cured within the period provided for in this Article, the non-defaulting Party shall have the right to terminate this Agreement by written notice, and be relieved of any further obligation under this Agreement and, whether or not that Party terminates this Agreement, to recover from the defaulting Party all amounts due under this Agreement, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this Article shall survive termination of this Agreement.

Article 7. Insurance

For DER facilities with a nameplate capacity of 1 MVA or above, the interconnection customer shall carry sufficient insurance coverage so that the maximum comprehensive/general liability coverage that is continuously maintained by the interconnection customer during the term shall be not less than \$2,000,000 for each occurrence, and an aggregate, if any, of at least \$4,000,000. The EDC, its officers, employees and agents shall be added as an additional insured on this policy. The interconnection customer agrees to provide the EDC with at least 30 calendar days advance written notice of cancellation, reduction in limits, or non-renewal of any insurance policy required by this Article.

Article 8. Dispute Resolution

- 8.1 Parties shall attempt to resolve all disputes regarding interconnection as provided in this Article in a good faith manner.
- 8.2 If there is a dispute between the Parties about implementation or an interpretation of the Agreement, the aggrieved Party shall issue a written notice to the other Party to the Agreement that specifies the dispute and the Agreement articles that are disputed.
- 8.3 A meeting between the Parties shall be held within 10 days after receipt of the written notice. Persons with decision-making authority from each Party shall attend the meeting. If the dispute involves technical issues, persons with sufficient technical expertise and familiarity with the issue in dispute from each Party shall also attend the meeting. The meeting may be conducted by teleconference. The informal process between the parties

shall extend 30 days after the receipt of written notice, after which the dispute is deemed resolved and the timeframes for decisions within the interconnection process resume, unless one of the parties seeks resolution through non-binding arbitration procedures described in Article 8.4 or files a formal complaint at the Commission prior to the end of the 30-day period.

- 8.4 If the parties are unable to resolve the dispute through the process outlined in Article 8.3, either party may submit the interconnection dispute to an Ombudsman for non-binding arbitration. The party electing non-binding arbitration shall notify the other party of the request in writing. The non-binding arbitration process is limited to 60 days, absent mutual agreement of the parties and the Ombudsman to a longer period.
- 8.5 Each party shall bear its own fees, costs and expenses and an equal share of the expenses of the non-binding arbitration.
- 8.6 Within 10 days after the conclusion of the procedures in Article 8.4, either party may initiate a formal complaint with the Commission and ask for an expedited resolution of the dispute. If the complaint seeks expedited resolution, any written recommendation of the Ombudsman shall be appended to the complaint. The formal complaint shall proceed as a contested hearing pursuant to the Commission's Rules of Practice.
- 8.7 A party may, after good faith negotiations have failed, decline to pursue non-binding arbitration and instead initiate a formal complaint with the Commission. The formal complaint shall proceed as a contested hearing pursuant to the Commission's Rules of Practice.
- 8.8 Pursuit of dispute resolution may not affect an interconnection request or an interconnection applicant's position in the EDC's interconnection queue.
- 8.9 If the Parties fail to resolve their dispute under the dispute resolution provisions of this Article, nothing in this Article shall affect any Party's rights to obtain equitable relief, including specific performance, as otherwise provided in this Agreement.

Article 9. Miscellaneous

9.1 Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of Illinois, without regard to its conflicts of law principles. This Agreement is subject to all applicable laws and regulations. Each Party expressly reserves the right to seek change in, appeal, or otherwise contest any laws, orders or regulations of a governmental authority. The language in all parts of this Agreement shall in all cases be construed as a whole, according to its fair meaning, and not strictly for or against the EDC or interconnection customer, regardless of the involvement of either Party in drafting this Agreement.

9.2 Amendment

Modification of this Agreement shall be only by a written instrument duly executed by both Parties.

9.3 No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations in this Agreement assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

9.4 Waiver

9.4.1 Except as otherwise provided in this Agreement, a Party's compliance with any obligation, covenant, agreement, or condition in this Agreement may be waived by the Party entitled to the benefits thereof only by a written instrument signed by the Party granting the waiver, but the waiver or failure to insist upon strict compliance with the obligation, covenant, agreement, or condition shall not operate as a waiver of, or estoppel with respect to, any subsequent or other failure.

9.4.2. Failure of any Party to enforce or insist upon compliance with any of the terms or conditions of this Agreement, or to give notice or declare this Agreement or the rights under this Agreement terminated, shall not constitute a waiver or relinquishment of any rights set out in this Agreement, but the same shall be and remain at all times in full force and effect, unless and only to the extent expressly set forth in a written document signed by that Party granting the waiver or relinquishing any such rights. Any waiver granted, or relinquishment of any right, by a Party shall not operate as a relinquishment of any other rights or a waiver of any other failure of the Party granted the waiver to comply with any obligation, covenant, agreement, or condition of this Agreement.

9.5 Entire Agreement

Except as provided in Article 9.1, this Agreement, including all attachments, constitutes the entire Agreement between the Parties with reference to the subject matter of this Agreement, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants that constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement.

9.6 Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original, but all constitute one and the same instrument.

9.7 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties, or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

9.8 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other governmental authority, (1) that portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by the ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

9.9 Environmental Releases

Each Party shall notify the other Party of the release of any hazardous substances, any asbestos or lead abatement activities, or any type of remediation activities related to the DER facility or the interconnection facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall (1) provide the notice as soon as practicable, provided that Party makes a good faith effort to provide the notice no later than 24 hours after that Party becomes aware of the occurrence, and (2) promptly furnish to the other Party copies of any publicly available reports filed with any governmental authorities addressing such events.

9.10 Subcontractors

Nothing in this Agreement shall prevent a Party from using the services of any subcontractor it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing services and each Party shall remain primarily liable to the other Party for the performance of the subcontractor.

9.10.1 A subcontract relationship does not relieve any Party of any of its obligations under this Agreement. The hiring Party remains responsible to the other Party for the acts or omissions of its subcontractor. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of the hiring Party.

9.10.2 The obligations under this Article cannot be limited in any way by any limitation of subcontractor's insurance.

Article 10. Notices

10.1 General

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

If to Interconnection Customer:

Interconnection Customer: <u>SDG IL DG LLC</u>			
Attention: <u>Justin Vandebroek</u>			
Address: <u>2250 Lucien Way Suite 305</u>			
City: <u>Maitland</u>	State: <u>Florida</u>	Zip: <u>32751</u>	
Phone: <u>(407) 232-7440</u>	Fax: _____	E-Mail: <u>dg-interconnection@esa-solar.com</u>	

If to EDC:

EDC: <u>Ameren Illinois Company</u>			
Attention: <u>Ameren Illinois Net Metering Coordinator</u>			
Address: <u>10 Richard Mark Way – Mail Code 910</u>			
City: <u>Collinsville</u>	State: <u>IL</u>	Zip: <u>62234</u>	
Phone: _____	Fax: _____	E-Mail: <u>RenewablesIllinois@ameren.com</u>	

Alternative Forms of Notice

Any notice or request required or permitted to be given by either Party to the other Party and not required by this Agreement to be in writing may be given by telephone, facsimile or e-mail to the telephone numbers and e-mail addresses set out above.

10.2 Billing and Payment

Billings and payments shall be sent to the addresses set out below:

If to Interconnection Customer:

Interconnection Customer: <u>SDG IL DG LLC</u>			
Attention: <u>Luis Gonzalez - Development Manager</u>			
Address: <u>2250 Lucien Way Suite 305</u>			
City: <u>Maitland</u>	State: <u>Florida</u>	Zip: <u>32751</u>	

If to EDC:

EDC: Ameren Illinois
Attention: Ameren Net Metering Coordinator
Address: 10 Richard Mark Way – Mail Code 910
City: Collinsville State: IL Zip: 62234

10.3 Designated Operating Representative

The Parties may also designate operating representatives to conduct the communications that may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities.

Interconnection Customer's Operating Representative: _____
Attention: Dave Click - CTO
Address: 2250 Lucien Way Suite 305
City: Maitland State: Florida Zip: 32751

EDC's Operating Representative: Ameren Illinois
Attention: Ameren Illinois Net Metering Coordinator
Address: 10 Richard Mark Way – Mail Code 910
City: Collinsville State: IL Zip: 62234

10.4 Changes to the Notice Information

Either Party may change this notice information by giving five business days written notice before the effective date of the change.

Article 11. Signatures

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For the Interconnection Customer: -

Name: SDG IL DG LLC attn: Justin Vandenbroeck

Title: Member

Date: _____

For EDC:

Name: _____

Title: _____

Date: _____

Attachment 1

Definitions

Adverse system impact – A negative effect that compromises the safety or reliability of the electric distribution system or materially affects the quality of electric service provided by the electric distribution company (EDC) to other customers.

Applicable laws and regulations – All duly promulgated applicable federal, State and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any governmental authority, having jurisdiction over the Parties.

Commissioning test – Tests applied to a distributed energy resources (DER) facility by the applicant after construction is completed to verify that the facility does not create adverse system impacts. At a minimum, the scope of the commissioning tests performed shall include the commissioning test specified IEEE Standard 1547 Section 5.4 "Commissioning tests."

Distributed Energy Resources (DER) facility – The equipment used by an interconnection customer to generate or store electricity that operates in parallel with the electric distribution system. A distributed generation facility typically includes an electric generator, prime mover, and the interconnection equipment required to safely interconnect with the electric distribution system or a local electric power system.

Distribution upgrades – A required addition or modification to the EDC's electric distribution system at or beyond the point of interconnection to accommodate the interconnection of a distributed energy resources (DER) facility. Distribution upgrades do not include interconnection facilities.

Electric distribution company or EDC – Any electric utility entity subject to the jurisdiction of the Illinois Commerce Commission.

Electric distribution system – The facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries from interchanges with higher voltage transmission networks that transport bulk power over longer distances. The voltage levels at which electric distribution systems operate differ among areas but generally carry less than 100 kilovolts of electricity. Electric distribution system has the same meaning as the term Area EPS, as defined in 3.1.6.1 of IEEE Standard 1547.

Facilities study – An engineering study conducted by the EDC to determine the required modifications to the EDC's electric distribution system, including the cost and the time required to build and install the modifications, as necessary to accommodate an interconnection request.

Force majeure event – Any act of God, labor disturbance, act of the public enemy, war, acts of terrorism, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment through no direct, indirect, or contributory act of a Party, any order, regulation or

restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A force majeure event does not include an act of gross negligence or intentional wrongdoing.

Governmental authority – Any federal, State, local or other governmental regulatory or administrative agency, court, commission, department, board, other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that this term does not include the interconnection customer, EDC or any affiliate of either.

IEEE Standard 1547 – The Institute of Electrical and Electronics Engineers, Inc. (IEEE), 3 Park Avenue, New York NY 10016-5997, Standard 1547 (2003), "Standard for Interconnecting Distributed Resources with Electric Power Systems."

IEEE Standard 1547.1 – The IEEE Standard 1547.1 (2005), "Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems."

Interconnection agreement or Agreement – The agreement between the interconnection customer and the EDC. The interconnection agreement governs the connection of the distributed energy resources (DER) facility to the EDC's electric distribution system and the ongoing operation of the distributed generation facility after it is connected to the EDC's electric distribution system.

Interconnection customer – The entity entering into this Agreement for the purpose of interconnecting a distributed energy resources (DER) facility to the EDC's electric distribution system.

Interconnection equipment – A group of components or an integrated system connecting an electric generator with a local electric power system or an electric distribution system that includes all interface equipment, including switchgear, protective devices, inverters or other interface devices. Interconnection equipment may be installed as part of an integrated equipment package that includes a generator or other electric source.

Interconnection facilities – Facilities and equipment required by the EDC to accommodate the interconnection of a distributed energy resources (DER) facility. Collectively, interconnection facilities include all facilities, and equipment between the distributed energy resources (DER) facility and the point of interconnection, including modification, additions, or upgrades that are necessary to physically and electrically interconnect the distributed energy resources (DER) facility to the electric distribution system. Interconnection facilities are sole use facilities and do not include distribution upgrades.

Interconnection request – An interconnection customer's request, on the required form, for the interconnection of a new distributed energy resources (DER) facility, or to increase the capacity or change the operating characteristics of an existing distributed energy resources (DER) facility that is interconnected with the EDC's electric distribution system.

Interconnection study – Any of the following studies, as determined to be appropriate by the EDC: the interconnection feasibility study, the interconnection system impact study, and the interconnection facilities study.

Illinois standard distributed energy resources interconnection rules – The most current version of the procedures for interconnecting distributed energy resources (DER) facilities adopted by the Illinois Commerce Commission. See 83 Ill. Adm. Code 466.

Parallel operation or Parallel – The state of operation that occurs when a distributed energy resources (DER) facility is connected electrically to the electric distribution system.

Point of interconnection – The point where the distributed energy resources (DER) facility is electrically connected to the electric distribution system. Point of interconnection has the same meaning as the term "point of common coupling" defined in 3.1.13 of IEEE Standard 1547.

Witness test – For lab-certified equipment, verification (either by an on-site observation or review of documents) by the EDC that the interconnection installation evaluation required by IEEE Standard 1547 Section 5.3 and the commissioning test required by IEEE Standard 1547 Section 5.4 have been adequately performed. For interconnection equipment that has not been lab-certified, the witness test shall also include verification by the EDC of the on-site design tests required by IEEE Standard 1547 Section 5.1 and verification by the EDC of production tests required by IEEE Standard 1547 Section 5.2. All tests verified by the EDC are to be performed in accordance with the test procedures specified by IEEE Standard 1547.1.

Attachment 2

Construction Schedule, Proposed Equipment & Settings

This attachment is to be completed by the interconnection customer and shall include the following:

1. The construction schedule for the distributed energy resources (DER) facility.
2. A one-line diagram indicating the distributed energy resources (DER) facility, interconnection equipment, interconnection facilities, metering equipment, and distribution upgrades.
3. Component specifications for equipment identified in the one-line diagram.
4. Component settings.
5. Proposed sequence of operations.
6. A three line diagram showing current potential circuits for protective relays.
7. Relay tripping and control schematic diagram.

Attachment 3

Description, Costs and Time Required to Build and Install the EDC's Interconnection Facilities

This attachment is to be completed by the EDC and shall include the following:

1. Required interconnection facilities, including any required metering.

Per the prior studies - EDC shall build the substation facilities as required to support the interconnection of the interconnection customer proposed facility up to the point of disconnect. The interconnection would consist of upgrades identified in Appendix A. The interconnection customer would be responsible for construction to the point of disconnect. All costs shall be paid for and/or reimbursed by the interconnection customer pursuant to Article 5 of this agreement. The interconnection customer is required to construct all facilities which connect to EDC's facilities or otherwise interface with EDC's facilities, all as determined by EDC's final, detailed engineering, in accordance with EDC's published standards.

Additional required interconnection facilities and system upgrades may be identified while completing Detailed Engineering.

2. An estimate of itemized costs charged by the EDC for interconnection, including overheads, based on results from prior studies.

CS_IL_0011: 173 Yaeger Lake Trl, Litchfield, IL- **2000 KW**

(PowerClerk DER-63100)

Queue Position:2

NOTE: THE COST ESTIMATE PROVIDED FOR YOUR PROJECT IN THE NEXT SECTION IS CONTINGENT UPON CONSTRUCTION COMPLETION OF ALL SYSTEM UPGRADES REQUIRED OF PROJECT(S) AHEAD OF YOUR PROJECT IN THE QUEUE THAT HAVE AN IMPACT ON THE CONNECTION OF YOUR PROJECT. SHOULD ANY ONE OR MORE OF SUCH PROJECTS WITHDRAW FOR ANY REASON, THE COSTS ASSOCIATED WITH YOUR PROJECT MAY CHANGE TO REFLECT THE COST IMPACT OF SYSTEM UPGRADES THAT NOW MAY BE

REQUIRED TO CONNECT YOUR PROJECT AS A RESULT OF THE WITHDRAWAL OF SUCH HIGHER QUEUED PROJECTS.

An estimate of itemized costs charged by the EDC for interconnection, including overheads.

\$586,000.00 for upgrades identified in Appendix A. This will be subject to a true-up process at the end of the project.

Ameren Illinois reserves the right to revise this estimate prior to and during construction based on the requirements of Good Utility practices not foreseen at the time of the original estimate. The revisions to the estimate may include, but are not limited to, changes in the cost of materials and required labor.

Notwithstanding Section 5.2 of this Agreement, the Parties may agree to other forms of security in lieu of a cash deposit provided such other form of security is acceptable to the EDC.

3. An estimate for the time required to build and install the EDC's interconnection facilities based on results from prior studies and an estimate of the date upon which the facilities will be completed.

The final construction timeline will be developed during the scoping meeting which will be held with the applicant after the deposit is paid in full and will continue to be updated as the developer and Ameren Illinois work thru the construction process. That notwithstanding, it is anticipated that Ameren Illinois will initiate procurement activities immediately following the scoping meeting. Any revisions to the current scope of construction activities and their timeline will be provided immediately after that discussion. The requested in-service date is dependent on the availability of any long lead time equipment and weather impacts on construction activities.

Attachment 4

Operating Requirements for Distributed Energy Resources Facilities Operating in Parallel

The EDC shall list specific operating practices that apply to this distributed energy resources (DER) interconnection and the conditions under which each listed specific operating practice applies.

1. Customer shall meet requirements specified in Level 2 or 4 study.

Attachment 5

Monitoring and Control Requirements

This attachment is to be completed by the EDC and shall include the following:

1. The EDC's monitoring and control requirements must be specified, along with a reference to the EDC's written requirements documents from which these requirements are derived.
2. An internet link to the requirements documents.

<https://www.ameren.com/-/media/files/resources-and-support/construction/service-manual/ameren-electric-service-manual.ashx>

<http://standards.ieee.org>

Attachment 6

Metering Requirements

This attachment is to be completed by the EDC and shall include the following:

1. The metering requirements for the distributed energy resources (DER) facility.

The specific metering requirements and equipment will be specified as part of the Detailed Engineering.
2. Identification of the appropriate tariffs that establish these requirements.
3. An internet link to these tariffs.

<https://www.ameren.com/bill/rates/business>

<https://www.ameren.com/service/renewables>

Attachment 7

As Built Documents

This attachment is to be completed by the interconnection customer and shall include the following:

When it returns the certificate of completion to the EDC, the interconnection customer shall provide the EDC with documents detailing the as-built status of the following:

1. A one-line diagram indicating the distributed generation facility, interconnection equipment, interconnection facilities, and metering equipment.
2. Component specifications for equipment identified in the one-line diagram.
3. Component settings.
4. Proposed sequence of operations.
5. A three-line diagram showing current potential circuits for protective relays.
6. Relay tripping and control schematic diagram.

Appendix A
DER-63100
Facility Document

Level 4 Feasibility, System Impact Study, and Facilities Study
DER-63100 Analysis Worksheet

Project Name and Size: CS_IL_0011 – 2.0MW

POI Feeder: Litchfield N95-823

System Voltage and Configuration: 12.47kV 4-wire wye

Queue Position: 2

Date: 1/13/2025

Engineer: Travis Raburn

Territory

Y **N**

☒ ☐ Is the PV array 100% within Ameren territory?

If no to above question, note that Ameren cannot serve a DER that is not 100% within Ameren territory. A general map of the territory is provided at the end of this report.

Determine Extreme Load Cases:

Y **N**

☒ ☐ Is the PV a tracking array? (*Use 10 AM to 4 PM for fixed arrays and 8 AM to 6 PM for tracking arrays to determine minimum load during solar generating hours*)

Minimum Load during Solar Production:

Feeder #	Date/Time	MW	MVAR	A Amps	B Amps	C Amps	PF
N95-823	4/19/24 LA			81	94	90	0.98
N95-824	11/23/23 LA			56	37	50	0.98

Peak Load:

Feeder #	Date/Time	MW	MVAR	A Amps	B Amps	C Amps	PF
N95-823	8/26/24 LA			326	355	319	0.98
N95-824	8/26/24 LA			230	182	204	0.98

Total generation on the circuit prior to this DER (including projects queued but not yet constructed): **5.55 MW**

Total generation on the substation prior to this DER (including projects queued but not yet constructed): **6.97 MW**

Power Flow:

Y **N**

- ☒ ☐ Is reverse flow possible for line devices and/or feeder head under normal conditions at minimum load?
- ☒ ☐ Does reverse flow cause overloads to conductors, regulators, etc. (normal or contingency)? Note that devices have a 90% loading limit before requiring upgrade to provide headroom, accounting for potential load drop due to partial line outages or load reduction due to EE.

List of facilities overloaded with % overload:

2/0ACSR conductor is loaded up to 106%

Line recloser 823-2 is loaded up to 90%

- ☒ ☐ Do any line sections experience overvoltage at minimum load caused by the DER (normal or contingency)?

Explain:

Voltages rise to 127.13V before any mitigations. After replacing the required 2/0ACSR conductor, this lowers to be within acceptable limits.

- ☒ ☐ Notify sub-transmission planning engineer if reverse flow is possible at the substation transformer.

- Were any sub-transmission system impacts identified? If so, please list below:

This distribution transformer is tapped off of a subtransmission bus.

- Per sub-transmission planning's review, is the queue position of this project impacted by other projects on the shared sub-transmission line? Please list any queue position impacts below:

N/A

- ☒ ☐ Ameren Transmission reviewed the application and determined the need for MISO *screening* which will determine the need for a MISO AFS (affected facilities study). A MISO AFS may be required, and the fees associated with the study will result in an additional charge to the interconnection applicant. MISO will not notify if an AFS *study* is needed until after 3/16/25 . Reviews are done quarterly by MISO. Due to the processing timelines contained in Illinois' interconnection rules and the time required for MISO to conduct its study, this DER application may require a signed interconnection agreement or withdrawal from the queue before having results from MISO.

Ameren will not send this DER to MISO for the screening until you have had the opportunity to review this report and choose to downsize or continue at the current size and voltage. If you choose to continue at the current size / voltage and the application is sent to MISO for screening, there is no chance to downsize at that point.

Ameren does not know what KW /MW value will initiate the MISO screening.

Rapid Voltage Change:

Solar Minimum Load Screener Before Mitigations

Screen 2.00 MW at 100 pf on DER63100 POI			Maximum Value										
Code	Description	Limit	0.0 MW	0.2 MW	0.4 MW	0.6 MW	0.8 MW	1.0 MW	1.2 MW	1.4 MW	1.6 MW	1.8 MW	2.0 MW
DCS_70	Maximum prim voltage	127.0 V	124.5	124.7	124.8	124.9	125.1	125.2	125.4	125.5	125.7	125.8	125.9
DCS_60	Minimum prim voltage	117.0 V	123.2	123.2	123.3	123.3	123.3	123.3	123.3	123.4	123.4	123.4	123.4
DCS_10	Maximum feeder loading	90 %	18.7	16.5	14.5	13.2	11.9	11.5	11.5	11.5	11.5	11.5	11.5
DCS_55	Maximum conductor loading	90 %	16.0	16.0	16.0	16.0	16.2	19.7	23.3	26.9	30.5	34.1	37.8
DCS_50	Maximum transformer loading	90 %	16.2	14.8	13.4	12.1	10.8	9.5	8.3	7.1	6.0	5.2	4.6
DCS_20	Delta volts any section	3.6 V		0.2	0.3	0.5	0.6	0.8	1.0	1.1	1.3	1.4	1.6
DCS_21	Delta volts any reg	2.4 V		0.1	0.3	0.4	0.5	0.6	0.7	0.9	1.0	1.1	1.2
DCS_22	Delta volts any LTC	2.4 V											
DCS_23	Delta volts at gen	3.6 V		0.2	0.3	0.5	0.6	0.8	1.0	1.1	1.3	1.4	1.6
DCS_24	Delta volts all trip	3.6 V		0.2	0.3	0.5	0.6	0.8	1.0	1.1	1.3	1.4	1.6
DCS_30	Feeder reverse flow	90 %								5.2	6.9	8.8	10.9
DCS_32	Subtran reverse flow	90 %											
DCS_48	Conductor reverse flow	90 %	7.0	7.0	9.3	12.7	16.2	19.7	23.3	26.9	30.5	34.1	37.8
DCS_34	LTC wth co-gen reverse flow	15 %											
DCS_35	LTC no co-gen reverse flow	75 %											
DCS_36	Fixed tap tran reverse flow	90 %											
DCS_37	Regulator reverse flow	90 %	11.8	13.7	20.4	28.3	36.2	44.1	52.0	59.9	67.8	75.7	83.5
DCS_45	Manual switch reverse flow	90 %	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.4	4.5	5.7	7.1
DCS_46	Automatic switch reverse flow	90 %											
DCS_38	Fuse reverse flow	90 %	26.9	26.9	26.8	26.8	26.8	26.7	26.7	26.6	26.6	26.6	26.5
DCS_39	Hydraulic recloser reverse flow	0 %	13.2	15.3	22.4	30.5	38.9	47.5	56.2	64.9	73.6	82.3	91.0
DCS_40	Electronic recloser reverse flow	90 %	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.0	11.0	11.0	11.0
DCS_41	Electronic fuse reverse flow	90 %											
DCS_42	Mechanical relay breaker reverse flow	0 %											
DCS_43	Electronic relay breaker reverse flow	90 %											
MET_10	Feeder kW demand		1365.2	1165.6	966.4	767.7	569.3	371.4	173.8	-23.4	-220.1	-416.6	-612.6
MET_20	Section kW into		-0.0	-200.0	-400.0	-599.9	-799.9	-999.8	-1199.7	-1399.6	-1599.5	-1799.3	-1999.2
MET_30	Section high volts		124.5	124.7	124.8	125.0	125.1	125.2	125.4	125.5	125.7	125.8	126.0
MET_40	Sub kW demand		2182.1	1982.7	1783.7	1585.1	1386.9	1189.1	991.6	794.6	597.9	401.6	205.7
MET_50	Sub pct pf		96.5	95.8	94.9	93.7	92.0	89.5	85.8	80.0	70.7	55.6	32.3
MET_60	Subtran tap												

Solar Minimum Load Screener After Mitigations

Screen 2.00 MW at 100 pf on DER63100 POI			Maximum Value										
Code	Description	Limit	0.0 MW	0.2 MW	0.4 MW	0.6 MW	0.8 MW	1.0 MW	1.2 MW	1.4 MW	1.6 MW	1.8 MW	2.0 MW
DCS_70	Maximum prim voltage	127.0 V	124.0	124.7	124.8	125.0	125.1	125.2	125.3	125.5	125.6	125.7	125.8
DCS_60	Minimum prim voltage	117.0 V	123.2	123.2	123.3	123.3	123.3	123.3	123.3	123.4	123.4	123.4	123.4
DCS_10	Maximum feeder loading	90 %	18.7	16.5	14.5	13.2	11.9	11.5	11.5	11.5	11.5	11.5	11.5
DCS_55	Maximum conductor loading	90 %	16.0	16.0	16.0	16.0	16.2	19.7	23.3	26.9	30.6	34.2	37.8
DCS_50	Maximum transformer loading	90 %	16.1	14.8	13.4	12.1	10.8	9.5	8.3	7.1	6.0	5.2	4.6
DCS_20	Delta volts any section	3.6 V		0.1	0.3	0.4	0.6	0.7	0.9	1.0	1.1	1.3	1.4
DCS_21	Delta volts any reg	2.4 V		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
DCS_22	Delta volts any LTC	2.4 V											
DCS_23	Delta volts at gen	3.6 V		0.1	0.3	0.4	0.6	0.7	0.9	1.0	1.1	1.3	1.4
DCS_24	Delta volts all trip	3.6 V		0.1	0.3	0.4	0.6	0.7	0.9	1.0	1.1	1.3	1.4
DCS_30	Feeder reverse flow	90 %								5.2	6.9	8.9	10.9
DCS_32	Subtran reverse flow	90 %											
DCS_48	Conductor reverse flow	90 %	7.0	7.0	9.3	12.7	16.2	19.7	23.3	26.9	30.6	34.2	37.8
DCS_34	LTC wth co-gen reverse flow	15 %											
DCS_35	LTC no co-gen reverse flow	75 %											
DCS_36	Fixed tap tran reverse flow	90 %											
DCS_37	Regulator reverse flow	90 %	2.5	2.9	4.4	6.1	7.8	9.5	11.2	12.9	14.6	16.3	18.0
DCS_45	Manual switch reverse flow	90 %	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.4	4.5	5.8	7.1
DCS_46	Automatic switch reverse flow	90 %											
DCS_38	Fuse reverse flow	90 %	27.1	26.9	26.8	26.8	26.8	26.7	26.7	26.7	26.6	26.6	26.6
DCS_39	Hydraulic recloser reverse flow	0 %											
DCS_40	Electronic recloser reverse flow	90 %	11.2	11.1	11.1	11.1	11.1	11.1	11.1	11.0	11.0	11.0	11.4
DCS_41	Electronic fuse reverse flow	90 %											
DCS_42	Mechanical relay breaker reverse flow	0 %											
DCS_43	Electronic relay breaker reverse flow	90 %											
MET_10	Feeder kW demand		1363.8	1165.7	966.5	767.6	569.1	370.9	173.1	-24.4	-221.5	-418.3	-614.8
MET_20	Section kW into		-0.0	-200.0	-400.0	-599.9	-799.9	-999.8	-1199.7	-1399.6	-1599.5	-1799.3	-1999.2
MET_30	Section high volts		123.8	124.7	124.8	125.0	125.1	125.2	125.3	125.4	125.6	125.7	125.8
MET_40	Sub kW demand		2180.8	1982.8	1783.7	1585.0	1386.6	1188.6	990.9	793.5	596.5	399.8	203.4
MET_50	Sub pct pf		96.5	95.8	94.9	93.7	92.0	89.5	85.7	79.9	70.6	55.4	31.9
MET_60	Subtran tap												

Temperature Corrected Peak Load Screener Before Mitigations

Screen 2.00 MW at 100 pf on DER63100 POI			Maximum Value										
Code	Description	Limit	0.0 MW	0.2 MW	0.4 MW	0.6 MW	0.8 MW	1.0 MW	1.2 MW	1.4 MW	1.6 MW	1.8 MW	2.0 MW
I= dcs													
DCS_70	Maximum prim voltage	127.0 V	124.9	125.1	125.3	125.4	125.6	125.8	126.0	126.1	126.3	126.4	126.6
DCS_60	Minimum prim voltage	117.0 V	119.9	119.9	120.0	120.0	120.1	120.1	120.1	120.2	120.2	120.3	120.3
DCS_10	Maximum feeder loading	90 %	83.8	81.5	79.2	76.9	74.7	72.4	70.2	68.3	66.9	65.6	64.3
DCS_55	Maximum conductor loading	90 %	69.2	65.9	62.5	59.2	56.0	55.6	55.6	55.6	55.6	55.6	55.6
DCS_50	Maximum transformer loading	90 %	78.8	77.4	76.0	74.7	73.3	71.9	70.5	69.1	67.8	66.4	65.1
DCS_20	Delta volts any section	3.6 V		0.2	0.4	0.6	0.8	1.0	1.1	1.3	1.5	1.7	1.9
DCS_21	Delta volts any reg	2.4 V		0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.3	1.5
DCS_22	Delta volts any LTC	2.4 V											
DCS_23	Delta volts at gen	3.6 V		0.2	0.4	0.6	0.8	1.0	1.1	1.3	1.5	1.7	1.9
DCS_24	Delta volts all trip	3.6 V		0.2	0.4	0.6	0.8	1.0	1.1	1.3	1.5	1.7	1.9
DCS_30	Feeder reverse flow	90 %											
DCS_32	Subtran reverse flow	90 %											
DCS_48	Conductor reverse flow	90 %	2.1	3.6	7.1	10.6	14.2	17.7	21.2	24.7	28.2	31.6	35.1
DCS_34	LTC wth co-gen reverse flow	15 %											
DCS_35	LTC no co-gen reverse flow	75 %											
DCS_36	Fixed tap tran reverse flow	90 %											
DCS_37	Regulator reverse flow	90 %					28.7	36.4	44.3	52.1	60.0	67.8	75.7
DCS_45	Manual switch reverse flow	90 %											
DCS_46	Automatic switch reverse flow	90 %											
DCS_38	Fuse reverse flow	90 %	14.6	14.6	14.6	14.6	14.6	14.5	14.5	14.5	14.5	14.5	14.5
DCS_39	Hydraulic recloser reverse flow	0 %					26.0	30.2	39.1	47.9	56.8	65.6	74.5
DCS_40	Electronic recloser reverse flow	90 %											5.4
DCS_41	Electronic fuse reverse flow	90 %											
DCS_42	Mechanical relay breaker reverse flow	0 %											
DCS_43	Electronic relay breaker reverse flow	90 %											
MET_10	Feeder kW demand		6560.7	6360.7	6161.1	5961.9	5763.0	5564.5	5366.4	5168.7	4971.3	4774.3	4577.6
MET_20	Section kW into		-0.0	-200.0	-400.0	-599.9	-799.9	-999.8	-1199.7	-1399.6	-1599.5	-1799.3	-1999.2
MET_30	Section high volts		124.7	124.9	125.0	125.2	125.4	125.6	125.7	125.9	126.1	126.2	126.4
MET_40	Sub kW demand		10771.4	10572.7	10374.3	10176.3	9978.7	9781.4	9584.4	9387.7	9191.4	8995.5	8799.9
MET_50	Sub pct pf		97.6	97.5	97.4	97.4	97.3	97.2	97.1	97.0	96.9	96.7	96.6
MET_60	Subtran tap												

Temperature Corrected Peak Load Screener After Mitigations

Screen 2.00 MW at 100 pf on DER63100 POI			Maximum Value										
Code	Description	Limit	0.0 MW	0.2 MW	0.4 MW	0.6 MW	0.8 MW	1.0 MW	1.2 MW	1.4 MW	1.6 MW	1.8 MW	2.0 MW
I= dcs													
DCS_70	Maximum prim voltage	127.0 V	124.0	124.1	124.9	125.0	125.2	125.3	125.5	125.6	125.8	125.9	126.0
DCS_60	Minimum prim voltage	117.0 V	119.9	119.9	120.0	120.0	120.1	120.1	120.1	120.2	120.2	120.3	120.3
DCS_10	Maximum feeder loading	90 %	83.7	81.4	79.2	76.9	74.6	72.4	70.2	68.3	67.0	65.6	64.3
DCS_55	Maximum conductor loading	90 %	55.6	55.6	55.6	55.6	55.6	55.6	55.6	55.6	55.6	55.6	55.6
DCS_50	Maximum transformer loading	90 %	78.8	77.4	76.0	74.7	73.3	71.9	70.5	69.2	67.8	66.4	65.1
DCS_20	Delta volts any section	3.6 V		0.2	0.3	0.5	0.7	0.9	1.0	1.2	1.3	1.5	1.7
DCS_21	Delta volts any reg	2.4 V		0.1	0.3	0.4	0.5	0.7	0.8	0.9	1.1	1.2	1.3
DCS_22	Delta volts any LTC	2.4 V											
DCS_23	Delta volts at gen	3.6 V		0.2	0.3	0.5	0.7	0.9	1.0	1.2	1.3	1.5	1.7
DCS_24	Delta volts all trip	3.6 V		0.2	0.3	0.5	0.7	0.9	1.0	1.2	1.3	1.5	1.7
DCS_30	Feeder reverse flow	90 %											
DCS_32	Subtran reverse flow	90 %											
DCS_48	Conductor reverse flow	90 %	2.1	3.6	7.1	10.6	14.1	17.6	21.1	24.6	28.1	31.6	35.1
DCS_34	LTC wth co-gen reverse flow	15 %											
DCS_35	LTC no co-gen reverse flow	75 %											
DCS_36	Fixed tap tran reverse flow	90 %											
DCS_37	Regulator reverse flow	90 %					6.2	7.8	9.5	11.2	12.9	14.6	16.3
DCS_45	Manual switch reverse flow	90 %											
DCS_46	Automatic switch reverse flow	90 %											
DCS_38	Fuse reverse flow	90 %	14.6	14.6	14.6	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
DCS_39	Hydraulic recloser reverse flow	0 %											
DCS_40	Electronic recloser reverse flow	90 %					3.8	4.9	6.0	7.1	8.2	9.3	
DCS_41	Electronic fuse reverse flow	90 %											
DCS_42	Mechanical relay breaker reverse flow	0 %											
DCS_43	Electronic relay breaker reverse flow	90 %											
MET_10	Feeder kW demand		6558.8	6359.3	6161.3	5962.4	5763.9	5565.7	5367.8	5170.2	4972.9	4775.9	4579.2
MET_20	Section kW into		-0.0	-200.0	-400.0	-599.9	-799.9	-999.8	-1199.7	-1399.6	-1599.5	-1799.3	-1999.2
MET_30	Section high volts		124.3	124.5	124.7	124.8	125.0	125.2	125.3	125.5	125.7	125.8	126.0
MET_40	Sub kW demand		10769.5	10571.3	10374.6	10176.9	9979.6	9782.5	9585.7	9389.2	9193.0	8997.0	8801.3
MET_50	Sub pct pf		97.6	97.5	97.4	97.4	97.3	97.2	97.1	97.0	96.9	96.7	96.6
MET_60	Subtran tap												

Y N

- ☐ ☒ Does the proposed DER cause objectionable rapid voltage changes? (Are the voltage drops and rises within acceptable limits? *Less than 3% (3.6V on 120V base) fluctuation is acceptable for all line segments without regulators, based on the updated IEEE 1547 Rapid Voltage Change Criteria. For line segments with voltage regulators, less than 2% (2.4V on 120V base) fluctuation is acceptable*).

Explain: **Voltage changes stays within 3% before any mitigations. After mitigating conductor overloads, the voltage change percentage lowers even further.**

Screener Reference Information (explanation of values flagged red):

If a project fails due to RVC, you can use the screeners above to help determine at what size the DER will not create RVC. Review lines DCS_20 through DCS_24 for results that do not exceed the limits noted. *A more detailed, size specific analysis will not be conducted in this study.*

System Protection:

Provide the fault current at the POI including the contribution from the DER:

L-G Fault Current	3-Phase Fault Current	L-L Fault Current
2578	3131	2724

NOTE: This information provided in this study is subject to change as result of normal utility operations. This may include the replacement of various distribution feeder devices as well as circuit configuration development to serve new loads. Additionally, this calculated fault current does not include any contributions by customer motors, either upstream or downstream of the service connection point, or fault current asymmetry. This fault calculation accounts for the current utility contribution only.

Select the appropriate protective device needed at the POI from the list below:

☒ IntelliRupter	☐ Fuse Link (list size): _____	☐ No new protection needed
---	---	---

List any coordination changes required to maintain coordination with the new fuse: **N/A**

Y N

- ☒ ☐ Are there any hydraulic reclosers upstream of the proposed DER? (The nominal reclose time of these hydraulic devices is 2 seconds, but they may reclose too quickly due to the nature of the hydraulic mechanism. They will need either to be relocated or upgraded to an electronically controlled device)

List any upstream hydraulic reclosers and mitigation actions:

Line recloser 823-2 will need to be replaced with an Intellirupter

- ☐ ☒ Does the fault current contribution from the DER cause any protective device to exceed its interrupting rating? If so, please list affected devices and mitigation strategies below:
- ☐ ☒ Is the proposed POI on a circuit with an active or planned Distribution Automation scheme?
- ☐ ☐ If the answer to the above question is "yes," are there any concerns or changes noted by the Distribution Automation team?
- ☐ ☒ Are there concerns or changes noted by the System Protection Engineer?
- ☐ ☒ Are any upgrades triggered by exceeding 2/3 minimum load on the sub-transmission system?

Explain: **No changes noted from System Protection.**

Interconnection Requirements:

Y N

- ☒ ☐ Is there an existing IntelliNode on the substation protective device?
- ☒ ☐ Is an IntelliNode required on the substation protective device?
- ☒ ☐ Is there a lockable disconnect (gang operated if 3-phase) on the DER proposed one-line?
- ☒ ☐ Is the inverter being used compliant with IEEE 1547 and UL 1741?
- ☐ ☒ Is the proposed DER BTM?

Interactions with Other Feeder Devices:

Y N

- ☐ ☒ Are any voltage or current controlled capacitor banks affected by the DER?

- ☐ ☒ Are any Regulators or Transformer LTCs with Load Drop Compensation (R and X settings) affected by the DER?
- ☐ ☐ Will SCADA capability on upstream voltage regulators be required for this installation?
(Line and substation regulators upstream of the DER POI that experience reverse power flow due to the DER require Eaton CL7 controllers (or newer) along with a SCADA communication package if the device is not currently equipped with SCADA due to VO. Substation LTCs that experience reverse power flow due to the DER will also need to be capable of being set to a co-generation mode and be equipped with SCADA if they are not currently.)

*If there are any regulators upstream of the DER, reverse settings need to be included in the design.

Line regulator 823-2 will need the settings changed to bias co-gen with locked reverse mode settings.

- ☐ ☒ Are there any other concerns not mentioned previously that would prevent the installation of the proposed DER from moving forward?

Explain:

Explain and list required facility upgrades or installations and Costs:

POI work required for interconnection

Equipment needed at the POI: ☒ ITR ☒ Primary metering ☒ Tap, poles and wires.

☐ ITN for BTM SCADA Metering(if on a DA Scheme) ☐ CT / PT Cabinet Installed

Line work required for interconnection

Line equipment upgrades: ☒ Line Recloser to ITR 823-2

Line conductor upgrades: Upgraded size: ☐ 1/0AAAC ☐ 336ACSR ☒ 556AAC
upgraded location from Pole 2490467 to Pole 2490464

Substation work required for interconnection

Substation upgrades: ☐ Viper ☐ ITN ☐ Regulator _____ ☐ CL7 controls
☐ Transformer ☐ Other _____

System Protection work required for interconnection

No changes noted from System Protection

Summary of all the upgrades needed to interconnect:

POI:

- Install Intellirupter, solid blade switches and primary metering along with the necessary poles and wires

Line Upgrades:

- Reconductor using 556AA from the Pole 2490467 to Pole 2490464 (≈1,000') Built under 34kV line for the entire distance.
- Replace line recloser 823-2 with an Intellirupter

Y N

- ☒ ☐ Are there any other factors that would impact the cost or project timeline for the DER installation (Ex: Railroad permits, crops out, non-summer loads for switching, significant construction required, Easements required, long lead-time items, etc.)

Explain:

- Real estate easements may be required at an additional cost not included in this estimate.
- Forestry, permitting, flagging and any unforeseen circumstances may also arise that require an additional cost not included in this estimate.
- Long lead times for material procurement.

If there are generation projects ahead in queue that require system upgrades prior to the interconnection of this Project, this Project is subject to incurring these costs in the event that projects ahead in queue withdraw.

Interconnection Costs

The estimated total cost to interconnect to Ameren's electric distribution system includes all required interconnection facility and system upgrades of which Ameren is responsible for procuring the dollar amount. This is an estimated cost based on available information. If the Customer deems these costs acceptable along with the results of the study, then the Customer may request a detailed cost estimate as part of the facilities study to continue the study process. The estimate provided in this study is not final and is subject to change during the detailed cost estimate process. All costs provided to the Customer are subject to change through sequential studies, engineering design, procurement, and construction.

Required Interconnection Facilities	Reference	Count (each or miles)	Material	Labor	Overhead	Cost
Distribution						
Standard POI Installation	Distribution	1	20%	70%	10%	\$ 192,000
4/12 kV Line Reconductoring	Distribution	0.19	20%	70%	10%	\$ 149,000
4/12 kV ITR	Distribution	1	46%	38%	16%	\$ 150,000
DA Cost Summary						
ITR w/ Cell Programming	Distribution Automation	2	41%	59%	0%	\$ 9,000
Subtotal						\$ 500,000.00
Tax Gross Up						\$ 86,000.00
Estimated Total Cost						\$ 586,000.00

Note: Estimated Total Cost is rounded to the nearest \$1,000 due to being an estimated value. This does not mean this estimate is accurate within the \$1,000 range.

If the Customer accepts the results of this study and agrees to the scope of the interconnection facilities and system upgrades, then the Customer may elect to proceed with a Detailed Cost Estimate and agrees to forfeit the one-time downsize option.

If the Customer chooses to exercise the one-time downsize, then the Customer determines the new, smaller application size and updates all documentation within 15 business days for Ameren to reevaluate or application will be automatically withdrawn.

Generation projects ahead in queue and their required system upgrades:

DER-36686 \$579,000 Cost of upgrades

Replace line recloser 823-4 with an Intellirupter, Viper and ITN at F823, Lightning arresters (3) 69kV and Below, LOR and Rework Sub-T bus protection, & Mobilization

Interconnection Schedule

Conditions and Constraints

The lead time to order and install the required facilities is 12-18 months from the time the Customer provides Ameren with the security and prepayment under milestones in the below. The overall lead time is also affected by the actual project timing and schedule. Ameren will avoid construction that will require taking facilities out of service during peak summer months and peak winter months.

Ameren requires at least one month notice before testing and startup to alert and schedule Ameren field personnel to witness on site Customer's tests. Ameren is only concerned with those items related to the interface requirements.

Milestones	Description	Date
1	Customer to provide Ameren security deposit for Ameren's Interconnection Facilities and System Upgrades.	Date of payment
2	Ameren begins design and equipment procurement.	+15 days
3	Ameren begins construction.	+15 days
4	Ameren completion of metering installation on meter pole.	+18 months
5	Ameren completes construction of the Interconnection Facilities and System Upgrades.	+18 months
6	Generator step-up transformers receive back feed power.	+15 days
7	Generation testing. Ameren performs witness test with Customer.	+15 days
8	Commercial operation date.	+30 days
9	Ameren provides Customer with final accounting report.	+3 months

The description and date entries listed are provided solely for the convenience of the Customer and Ameren in establishing their applicable milestones. The failure of Ameren to meet any date on this milestone schedule shall not result in any liability on the part of Ameren if such failure is not the result of the negligence or willful misconduct of Ameren.

This timeline assumes no long lead time material orders are required to complete construction. If material is required that has long lead times, those additional times will be added to the overall timeline of the project.

[page intentionally left blank]



Appendix C:

Preliminary Stormwater Pollution Prevention Plan (SWPPP)

PRELIMINARY

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

ELM LAWN SOLAR PARK

2.00 MWAC Ground-Mounted Solar Photovoltaic Facility
Montgomery County, Illinois
NPDES Permit No. ILR10 (General Permit)

Prepared For:	SDG IL DG, LLC
Engineer:	Uneclipsed Energy, PLLC
Parcel ID:	10-34-100-019
Coordinates:	39.184294, -89.632000
Date:	March 2026
Status:	PRELIMINARY

Table of Contents

Table of Contents	2
1. Project Overview and Site Description	4
1.1 Project Summary	4
1.2 Site Location and Description	5
1.3 Regulatory Framework	5
2. Existing Site Conditions.....	6
2.1 Topography and Drainage	6
2.2 Soils	6
2.2.1 Cowden-Piasa Silt Loams (993A) Dominant Soil	6
2.2.2 Homen Silt Loam (582B).....	6
2.2.3 Tamalco Silt Loam (581B).....	7
2.2.4 Hickory Silt Loam (8F).....	7
2.3 Hydrology and Receiving Waters	7
2.4 Existing Vegetation and Land Cover.....	7
3. Construction Activities and Sequence	8
3.1 Nature of Construction	8
3.2 Construction Sequence	8
3.3 Estimated Disturbed Area	8
4. Erosion and Sediment Control Best Management Practices	9
4.1 Perimeter Controls	9
4.2 Erosion Controls	9
4.3 Sediment Controls	9
4.4 Post-Construction Stormwater Controls.....	10
5. Good Housekeeping and Pollution Prevention Measures	11
5.1 Materials Management	11
5.2 Waste Management.....	11
5.3 Spill Prevention and Response.....	11
5.4 Vehicle and Equipment Management	11
6. Inspection and Maintenance Requirements	12
6.1 Inspection Schedule	12
6.2 Inspection Scope	12
6.3 Maintenance and Corrective Actions	12
6.4 Documentation	13
7. SWPPP Amendments and Permit Termination	14
7.1 Amendments	14

7.2 Final Stabilization and Permit Termination 14

8. Wetland and Environmental Protections 15

8.1 Wetland Avoidance..... 15

8.2 Drainage Tile Protection 15

8.3 Endangered Species and Ecological Compliance 15

Appendix: NRCS Custom Soil Resource Report for Montgomery County, Illinois

1. Project Overview and Site Description

1.1 Project Summary

This Preliminary Stormwater Pollution Prevention Plan (SWPPP) has been prepared for the Elm Lawn Solar Park project in Montgomery County, Illinois. The plan is designed to satisfy requirements of the Illinois Environmental Protection Agency (IEPA) General NPDES Permit No. ILR10 for Storm Water Discharges from Construction Site Activities, and to comply with applicable provisions of the Montgomery County Solar Ordinance (Sixth Revision, October 14, 2025).

The Elm Lawn Solar Park is a 2.00 MWAC (3.0 MWDC) ground-mounted photovoltaic solar energy facility to be constructed on property owned by Elm Lawn Memorial Park Inc. The project will use approximately 5,040 solar modules mounted on single-axis tracker racking systems oriented east-west.

Item	Detail
Project Name	Elm Lawn Solar Park
Developer	ESA Solar Energy, LLC
Engineer	Uneclipsed Energy, PLLC (Maitland, FL 32751)
Location	Montgomery County, Illinois
Address	173 Yaeger Lake Trail, Litchfield, IL 62056
Point of Interconnection	39.184294, -89.632000
Parcel ID	10-34-100-019
Owner	Elm Lawn Memorial Park Inc.
Parcel Area	28.65 Acres
Project Area	11.51 Acres
System Capacity	2.0 MWAC / 3.0 MWDC
Module Count (Approx.)	5,040
Racking System	Single Axis Trackers
Module Tilt	+/- 55 Degrees
Module Orientation	East/West (Az. 90°/270°)
Module Height (Max Tilt)	~10 ft
Basis of Design	QCells Q.Peak Duo XL-G11S.3 / BiFi 600W
POI Feeder	Litchfield N95-823 (Ameren)
System Voltage	12.47kV, 4-wire wye
Substation	139423 (approx. 2.0 mi. from site)

1.2 Site Location and Description

The project site is located along E. Clark Street, west of Yaeger Lake Trail, in the Litchfield area of Montgomery County, Illinois. The property is currently used as open land associated with the adjacent Elm Lawn Cemetery. The site is generally flat with gentle grades. Existing vegetative buffers are present along portions of the northern boundary. Wetland features have been identified on the northeast corner of the parcel and will be protected and avoided during construction.

The project area is divided into two panel areas: Panel Area #1 to the north and Panel Area #2 to the south, separated by an internal access drive. Access to the site will be from E. Clark Street via a 20-foot-wide entrance with a gravel surface. The site will be enclosed by an 8-foot-high woven wire fence set a minimum of 50 feet from all public rights-of-way and adjacent property lines.

Adjacent land uses include residential properties, agricultural parcels, the Elm Lawn Cemetery, and Yaeger Lake Trail to the east. The nearest substation (Substation 139423) is approximately 2.0 miles from the site.

1.3 Regulatory Framework

This SWPPP has been developed in accordance with the following regulatory requirements:

- Illinois General NPDES Permit No. ILR10 for Storm Water Discharges from Construction Site Activities
- Clean Water Act (CWA) Section 402, National Pollutant Discharge Elimination System (NPDES)
- Illinois Environmental Protection Act (415 ILCS 5)
- Illinois Pollution Control Board Regulations: 35 IAC Subtitle C (Water Pollution)
- Montgomery County Ordinance for Solar Energy Farm and Solar Garden Installations (Sixth Revision, October 14, 2025)
- Illinois Department of Agriculture Standard Agricultural Impact Mitigation Agreement (AIMA)
- 55 ILCS § 5/5-12020 Commercial Solar Energy Facilities

2. Existing Site Conditions

2.1 Topography and Drainage

The project site is situated on upland terrain typical of the till plains of central Illinois. Contour mapping (Sheet C101) indicates the site has gentle to moderate relief, with 1-foot contour intervals and a general base elevation of approximately 210 feet. Site slopes are predominantly 0 to 5 percent across the panel areas, with steeper slopes of up to 18–35 percent along the northeast boundary where the Hickory silt loam (8F) unit is present.

Existing drainage generally flows from a gentle “ridge” running north/south through the center of the site, sheeting to the northeast on the east side and southwest on the west side. A preliminary stormwater management feature is identified on the site plan in the northeast area of the project. Wetland features are located along the northeast margin of the parcel and will be avoided with appropriate buffers maintained.

2.2 Soils

A Custom Soil Resource Report was obtained from the USDA Natural Resources Conservation Service (NRCS) for the project area. The report identifies four soil map units within the 32.4-acre area of interest (includes the parcel and parcel context):

Symbol	Soil Name	Acres	% of AOI	HSG	Slope
8F	Hickory silt loam	0.6	1.9%	B	18–35%
581B	Tamalco silt loam	1.0	3.2%	D	2–5%
582B	Homen silt loam	5.2	16.2%	C	2–5%
993A	Cowden-Piasa silt loams	25.5	78.7%	C/D	0–2%
	Total	32.4	100.0%		

2.2.1 Cowden-Piasa Silt Loams (993A) Dominant Soil

Comprising 78.7% of the area of interest, the Cowden-Piasa silt loams are the dominant soil on site. These soils are found on uplands with 0 to 2 percent slopes on ground moraines. Key characteristics include poorly drained conditions with a depth to water table of approximately 0 to 12 inches, frequent ponding, and a Hydrologic Soil Group of C/D. The saturated hydraulic conductivity (Ksat) of the most limiting layer is moderately low to moderately high (0.06 to 0.20 in/hr for Cowden) and low to moderately low (0.01 to 0.06 in/hr for Piasa). The Cowden component has a hydric soil rating of Yes. The typical profile consists of silt loam (0–8 in.), silt loam (8–19 in.), silty clay loam (19–50 in.), and silt loam (50–79 in.).

Erosion and sediment control BMPs must account for the slow infiltration rates and high ponding potential of these soils, particularly during wet seasons.

2.2.2 Homen Silt Loam (582B)

Covering 16.2% of the area, Homen silt loam occurs on uplands and till plains with 2 to 5 percent slopes. It is moderately well drained with a water table at approximately 18 to 42 inches and HSG C.

The Ksat is moderately low to moderately high (0.06 to 0.20 in/hr). The typical profile includes silt loam over silty clay loam with a fragipan-like layer (2Btx) at 42 to 77 inches. All areas are classified as prime farmland.

2.2.3 Tamalco Silt Loam (581B)

Comprising 3.2% of the area, this soil is found on knolls on ground moraines with 2 to 5 percent slopes. It is moderately well drained with a natric restrictive feature at 12 to 24 inches. The Ksat of the most limiting layer is very low (0.01 to 0.06 in/hr), and the HSG is D. Depth to water table is about 17 to 36 inches. This soil is classified as farmland of statewide importance.

2.2.4 Hickory Silt Loam (8F)

Present on only 1.9% of the area along the northeast boundary, Hickory silt loam has steep slopes of 18 to 35 percent. It is well drained with HSG B and a high runoff class. This area will be excluded from grading and construction activities. The existing vegetative buffer in this zone will be maintained.

2.3 Hydrology and Receiving Waters

The site is located within the Shoal Creek watershed in the lower Illinois River basin. Stormwater runoff from the project site drains generally toward the northeast and southeast. Wetland features have been identified on the northeast portion of the parcel and are shown on the site plan. These features will be avoided, and appropriate buffer distances will be maintained in accordance with applicable regulations.

The project design includes a preliminary stormwater management basin located in the northeast area of the site to attenuate post-construction peak runoff rates and volumes. The nearest named receiving water is Shoal Creek, which is part of the larger Kaskaskia River watershed.

2.4 Existing Vegetation and Land Cover

The majority of the parcel is currently in open/mowed condition with a history of managed ground cover. Existing mature vegetative buffers are present along portions of the north and northeast boundaries and will be preserved. The project includes provisions for 20-foot-wide landscaping buffers (Type A) along the north and south perimeters, 10-foot-wide landscaping buffers (Type B) along internal boundaries, and a dedicated habitat and pollinator buffer zone.

3. Construction Activities and Sequence

3.1 Nature of Construction

The Elm Lawn Solar Park involves the construction of a ground-mounted photovoltaic solar facility. Primary construction activities that may result in land disturbance include:

- Seeding and stabilization with native and pollinator-friendly vegetation
- Rough grading for access drives, equipment pads, and stormwater management features
- Installation of perimeter fencing (8-foot woven wire fence)
- Driving of steel piles for single-axis tracker racking foundations
- Trenching for underground electrical conduit and cabling
- Construction of gravel access roads (16-foot typical width, crowned or sloped at 2%–4%)
- Installation of pad-mounted equipment (inverters, transformers, switchgear, metering)
- Stormwater basin construction (if required)

3.2 Construction Sequence

The anticipated construction sequence is as follows:

1. Pre-Construction: Install construction entrance, perimeter erosion controls (silt fence, fiber rolls), and construction staging/laydown area.
2. Site Preparation: Light grading and preconstruction seeding/native ground cover establishment; install temporary sediment and erosion control features as needed.
3. Rough Grading: Grade access roads and equipment pad areas; construct permanent stormwater management features, as needed.
4. Foundation Installation: Drive steel piles for racking; pour concrete pads as required for inverters and equipment.
5. Electrical Trenching: Install underground conduit and cabling; backfill and compact trenches; restore topsoil.
6. Racking and Module Installation: Assemble tracker structures; mount PV modules.
7. Electrical Completion: Install inverters, transformers, switchgear, and metering equipment; complete interconnection in coordination with Ameren.
8. Final Stabilization: Re-seed all disturbed areas with approved native and/or pollinator-friendly seed mixes; install permanent vegetative buffers; remove temporary erosion controls once vegetation is established.

3.3 Estimated Disturbed Area

The total project area within the fence line is approximately 11.51 acres. The total estimated area of land disturbance during construction is no greater than 15 acres, accounting for access roads, equipment pads, trenching corridors, and grading areas. Because the total disturbed area exceeds 1 acre, coverage under the IEPA ILR10 General NPDES Permit is required.

4. Erosion and Sediment Control Best Management Practices

The following structural and non-structural BMPs will be implemented during construction to minimize erosion and the discharge of sediment and other pollutants from the site. BMPs have been selected to address the specific soil conditions at the site, particularly the poorly drained Cowden-Piasa silt loams and the moderate infiltration limitations of the Homen and Tamalco soils.

4.1 Perimeter Controls

- **Silt Fence:** A continuous silt fence barrier shall be installed along all downslope perimeter boundaries of active work areas prior to any land-disturbing activities. Silt fence shall be properly trenched into the soil and staked at a maximum of 6-foot intervals. Particular attention shall be given to the eastern and southeastern perimeters, which are downgradient toward wetland features and receiving waters.
- **Fiber Rolls / Compost Socks:** Supplemental fiber rolls (minimum 12-inch diameter) or compost socks shall be placed along the perimeter of wetland buffer areas and at the toe of any slopes exceeding 3:1.
- **Vegetative Buffer Preservation:** The existing vegetative buffer along the northern boundary shall be maintained throughout construction to provide natural filtration of runoff. A minimum 50-foot buffer shall be maintained from identified wetland features.

4.2 Erosion Controls

- **Soil Stabilization:** All disturbed areas that will remain inactive for 14 or more consecutive days shall be temporarily stabilized with erosion control blankets, hydraulic mulch, or temporary seeding appropriate for the season.
- **Topsoil Management:** Minimal impacts to topsoil are necessary. Any stripped soil shall be stockpiled separately from subsoil in designated areas and protected with silt fence. Stockpiles shall be seeded or covered if inactive for more than 14 days. Best efforts shall be made to store topsoil near the excavation site to prevent mixing with subsoil materials, consistent with AIMA requirements.
- **Slope Protection:** On slopes exceeding 3:1, erosion control blankets (biodegradable) shall be installed on all exposed surfaces within 7 days of final grading. The steep Hickory silt loam area (8F, 18–35% slopes) along the northeast boundary is excluded from disturbance, and existing vegetation will be preserved.
- **Dust Control:** Water trucks or other approved dust suppressants shall be used as necessary to minimize airborne particulates from exposed soils and unpaved roads during dry conditions.

4.3 Sediment Controls

- **Sediment Traps/Basins:** Temporary sediment traps shall be installed at low points within the site and at discharge points prior to the completion of permanent stormwater management features.

- **Inlet Protection:** All existing and proposed storm drain inlets or catch basins within or adjacent to the site shall be protected with filter fabric, gravel bags, or proprietary inlet protection devices.
- **Construction Entrance:** A stabilized construction entrance consisting of a minimum 6-inch depth of crushed aggregate on geotextile fabric shall be installed at the E. Clark Street access point. The entrance shall be a minimum of 20 feet wide. Vehicle tracking pads or wash racks shall be utilized if tracking of sediment onto public roads occurs.
- **Check Dams:** Temporary rock check dams shall be installed in any temporary swales or drainage channels on site to reduce flow velocity and promote sediment deposition.

4.4 Post-Construction Stormwater Controls

- **Permanent Stormwater Basin:** A permanent stormwater management basin may be constructed in the northeast portion of the site as shown on Sheet G101. The basin shall be designed to attenuate post-development peak discharge rates to pre-development levels for the 2-year through 100-year design storm events.
- **Vegetated Swales:** Permanent vegetated swales may be established along internal access roads and panel row drainage corridors to convey runoff at non-erosive velocities.
- **Pollinator Habitat and Ground Cover:** All areas beneath and between solar panel arrays shall be established with a native, seed mix per IDNR recommendations. This permanent ground cover will provide long-term erosion protection and enhanced infiltration throughout the operational life of the facility.

5. Good Housekeeping and Pollution Prevention Measures

5.1 Materials Management

- All construction materials, including fuels, oils, lubricants, and chemicals, shall be stored in designated staging areas with secondary containment.
- Hazardous materials storage areas shall be located a minimum of 50 feet from wetlands, drainage features, and stormwater management facilities.
- Material Safety Data Sheets (SDS) shall be maintained on site for all chemicals stored or used.
- Portable fuel tanks and refueling areas shall be equipped with spill containment berms or trays.

5.2 Waste Management

- Construction debris, including packaging, unused materials, and solid waste, shall be collected and disposed of in designated containers and removed from the site regularly.
- Portable sanitary facilities shall be provided and maintained in proper working order.
- Concrete washout shall be conducted in designated lined washout areas only. Washout water shall not be discharged to the ground surface, drainage features, or stormwater facilities.
- No construction debris or excess soil shall be disposed of in wetland areas or buffers.

5.3 Spill Prevention and Response

A spill prevention and response plan shall be maintained on site. In the event of a spill of fuel, oil, hydraulic fluid, or other hazardous material:

- Stop the source of the spill immediately.
- Deploy absorbent materials (pads, booms, granular absorbent) to contain the spill.
- Notify the site superintendent and environmental compliance manager immediately.
- Report spills exceeding reportable quantities to the IEPA and the National Response Center as required.
- Document the spill event, response actions, and corrective measures in the SWPPP inspection log.

5.4 Vehicle and Equipment Management

- All vehicles and equipment shall be inspected regularly for fluid leaks.
- Vehicle maintenance and washing shall be conducted only in designated areas with appropriate containment.
- Equipment shall be parked on designated impervious pads or existing gravel areas when not in active use.

6. Inspection and Maintenance Requirements

6.1 Inspection Schedule

The SWPPP shall be inspected by a qualified individual in accordance with the IEPA ILR10 General Permit requirements:

- Routine inspections shall be conducted at least once every seven (7) calendar days.
- Additional inspections shall be conducted within 24 hours following any rainfall event producing 0.5 inches or more of precipitation in a 24-hour period.
- Inspections shall also be conducted following any event that causes significant damage to erosion or sediment controls.

6.2 Inspection Scope

Each inspection shall include, at a minimum:

- Visual assessment of all perimeter erosion and sediment controls (silt fence, fiber rolls, construction entrance).
- Inspection of temporary and permanent sediment basins for accumulated sediment, structural integrity, and outlet condition.
- Assessment of all exposed soil areas for evidence of rill or gully erosion.
- Verification that all stockpiles are properly contained and stabilized.
- Inspection of all drainage channels, swales, and stormwater conveyance features.
- Evaluation of the condition of the stabilized construction entrance and identification of any sediment tracking onto public roads.
- Assessment of all materials storage and waste disposal areas for signs of spills or leaks.
- Verification of wetland buffer integrity and absence of encroachment.

6.3 Maintenance and Corrective Actions

Any deficiencies identified during inspections shall be corrected as follows:

- Damaged or undercut silt fence shall be repaired or replaced within 24 hours of discovery.
- Sediment accumulation against silt fence exceeding one-third of the fence height shall be removed promptly.
- Sediment basins and traps shall be cleaned out when sediment accumulation reaches 50% of design storage capacity.
- Any breach or failure of erosion controls shall be repaired immediately, and supplemental controls shall be installed as needed.
- Tracking of sediment onto public roads shall be addressed within 24 hours by sweeping and/or enhancing the construction entrance.

6.4 Documentation

All inspection findings shall be documented in written inspection reports maintained on site as part of the SWPPP. Each report shall include the date and time of inspection, name of inspector, weather conditions, a description of all BMPs observed, identification of any deficiencies, and corrective actions taken or scheduled. Inspection reports shall be retained for a minimum of three (3) years following the filing of the Notice of Termination (NOT).

7. SWPPP Amendments and Permit Termination

7.1 Amendments

This SWPPP is a living document and shall be amended whenever:

- There is a change in design, construction, operation, or maintenance that materially affects the potential for discharge of pollutants.
- Inspections or investigations reveal that the SWPPP is not effective in controlling pollutant discharges.
- Additional or modified BMPs are needed to address site conditions not anticipated in the original plan.
- The IEPA or other regulatory agency requires modifications.

All amendments shall be documented with the date, nature of the change, and the name of the person authorizing the amendment.

7.2 Final Stabilization and Permit Termination

A Notice of Termination (NOT) shall be filed with the IEPA upon achievement of final stabilization. Final stabilization is considered achieved when:

- All land-disturbing activities are complete.
- A uniform perennial vegetative cover with a density of at least 70% of the natural background cover has been established on all unpaved and un-armored areas.
- All temporary erosion and sediment controls have been removed.
- All permanent stormwater management features are constructed and functioning as designed.

For the Elm Lawn Solar Park, final stabilization will be achieved through establishment of native pollinator-friendly ground cover beneath and between all panel arrays, permanent vegetative buffer plantings, and stabilization of all access road shoulders and stormwater conveyance features.

8. Wetland and Environmental Protections

8.1 Wetland Avoidance

Wetland features identified on the northeast portion of the project parcel shall be avoided during all phases of construction. The following protective measures shall be implemented:

- A minimum 50-foot construction setback buffer shall be maintained from all delineated wetland boundaries.
- Wetland buffer areas shall be marked with high-visibility fencing or flagging prior to the start of construction.
- No equipment staging, material storage, soil stockpiling, or land-disturbing activities shall occur within the wetland buffer.
- Redundant perimeter sediment controls (silt fence plus fiber rolls) shall be installed along the wetland buffer boundary.

8.2 Drainage Tile Protection

Consistent with the AIMA requirements and Montgomery County ordinance, the following measures shall be taken to protect agricultural drainage infrastructure:

- Prior to construction, the Applicant shall work with the landowner to identify drainage tile lines traversing the property to the extent reasonably practicable, depicting all identified tile lines on the construction plans.
- Tile line locations shall be recorded using GPS technology.
- Any damaged drainage tile lines shall be repaired promptly using materials of equal or greater quality.
- As-built drawings showing the locations of all encountered drainage tile lines and repair locations shall be compiled and distributed to the landowner and IDOA.

8.3 Endangered Species and Ecological Compliance

The project shall undergo natural resource review through the IDNR EcoCAT (Ecological Compliance Assessment Tool) process for endangered species and wetlands, as committed in the project general notes (Sheet G002). Any recommendations or conditions resulting from the EcoCAT review shall be incorporated into this SWPPP and the project construction plans.



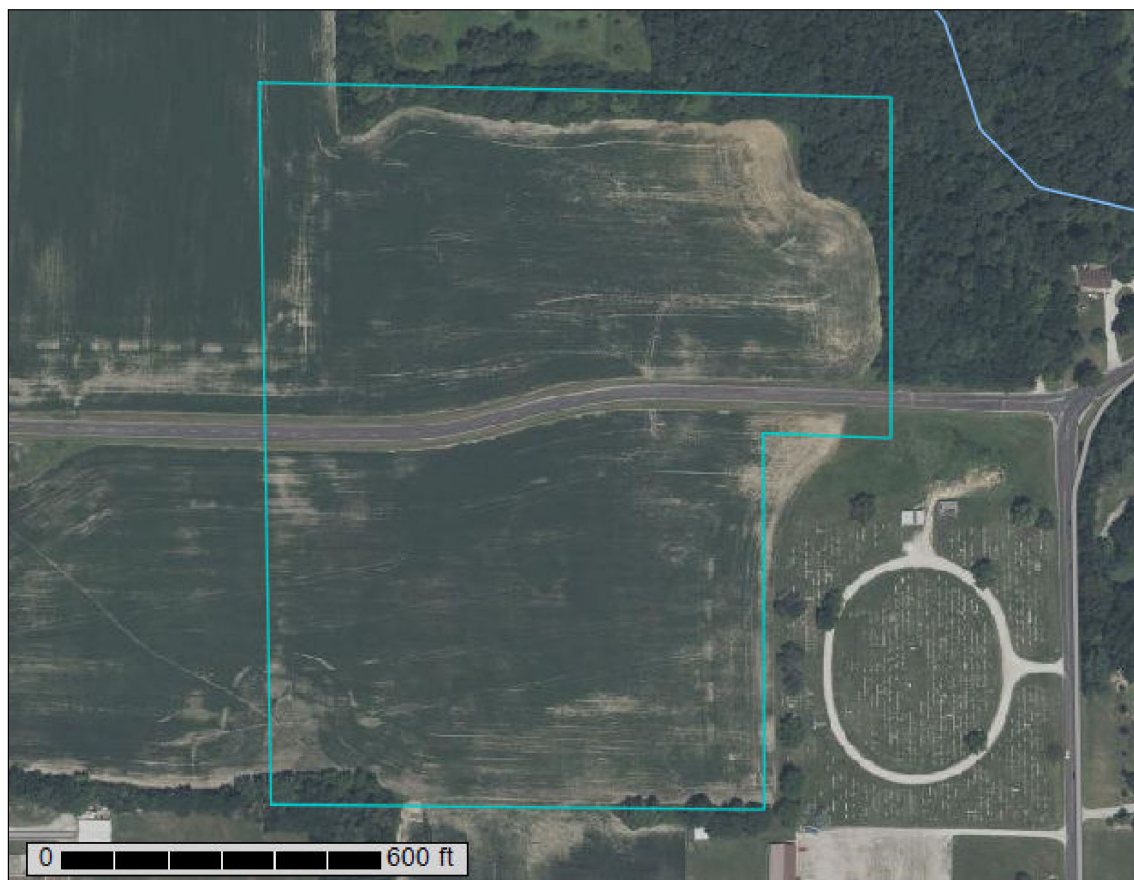
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Montgomery County, Illinois



March 11, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface..... 2

How Soil Surveys Are Made..... 5

Soil Map..... 8

 Soil Map..... 9

 Legend..... 10

 Map Unit Legend..... 11

 Map Unit Descriptions..... 11

 Montgomery County, Illinois..... 13

 8F—Hickory silt loam, 18 to 35 percent slopes..... 13

 581B—Tamalco silt loam, 2 to 5 percent slopes..... 14

 582B—Homen silt loam, 2 to 5 percent slopes..... 15

 993A—Cowden-Piasa silt loams, 0 to 2 percent slopes..... 17

References..... 20

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units).

Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

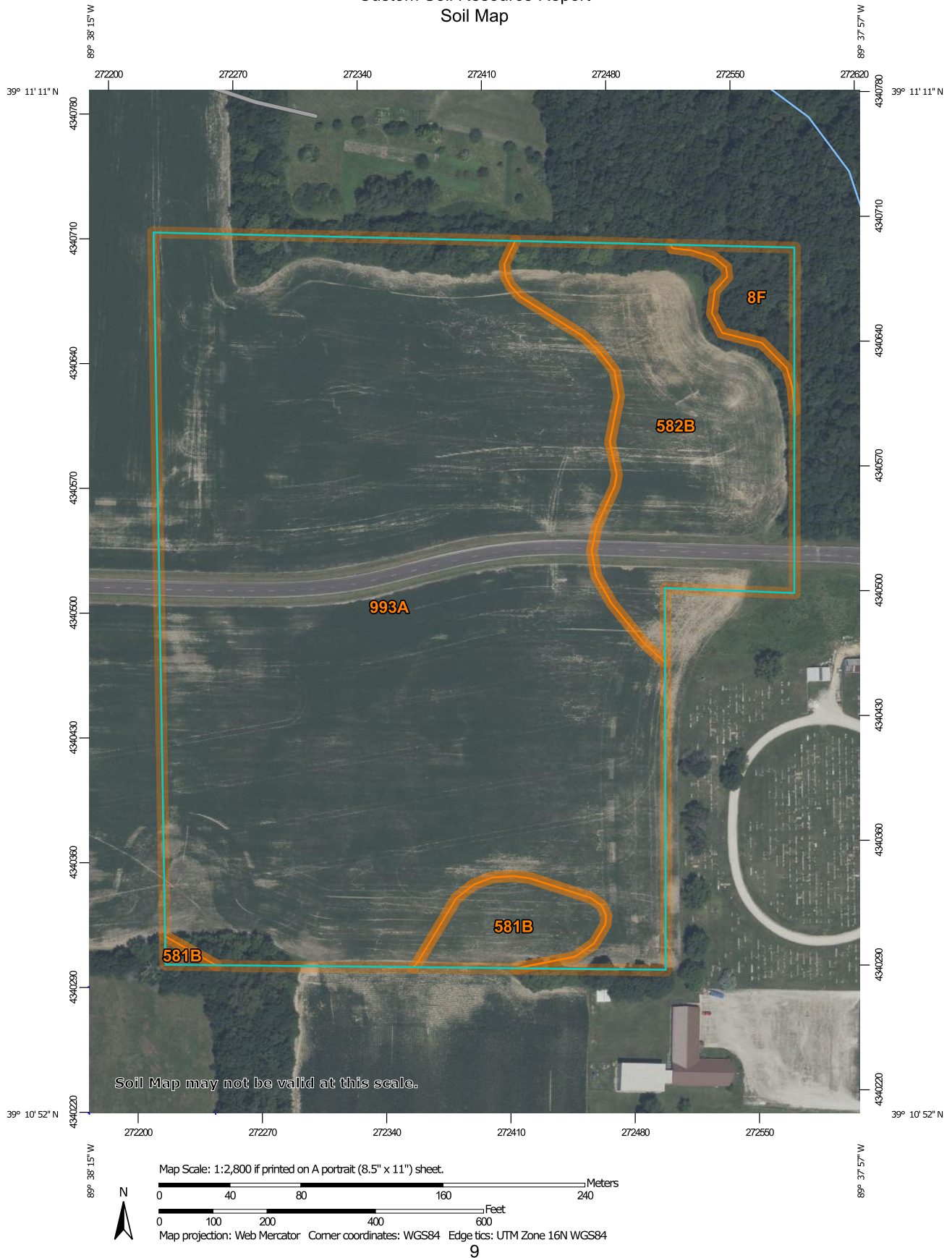
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

Soil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Illinois
Survey Area Data: Version 22, Aug 31, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 10, 2023—Sep 10, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8F	Hickory silt loam, 18 to 35 percent slopes	0.6	1.9%
581B	Tamalco silt loam, 2 to 5 percent slopes	1.0	3.2%
582B	Homen silt loam, 2 to 5 percent slopes	5.2	16.2%
993A	Cowden-Piasa silt loams, 0 to 2 percent slopes	25.5	78.7%
Totals for Area of Interest		32.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

Custom Soil Resource Report

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Montgomery County, Illinois

8F—Hickory silt loam, 18 to 35 percent slopes

Map Unit Setting

National map unit symbol: 2yb19
Landscape: Till plains
Elevation: 370 to 680 feet
Mean annual precipitation: 39 to 46 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 185 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Hickory and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hickory

Setting

Landscape: Till plains
Landform: Ground moraines
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

A - 0 to 4 inches: silt loam
E - 4 to 12 inches: loam
Bt1 - 12 to 26 inches: clay loam
Bt2 - 26 to 46 inches: clay loam
Bt3 - 46 to 60 inches: clay loam

Properties and qualities

Slope: 18 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F113XY911IL - Loamy Till Backslope Forest

Custom Soil Resource Report

Hydric soil rating: No

Minor Components

Ava

Percent of map unit: 5 percent

Landscape: Loess covered till plains

Landform: Convex ridges

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Ecological site: F113XY910IL - Fragic Backslope Woodland

Hydric soil rating: No

Atlas, eroded

Percent of map unit: 3 percent

Landscape: Till plains

Landform: Ground moraines

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Head slope, side slope

Down-slope shape: Concave

Across-slope shape: Concave

Ecological site: F114XB502IN - Wet Till Upland Forest

Hydric soil rating: No

Belknap, frequently flooded

Percent of map unit: 2 percent

Landscape: River valleys

Landform: Flood plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F113XY919IL - Wet Silty Floodplain Forest

Hydric soil rating: No

581B—Tamalco silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vsdp

Elevation: 340 to 1,360 feet

Mean annual precipitation: 35 to 48 inches

Mean annual air temperature: 54 to 57 degrees F

Frost-free period: 180 to 200 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Tamalco and similar soils: 90 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Custom Soil Resource Report

Description of Tamalco

Setting

Landform: Knolls on ground moraines
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess

Typical profile

A - 0 to 6 inches: silt loam
E - 6 to 9 inches: silt loam
Bt1 - 9 to 17 inches: silty clay
Bt2 - 17 to 42 inches: silty clay loam
2C - 42 to 84 inches: silt loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: 12 to 24 inches to natric
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: About 17 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 25.0
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R113XY902IL - Natric Till Plain Savanna
Hydric soil rating: No

582B—Homen silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tp1c
Landscape: Uplands
Elevation: 350 to 980 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 170 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Homen and similar soils: 90 percent

Custom Soil Resource Report

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Homen

Setting

Landscape: Uplands

Landform: Till plains

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Rise

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Peoria loess over roxana loess

Typical profile

Ap - 0 to 9 inches: silt loam

E - 9 to 14 inches: silt loam

Bt - 14 to 42 inches: silty clay loam

2Btx - 42 to 77 inches: silt loam

2Bt - 77 to 79 inches: silt loam

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 18 to 42 inches

Frequency of flooding: None

Frequency of ponding: None

Sodium adsorption ratio, maximum: 2.0

Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: F114XB803IN - Wet Silty Eolian Forest

Hydric soil rating: No

Minor Components

Marine

Percent of map unit: 10 percent

Landscape: Uplands

Landform: Ground moraines

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Talf

Down-slope shape: Convex

Across-slope shape: Convex

Ecological site: F114XB803IN - Wet Silty Eolian Forest

Hydric soil rating: No

993A—Cowden-Piasa silt loams, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tbs0
Landscape: Uplands
Elevation: 330 to 840 feet
Mean annual precipitation: 38 to 46 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 195 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Cowden and similar soils: 50 percent
Piasa and similar soils: 48 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cowden

Setting

Landscape: Uplands
Landform: Ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess

Typical profile

Ap - 0 to 8 inches: silt loam
Eg - 8 to 19 inches: silt loam
Btg - 19 to 50 inches: silty clay loam
Cg - 50 to 79 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 17 to 21 inches to abrupt textural change
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R113XY903IL - Wet Upland Prairie
Hydric soil rating: Yes

Description of Piasa

Setting

Landscape: Uplands
Landform: Depressions, Ground moraines
Landform position (two-dimensional): Toeslope, summit
Landform position (three-dimensional): Interfluve, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over silty pedisegment

Typical profile

Ap - 0 to 8 inches: silt loam
Eng - 8 to 12 inches: silt loam
Btng - 12 to 48 inches: silty clay loam
2BCng - 48 to 79 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 11 to 14 inches to natric
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: R114XB901IN - Sodium Affected Uplands
Hydric soil rating: Yes

Minor Components

Darmstadt

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R113XY902IL - Natric Till Plain Savanna
Hydric soil rating: No

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelpdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf



Appendix D:

Decommissioning Plan



Solar PV Decommissioning Plan

Prepared for: SDG IL DG, LLC

Prepared by: Uneclipsed Energy, PLLC

Project Name: Elm Lawn Solar Park

Location: Montgomery County, IL

Parcel ID: 10-34-100-019

Project Size: 2 MWac / 3 MWdc

1. Introduction

This report presents the decommissioning plan for the Elm Lawn Solar Park Solar Facility located in Montgomery County, IL. The purpose of this plan is to describe the procedures and estimated costs associated with removing the solar energy facility and restoring the project site following the end of the facility's useful life. This plan has been developed in compliance with the Standard Solar Agricultural Impact Mitigation Agreement (AIMA), most recently revised by the Illinois Department of Agriculture on August 19, 2019.

2. Project Description

The Elm Lawn Solar Park Solar Facility is a 2 MWac photovoltaic energy project with an installed DC capacity of 3 MWdc. The facility includes photovoltaic modules mounted on single-axis tracking systems together with inverters, transformers, underground electrical collection systems, and associated monitoring and control equipment.

3. Facility Components

The facility components are summarized below, with further detail available in the project application. The procedures for decommissioning these components are described in Section 4 of this Plan.

Solar Photovoltaic (PV) Modules and Racking

Steel single-axis tracking systems will be deployed in this project with driven steel pile foundations, supporting aluminum- or steel-framed PV modules that will produce dc power during daylight hours.



Electrical Balance-Of-System

PV projects require electrical wiring to transmit dc power to inverters that convert dc to ac power. This ~600V ac power is then stepped up through concrete pad-mounted distribution transformers similar to those commonly deployed by electric utilities, to connect to the electrical distribution grid.

Civil Construction

Minimal grading is expected on this site, with final grading and stormwater designs to be incorporated in the civil engineering portion of the Final Construction plans. Two short access driveways will be built off Clark Street to provide access to both project areas, each of which will be fenced. Both fences will be 8' woven wire fence with gates at the driveways.

4. Decommissioning Procedures

The system is expected to be capable of operation for at least thirty-five years, with decommissioning at a time to be agreed upon by the system owner and the landowners leasing the land to the system owner. At the end of the project's life, the system owner shall complete the following list of activities to fully decommission the system. This list is prepared based on current procedures and experience, which will likely improve in the coming years as technology, construction processes and recycling infrastructures improve. Decommissioning activities shall be carried out according to applicable regulations, after obtaining any necessary permits for the decommissioning. The decommissioning activities are as follows, and shall be completed in accordance with OSHA regulations, local/state/federal laws and regulations, and the ever-improving and evolving industry best practices in effect at the time of decommissioning:

- Prepare a safety plan and train all site personnel as to appropriate safeguards and proper work techniques.
- Contact the Utility Company and communicate the cessation of business.
- Disconnect site electric power at the Point of Common Coupling by the site owner or utility. The utility will be responsible for removing all conductors, power poles, and hardware that is under utility ownership.
- Disconnect all dc input source circuit wiring from the combiner boxes.
- Disconnect all dc output circuit wiring from any combiner boxes to inverters.
- Unfasten PV modules from the structural racking system and stack in a staging area (this staging area will be used to store all equipment being removed from the site).
- Remove module home run wiring, raceways, and combiner boxes from the racking system.
- Unbolt the racking system components and stack and remove all driven piers.

- Dig up all buried conductors and backfill trenches. Any excavation shall be performed in a manner to preserve topsoil. Topsoil will be stored near the excavation site in a manner to not become intermixed with subsoil materials.
- Coil and stack wire and conduits. Remove wire connectors and splices, disassemble, and sort as required to maximize recycling value.
- Dismantle inverters, switchgear, and transformers on site when practical, or remove fully intact equipment pads from the site for off-site handling.
- Remove perimeter fencing and pole foundations.
- Sell any recyclable material to a suitable recycling facility, unless the original equipment manufacturer or another organization offers a buy-back program for equipment.
- Dispose of all other materials at appropriate handling facilities in accordance with applicable regulations.
- Dismantle any site roads and restore any compressed soils (under equipment pads, roads) with a subsoiler or flat lifter. Restore any compacted areas to the proper density and depth to remain consistent with the surrounding fields, adding new fill as necessary. Best Efforts shall be performed to place any topsoil in a manner so that after settling occurs, the topsoil's original depth and contour will be restored as close as reasonably practicable.
- Re-seed and re-vegetate disturbed areas of the site, ensuring that the land can return to its original state.

5. Materials Recycling and Disposal

Where feasible, project materials removed during decommissioning will be recycled. This includes steel racking components, recoverable copper or aluminum conductors, and photovoltaic modules where recycling services are available and commercially reasonable.

While the recyclability of steel, copper and aluminum is well-established, solar module recyclers are active in the United States as well, with FabTech Solar Solutions, We Recycle Solar, and ERI (Plainfield, IN) offering collection locations in Illinois or in a neighboring state. In January 2026, the company SOLARCYCLE announced its new recycling facility in Cedartown, GA that expects to hit a capacity of one million solar panels annually by the end of 2026. As most solar panels originally installed in the United States are still in service, it's reasonable to assume an increase in demand for SOLARCYCLE and others in the market.

6. Site Restoration

Following removal of equipment and driveways, disturbed areas will be graded where needed to restore natural surface contours and stabilized with appropriate vegetation or ground cover. The objective of site restoration will be to return the land to a condition compatible with its present use per the AIMA.



7. Agricultural Land Restoration (AIMA Compliance)

Agricultural drainage systems encountered during decommissioning will be repaired if necessary to restore drainage functionality. Soil compaction caused by equipment will be mitigated through subsoiling, deep ripping, or similar agricultural soil restoration techniques, and disturbed areas will be restored to support agricultural use where applicable.

Unless the Landowner opts to do the restoration work on compaction and rutting, after the topsoil has been replaced post-Deconstruction, all areas within the boundaries of the Facility that were traversed by vehicles and Construction and/or Deconstruction equipment that exhibit compaction and rutting shall be restored by the Facility Owner. All prior Cropland shall be ripped at least 18 inches deep or to the extent practicable, and all pasture and woodland shall be ripped at least 12 inches deep or to the extent practicable. The existence of drainage tile lines or underground utilities may necessitate less ripping depth. The disturbed area shall then be disked.

if underground drainage tile lines were present within the footprint of the Facility and were severed or otherwise damaged during original construction, facility operation, and/or facility Deconstruction, the Owner shall repair existing drainage tiles or install new drainage tile lines of comparable quality and cost to the original, within the footprint of the Facility with sufficient capacity to restore the underground drainage capacity that existed within the footprint of the Facility prior to construction. Such installation shall be completed within 12 months after the end of the useful life of the Facility.

During Deconstruction, all additional permanent drainage tile line repairs beyond those included above must be made within 30 days of identification or notification of the damage, weather and soil conditions permitting. At other times, such repairs must be made at a time mutually agreed upon by the Facility Owner and the Landowner. If the Facility Owner and Landowner cannot agree upon a reasonable method to complete this restoration, the Facility Owner may implement the recommendations of the appropriate County Soil & Water Conservation District and such implementation constitutes compliance with this provision.

8. Decommissioning Schedule, Project Useful Life, and Abandonment

This project will be designed to operate for a useful life of 40 years.

The project is considered abandoned if electricity generation has ceased for a period of twelve consecutive months without evidence that the Owner intends to resume operations. Per the AIMA, a Commercial Solar Energy Facility shall be presumed to have reached the end of its useful life if the Facility Owner refuses, for a period of 6 consecutive months, to pay the Landowner amounts owed in accordance with an Underlying Agreement.



Upon abandonment, the Project Owner will initiate the decommissioning process in accordance with this plan. The Owner will, at its expense, complete Deconstruction within 12 months after the end of the useful life of the Facility.

9. Decommissioning Cost Estimate

Estimated costs associated with removal of equipment, site restoration, transportation, recycling, and disposal of project materials are summarized in this report. The estimate also accounts for contractor mobilization, contingency, labor, and other project-related costs.

10. Financial Assurance

Financial Assurance for decommissioning may be provided through mechanisms such as a surety bond, escrow account, letter of credit, or other financial instrument acceptable to the applicable jurisdiction. The amount of financial assurance should be based on the estimated net decommissioning cost presented in this report unless the governing ordinance requires a different basis. It is the intent of the Facility Owner to provide this assurance via surety bond, renewed annually, that would be available to any party to perform the system deconstruction and decommissioning.

The Facility Owner shall provide the County with Financial Assurance to cover the estimated costs of Deconstruction of the Facility. Provision of this Financial Assurance shall be phased in over the first 11 years of the Project's operation as follows:

1. On or before the first anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover ten (10) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan.
2. On or before the sixth anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover fifty (50) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan.
3. On or before the eleventh anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover one hundred (100) percent of the estimated costs of Deconstruction of the Facility as determined in the updated Deconstruction Plan provided during the tenth year of commercial operation.

The Financial Assurance shall not release the surety from liability until the Financial Assurance is replaced. The salvage value of the Facility may only be used to reduce the estimated costs of Deconstruction if the County agrees that all interests in the salvage value are subordinate or have been subordinated to that of the County if Abandonment occurs.



11. Assumptions and Limitations

This estimate represents the engineer's opinion of probable costs based on available information and current market conditions. Actual costs may vary depending on contractor pricing, labor rates, disposal charges, recycling markets, equipment availability, and other factors at the time of decommissioning.

12. Engineer Certification

This report has been prepared by David K. Click, PE using available project information and generally accepted engineering practices for pre-construction photovoltaic facility decommissioning planning. Final project-specific certification language should be reviewed by the responsible Professional Engineer at the appropriate time.

13. Decommissioning Cost Summary

Item	Estimated Cost
Equipment Removal	\$74,372
Electrical Removal	\$48,417
Site Restoration	\$15,000
Mobilization	\$13,829
Total Estimated Cost	\$174,936
Estimated Salvage Value	\$29,655
Net Decommissioning Cost	\$145,281



Appendix E:

Agricultural Impact Mitigation Agreement

Bureau of Land and Water Resources

State Fairgrounds • P.O. Box 19281 • Springfield, IL 62794-9281 • 217/782-6297 • TDD 866/287-2999 • Fax 217/557-0993

March 9, 2026

Dear Landowner:

As the landowner across which the SDG IL DG LLC is planning to construct a solar farm and related ±2000.00 MW Commercial Solar Energy Facility, that will consist of solar panel arrays, racking systems, access roads, an onsite underground collection system, inverters and transformers, the Illinois Department of Agriculture would like to inform you of the following matter.

Effective March 4, 2026, SDG IL DG LLC and the Illinois Department of Agriculture (IDOA) entered into an Agricultural Impact Mitigation Agreement (AIMA) establishing standards and policies that SDG IL DG LLC will follow as it constructs a ±2000.00 KW commercial Solar Energy Facility over agricultural land in Montgomery County. The enclosed AIMA will provide a high level of protection to such land, but it may not address specific concerns that you may have. Such concerns must be addressed individually in your own easement contract to accomplish your specific goals.

As you review the AIMA, you may identify procedures that you would like to change. Your right to negotiate changes is preserved by Paragraph B. on page one of the AIMA. It states, "Except for Section 17B. through F., all actions set forth in this AIMA are subject to modification through negotiation by Landowners and the Facility Owner, provided such changes are negotiated in advance of the respective Construction or Deconstruction activities." It is your decision as to whether you discuss the changes you desire with the right-of-way agent that is assigned to you. Of course, you also have the option to seek your own attorney to make sure your interests are protected.

As you consider your personal interests, you may want to include the owner indemnification clause in your individual easement agreement to protect yourself, your family and future heirs against future claims or expenses arising from the commercial solar energy facility's construction, repairs and maintenance. This item is covered in Section 16 of the AIMA. We feel it is best that such issues are left to landowners to address in their individual easement contracts if specific items are of concern.

Please note that although the IDOA has entered the AIMA with the SDG IL DG LLC it does not constitute our endorsement of the project. The AIMA's sole purpose is to provide a high level of protection to landowners and agricultural land that will be impacted by the construction of the Solar Farm.

If you have questions, feel free to contact me at 217-785-5594, the address listed above, or agr.aima@illinois.gov.

Sincerely,

Jeffrey Evers, Supervisor
Bureau of Land and Water ResourcesEnclosure
JE:SMcc: Jerry Costello II, IDOA Director
Clay Nordsiek, IDOA
Michelle Curby, IDOA
Bill Bodine, Laura Harmon - IL Farm BureauGarrett W. Thalgott – IL Farm Bureau
Montgomery Co. Farm Bureau Manager
Montgomery Co. Soil and Water Conservation District
(SWCD)
Regional Representatives

STANDARD AGRICULTURAL IMPACT MITIGATION AGREEMENT

between
SDG IL DG LLC

and the
ILLINOIS DEPARTMENT OF AGRICULTURE
Pertaining to the Construction of a Commercial Solar Energy Facility
in
Montgomery County, Illinois

Pursuant to the Renewable Energy Facilities Agricultural Impact Mitigation Act (505 ILCS 147), the following standards and policies are required by the Illinois Department of Agriculture (IDOA) to help preserve the integrity of any Agricultural Land that is impacted by the Construction and Deconstruction of a Commercial Solar Energy Facility. They were developed with the cooperation of agricultural agencies, organizations, Landowners, Tenants, drainage contractors, and solar energy companies to comprise this Agricultural Impact Mitigation Agreement (AIMA).

SDG IL DG LLC, hereafter referred to as Commercial Solar Energy Facility Owner, or simply as Facility Owner, plans to develop and/or operate a 2,000 kW-AC Commercial Solar Energy Facility in Montgomery County [GPS Coordinates: 39.1842805, -89.6346546], which will consist of up to 17 acres that will be covered by solar facility related components, such as solar panel arrays, racking systems, access roads, an onsite underground collection system, inverters and transformers and any affiliated electric transmission lines. This AIMA is made and entered between the Facility Owner and the IDOA.

If Construction does not commence within four years after this AIMA has been fully executed, this AIMA shall be revised, with the Facility Owner's input, to reflect the IDOA's most current Solar Farm Construction and Deconstruction Standards and Policies. This AIMA, and any updated AIMA, shall be filed with the County Board by the Facility Owner prior to the commencement of Construction.

The below prescribed standards and policies are applicable to Construction and Deconstruction activities occurring partially or wholly on privately owned agricultural land.

Conditions of the AIMA

The mitigative actions specified in this AIMA shall be subject to the following conditions:

- A. All Construction or Deconstruction activities may be subject to County or other local requirements. However, the specifications outlined in this AIMA shall be the minimum standards applied to all Construction or Deconstruction activities. IDOA may utilize any legal means to enforce this AIMA.
- B. Except for Section 17. B. through F., all actions set forth in this AIMA are subject to modification through negotiation by Landowners and the Facility Owner, provided such changes are negotiated in advance of the respective Construction or Deconstruction activities.
- C. The Facility Owner may negotiate with Landowners to carry out the actions that Landowners wish to perform themselves. In such instances, the Facility Owner shall offer Landowners the area commercial rate for their machinery and labor costs.

Standard Solar AIMA V.8.19.19

- D. All provisions of this AIMA shall apply to associated future Construction, maintenance, repairs, and Deconstruction of the Facility referenced by this AIMA.
- E. The Facility Owner shall keep the Landowners and Tenants informed of the Facility's Construction and Deconstruction status, and other factors that may have an impact upon their farming operations.
- F. The Facility Owner shall include a statement of its adherence to this AIMA in any environmental assessment and/or environmental impact statement.
- G. Execution of this AIMA shall be made a condition of any Conditional/Special Use Permit. Not less than 30 days prior to the commencement of Construction, a copy of this AIMA shall be provided by the Facility Owner to each Landowner that is party to an Underlying Agreement. In addition, this AIMA shall be incorporated into each Underlying Agreement.
- H. The Facility Owner shall implement all actions to the extent that they do not conflict with the requirements of any applicable federal, state and local rules and regulations and other permits and approvals that are obtained by the Facility Owner for the Facility.
- I. No later than 45 days prior to the Construction and/or Deconstruction of a Facility, the Facility Owner shall provide the Landowner(s) with a telephone number the Landowner can call to alert the Facility Owner should the Landowner(s) have questions or concerns with the work which is being done or has been carried out on his/her property.
- J. If there is a change in ownership of the Facility, the Facility Owner assuming ownership of the Facility shall provide written notice within 90 days of ownership transfer, to the Department, the County, and to Landowners of such change. The Financial Assurance requirements and the other terms of this AIMA shall apply to the new Facility Owner.
- K. The Facility Owner shall comply with all local, state and federal laws and regulations, specifically including the worker protection standards to protect workers from pesticide exposure.
- L. Within 30 days of execution of this AIMA, the Facility Owner shall use Best Efforts to provide the IDOA with a list of all Landowners that are party to an Underlying Agreement and known Tenants of said Landowner who may be affected by the Facility. As the list of Landowners and Tenants is updated, the Facility Owner shall notify the IDOA of any additions or deletions.
- M. If any provision of this AIMA is held to be unenforceable, no other provision shall be affected by that holding, and the remainder of the AIMA shall be interpreted as if it did not contain the unenforceable provision.

Definitions

Abandonment

When Deconstruction has not been completed within 12 months after the Commercial Solar Energy Facility reaches the end of its useful life. For purposes of this definition, a Commercial Solar Energy Facility shall be presumed to have reached the end of its useful life if the Commercial Solar Energy Facility Owner fails, for a period of 6 consecutive months, to pay the Landowner amounts owed in accordance with an Underlying Agreement.

Aboveground Cable	Electrical power lines installed above ground surface to be utilized for conveyance of power from the solar panels to the solar facility inverter and/or point of interconnection to utility grid or customer electric meter.
Agricultural Impact Mitigation Agreement (AIMA)	The Agreement between the Facility Owner and the Illinois Department of Agriculture (IDOA) described herein.
Agricultural Land	Land used for Cropland, hayland, pastureland, managed woodlands, truck gardens, farmsteads, commercial ag-related facilities, feedlots, livestock confinement systems, land on which farm buildings are located, and land in government conservation programs used for purposes as set forth above.
Best Efforts	Diligent, good faith, and commercially reasonable efforts to achieve a given objective or obligation.
Commercial Operation Date	The calendar date of which the Facility Owner notifies the Landowner, County, and IDOA in writing that commercial operation of the facility has commenced. If the Facility Owner fails to provide such notifications, the Commercial Operation Date shall be the execution date of this AIMA plus 6 months.
Commercial Solar Energy Facility (Facility)	A solar energy conversion facility equal to or greater than 500 kilowatts in total nameplate capacity, including a solar energy conversion facility seeking an extension of a permit to construct granted by a county or municipality before June 29, 2018. "Commercial solar energy facility" does not include a solar energy conversion facility: (1) for which a permit to construct has been issued before June 29, 2018; (2) that is located on land owned by the commercial solar energy facility owner; (3) that was constructed before June 29, 2018; or (4) that is located on the customer side of the customer's electric meter and is primarily used to offset that customer's electricity load and is limited in nameplate capacity to less than or equal to 2,000 kilowatts.
Commercial Solar Energy Facility Owner deemed (Facility Owner)	A person or entity that owns a commercial solar energy facility. A Commercial Solar Energy Facility Owner is not nor shall it be to be a public utility as defined in the Public Utilities Act.
County	The County or Counties where the Commercial Solar Energy Facility is located.
Construction	The installation, preparation for installation and/or repair of a Facility.
Cropland	Land used for growing row crops, small grains or hay; includes land which was formerly used as cropland, but is currently enrolled in a government conservation program; also includes pastureland that is classified as Prime Farmland.

Deconstruction	The removal of a Facility from the property of a Landowner and the restoration of that property as provided in the AIMA.
Deconstruction Plan	A plan prepared by a Professional Engineer, at the Facility's expense, that includes: (1) the estimated Deconstruction cost, in current dollars at the time of filing, for the Facility, considering among other things: i. the number of solar panels, racking, and related facilities involved; ii. the original Construction costs of the Facility; iii. the size and capacity, in megawatts of the Facility; iv. the salvage value of the facilities (if all interests in salvage value are subordinate to that of the Financial Assurance holder if abandonment occurs); v. the Construction method and techniques for the Facility and for other similar facilities; and (2) a comprehensive detailed description of how the Facility Owner plans to pay for the Deconstruction of the Facility.
Department	The Illinois Department of Agriculture (IDOA).
Financial Assurance	A reclamation or surety bond or other commercially available financial assurance that is acceptable to the County, with the County or Landowner as beneficiary.
Landowner	Any person with an ownership interest in property that is used for agricultural purposes and that is party to an Underlying Agreement.
Prime Farmland	Agricultural Land comprised of soils that are defined by the USDA Natural Resources Conservation Service (NRCS) as "Prime Farmland" (generally considered to be the most productive soils with the least input of nutrients and management).
Professional Engineer	An engineer licensed to practice engineering in the State of Illinois.
Soil and Water Conservation District (SWCD)	A unit of local government that provides technical and financial assistance to eligible Landowners for the conservation of soil and water resources.
Tenant	Any person, apart from the Facility Owner, lawfully residing or leasing/renting land that is subject to an Underlying Agreement.
Topsoil	The uppermost layer of the soil that has the darkest color or the highest content of organic matter; more specifically, it is defined as the "A" horizon.
Underlying Agreement	The written agreement between the Facility Owner and the Landowner(s) including, but not limited to, an easement, option, lease, or license under the terms of which another person has constructed, constructs, or intends to construct a Facility on the property of the Landowner.

Underground Cable	Electrical power lines installed below the ground surface to be utilized for conveyance of power within a Facility or from a Commercial Solar Energy Facility to the electric grid.
USDA Natural Resources Conservation Service (NRCS)	An agency of the United States Department of Agriculture that provides America's farmers with financial and technical assistance to aid with natural resources conservation.

Construction and Deconstruction Standards and Policies

1. Support Structures

- A. Only single pole support structures shall be used for the Construction and operation of the Facility on Agricultural Land. Other types of support structures, such as lattice towers or H-frames, may be used on nonagricultural land.
- B. Where a Facility's Aboveground Cable will be adjacent and parallel to highway and/or railroad right-of-way, but on privately owned property, the support structures shall be placed as close as reasonably practicable and allowable by the applicable County Engineer or other applicable authorities to the highway or railroad right-of-way. The only exceptions may be at jogs or weaves on the highway alignment or along highways or railroads where transmission and distribution lines are already present.
- C. When it is not possible to locate Aboveground Cable next to highway or railroad right-of-way, Best Efforts shall be expended to place all support poles in such a manner to minimize their placement on Cropland (i.e., longer than normal above ground spans shall be utilized when traversing Cropland).

2. Aboveground Facilities

Locations for facilities shall be selected in a manner that is as unobtrusive as reasonably possible to ongoing agricultural activities occurring on the land that contains or is adjacent to the Facility.

3. Guy Wires and Anchors

Best Efforts shall be made to place guy wires and their anchors, if used, out of Cropland, pastureland and hayland, placing them instead along existing utilization lines and on land other than Cropland. Where this is not feasible, Best Efforts shall be made to minimize guy wire impact on Cropland. All guy wires shall be shielded with highly visible guards.

4. Underground Cabling Depth

- A. Underground electrical cables located outside the perimeter of the (fence) of the solar panels shall be buried with:
 - 1. a minimum of 5 feet of top cover where they cross Cropland.
 - 2. a minimum of 5 feet of top cover where they cross pastureland or other non-Cropland classified as Prime Farmland.
 - 3. a minimum of 3 feet of top cover where they cross pastureland and other Agricultural Land not classified as Prime Farmland.

4. a minimum of 3 feet of top cover where they cross wooded/brushy land.

B. Provided that the Facility Owner removes the cables during Deconstruction, underground electric cables may be installed to a minimum depth of 18 inches:

1. Within the fenced perimeter of the Facility; or
2. When buried under an access road associated with the Facility provided that the location and depth of cabling is clearly marked at the surface.

C. If Underground Cables within the fenced perimeter of the solar panels are installed to a minimum depth of 5 feet, they may remain in place after Deconstruction.

5. Topsoil Removal and Replacement

A. Any excavation shall be performed in a manner to preserve topsoil. Best Efforts shall be made to store the topsoil near the excavation site in such a manner that it will not become intermixed with subsoil materials.

B. Best Efforts shall be made to store all disturbed subsoil material near the excavation site and separate from the topsoil.

C. When backfilling an excavation site, Best Efforts shall be used to ensure the stockpiled subsoil material will be placed back into the excavation site before replacing the topsoil.

D. Refer to Section 7 for procedures pertaining to rock removal from the subsoil and topsoil.

E. Refer to Section 8 for procedures pertaining to the repair of compaction and rutting of the topsoil.

F. Best Efforts shall be performed to place the topsoil in a manner so that after settling occurs, the topsoil's original depth and contour will be restored as close as reasonably practicable. The same shall apply where excavations are made for road, stream, drainage ditch, or other crossings. In no instance shall the topsoil materials be used for any other purpose unless agreed to explicitly and in writing by the Landowner.

G. Based on the mutual agreement of the landowner and Facility Owner, excess soil material resulting from solar facility excavation shall either be removed or stored on the Landowner's property and reseeded per the applicable National Pollution Discharge Elimination System (NPDES) permit/Stormwater Pollution Prevention Plan (SWPPP). After the Facility reaches the end of its Useful Life, the excess subsoil material shall be returned to an excavation site or removed from the Landowner's property, unless otherwise agreed to by Landowner.

6. Rerouting and Permanent Repair of Agricultural Drainage Tiles

The following standards and policies shall apply to underground drainage tile line(s) directly or indirectly affected by Construction and/or Deconstruction:

A. Prior to Construction, the Facility Owner shall work with the Landowner to identify drainage tile lines traversing the property subject to the Underlying Agreement to the extent reasonably practicable. All drainage tile lines identified in this manner shall be shown on the Construction and Deconstruction Plans.

- B. The location of all drainage tile lines located adjacent to or within the footprint of the Facility shall be recorded using Global Positioning Systems (GPS) technology. Within 60 days after Construction is complete, the Facility Owner shall provide the Landowner, the IDOA, and the respective County Soil and Water Conservation District (SWCD) with “as built” drawings (strip maps) showing the location of all drainage tile lines by survey station encountered in the Construction of the Facility, including any tile line repair location(s), and any underground cable installed as part of the Facility.

C. Maintaining Surrounding Area Subsurface Drainage

If drainage tile lines are damaged by the Facility, the Facility Owner shall repair the lines or install new drainage tile line(s) of comparable quality and cost to the original(s), and of sufficient size and appropriate slope in locations that limit direct impact from the Facility. If the damaged tile lines cause an unreasonable disruption to the drainage system, as determined by the Landowner, then such repairs shall be made promptly to ensure appropriate drainage. Any new line(s) may be located outside of, but adjacent to the perimeter of the Facility. Disrupted adjacent drainage tile lines shall be attached thereto to provide an adequate outlet for the disrupted adjacent tile lines.

D. Re-establishing Subsurface Drainage Within Facility Footprint

Following Deconstruction and using Best Efforts, if underground drainage tile lines were present within the footprint of the facility and were severed or otherwise damaged during original Construction, facility operation, and/or facility Deconstruction, the Facility Owner shall repair existing drainage tiles or install new drainage tile lines of comparable quality and cost to the original, within the footprint of the Facility with sufficient capacity to restore the underground drainage capacity that existed within the footprint of the Facility prior to Construction. Such installation shall be completed within 12 months after the end of the useful life of the Facility and shall be compliant with Figures 1 and 2 to this Agreement or based on prudent industry standards if agreed to by Landowner.

- E. If there is any dispute between the Landowner and the Facility Owner on the method of permanent drainage tile line repair, the appropriate County SWCD's opinion shall be considered by the Facility Owner and the Landowner.
- F. During Deconstruction, all additional permanent drainage tile line repairs beyond those included above in Section 6.D. must be made within 30 days of identification or notification of the damage, weather and soil conditions permitting. At other times, such repairs must be made at a time mutually agreed upon by the Facility Owner and the Landowner. If the Facility Owner and Landowner cannot agree upon a reasonable method to complete this restoration, the Facility Owner may implement the recommendations of the appropriate County SWCD and such implementation constitutes compliance with this provision.
- G. Following completion of the work required pursuant to this Section, the Facility Owner shall be responsible for correcting all drainage tile line repairs that fail due to Construction and/or Deconstruction for one year following the completion of Construction or Deconstruction, provided those repairs were made by the Facility Owner. The Facility Owner shall not be responsible for drainage tile repairs that the Facility Owner pays the Landowner to perform.

7. Rock Removal

With any excavations, the following rock removal procedures pertain only to rocks found in the uppermost 42 inches of soil, the common freeze zone in Illinois, which emerged or were brought to the site as a result of Construction and/or Deconstruction.

- A. Before replacing any topsoil, Best Efforts shall be taken to remove all rocks greater than 3 inches in any dimension from the surface of exposed subsoil which emerged or were brought to the site as a result of Construction and/or Deconstruction.
- B. If trenching, blasting, or boring operations are required through rocky terrain, precautions shall be taken to minimize the potential for oversized rocks to become interspersed in adjacent soil material.
- C. Rocks and soil containing rocks removed from the subsoil areas, topsoil, or from any excavations, shall be removed from the Landowner's premises or disposed of on the Landowner's premises at a location that is mutually acceptable to the Landowner and the Facility Owner.

8. Repair of Compaction and Rutting

- A. Unless the Landowner opts to do the restoration work on compaction and rutting, after the topsoil has been replaced post-Deconstruction, all areas within the boundaries of the Facility that were traversed by vehicles and Construction and/or Deconstruction equipment that exhibit compaction and rutting shall be restored by the Facility Owner. All prior Cropland shall be ripped at least 18 inches deep or to the extent practicable, and all pasture and woodland shall be ripped at least 12 inches deep or to the extent practicable. The existence of drainage tile lines or underground utilities may necessitate less ripping depth. The disturbed area shall then be disked.
- B. All ripping and disking shall be done at a time when the soil is dry enough for normal tillage operations to occur on Cropland adjacent to the Facility.
- C. The Facility Owner shall restore all rutted land to a condition as close as possible to its original condition upon Deconstruction, unless necessary earlier as determined by the Landowner.
- D. If there is any dispute between the Landowner and the Facility Owner as to what areas need to be ripped/disked or the depth at which compacted areas should be ripped/disked, the appropriate County SWCD's opinion shall be considered by the Facility Owner and the Landowner.

9. Construction During Wet Weather

Except as provided below, construction activities are not allowed on agricultural land during times when normal farming operations, such as plowing, disking, planting or harvesting, cannot take place due to excessively wet soils. With input from the landowner, wet weather conditions may be determined on a field by field basis.

- A. Construction activities on prepared surfaces, surfaces where topsoil and subsoil have been removed, heavily compacted in preparation, or otherwise stabilized (e.g. through cement mixing) may occur at the discretion of the Facility Owner in wet weather conditions.

- B. Construction activities on unprepared surfaces will be done only when work will not result in rutting which may mix subsoil and topsoil. Determination as to the potential of subsoil and topsoil mixing will be made in consultation with the underlying Landowner, or, if approved by the Landowner, his/her designated tenant or designee.

10. Prevention of Soil Erosion

- A. The Facility Owner shall work with Landowners and create and follow a SWPPP to prevent excessive erosion on land that has been disturbed by Construction or Deconstruction of a Facility.
- B. If the Landowner and Facility Owner cannot agree upon a reasonable method to control erosion on the Landowner's property, the Facility Owner shall consider the recommendations of the appropriate County SWCD to resolve the disagreement.
- C. The Facility Owner may, per the requirements of the project SWPPP and in consultation with the Landowner, seed appropriate vegetation around all panels and other facility components to prevent erosion. The Facility Owner must utilize Best Efforts to ensure that all seed mixes will be as free of any noxious weed seeds as possible. The Facility Owner shall consult with the Landowner regarding appropriate varieties to seed.

11. Repair of Damaged Soil Conservation Practices

Consultation with the appropriate County SWCD by the Facility Owner shall be carried out to determine if there are soil conservation practices (such as terraces, grassed waterways, etc.) that will be damaged by the Construction and/or Deconstruction of the Facility. Those conservation practices shall be restored to their preconstruction condition as close as reasonably practicable following Deconstruction in accordance with USDA NRCS technical standards. All repair costs shall be the responsibility of the Facility Owner.

12. Compensation for Damages to Private Property

The Facility Owner shall reasonably compensate Landowners for damages caused by the Facility Owner. Damage to Agricultural Land shall be reimbursed to the Landowner as prescribed in the applicable Underlying Agreement.

13. Clearing of Trees and Brush

- A. If trees are to be removed for the Construction or Deconstruction of a Facility, the Facility Owner shall consult with the Landowner to determine if there are trees of commercial or other value to the Landowner.
- B. If there are trees of commercial or other value to the Landowner, the Facility Owner shall allow the Landowner the right to retain ownership of the trees to be removed and the disposition of the removed trees shall be negotiated prior to the commencement of land clearing.

14. Access Roads

- A. To the extent practicable, access roads shall be designed to not impede surface drainage and shall be built to minimize soil erosion on or near the access roads.

- B. Access roads may be left intact during Construction, operation or Deconstruction through mutual agreement of the Landowner and the Facility Owner unless otherwise restricted by federal, state, or local regulations.
- C. If the access roads are removed, Best Efforts shall be expended to assure that the land shall be restored to equivalent condition(s) as existed prior to their construction, or as otherwise agreed to by the Facility Owner and the Landowner. All access roads that are removed shall be ripped to a depth of 18 inches. All ripping shall be performed consistent with Section 8.

15. Weed/Vegetation Control

- A. The Facility Owner shall provide for weed control in a manner that prevents the spread of weeds. Chemical control, if used, shall be done by an appropriately licensed pesticide applicator.
- B. The Facility Owner shall be responsible for the reimbursement of all reasonable costs incurred by owners of agricultural land where it has been determined by the appropriate state or county entity that weeds have spread from the Facility to their property. Reimbursement is contingent upon written notice to the Facility Owner. Facility Owner shall reimburse the property owner within 45 days after notice is received.
- C. The Facility Owner shall ensure that all vegetation growing within the perimeter of the Facility is properly and appropriately maintained. Maintenance may include, but not be limited to, mowing, trimming, chemical control, or the use of livestock as agreed to by the Landowner.
- D. The Deconstruction plans must include provisions for the removal of all weed control equipment used in the Facility, including weed-control fabrics or other ground covers.

16. Indemnification of Landowners

The Facility Owner shall indemnify all Landowners, their heirs, successors, legal representatives, and assigns from and against all claims, injuries, suits, damages, costs, losses, and reasonable expenses resulting from or arising out of the Commercial Solar Energy Facility, including Construction and Deconstruction thereof, and also including damage to such Facility or any of its appurtenances, except where claims, injuries, suits, damages, costs, losses, and expenses are caused by the negligence or intentional acts, or willful omissions of such Landowners, and/or the Landowners heirs, successors, legal representatives, and assigns.

17. Deconstruction Plans and Financial Assurance of Commercial Solar Energy Facilities

- A. Deconstruction of a Facility shall include the removal/disposition of all solar related equipment/facilities, including the following utilized for operation of the Facility and located on Landowner property:
 - 1. Solar panels, cells and modules;
 - 2. Solar panel mounts and racking, including any helical piles, ground screws, ballasts, or other anchoring systems;
 - 3. Solar panel foundations, if used (to depth of 5 feet);

4. Transformers, inverters, energy storage facilities, or substations, including all components and foundations; however, Underground Cables at a depth of 5 feet or greater may be left in place;
 5. Overhead collection system components;
 6. Operations/maintenance buildings, spare parts buildings and substation/switching gear buildings unless otherwise agreed to by the Landowner;
 7. Access Road(s) unless Landowner requests in writing that the access road is to remain;
 8. Operation/maintenance yard/staging area unless otherwise agreed to by the Landowner; and
 9. Debris and litter generated by Deconstruction and Deconstruction crews.
- B. The Facility Owner shall, at its expense, complete Deconstruction of a Facility within twelve (12) months after the end of the useful life of the Facility.
- C. During the County permit process, or if none, then prior to the commencement of construction, the Facility Owner shall file with the County a Deconstruction Plan. The Facility Owner shall file an updated Deconstruction Plan with the County on or before the end of the tenth year of commercial operation.
- D. The Facility Owner shall provide the County with Financial Assurance to cover the estimated costs of Deconstruction of the Facility. Provision of this Financial Assurance shall be phased in over the first 11 years of the Project's operation as follows:
1. On or before the first anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover ten (10) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan.
 2. On or before the sixth anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover fifty (50) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan.
 3. On or before the eleventh anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover one hundred (100) percent of the estimated costs of Deconstruction of the Facility as determined in the updated Deconstruction Plan provided during the tenth year of commercial operation.

The Financial Assurance shall not release the surety from liability until the Financial Assurance is replaced. The salvage value of the Facility may only be used to reduce the estimated costs of Deconstruction if the County agrees that all interests in the salvage value are subordinate or have been subordinated to that of the County if Abandonment occurs.

- E. The County may, but is not required to, reevaluate the estimated costs of Deconstruction of any Facility after the tenth anniversary, and every five years thereafter, of the Commercial Operation Date. Based on any reevaluation, the County may require changes in the level of Financial Assurance used to calculate the phased Financial Assurance levels described in Section 17.D. required from the Facility Owner. If the County is unable to its satisfaction to perform the investigations necessary to approve the Deconstruction Plan filed by the Facility Owner, then the County and Facility may mutually agree on the selection of a Professional Engineer independent of the Facility Owner to conduct any necessary investigations. The Facility Owner shall be responsible for the cost of any such investigations.
- F. Upon Abandonment, the County may take all appropriate actions for Deconstruction including drawing upon the Financial Assurance.

Concurrence of the Parties to this AIMA

The Illinois Department of Agriculture and SDG IL DG LLC concur that this AIMA is the complete AIMA governing the mitigation of agricultural impacts that may result from the Construction and Deconstruction of the solar farm project in Montgomery County within the State of Illinois.

The effective date of this AIMA commences on the date of execution.

**STATE OF ILLINOIS
DEPARTMENT OF AGRICULTURE**



By: Jerry Costello II, Director

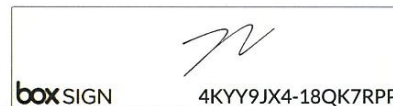


By Clay Nordsiek, Deputy General Counsel

801 E. Sangamon Avenue,
State Fairgrounds, POB 19281
Springfield, IL 62794-9281

3/4, 2026

SDG IL DG LLC


box SIGN 4KYY9JX4-18QK7RPP

By Justin Vandebroek - COO

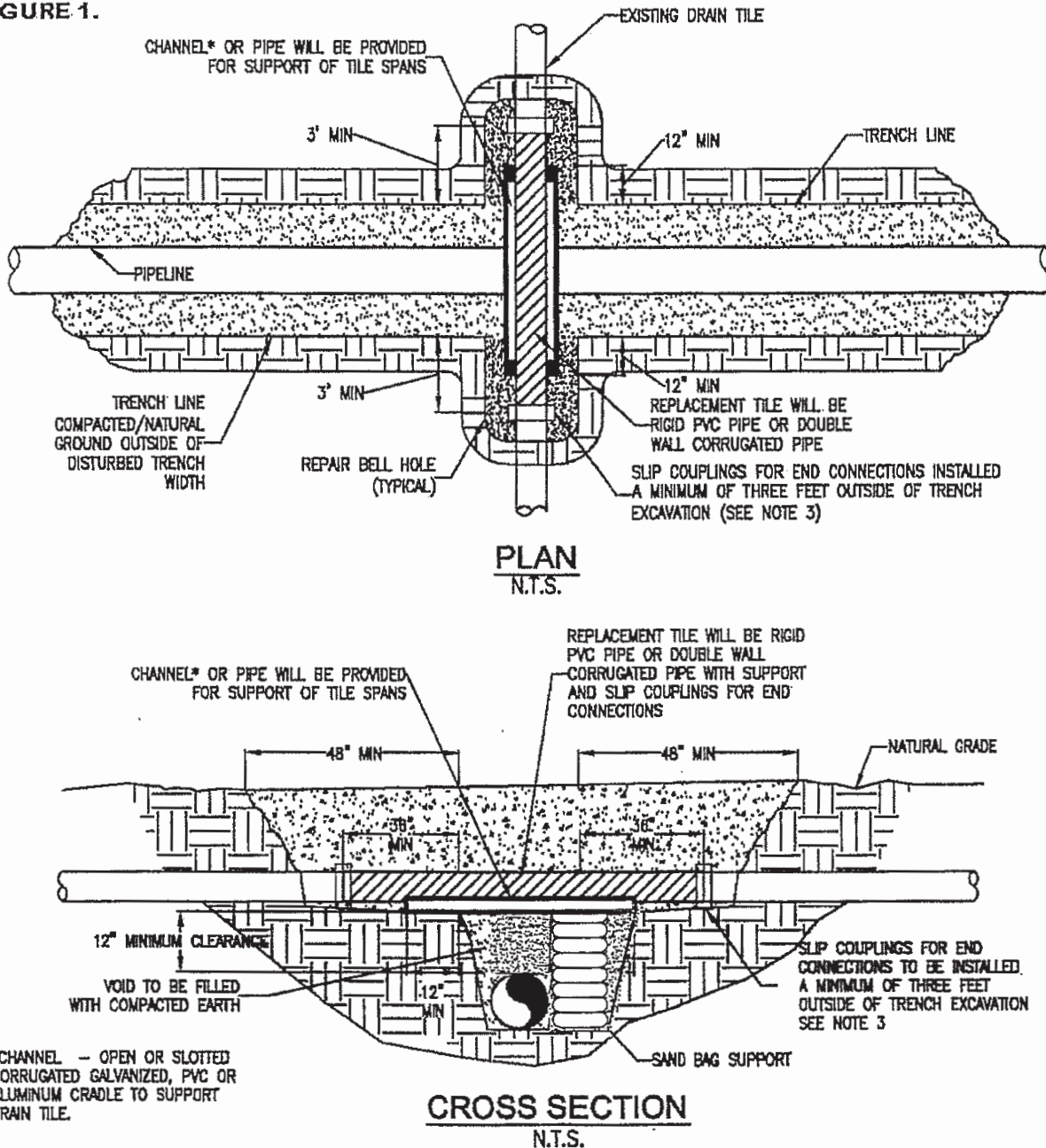
2250 Lucien Way ste. 305, Maitland, FL
32751

Address

February 16th, 2026

Standard Solar AIMA V.8.19.19

FIGURE 1.



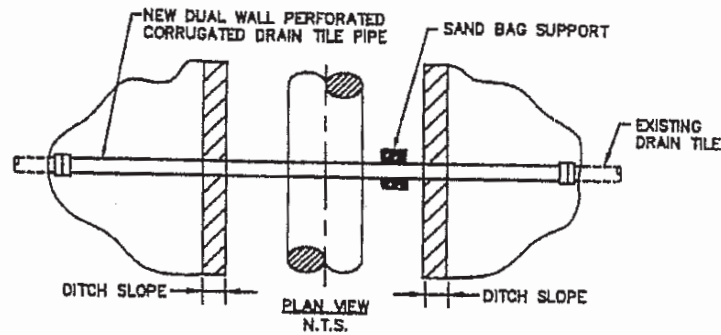
NOTE:

1. IMMEDIATELY REPAIR TILE IF WATER IS FLOWING THROUGH TILE AT TIME OF TRENCHING. IF NO WATER IS FLOWING AND TEMPORARY REPAIR IS DELAYED, OR NOT MADE BY THE END OF THE WORK DAY, A SCREEN OR APPROPRIATE 'NIGHT CAP' SHALL BE PLACED ON OPEN ENDS OF TILE TO PREVENT ENTRAPMENT OF ANIMALS ETC.
2. CHANNEL OR PIPE (OPEN OR SLOTTED) MADE OF CORRUGATED GALVANIZED PIPE, PVC OR ALUMINUM WILL BE USED FOR SUPPORT OF DRAIN TILE SPANS.
3. INDUSTRY STANDARDS SHALL BE FOLLOWED TO ENSURE PROPER SEAL OF REPAIRED DRAIN TILES.

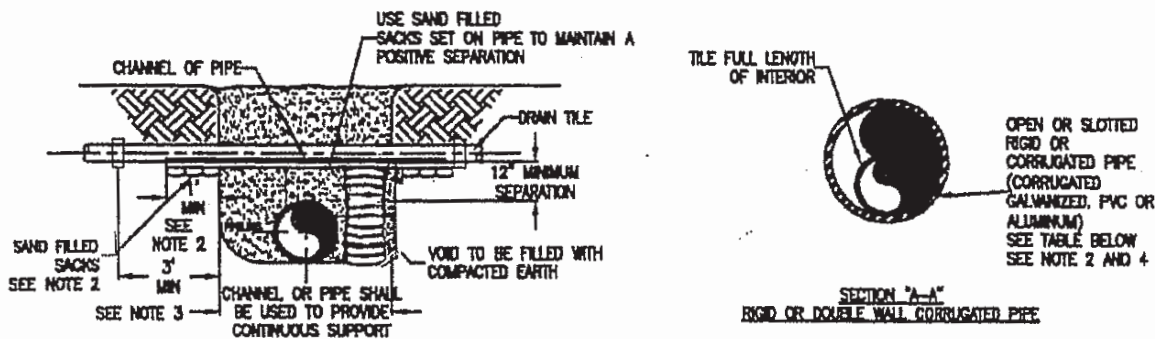
TEMPORARY DRAIN TILE REPAIR

PAGE 1 of 2

FIGURE 2.



PLAN VIEW



END VIEWS

MINIMUM SUPPORT TABLE			
TILE SIZE	CHANNEL SIZE		PIPE SIZE
3"	4" @ 5.4	#11	4" STD. WT.
4"-5"	5" @ 6.7	#11	6" STD. WT.
6"-8"	7" @ 9.8	#11	8"-10" STD. WT.
10"	10" @ 15.3	#11	12" STD. WT.

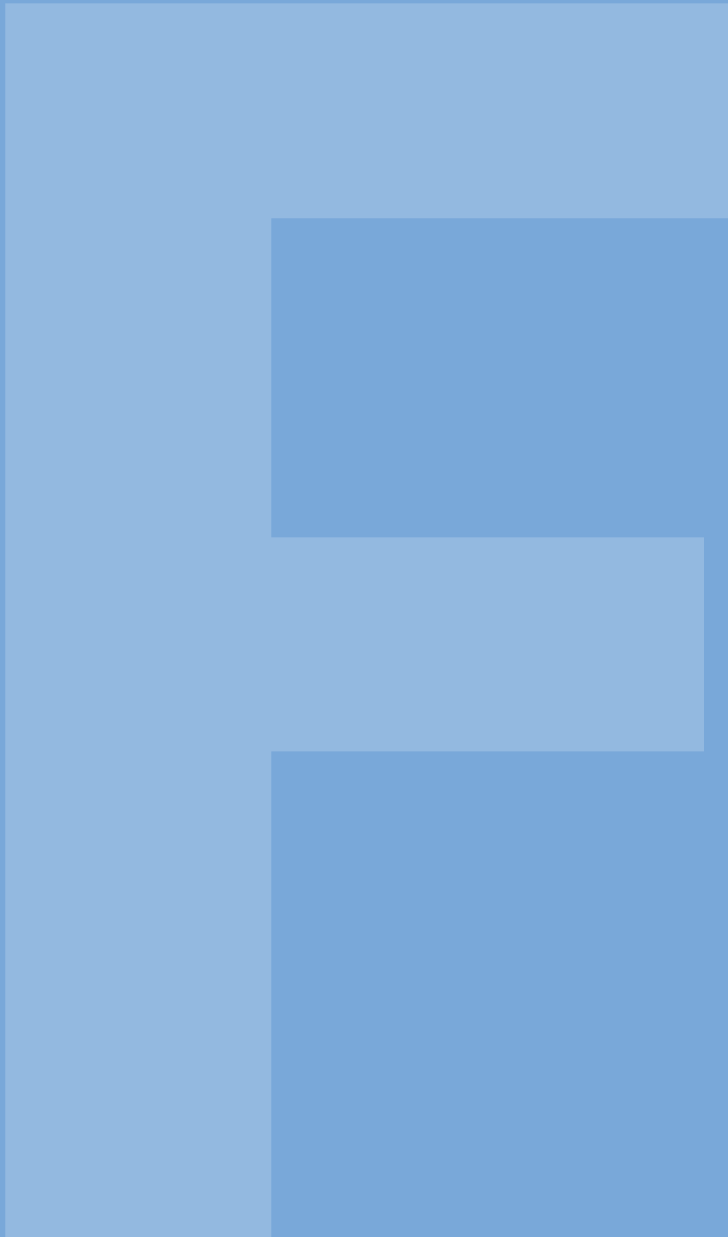
NOTE:

1. TILE REPAIR AND REPLACEMENT SHALL MAINTAIN ORIGINAL ALIGNMENT GRADIENT AND WATER FLOW TO THE GREATEST EXTENT POSSIBLE. IF THE TILE NEEDS TO BE RELOCATED, THE INSTALLATION ANGLE MAY VARY DUE TO SITE SPECIFIC CONDITIONS AND LANDOWNER RECOMMENDATIONS.
2. 1'-0" MINIMUM LENGTH OF CHANNEL OR RIGID PIPE (OPEN OR SLOTTED CORRUGATED GALVANIZED, PVC OR ALUMINUM CRADLE) SHALL BE SUPPORTED BY UNDISTURBED SOIL, OR IF CROSSING IS NOT AT RIGHT ANGLES TO PIPELINE, EQUIVALENT LENGTH PERPENDICULAR TO TRENCH. SHIM WITH SAND BAGS TO UNDISTURBED SOIL FOR SUPPORT AND DRAINAGE GRADIENT MAINTENANCE (TYPICAL BOTH SIDES).
3. DRAIN TILES WILL BE PERMANENTLY CONNECTED TO EXISTING DRAIN TILES A MINIMUM OF THREE FEET OUTSIDE OF EXCAVATED TRENCH LINE USING INDUSTRY STANDARDS TO ENSURE PROPER SEAL OF REPAIRED DRAIN TILES INCLUDING SLIP COUPLINGS.
4. DIAMETER OF RIGID PIPE SHALL BE OF ADEQUATE SIZE TO ALLOW FOR THE INSTALLATION OF THE TILE FOR THE FULL LENGTH OF THE RIGID PIPE.
5. OTHER METHODS OF SUPPORTING DRAIN TILE MAY BE USED IF ALTERNATE PROPOSED IS EQUIVALENT IN STRENGTH TO THE CHANNEL/PIPE SECTIONS SHOWN AND IF APPROVED BY COMPANY REPRESENTATIVES AND LANDOWNER IN ADVANCE. SITE SPECIFIC ALTERNATE SUPPORT SYSTEM TO BE DEVELOPED BY COMPANY REPRESENTATIVES AND FURNISHED TO CONTRACTOR FOR SPANS IN EXCESS OF 20', TILE GREATER THEN 10" DIAMETER, AND FOR "HEADER" SYSTEMS.
6. ALL MATERIAL TO BE FURNISHED BY CONTRACTOR.
7. PRIOR TO REPAIRING TILE, CONTRACTOR SHALL PROBE LATERALLY INTO THE EXISTING TILE TO FULL WIDTH OF THE RIGHTS OF WAY TO DETERMINE IF ADDITIONAL DAMAGE HAS OCCURRED. ALL DAMAGED/DISTURBED TILE SHALL BE REPAIRED AS NEAR AS PRACTICABLE TO ITS ORIGINAL OR BETTER CONDITION.

PERMANENT DRAIN TILE REPAIR

PAGE 2 of 2

[page intentionally left blank]



Appendix F:

EcoCAT

Consultation

Applicant: SDG IL DG, LLC
Contact: Luis Gonzalez
Address: 2250 Lucien Way
Suite 305
Maitland, FL 32751

IDNR Project Number: 2610455
Date: 02/03/2026

Project: Elm Lawn Solar Park
Address: E Clark St, Litchfield

Description: The proposed project is a 11-acre solar park located northeast of Litchfield. The project would produce 2 Megawatts (AC) of renewable energy supporting the local community.

Parcel ID: 10-34-100-019

Property Address: E CLARK ST

Township: NORTH LITCHFIELD

Brief Legal Description: PT SE1/4 NW1/4 S34 T9 R5

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Consultation is terminated. This consultation is valid for two years unless new information becomes available that was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary. Termination does not imply IDNR's authorization or endorsement.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Montgomery

Township, Range, Section:
9N, 5W, 34



IL Department of Natural Resources
Contact
Adam Rawe
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
Montgomery County
Mike Plunkett
#1 Courthouse Square
Room 202
Hillsboro, Illinois 62049

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

Security

EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.



EcoCAT Receipt

Project Code 2610455

APPLICANT	DATE
SDG IL DG, LLC Luis Gonzalez 2250 Lucien Way Suite 305 Maitland, FL 32751	2/3/2026

DESCRIPTION	FEE	CONVENIENCE FEE	TOTAL PAID
EcoCAT Consultation	\$ 125.00	\$ 2.81	\$ 127.81
TOTAL PAID			\$ 127.81

Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
217-785-5500
dnr.ecocat@illinois.gov

[page intentionally left blank]



Appendix G:

IPaC Consultation

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Montgomery County, Illinois



Local office

Southern Illinois Sub-Office

☎ (618) 998-5945

✉ Marion@fws.gov

MAILING ADDRESS

Southern Illinois Sub-office

8588 Route 148

Marion, IL 62959-5822

PHYSICAL ADDRESS

6987 Headquarters Road

Marion, IL 62959

<https://www.fws.gov/office/illinois-iowa-ecological-services>

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Birds

NAME	STATUS
Whooping Crane <i>Grus americana</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/758	EXPN

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found There is proposed critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are Bald Eagles and/or Golden Eagles in your [project](#) area.

Measures for Proactively Minimizing Eagle Impacts

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the [National Bald Eagle Management Guidelines](#). You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#).

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

If disturbance or take of eagles cannot be avoided, an [incidental take permit](#) may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the [Do I Need A Permit Tool](#). For assistance making this determination for golden eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

Bald Eagle *Haliaeetus leucocephalus*

Breeds Oct 15 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

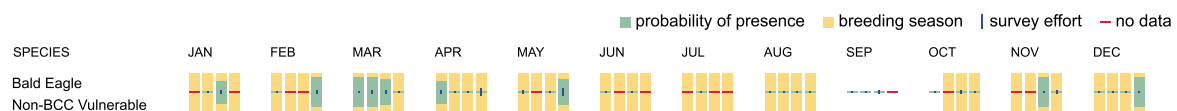
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey banding and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there,

and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases [birds of concern](#), including [Birds of Conservation Concern \(BCC\)](#), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the [Nationwide avoidance and minimization measures for birds](#) document, and any other project-specific avoidance and minimization measures suggested at the link [Measures for avoiding and minimizing impacts to birds](#) for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles document](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Chimney Swift <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

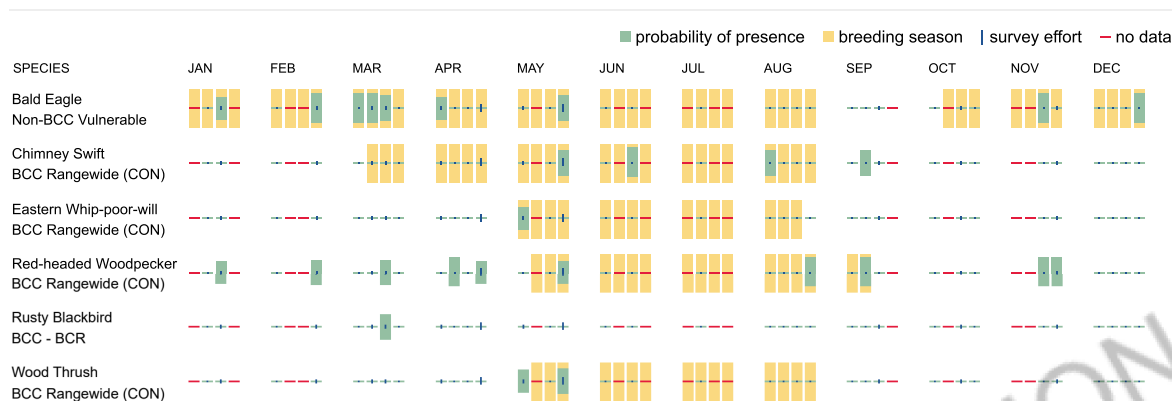
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Avoidance & Minimization Measures for Birds](#) describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the [Bald and Golden Eagle Protection Act](#) and those species marked as "Vulnerable". See the FAQ "What are the levels of concern for migratory birds?" for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Bald and Golden Eagle Protection Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

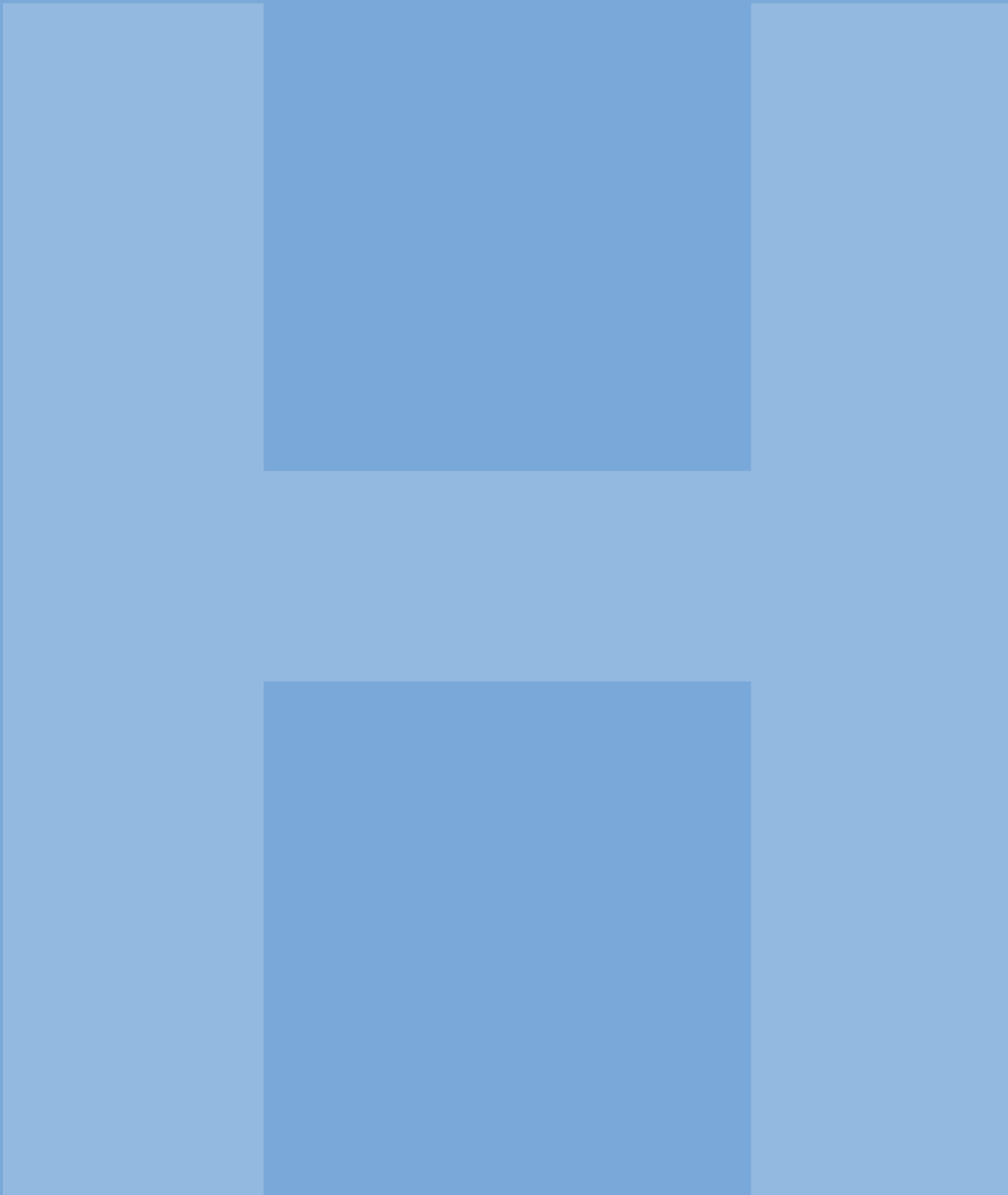
Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

[page intentionally left blank]



Appendix H:

FAA Pre-screening Results

OE/AAA Pre-screening Results

Tue Mar 17 2026 09:06:39 GMT-0400 (Eastern Daylight Time)

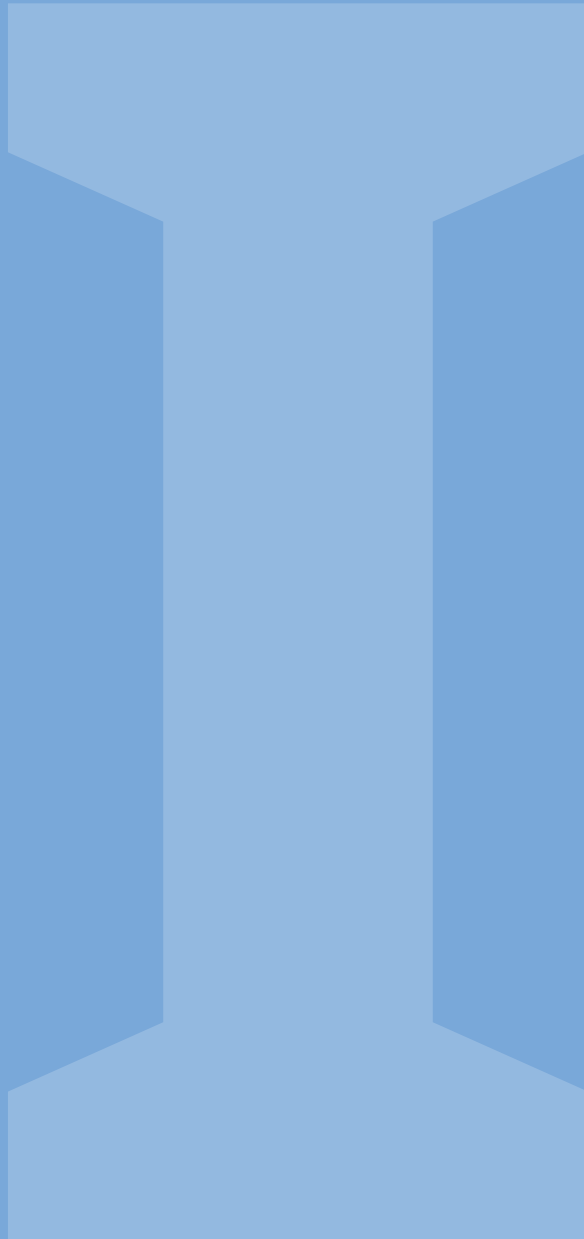
Structure: Solar Panel

Latitude	Longitude	Height	Site Elevation	AMSL
39 11 06.52 N	89 38 10.23 W	15	690	705
39 10 57.36 N	89 38 10.62 W	15	687	702
39 10 57.30 N	89 38 04.55 W	15	688	703
39 11 06.58 N	89 38 01.91 W	15	685	700

Based on the information you provided, you are not required to file notice with the FAA.



[page intentionally left blank]



Appendix I:

ForgeSolar Glare Analysis

FORGESOLAR GLARE ANALYSIS

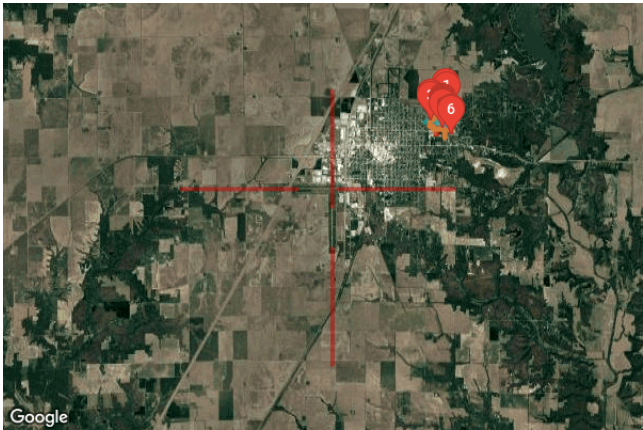
Project: **Elm Lawn Solar Park**
A 2MW solar facility located northeast of Litchfield in Montgomery, Illinois

Site configuration: **Elm Lawn 1**
Calculated via ForgeSolar Radiometric Physics Engine v3.1.0

Created 15 Mar, 2026
Updated 16 Mar, 2026
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
DNI peaks at 1,000.0 W/m²
Category 1 MW to 5 MW
Site ID 173172.28717

Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad

Sun dominance mitigation Enabled



Summary of Results no glare found

PV Array	Tilt °	Orient °	Annual Green Glare		Annual Yellow Glare		Energy kWh
			min	hr	min	hr	
Operational Area 1	SA tracking	SA tracking	0	0.0	0	0.0	-
Operational Area 2	SA tracking	SA tracking	0	0.0	0	0.0	-

Component Data

PV Arrays

Name: Operational Area 1
Axis tracking: Single-axis rotation
Backtracking: Shade
Tracking axis orientation: 180.0°
Max tracking angle: 55.0°
Resting angle: 5.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating (revised)



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	39.185322	-89.636388	690.02	0.00	690.02
2	39.184532	-89.636399	689.27	0.00	689.27
3	39.184548	-89.633856	687.92	0.00	687.92
4	39.185313	-89.633846	683.20	0.00	683.20

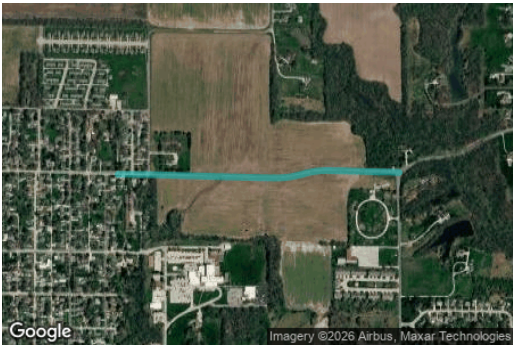
Name: Operational Area 2
Axis tracking: Single-axis rotation
Backtracking: Shade
Tracking axis orientation: 180.0°
Max tracking angle: 55.0°
Resting angle: 5.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating (revised)



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	39.183708	-89.636324	688.60	0.00	688.60
2	39.182469	-89.636292	686.87	0.00	686.87
3	39.182469	-89.634285	688.04	0.00	688.04
4	39.183742	-89.634307	689.42	0.00	689.42

Route Receptors

Name: E Clark St
Path type: Two-way
Azimuthal view angle: 50.0°
Downward view angle: 90.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	39.184107	-89.642448	685.45	0.00	685.45
2	39.184107	-89.641890	684.89	0.00	684.89
3	39.184103	-89.641284	684.62	0.00	684.62
4	39.184035	-89.638250	687.46	0.00	687.46
5	39.184006	-89.636705	689.19	0.00	689.19
6	39.184008	-89.636354	689.90	0.00	689.90
7	39.184014	-89.636180	689.95	0.00	689.95
8	39.184031	-89.635973	690.26	0.00	690.26
9	39.184051	-89.635839	690.50	0.00	690.50
10	39.184119	-89.635465	690.79	0.00	690.79
11	39.184163	-89.635264	690.97	0.00	690.97
12	39.184194	-89.635036	691.05	0.00	691.05
13	39.184212	-89.634827	691.03	0.00	691.03
14	39.184221	-89.634655	691.22	0.00	691.22
15	39.184221	-89.634526	691.12	0.00	691.12
16	39.184211	-89.633952	689.20	0.00	689.20
17	39.184196	-89.633324	685.83	0.00	685.83
18	39.184178	-89.632498	678.87	0.00	678.87
19	39.184178	-89.632181	676.16	0.00	676.16
20	39.184161	-89.631851	673.30	0.00	673.30

Flight Path Receptors

Name: FP East

Description:

Threshold height: 50 ft

Direction: 270.0°

Glide slope: 3.0°

Pilot view restricted? Yes

Vertical view: 30.0°

Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	39.167348	-89.670477	690.43	50.00	740.43
Two-mile	39.167333	-89.633141	666.68	627.17	1293.86

Name: FP North

Description:

Threshold height: 50 ft

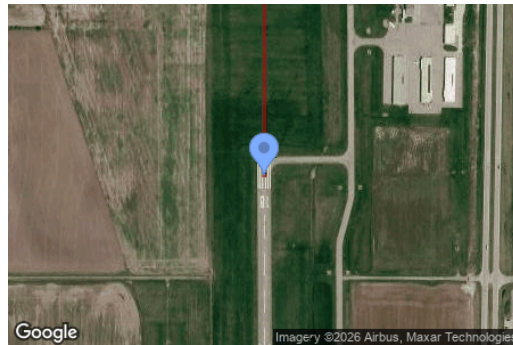
Direction: 180.0°

Glide slope: 3.0°

Pilot view restricted? Yes

Vertical view: 30.0°

Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	39.162964	-89.672386	685.41	50.00	735.41
Two-mile	39.191876	-89.672386	670.64	618.20	1288.83

Name: FP South

Description:

Threshold height: 50 ft

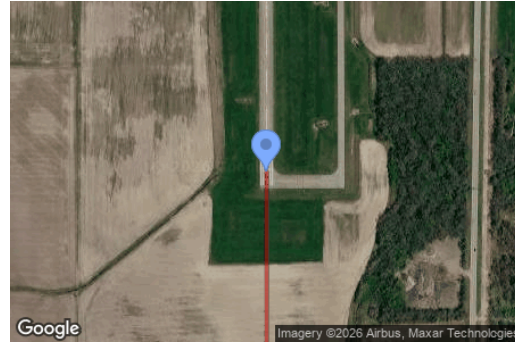
Direction: 0.0°

Glide slope: 3.0°

Pilot view restricted? Yes

Vertical view: 30.0°

Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	39.152498	-89.672338	680.11	50.00	730.11
Two-mile	39.123585	-89.672338	668.37	615.16	1283.54

Name: FP West

Description:

Threshold height: 50 ft

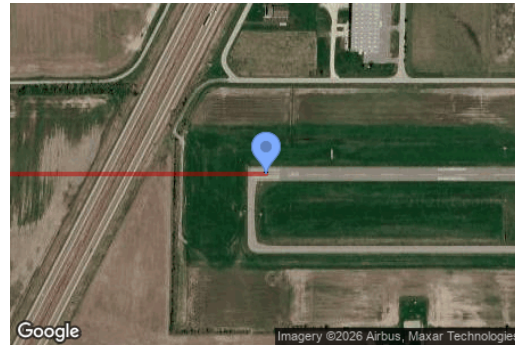
Direction: 90.0°

Glide slope: 3.0°

Pilot view restricted? Yes

Vertical view: 30.0°

Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	39.167359	-89.683569	682.17	50.00	732.17
Two-mile	39.167359	-89.720904	661.00	624.60	1285.60

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	39.186652	-89.635411	689.96	20.00
OP 2	2	39.187519	-89.635870	692.70	20.00
OP 3	3	39.184426	-89.640454	688.02	12.00
OP 4	4	39.184970	-89.640596	688.89	12.00
OP 5	5	39.181232	-89.634147	684.19	8.00
OP 6	6	39.180933	-89.634155	683.46	8.00
OP 7	7	39.183726	-89.636829	687.77	12.00
OP 8	8	39.183535	-89.636839	687.51	12.00
OP 9	9	39.183340	-89.636845	687.25	12.00
OP 10	10	39.183152	-89.636861	687.08	12.00
OP 11	11	39.182974	-89.636866	686.97	12.00
OP 12	12	39.182799	-89.636872	686.82	12.00
OP 13	13	39.182624	-89.636877	686.72	12.00

Obstruction Components

Name: Obstruction 10

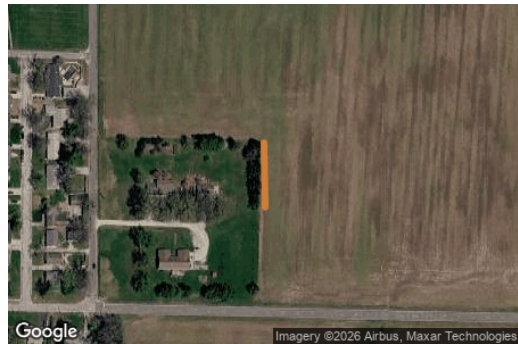
Top height: 60.0 ft



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	39.186035	-89.636682	691.31
2	39.185611	-89.636692	690.36
3	39.185602	-89.633602	682.30
4	39.185286	-89.633592	682.01
5	39.185120	-89.633120	683.07
6	39.184280	-89.633109	683.66
7	39.184280	-89.632336	677.17

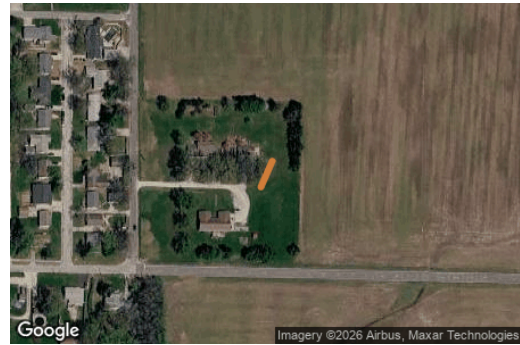
Name: Obstruction 2

Top height: 50.0 ft



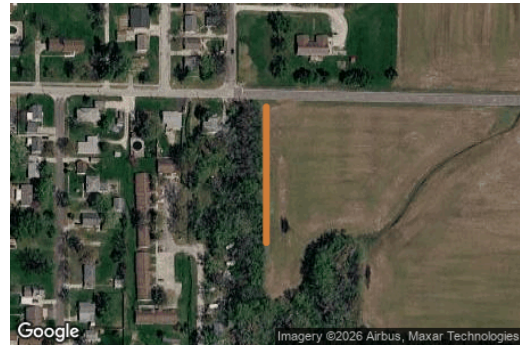
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	39.185301	-89.639661	688.08
2	39.184831	-89.639650	686.81

Name: Obstruction 3
Top height: 40.0 ft



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	39.184891	-89.639962	687.43
2	39.184702	-89.640069	687.10

Name: Obstruction 4
Top height: 50.0 ft



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	39.184001	-89.640946	684.15
2	39.183012	-89.640946	682.30

Name: Obstruction 5
Top height: 40.0 ft



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	39.183062	-89.639970	681.69
2	39.182330	-89.639980	683.59
3	39.182272	-89.636225	686.57
4	39.180184	-89.636161	681.33

Name: Obstruction 6
Top height: 32.8 ft



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	39.182130	-89.634755	687.65
2	39.182126	-89.633811	686.46

Glare Analysis Results

Summary of Results no glare found

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Operational Area 1	SA tracking	SA tracking	0	0.0	0	0.0	-
Operational Area 2	SA tracking	SA tracking	0	0.0	0	0.0	-

PV: Operational Area 1 no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
E Clark St	0	0.0	0	0.0
FP East	0	0.0	0	0.0
FP North	0	0.0	0	0.0
FP South	0	0.0	0	0.0
FP West	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0

Operational Area 1 and Route: E Clark St

No glare found

Operational Area 1 and FP: FP East

No glare found

Operational Area 1 and FP: FP North

No glare found

PV: Operational Area 1 no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
E Clark St	0	0.0	0	0.0
FP East	0	0.0	0	0.0
FP North	0	0.0	0	0.0
FP South	0	0.0	0	0.0
FP West	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0

Operational Area 1 and Route: E Clark St

No glare found

Operational Area 1 and FP: FP East

No glare found

Operational Area 1 and FP: FP North

No glare found

Operational Area 1 and FP: FP South

No glare found

Operational Area 1 and FP: FP West

No glare found

Operational Area 1 and OP 1

No glare found

Operational Area 1 and OP 2

No glare found

Operational Area 1 and OP 3

No glare found

Operational Area 1 and OP 4

No glare found

Operational Area 1 and OP 5

No glare found

Operational Area 1 and OP 6

No glare found

Operational Area 1 and OP 7

No glare found

Operational Area 1 and OP 8

No glare found

Operational Area 1 and OP 9

No glare found

Operational Area 1 and OP 10

No glare found

Operational Area 1 and OP 11

No glare found

Operational Area 1 and OP 12

No glare found

Operational Area 1 and OP 13

No glare found

PV: Operational Area 2 no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
E Clark St	0	0.0	0	0.0
FP East	0	0.0	0	0.0
FP North	0	0.0	0	0.0
FP South	0	0.0	0	0.0
FP West	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0

Operational Area 2 and Route: E Clark St

No glare found

Operational Area 2 and FP: FP East

No glare found

Operational Area 2 and FP: FP North

No glare found

Operational Area 2 and FP: FP South

No glare found

Operational Area 2 and FP: FP West

No glare found

Operational Area 2 and OP 1

No glare found

Operational Area 2 and OP 2

No glare found

Operational Area 2 and OP 3

No glare found

Operational Area 2 and OP 4

No glare found

Operational Area 2 and OP 5

No glare found

Operational Area 2 and OP 6

No glare found

Operational Area 2 and OP 7

No glare found

Operational Area 2 and OP 8

No glare found

Operational Area 2 and OP 9

No glare found

Operational Area 2 and OP 10

No glare found

Operational Area 2 and OP 11

No glare found

Operational Area 2 and OP 12

No glare found

Operational Area 2 and OP 13

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.

"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.

Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.

The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.

Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.

The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.

The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)

The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.

The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.

The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.

Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.

Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.

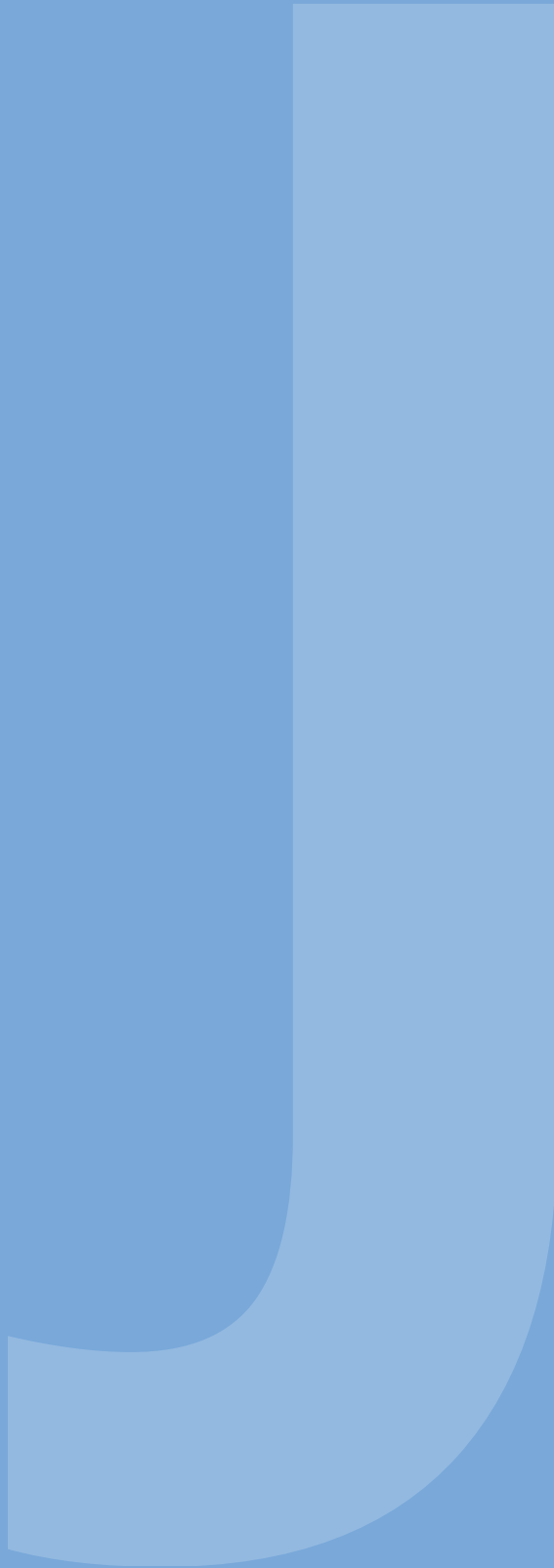
Refer to the Help page at www.forgesolar.com/help/ for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

© 2026 Sims Industries d/b/a ForgeSolar, All Rights Reserved.

This analysis was conducted using the best available radiometric modeling at the time of generation. Future updates to the modeling methodology may yield different results.



Appendix J:

Health and Safety Impacts of Solar PV

WHITE PAPER

Health and Safety Impacts of Solar Photovoltaics

By Tommy Cleveland
May 2017



NC CLEAN ENERGY
TECHNOLOGY CENTER

NC STATE UNIVERSITY

Contents

1.1 • Project Installation / Construction.....	4
1.2 • System Components 1.2.1 Solar Panels: Construction and Durability.....	5
1.2.2 • Photovoltaic (PV) Technologies.....	7
1.2.3. • Panel End-of-Life Management.....	10
1.2.4 • Non-Panel System Components (racking, wiring, inverter, transformer)..	12
1.4 • Operations and Maintenance – Panel Washing and Vegetation Control....	13
2 • Electromagnetic Fields (EMF).....	14
3 • Electric Shock and Arc Flash Hazards	16
4 • Fire Safety.....	16
Summary.....	17

Health and Safety Impacts of Solar Photovoltaics

The increasing presence of utility-scale solar photovoltaic (PV) systems (sometimes referred to as solar farms) is a rather new development in North Carolina's landscape. Due to the new and unknown nature of this technology, it is natural for communities near such developments to be concerned about health and safety impacts. Unfortunately, the quick emergence of utility-scale solar has cultivated fertile grounds for myths and half-truths about the health impacts of this technology, which can lead to unnecessary fear and conflict.

Photovoltaic (PV) technologies and solar inverters are not known to pose any significant health dangers to their neighbors. The most important dangers posed are increased highway traffic during the relative short construction period and dangers posed to trespassers of contact with high voltage equipment. This latter risk is mitigated by signage and the security measures that industry uses to deter trespassing. As will be discussed in more detail below, risks of site contamination are much less than for most other industrial uses because PV technologies employ few toxic chemicals and those used are used in very small quantities. Due to the reduction in the pollution from fossil-fuel-fired electric generators, the overall impact of solar development on human health is overwhelmingly positive. This pollution reduction results from a partial replacement of fossil-fuel fired generation by emission-free PV-generated electricity, which reduces harmful sulfur dioxide (SO₂), nitrogen oxides (NO_x), and fine particulate matter (PM_{2.5}). Analysis from the National Renewable Energy Laboratory and the Lawrence Berkeley National Laboratory, both affiliates of the U.S. Department of Energy, estimates the health-related air quality benefits to the southeast region from solar PV generators to be worth 8.0 ¢ per kilowatt-hour of solar generation.¹

This is in addition to the value of the electricity and suggests that the air quality benefits of solar are worth more than the electricity itself.

Even though we have only recently seen large-scale installation of PV technologies, the technology and its potential impacts have been studied since the 1950s. A combination of this solar-specific research and general scientific research has led to the scientific community having a good understanding of the science behind potential health and safety impacts of solar energy. This paper utilizes the latest scientific literature and knowledge of solar practices in N.C. to address the health and safety risks associated with solar PV technology. These risks are extremely small, far less than those associated with common activities such as driving a car, and vastly outweighed by health benefits of the generation of clean electricity.

This paper addresses the potential health and safety impacts of solar PV development in North Carolina, organized into the following four categories:

- (1) Hazardous Materials
- (2) Electromagnetic Fields (EMF)
- (3) Electric Shock and Arc Flash
- (4) Fire Safety

1 • Hazardous Materials

One of the more common concerns towards solar is that the panels (referred to as "modules" in the solar industry) consist of toxic materials that endanger public health. However, as shown in this section, solar energy systems may contain small amounts of toxic materials, but these materials do not endanger public health. To understand potential toxic hazards coming from a solar project, one

must understand system installation, materials used, the panel end-of-life protocols, and system operation. This section will examine these aspects of a solar farm and the potential for toxicity impacts in the following subsections:

- (1.2) Project Installation/Construction
- (1.2) System Components
 - 1.2.1 Solar Panels: Construction and Durability
 - 1.2.2 Photovoltaic technologies
 - (a) Crystalline Silicon
 - (b) Cadmium Telluride (CdTe)
 - (c) CIS/CIGS
 - 1.2.3 Panel End of Life Management
 - 1.2.4 Non-panel System Components
- (1.3) Operations and Maintenance

1.1 Project Installation/Construction

The system installation, or construction, process does not require toxic chemicals or processes. The site is mechanically cleared of large vegetation, fences are constructed, and the land is surveyed to layout exact installation locations. Trenches for underground wiring are dug and support posts are driven into the ground. The solar panels are bolted to steel and aluminum support structures and wired together. Inverter pads are installed, and an inverter and transformer are installed on each pad. Once everything is connected, the system is tested, and only then turned on.



Figure 1: Utility-scale solar facility (5 MWAC) located in Catawba County. *Source: Strata Solar*

1.2 • System Components

1.2.1 Solar Panels: Construction and Durability

Solar PV panels typically consist of glass, polymer, aluminum, copper, and semiconductor materials that can be recovered and recycled at the end of their useful life.² Today there are two PV technologies used in PV panels at utility-scale solar facilities, silicon, and thin film. As of 2016, all thin film used in North Carolina solar facilities are cadmium telluride (CdTe) panels from the US manufacturer First Solar, but there are other thin film PV panels available on the market, such as Solar Frontier's CIGS panels. Crystalline silicon technology consists of silicon wafers which are made into cells

and assembled into panels, thin film technologies consist of thin layers of semiconductor material deposited onto glass, polymer or metal substrates. While there are differences in the components and manufacturing processes of these two types of solar technologies, many aspects of their PV panel construction are very similar. Specifics about each type of PV chemistry as it relates to toxicity are covered in subsections a, b, and c in section 1.2.2; on crystalline silicon, cadmium telluride, and CIS/CIGS respectively. The rest of this section applies equally to both silicon and thin film panels.

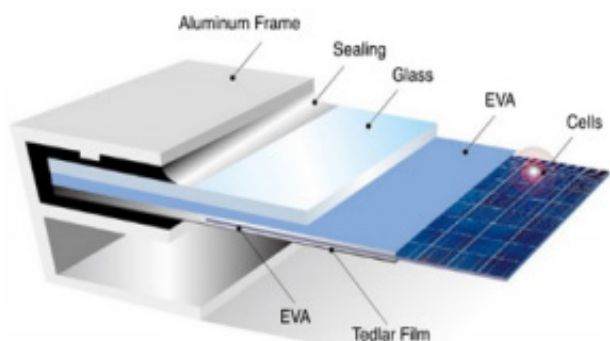


Figure 2: Components of crystalline silicon panels. The vast majority of silicon panels consist of a glass sheet on the topside with an aluminum frame providing structural support. Image Source: www.riteksolar.com.tw

To provide decades of corrosion-free operation, PV cells in PV panels are encapsulated from air and moisture between two layers of plastic. The encapsulation layers are protected on the top with a layer of tempered glass and on the backside with a polymer sheet. Frameless modules include a protective layer of glass on the rear of the panel, which may also be tempered. The plastic ethylene-vinyl acetate (EVA) commonly provides the

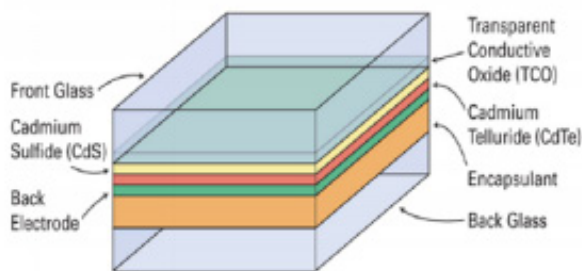


Figure 3: Layers of a common frameless thin-film panel (CdTe). Many thin film panels are frameless, including the most common thin-film panels, First Solar's CdTe. Frameless panels have protective glass on both the front and back of the panel. Layer thicknesses not to scale. Image Source: www.homepower.com

cell encapsulation. For decades, this same material has been used between layers of tempered glass to give car windshields and hurricane windows their great strength. In the same way that a car windshield cracks but stays intact, the EVA layers in PV panels keep broken panels intact (see Figure 4). Thus, a damaged module does not generally create small pieces of debris; instead, it largely remains together as one piece.



Figure 4: The mangled PV panels in this picture illustrate the nature of broken solar panels; the glass cracks but the panel is still in one piece. Image Source: http://img.alibaba.com/photo/115259576/broken_solar_panel.jpg

PV panels constructed with the same basic components as modern panels have been installed across the globe for well over thirty years.³ The long-term durability and performance demonstrated over these decades, as well as the results of accelerated lifetime testing, helped lead to an industry standard 25-year power production warranty for PV panels. These power warranties warrant a PV panel to produce at least 80% of their original nameplate production after 25 years of use. A recent SolarCity and DNV GL study reported that today's quality PV panels should be expected to reliably and efficiently produce power for thirty-five years.⁴

Local building codes require all structures, including ground mounted solar arrays, to be engineered to withstand anticipated wind speeds, as defined by the local wind speed requirements. Many rack-

ing products are available in versions engineered for wind speeds of up to 150 miles per hour, which is significantly higher than the wind speed requirement anywhere in North Carolina. The strength of PV mounting structures were demonstrated during Hurricane Sandy in 2012 and again during Hurricane Matthew in 2016. During Hurricane Sandy, the many large-scale solar facilities in New Jersey and New York at that time suffered only minor damage.⁵ In the fall of 2016, the US and Caribbean experienced destructive winds and torrential rains from Hurricane Matthew, yet one leading solar tracker manufacturer reported that their numerous systems in the impacted area received zero damage from wind or flooding.⁶

In the event of a catastrophic event capable of damaging solar equipment, such as a tornado, the system will almost certainly have property insurance

that will cover the cost to cleanup and repair the project. It is in the best interest of the system owner to protect their investment against such risks. It is also in their interest to get the project repaired and producing full power as soon as possible. Therefore, the investment in adequate insurance is a wise business practice for the system owner. For the same reasons, adequate insurance coverage is also generally a requirement of the bank or firm providing financing for the project.

1.2.2 Photovoltaic (PV) Technologies

a. Crystalline Silicon

This subsection explores the toxicity of silicon-based PV panels and concludes that they do not pose a material risk of toxicity to public health and safety. Modern crystalline silicon PV panels, which account for over 90% of solar PV panels installed today, are, more or less, a commodity product. The overwhelming majority of panels installed in North Carolina are crystalline silicon panels that are informally classified as Tier I panels. Tier I panels are from well-respected manufacturers that have a good chance of being able to honor warranty claims. Tier I panels are understood to be of high quality, with predictable performance, durability, and content. Well over 80% (by weight) of the content of a PV panel is the tempered glass front and the aluminum frame, both of which are common building materials. Most of the remaining portion are common plastics, including polyethylene terephthalate in the backsheet, EVA encapsulation of the PV cells, polyphenyl ether in the junction box, and polyethylene insulation on the wire leads. The active, working components of the system are the silicon photovoltaic cells, the small electrical leads connecting them together, and to the wires coming out of the back of the panel. The electricity generating and conducting components makeup less than 5% of the weight

of most panels. The PV cell itself is nearly 100% silicon, and silicon is the second most common element in the Earth's crust. The silicon for PV cells is obtained by high-temperature processing of quartz sand (SiO_2) that removes its oxygen molecules. The refined silicon is converted to a PV cell by adding extremely small amounts of boron and phosphorus, both of which are common and of very low toxicity.

The other minor components of the PV cell are also generally benign; however, some contain lead, which is a human toxicant that is particularly harmful to young children. The minor components include an extremely thin antireflective coating (silicon nitride or titanium dioxide), a thin layer of aluminum on the rear, and thin strips of silver alloy that are screen-printed on the front and rear of cell.⁷ In order for the front and rear electrodes to make effective electrical contact with the proper layer of the PV cell, other materials (called glass frit) are mixed with the silver alloy and then heated to etch the metals into the cell. This glass frit historically contains a small amount of lead (Pb) in the form of lead oxide. The 60 or 72 PV cells in a PV panel are connected by soldering thin solder-covered copper tabs from the back of one cell to the front of the next cell. Traditionally a tin-based solder containing some lead (Pb) is used, but some manufacturers have switched to lead-free solder. The glass frit and/or the solder may contain trace amounts of other metals, potentially including some with human toxicity such as cadmium. However, testing to simulate the potential for leaching from broken panels, which is discussed in more detail below, did not find a potential toxicity threat from these trace elements. Therefore, the tiny amount of lead in the glass frit and the solder is the only part of silicon PV panels with a potential to create a negative health impact. However, as described below, the very limited amount of lead involved and its strong physical and chemical attachment to other components of the PV panel means that even in worst-case scenarios the health hazard it poses is insignificant.

As with many electronic industries, the solder in silicon PV panels has historically been a lead-based solder, often 36% lead, due to the superior properties of such solder. However, recent advances in lead-free solders have spurred a trend among PV panel manufacturers to reduce or remove the lead in their panels. According to the 2015 Solar Scorecard from the Silicon Valley Toxics Coalition, a group that tracks environmental responsibility of photovoltaic panel manufacturers, fourteen companies (increased from twelve companies in 2014) manufacture PV panels certified to meet the European Restriction of Hazardous Substances (RoHS) standard. This means that the amount of cadmium and lead in the panels they manufacture fall below the RoHS thresholds, which are set by the European Union and serve as the world's de facto standard for hazardous substances in manufactured goods.⁸ The Restriction of Hazardous Substances (RoHS) standard requires that the maximum concentration found in any homogeneous material in a product is less than 0.01% cadmium and less than 0.10% lead, therefore, any solder can be no more than 0.10% lead.⁹

While some manufacturers are producing PV panels that meet the RoHS standard, there is no requirement that they do so because the RoHS Directive explicitly states that the directive does not apply to photovoltaic panels.¹⁰ The justification for this is provided in item 17 of the current RoHS Directive: "The development of renewable forms of energy is one of the Union's key objectives, and the contribution made by renewable energy sources to environmental and climate objectives is crucial. Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources (4) recalls that there should be coherence between those objectives and other Union environmental legislation. Consequently, this Directive should not prevent the development of renewable energy technologies that have no negative impact on health and the environment and that are sustainable and economically viable."

The use of lead is common in our modern economy. However, only about 0.5% of the annual lead consumption in the U.S. is for electronic solder for all uses; PV solder makes up only a tiny portion of this 0.5%. Close to 90% of lead consumption in the US is in batteries, which do not encapsulate the pounds of lead contained in each typical automotive battery. This puts the lead in batteries at great risk of leaching into the environment. Estimates for the lead in a single PV panel with lead-based solder range from 1.6 to 24 grams of lead, with 13g (less than half of an ounce) per panel seen most often in the literature.¹¹ At 13 g/panel¹², each panel contains one-half of the lead in a typical 12-gauge shotgun shell. This amount equates to roughly 1/750th of the lead in a single car battery. In a panel, it is all durably encapsulated from air or water for the full life of the panel.¹⁴

As indicated by their 20 to 30-year power warranty, PV modules are designed for a long service life, generally over 25 years. For a panel to comply with its 25-year power warranty, its internal components, including lead, must be sealed from any moisture. Otherwise, they would corrode and the panel's output would fall below power warranty levels. Thus, the lead in operating PV modules is not at risk of release to the environment during their service lifetime. In extreme experiments, researchers have shown that lead can leach from crushed or pulverized panels.^{15, 16} However, more real-world tests designed to represent typical trash compaction that are used to classify waste as hazardous or non-hazardous show no danger from leaching.^{17,18} For more information about PV panel end-of-life, see the Panel Disposal section.

As illustrated throughout this section, silicon-based PV panels do not pose a material threat to public health and safety. The only aspect of the panels with potential toxicity concerns is the very small amount of lead in some panels. However, any lead in a panel is well sealed from environmental exposure for the operating lifetime of the solar panel and thus not at risk of release into the environment.

b. Cadmium Telluride (CdTe) PV Panels

This subsection examines the components of a cadmium telluride (CdTe) PV panel. Research demonstrates that they pose negligible toxicity risk to public health and safety while significantly reducing the public's exposure to cadmium by reducing coal emissions. As of mid-2016, a few hundred MWs of cadmium telluride (CdTe) panels, all manufactured by the U.S. company First Solar, have been installed in North Carolina.

Questions about the potential health and environmental impacts from the use of this PV technology are related to the concern that these panels contain cadmium, a toxic heavy metal. However, scientific studies have shown that cadmium telluride differs from cadmium due to its high chemical and thermal stability.¹⁹ Research has shown that the tiny amount of cadmium in these panels does not pose a health or safety risk.²⁰ Further, there are very compelling reasons to welcome its adoption due to reductions in unhealthy pollution associated with burning coal. Every GWh of electricity generated by burning coal produces about 4 grams of cadmium air emissions.²¹ Even though North Carolina produces a significant fraction of our electricity from coal, electricity from solar offsets much more natural gas than coal due to natural gas plants being able to adjust their rate of production more easily and quickly. If solar electricity offsets 90% natural gas and 10% coal, each 5-megawatt (5 MWAC, which is generally 7 MWDC) CdTe solar facility in North Carolina keeps about 157 grams, or about a third of a pound, of cadmium *out* of our environment.^{22, 23}

Cadmium is toxic, but all the approximately 7 grams of cadmium in one CdTe panel is in the form of a chemical compound cadmium telluride,²⁴ which has 1/100th the toxicity of free cadmium.²⁵ Cadmium telluride is a very stable compound that is non-volatile and non-soluble in water. Even in the case of a fire, research shows that less than 0.1% of the cadmium is released when a CdTe

panel is exposed to fire. The fire melts the glass and encapsulates over 99.9% of the cadmium in the molten glass.²⁷

It is important to understand the source of the cadmium used to manufacture CdTe PV panels. The cadmium is a byproduct of zinc and lead refining. The element is collected from emissions and waste streams during the production of these metals and combined with tellurium to create the CdTe used in PV panels. If the cadmium were not collected for use in the PV panels or other products, it would otherwise either be stockpiled for future use, cemented and buried, or disposed of.²⁸ Nearly all the cadmium in old or broken panels can be recycled which can eventually serve as the primary source of cadmium for new PV panels.²⁹

Similar to silicon-based PV panels, CdTe panels are constructed of a tempered glass front, one instead of two clear plastic encapsulation layers, and a rear heat strengthened glass backing (together >98% by weight). The final product is built to withstand exposure to the elements without significant damage for over 25 years. While not representative of damage that may occur in the field or even at a landfill, laboratory evidence has illustrated that when panels are ground into a fine powder, very acidic water is able to leach portions of the cadmium and tellurium,³⁰ similar to the process used to recycle CdTe panels. Like many silicon-based panels, CdTe panels are reported (as far back as 1998³¹ to pass the EPA's Toxic Characteristic Leaching Procedure (TCLP) test, which tests the potential for crushed panels in a landfill to leach hazardous substances into groundwater.³² Passing this test means that they are classified as non-hazardous waste and can be deposited in landfills.^{33,34} For more information about PV panel end-of-life, see the Panel Disposal section.

There is also concern of environmental impact resulting from potential catastrophic events involving CdTe PV panels. An analysis of worst-case scenarios for environmental impact from CdTe PV

panels, including earthquakes, fires, and floods, was conducted by the University of Tokyo in 2013. After reviewing the extensive international body of research on CdTe PV technology, their report concluded, “Even in the worst-case scenarios, it is unlikely that the Cd concentrations in air and sea water will exceed the environmental regulation values.”³⁵ In a worst-case scenario of damaged panels abandoned on the ground, insignificant amounts of cadmium will leach from the panels. This is because this scenario is much less conducive (larger module pieces, less acidity) to leaching than the conditions of the EPA’s TCLP test used to simulate landfill conditions, which CdTe panels pass.³⁶

First Solar, a U.S. company, and the only significant supplier of CdTe panels, has a robust panel take-back and recycling program that has been operating commercially since 2005.³⁷ The company states that it is “committed to providing a commercially attractive recycling solution for photovoltaic (PV) power plant and module owners to help them meet their module (end of life) EOL obligation simply, costeffectively and responsibly.” First Solar global recycling services to their customers to collect and recycle panels once they reach the end of productive life whether due to age or damage. These recycling service agreements are structured to be financially attractive to both First Solar and the solar panel owner. For First Solar, the contract provides the company with an affordable source of raw materials needed for new panels and presumably a diminished risk of undesired release of Cd. The contract also benefits the solar panel owner by allowing them to avoid tipping fees at a waste disposal site. The legal contract helps provide peace of mind by ensuring compliance by both parties when considering the continuing trend of rising disposal costs and increasing regulatory requirements.

c. CIS/CIGS and other PV technologies

Copper indium gallium selenide PV technology, of-

ten referred to as CIGS, is the second most common type of thin-film PV panel but a distant second behind CdTe. CIGS cells are composed of a thin layer of copper, indium, gallium, and selenium on a glass or plastic backing. None of these elements are very toxic, although selenium is a regulated metal under the Federal Resource Conservation and Recovery Act (RCRA).³⁸ The cells often also have an extremely thin layer of cadmium sulfide that contains a tiny amount of cadmium, which is toxic. The promise of high efficiency CIGS panels drove heavy investment in this technology in the past. However, researchers have struggled to transfer high efficiency success in the lab to low-cost full-scale panels in the field.³⁹ Recently, a CIGS manufacturer based in Japan, Solar Frontier, has achieved some market success with a rigid, glass-faced CIGS module that competes with silicon panels. Solar Frontier produces the majority of CIS panels on the market today.⁴⁰ Notably, these panels are RoHS compliant,⁴¹ thus meeting the rigorous toxicity standard adopted by the European Union even though this directive exempts PV panels. The authors are unaware of any completed or proposed utility-scale system in North Carolina using CIS/CIGS panels.

1.2.3 Panel End-of-Life Management

Concerns about the volume, disposal, toxicity, and recycling of PV panels are addressed in this subsection. To put the volume of PV waste into perspective, consider that by 2050, when PV systems installed in 2020 will reach the end of their lives, it is estimated that the global annual PV panel waste tonnage will be 10% of the 2014 global e-waste tonnage.⁴² In the U.S., end-of-life disposal of solar products is governed by the Federal Resource Conservation and Recovery Act (RCRA), as well as state policies in some situations. RCRA separates waste into hazardous (not accepted at ordinary landfill) and solid waste (generally accepted

at ordinary landfill) based on a series of rules. According to RCRA, the way to determine if a PV panel is classified as hazardous waste is the Toxic Characteristic Leaching Procedure (TCLP) test. This EPA test is designed to simulate landfill disposal and determine the risk of hazardous substances leaching out of the landfill.^{43,44,45} Multiple sources report that most modern PV panels (both crystalline silicon and cadmium telluride) pass the TCLP test.^{46,47} Some studies found that some older (1990s) crystalline silicon panels, and perhaps some newer crystalline silicon panels (specifics are not given about vintage of panels tested), do not pass the lead (Pb) leachate limits in the TCLP test.^{48,49}

The test begins with the crushing of a panel into centimeter-sized pieces. The pieces are then mixed in an acid bath. After tumbling for eighteen hours, the fluid is tested for forty hazardous substances that all must be below specific threshold levels to pass the test. Research comparing TCLP conditions to conditions of damaged panels in the field found that simulated landfill conditions provide overly conservative estimates of leaching for field-damaged panels.⁵⁰ Additionally, research in Japan has found no detectable Cd leaching from cracked CdTe panels when exposed to simulated acid rain.⁵¹

Although modern panels can generally be landfilled, they can also be recycled. Even though recent waste volume has not been adequate to support significant PV-specific recycling infrastructure, the existing recycling industry in North Carolina reports that it recycles much of the current small volume of broken PV panels. In an informal survey conducted by the NC Clean Energy Technology Center survey in early 2016, seven of the eight large active North Carolina utility-scale solar developers surveyed reported that they send damaged panels back to the manufacturer and/or to a local recycler. Only one developer reported sending damaged panels to the landfill.

The developers reported at that time that they are usually paid a small amount per panel by local recycling firms. In early 2017, a PV developer reported that a local recycler was charging a small fee per panel to recycle damaged PV panels. The local recycling firm known to authors to accept PV panels described their current PV panel recycling practice as of early 2016 as removing the aluminum frame for local recycling and removing the wire leads for local copper recycling. The remainder of the panel is sent to a facility for processing the non-metallic portions of crushed vehicles, referred to as “fluff” in the recycling industry.⁵² This processing within existing general recycling plants allows for significant material recovery of major components, including glass which is 80% of the module weight, but at lower yields than PV-specific recycling plants. Notably almost half of the material value in a PV panel is in the few grams of silver contained in almost every PV panel produced today. In the long-term, dedicated PV panel recycling plants can increase treatment capacities and maximize revenues resulting in better output quality and the ability to recover a greater fraction of the useful materials.⁵³ PV-specific panel recycling technologies have been researched and implemented to some extent for the past decade, and have been shown to be able to recover over 95% of PV material (semiconductor) and over 90% of the glass in a PV panel.⁵⁴

A look at global PV recycling trends hints at the future possibilities of the practice in our country. Europe installed MW-scale volumes of PV years before the U.S. In 2007, a public-private partnership between the European Union and the solar industry set up a voluntary collection and recycling system called PV CYCLE. This arrangement was later made mandatory under the EU’s WEEE directive, a program for waste electrical and electronic equipment.⁵⁵ Its member companies (PV panel producers) fully finance the association. This makes it possible for end-users to return the member companies’ defective panels for recycling at any of the over 300 collection points around

Europe without added costs. Additionally, PV CYCLE will pick up batches of 40 or more used panels at no cost to the user. This arrangement has been very successful, collecting and recycling over 13,000 tons by the end of 2015.⁵⁶

In 2012, the WEEE Directive added the end-of-life collection and recycling of PV panels to its scope.⁵⁷ This directive is based on the principle of extended-producer-responsibility. It has a global impact because producers that want to sell into the EU market are legally responsible for end-of-life management. Starting in 2018, this directive targets that 85% of PV products “put in the market” in Europe are recovered and 80% is prepared for reuse and recycling.

The success of the PV panel collection and recycling practices in Europe provides promise for the future of recycling in the U.S. In mid-2016, the US Solar Energy Industry Association (SEIA) announced that they are starting a national solar panel recycling program with the guidance and support of many leading PV panel producers.⁵⁸ The program will aggregate the services offered by recycling vendors and PV manufacturers, which will make it easier for consumers to select a cost-effective and environmentally responsible end-of-life management solution for their PV products. According to SEIA, they are planning the program in an effort to make the entire industry landfill-free. In addition to the national recycling network program, the program will provide a portal for system owners and consumers with information on how to responsibly recycle their PV systems.

While a cautious approach toward the potential for negative environmental and/or health impacts from retired PV panels is fully warranted, this section has shown that the positive health impacts of reduced emissions from fossil fuel combustion from PV systems more than outweighs any potential risk. Testing shows that silicon and CdTe panels are both safe to dispose of in landfills, and are also safe in worst case conditions of abandonment or damage in a disaster. Additionally, analysis by local engineers has found that the current salvage

value of the equipment in a utility scale PV facility generally exceeds general contractor estimates for the cost to remove the entire PV system.^{59,60,61}

1.2.4 Non-Panel System Components

(racking, wiring, inverter, transformer)

While previous toxicity subsections discussed PV panels, this subsection describes the non-panel components of utility-scale PV systems and investigates any potential public health and safety concerns. The most significant non-panel component of a ground-mounted PV system is the mounting structure of the rows of panels, commonly referred to as “racking”. The vertical post portion of the racking is galvanized steel and the remaining above-ground racking components are either galvanized steel or aluminum, which are both extremely common and benign building materials. The inverters that make the solar generated electricity ready to send to the grid have weather-proof steel enclosures that protect the working components from the elements. The only fluids that they might contain are associated with their cooling systems, which are not unlike the cooling system in a computer. Many inverters today are RoHS compliant.

The electrical transformers (to boost the inverter output voltage to the voltage of the utility connection point) do contain a liquid cooling oil. However, the fluid used for that function is either a nontoxic mineral oil or a biodegradable non-toxic vegetable oil, such as BIOTEMP from ABB. These vegetable transformer oils have the additional advantage of being much less flammable than traditional mineral oils. Significant health hazards are associated with old transformers containing cooling oil with toxic PCBs. Transformers with PCB-containing oil were common before PCBs were outlawed in the U.S. in 1979. PCBs still exist in older transformers in the field across the country.

Other than a few utility research sites, there are no batteries on- or off-site associated with utility-scale solar energy facilities in North Carolina, avoiding any potential health or safety concerns related to battery technologies. However, as battery technologies continue to improve and prices continue to decline we are likely to start seeing some batteries at solar facilities. Lithium ion batteries currently dominate the world utility-scale battery market, which are not very toxic. No non-panel system components were found to pose any health or environmental dangers.

1.4 Operations and Maintenance – Panel Washing and Vegetation Control

Throughout the eastern U.S., the climate provides frequent and heavy enough rain to keep panels adequately clean. This dependable weather pattern eliminates the need to wash the panels on a regular basis. Some system owners may choose to wash panels as often as once a year to increase production, but most in N.C. do not regularly wash any PV panels. Dirt build up over time may justify panel washing a few times over the panels' lifetime; however, nothing more than soap and water are required for this activity.

The maintenance of ground-mounted PV facilities requires that vegetation be kept low, both for aesthetics and to avoid shading of the PV panels. Several approaches are used to maintain vegetation at NC solar facilities, including planting of limited-height species, mowing, weed-eating, herbicides, and grazing livestock (sheep). The following descriptions of vegetation maintenance practices are based on interviews with several solar developers as well as with three maintenance firms that together are contracted to maintain well over 100

of the solar facilities in N.C. The majority of solar facilities in North Carolina maintain vegetation primarily by mowing. Each row of panels has a single row of supports, allowing sickle mowers to mow under the panels. The sites usually require mowing about once a month during the growing season. Some sites employ sheep to graze the site, which greatly reduces the human effort required to maintain the vegetation and produces high quality lamb meat.⁶²

In addition to mowing and weed eating, solar facilities often use some herbicides. Solar facilities generally do not spray herbicides over the entire acreage; rather they apply them only in strategic locations such as at the base of the perimeter fence, around exterior vegetative buffer, on interior dirt roads, and near the panel support posts. Also unlike many row crop operations, solar facilities generally use only general use herbicides, which are available over the counter, as opposed to restricted use herbicides commonly used in commercial agriculture that require a special restricted use license. The herbicides used at solar facilities are primarily 2-4-D and glyphosate (Round-up®), which are two of the most common herbicides used in lawns, parks, and agriculture across the country. One maintenance firm that was interviewed sprays the grass with a class of herbicide known as a growth regulator in order to slow the growth of grass so that mowing is only required twice a year. Growth regulators are commonly used on highway roadsides and golf courses for the same purpose. A commercial pesticide applicator license is required for anyone other than the landowner to apply herbicides, which helps ensure that all applicators are adequately educated about proper herbicide use and application. The license must be renewed annually and requires passing of a certification exam appropriate to the area in which the applicator wishes to work. Based on the limited data available, it appears that solar facilities in N.C. generally use significantly less herbicides per acre than most commercial agriculture or lawn maintenance services.

2. Electromagnetic Fields (EMF)

PV systems do not emit any material during their operation; however, they do generate electromagnetic fields (EMF), sometimes referred to as radiation. EMF produced by electricity is non-ionizing radiation, meaning the radiation has enough energy to move atoms in a molecule around (experienced as heat), but not enough energy to remove electrons from an atom or molecule (ionize) or to damage DNA. As shown below, modern humans are all exposed to EMF throughout our daily lives without negative health impact. Someone outside of the fenced perimeter of a solar facility is not exposed to significant EMF from the solar facility. Therefore, there is no negative health impact from the EMF produced in a solar farm. The following paragraphs provide some additional background and detail to support this conclusion.

Since the 1970s, some have expressed concern over potential health consequences of EMF from electricity, but no studies have ever shown this EMF to cause health problems.⁶³ These concerns are based on some epidemiological studies that found a slight increase in childhood leukemia associated with average exposure to residential power-frequency magnetic fields above 0.3 to 0.4 μT (microteslas) (equal to 3.0 to 4.0 mG (milligauss)). μT and mG are both units used to measure magnetic field strength. For comparison, the average exposure for people in the U.S. is one mG or 0.1 μT , with about 1% of the population with an average exposure in excess of 0.4 μT (or 4 mG).⁶⁴ These epidemiological studies, which found an association but not a causal relationship, led the World Health Organization's International Agency for Research on Cancer (IARC) to classify ELF magnetic fields as "possibly carcinogenic to humans". Coffee also has this classification. This classification means there is limited evidence but not enough evidence to designate

as either a "probable carcinogen" or "human carcinogen". Overall, there is very little concern that ELF EMF damages public health. The only concern that does exist is for long-term exposure above 0.4 μT (4 mG) that may have some connection to increased cases of childhood leukemia. In 1997, the National Academies of Science were directed by Congress to examine this concern and concluded:

*"Based on a comprehensive evaluation of published studies relating to the effects of power-frequency electric and magnetic fields on cells, tissues, and organisms (including humans), the conclusion of the committee is that the current body of evidence does not show that exposure to these fields presents a human-health hazard. Specifically, no conclusive and consistent evidence shows that exposures to residential electric and magnetic fields produce cancer, adverse neurobehavioral effects, or reproductive and developmental effects."*⁶⁵

There are two aspects to electromagnetic fields, an electric field and a magnetic field. The electric field is generated by voltage and the magnetic field is generated by electric current, i.e., moving electrons. A task group of scientific experts convened by the World Health Organization (WHO) in 2005 concluded that there were no substantive health issues related to electric fields (0 to 100,000 Hz) at levels generally encountered by members of the public.⁶⁶ The relatively low voltages in a solar facility and the fact that electric fields are easily shielded (i.e., blocked) by common materials, such as plastic, metal, or soil means that there is no concern of negative health impacts from the electric fields generated by a solar facility. Thus, the remainder of this section addresses magnetic fields. Magnetic fields are not shielded by most common materials and thus can easily pass through them. Both types of fields are strongest close to the source of electric generation and weaken quickly with distance from the source.

The direct current (DC) electricity produced by PV panels produce stationary (0 Hz) electric and magnetic fields. Because of minimal concern about potential risks of stationary fields, little scientific research has examined stationary fields' impact on human health.⁶⁷ In even the largest PV facilities, the DC voltages and currents are not very high. One can illustrate the weakness of the EMF generated by a PV panel by placing a compass on an operating solar panel and observing that the needle still points north.

While the electricity throughout the majority of a solar site is DC electricity, the inverters convert this DC electricity to alternating current (AC) electricity matching the 60 Hz frequency of the grid. Therefore, the inverters and the wires delivering this power to the grid are producing non-stationary EMF, known as extremely low frequency (ELF) EMF, normally oscillating with a frequency of 60 Hz. This frequency is at the low-energy end of the electromagnetic spectrum. Therefore, it has less energy than other commonly encountered types of non-ionizing radiation like radio waves, infrared radiation, and visible light.

The wide use of electricity results in background levels of ELF EMFs in nearly all locations where people spend time – homes, workplaces, schools, cars, the supermarket, etc. A person's average exposure depends upon the sources they encounter, how close they are to them, and the amount of time they spend there.⁶⁸ As stated above, the average exposure to magnetic fields in the U.S. is estimated to be around one mG or 0.1 μ T, but can vary considerably depending on a person's exposure to EMF from electrical devices and wiring.⁶⁹ At times we are often exposed to much higher ELF magnetic fields, for example when standing three feet from a refrigerator the ELF magnetic field is 6 mG and when standing three feet from a microwave oven the field is about 50 mG.⁷⁰ The strength of these fields diminish quickly with distance from the source, but when surrounded by electricity in our homes and other buildings moving away from

one source moves you closer to another. However, unless you are inside of the fence at a utility-scale solar facility or electrical substation it is impossible to get very close to the EMF sources. Because of this, EMF levels at the fence of electrical substations containing high voltages and currents are considered "generally negligible".^{71,72}

The strength of ELF-EMF present at the perimeter of a solar facility or near a PV system in a commercial or residential building is significantly lower than the typical American's average EMF exposure.^{73,74} Researchers in Massachusetts measured magnetic fields at PV projects and found the magnetic fields dropped to very low levels of 0.5 mG or less, and in many cases to less than background levels (0.2 mG), at distances of no more than nine feet from the residential inverters and 150 feet from the utility-scale inverters.⁷⁵ Even when measured within a few feet of the utility-scale inverter, the ELF magnetic fields were well below the International Commission on Non-Ionizing Radiation Protection's recommended magnetic field level exposure limit for the general public of 2,000 mG.⁷⁶ It is typical that utility scale designs locate large inverters central to the PV panels that feed them because this minimizes the length of wire required and shields neighbors from the sound of the inverter's cooling fans. Thus, it is rare for a large PV inverter to be within 150 feet of the project's security fence.

Anyone relying on a medical device such as pacemaker or other implanted device to maintain proper heart rhythm may have concern about the potential for a solar project to interfere with the operation of his or her device. However, there is no reason for concern because the EMF outside of the solar facility's fence is less than 1/1000 of the level at which manufacturers test for ELF EMF interference, which is 1,000 mG.⁷⁷ Manufacturers of potentially affected implanted devices often provide advice on electromagnetic interference that includes avoiding letting the implanted device get too close to certain sources of fields such as some

household appliances, some walkie-talkies, and similar transmitting devices. Some manufacturers' literature does not mention high-voltage power lines, some say that exposure in public areas should not give interference, and some advise not spending extended periods of time close to power lines.⁷⁸

3. Electric Shock and Arc Flash Hazards

There is a real danger of electric shock to anyone entering any of the electrical cabinets such as combiner boxes, disconnect switches, inverters, or transformers; or otherwise coming in contact with voltages over 50 Volts.⁷⁹ Another electrical hazard is an arc flash, which is an explosion of energy that can occur in a short circuit situation. This explosive release of energy causes a flash of heat and a shockwave, both of which can cause serious injury or death. Properly trained and equipped technicians and electricians know how to safely install, test, and repair PV systems, but there is always some risk of injury when hazardous voltages and/or currents are present. Untrained individuals should not attempt to inspect, test, or repair any aspect of a PV system due to the potential for injury or death due to electric shock and arc flash. The National Electric Code (NEC) requires appropriate levels of warning signs on all electrical components based on the level of danger determined by the voltages and current potentials. The national electric code also requires the site to be secured from unauthorized visitors with either a six-foot chain link fence with three strands of barbed wire or an eight-foot fence, both with adequate hazard warning signs.

4. Fire Safety

The possibility of fires resulting from or intensified by PV systems may trigger concern among the

general public as well as among firefighters. However, concern over solar fire hazards should be limited because only a small portion of materials in the panels are flammable, and those components cannot self-support a significant fire. Flammable components of PV panels include the thin layers of polymer encapsulates surrounding the PV cells, polymer backsheets (framed panels only), plastic junction boxes on rear of panel, and insulation on wiring. The rest of the panel is composed of non-flammable components, notably including one or two layers of protective glass that make up over three quarters of the panel's weight.

Heat from a small flame is not adequate to ignite a PV panel, but heat from a more intense fire or energy from an electrical fault can ignite a PV panel.⁸⁰ One real-world example of this occurred during July 2015 in an arid area of California. Three acres of grass under a thin film PV facility burned without igniting the panels mounted on fixed-tilt racks just above the grass.⁸¹ While it is possible for electrical faults in PV systems on homes or commercial buildings to start a fire, this is extremely rare.⁸² Improving understanding of the PV-specific risks, safer system designs, and updated fire-related codes and standards will continue to reduce the risk of fire caused by PV systems.

PV systems on buildings can affect firefighters in two primary ways, 1) impact their methods of fighting the fire, and 2) pose safety hazard to the firefighters. One of the most important techniques that firefighters use to suppress fire is ventilation of a building's roof. This technique allows superheated toxic gases to quickly exit the building. By doing so, the firefighters gain easier and safer access to the building. Ventilation of the roof also makes the challenge of putting out the fire easier. However, the placement of rooftop PV panels may interfere with ventilating the roof by limiting access to desired venting locations.

New solar-specific building code requirements are working to minimize these concerns. Also, the

latest National Electric Code has added requirements that make it easier for first responders to safely and effectively turn off a PV system. Concern for firefighting a building with PV can be reduced with proper fire fighter training, system design, and installation. Numerous organizations have studied fire fighter safety related to PV. Many organizations have published valuable guides and training programs. Some notable examples are listed below.

- The International Association of Fire Fighters (IAFF) and International Renewable Energy Council (IREC) partnered to create an online training course that is far beyond the PowerPoint click-and-view model. The self-paced online course, “Solar PV Safety for Fire Fighters,” features rich video content and simulated environments so fire fighters can practice the knowledge they’ve learned. www.iaff.org/pvsafetytraining
- Photovoltaic Systems and the Fire Code: Office of NC Fire Marshal
- Fire Service Training, Underwriter’s Laboratory
- Firefighter Safety and Response for Solar Power Systems, National Fire Protection Research Foundation
- Bridging the Gap: Fire Safety & Green Buildings, National Association of State Fire Marshalls
- Guidelines for Fire Safety Elements of Solar Photovoltaic Systems, Orange County Fire Chiefs Association
- Solar Photovoltaic Installation Guidelines, California Department of Forestry & Fire Protection, Office of the State Fire Marshall
- PV Safety & Firefighting, Matthew Paiss, Homepower Magazine
- PV Safety and Code Development: Matthew Paiss, Cooperative Research Network

Summary

The purpose of this paper is to address and alleviate concerns of public health and safety for utility-scale solar PV projects. Concerns of public health and safety were divided and discussed in the four following sections: (1) Toxicity, (2) Electromagnetic Fields, (3) Electric Shock and Arc Flash, and (4) Fire. In each of these sections, the negative health and safety impacts of utility-scale PV development were shown to be negligible, while the public health and safety benefits of installing these facilities are significant and far outweigh any negative impacts.

-
- 1 Wiser, Ryan, Trieu Mai, Dev Millstein, Jordan Macknick, Alberta Carpenter, Stuart Cohen, Wesley Cole, Bethany Frew, and Garvin A. Heath. 2016. *On the Path to SunShot: The Environmental and Public Health Benefits of Achieving High Penetrations of Solar Energy in the United States*. Golden, CO: National Renewable Energy Laboratory. Accessed March 2017, www.nrel.gov/docs/fy16osti/65628.pdf
 - 2 IRENA and IEA-PVPS (2016), “End-of-Life Management: Solar Photovoltaic Panels,” International Renewable Energy Agency and International Energy Agency Photovoltaic Power Systems.
 - 3 National Renewable Energy Laboratory, *Overview of Field Experience – Degradation Rates & Lifetimes*. September 14, 2015. Solar Power International Conference. Accessed March 2017, www.nrel.gov/docs/fy15osti/65040.pdf
 - 4 Miesel et al. *SolarCity Photovoltaic Modules with 35 Year Useful Life*. June 2016. Accessed March 2017. <http://www.solarcity.com/newsroom/reports/solarcity-photovoltaic-modules-35-year-useful-life>
 - 5 David Unger. *Are Renewables Stormproof? Hurricane Sandy Tests Solar, Wind*. November 2012. Accessed March 2017. <http://www.csmonitor.com/Environment/Energy-Voices/2012/1119/Are-renewables-stormproof-Hurricane-Sandy-tests-solarwind> & <http://www.csmonitor.com/Environment/Energy-Voices/2012/1119/Are-renewables-stormproof-Hurricane-Sandytests-solar-wind>
 - 6 NEXTracker and 365 Pronto, *Tracking Your Solar Investment: Best Practices for Solar Tracker O&M*.

Accessed March 2017.

www.nextracker.com/content/uploads/2017/03/NEX-Tracker_OandM-WhitePaper_FINAL_March-2017.pdf

7 Christiana Honsberg, Stuart Bowden. *Overview of Screen Printed Solar Cells*. Accessed January 2017.

www.pveducation.org/pvcdrom/manufacturing/screen-printed

8 Silicon Valley Toxics Coalition. *2015 Solar Scorecard*. Accessed August 2016.

www.solarscorecard.com/2015/2015-SVTC-Solar-Scorecard.pdf

9 European Commission. *Recast of Reduction of Hazardous Substances (RoHS) Directive*. September 2016. Accessed August 2016.

http://ec.europa.eu/environment/waste/rohs_eee/index_en.htm

10 Official Journal of the European Union, *DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment*. June 2011. Accessed May 2017.

<http://eur-lex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:32011L0065&from=en>

11 Giancarlo Giacchetta, Mariella Leporini, Barbara Marchetti. *Evaluation of the Environmental Benefits of New High Value Process for the Management of the End of Life of Thin Film Photovoltaic Modules*. July 2013. Accessed August 2016.

www.researchgate.net/publication/257408804_Evaluation_of_the_environmental_benefits_of_new_high_value_process_for_the_management_of_the_end_of_life_of_thin_film_photovoltaic_modules

12 European Commission. *Study on Photovoltaic Panels Supplementing The Impact Assessment for a Recast of the Weee Directive*. April 2011. Accessed August 2016.

<http://ec.europa.eu/environment/waste/weee/pdf/Study%20on%20PVs%20Bio%20final.pdf>

14 The amount of lead in a typical car battery is 21.4 pounds. Waste 360. Chaz Miller. *Lead Acid Batteries*. March 2006. Accessed August 2016.

http://waste360.com/mag/waste_leadacid_batteries_3

15 Okkenhaug G. *Leaching from CdTe PV module material results from batch, column and availability tests*. Norwegian Geotechnical Institute, NGI report No. 20092155-00-6-R; 2010

16 International Journal of Advanced Applied Physics Research. Renate Zapf-Gottwick1, et al. *Leaching*

Hazardous Substances out of Photovoltaic Modules. January 2015. Accessed January 2016.

www.cosmoscholars.com/phms/index.php/jaapr/article/download/485/298

17 ibid

18 Parikhit Sinha, et al. *Evaluation of Potential Health and Environmental Impacts from End-Of-Life Disposal of Photovoltaics*, Photovoltaics, 2014. Accessed May 2016

19 Bonnet, D. and P. Meyers. 1998. *Cadmium-telluride—Material for thin film solar cells*. J. Mater. Res., Vol. 13, No. 10, pp. 2740-2753

20 V. Fthenakis, K. Zweibel. *CdTe PV: Real and Perceived EHS Risks*. National Center of Photovoltaics and Solar Program Review Meeting, March 24-26, 2003. www.nrel.gov/docs/fy03osti/33561.pdf. Accessed May 2017

21 International Energy Agency Photovoltaic Power Systems Programme. *Life Cycle Inventories and Life Cycle Assessments of Photovoltaic Systems*. March 2015. Accessed August 2016.

<http://iea-pvps.org/index.php?id=315>

22 Data not available on fraction of various generation sources offset by solar generation in NC, but this is believed to be a reasonable rough estimate. The SunShot report entitled *The Environmental and Public Health Benefits of Achieving High Penetrations of Solar Energy in the United States* analysis contributes significant (% not provided) offsetting of coal-fired generation by solar PV energy in the southeast.

23 $7 \text{ MWDC} \times 1.5 \text{ GWh/MWDC} \times 25 \text{ years} \times 0.93 \text{ degradation factor} \times (0.1 \times 4.65 \text{ grams/GWh} + 0.9 \times 0.2 \text{ grams/GWh})$

24 Vasilis Fthenakis. *CdTe PV: Facts and Handy Comparisons*. January 2003. Accessed March 2017.

https://www.bnl.gov/pv/files/pdf/art_165.pdf

25 Kaczmar, S., *Evaluating the Read-Across Approach on CdTe Toxicity for CdTe Photovoltaics*, SETAC North America 32nd Annual Meeting, Boston, MA, November 2011. Available at:

[ftp://ftp.co.imperial.ca.us/icpds/eir/campo-verdesolar/final/evaluating-toxicity.pdf](http://ftp.co.imperial.ca.us/icpds/eir/campo-verdesolar/final/evaluating-toxicity.pdf), Accessed May 2017

27 V. M. Fthenakis et al, *Emissions and Encapsulation of Cadmium in CdTe PV Modules During Fires* Renewable Progress in Photovoltaics: Research and Application: Res. Appl. 2005; 13:1–11, Accessed March 2017, www.bnl.gov/pv/files/pdf/abs_179.pdf

28 Fthenakis V.M., *Life Cycle Impact Analysis of Cadmium in CdTe Photovoltaic Production*, Renewable

and Sustainable Energy Reviews, 8, 303-334, 2004. www.clca.columbia.edu/papers/Life_Cycle_Impact_Analysis_Cadmium_CdTe_Photovoltaic_production.pdf, Accessed May 2017

29 International Renewable Energy Agency. Stephanie Weckend, Andreas Wade, Garvin Heath. *End of Life Management: Solar Photovoltaic Panels*. June 2016. Accessed November 2016.

30 International Journal of Advanced Applied Physics Research. Renate Zapf-Gottwick1, et al. *Leaching Hazardous Substances out of Photovoltaic Modules*. January 2015. Accessed January 2016. www.cosmosscholars.com/phms/index.php/ijaapr/article/download/485/298

31 Cunningham D., Discussion about TCLP protocols, Photovoltaics and the Environment Workshop, July 23-24, 1998, Brookhaven National Laboratory, BNL-52557

32 Parikhit Sinha, et al. Evaluation of Potential Health and Environmental Impacts from End-Of-Life Disposal of Photovoltaics, Photovoltaics, 2014. Accessed May 2016

33 Practical Handbook of Photovoltaics: Fundamentals and Applications. T. Markvart and L. Castaner. *Chapter VII-2: Overview of Potential Hazards*. December 2003. Accessed August 2016. https://www.bnl.gov/pv/files/pdf/art_170.pdf

34 Norwegian Geotechnical Institute. *Environmental Risks Regarding the Use and End-of-Life Disposal of CdTe PV Modules*. April 2010. Accessed August 2016. <https://www.dtsc.ca.gov/LawsRegsPolicies/upload/Norwegian-Geotechnical-InstituteStudy.pdf>

35 First Solar. Dr. Yasunari Matsuno. December 2013. August 2016. *Environmental Risk Assessment of CdTe PV Systems to be considered under Catastrophic Events in Japan*. http://www.firstsolar.com/-/media/Documents/Sustainability/PeerReviews/Japan_Peer-Review_Matsuno_CdTe-PV-Tsunami.ashx

36 First Solar. Parikhit Sinha, Andreas Wade. *Assessment of Leaching Tests for Evaluating Potential Environmental Impacts of PV Module Field Breakage*. 2015 IEEE

37 See p. 22 of First Solar, Sustainability Report. Available at: www.firstsolar.com/-/media/FirstSolar/Sustainability-Documents/03801_FirstSolar_SustainabilityReport_08MAR16_Web.ashx. Accessed May 2017

38 40 CFR §261.24. *Toxicity Characteristic*. May

2017. Accessed May 2017.

https://www.ecfr.gov/cgi-bin/textidx?node=se40.26.261_124&rgn=div8

39 Office of Energy Efficiency & Renewable Energy. *Copper Indium Gallium Diselenide*. Accessed March 2017.

<https://www.energy.gov/eere/sunshot/copper-indium-gallium-diselenide>

40 Mathias Maehlum. *Best Thin Film Solar Panels – Amorphous, Cadmium Telluride or CIGS?* April 2015. Accessed March 2017.

<http://energyinformative.org/best-thin-film-solar-panels-amorphous-cadmium-telluride-cigs/>

41 RoHS tested certificate for Solar Frontier PV modules. TUV Rheinland, signed 11.11.2013

42 International Renewable Energy Agency. Stephanie Weckend, Andreas Wade, Garvin Heath. *End of Life Management: Solar Photovoltaic Panels*. June 2016. Accessed November 2016.

http://www.irena.org/DocumentDownloads/Publications/IRENA_IEAPVPS_End-of-Life_Solar_PV_Panels_2016.pdf

43 40 C.F.R. §261.10. *Identifying the Characteristics of Hazardous Waste and for Listing Hazardous Waste*. November 2016. Accessed November 2016 <http://www.ecfr.gov/cgi-bin/textidx?SID=ce0006d-66da40146b490084ca2816143&mc=true&node=pt40.26.261&rgn=div5#sp40.28.261.b>

44 40 C.F.R. §261.24 *Toxicity Characteristic*. November 2016. Accessed November 2016. http://www.ecfr.gov/cgi-bin/textidx?SID=ce0006d-66da40146b490084ca2816143&mc=true&node=pt40.26.261&rgn=div5#se40.28.261_124

45 International Renewable Energy Agency. Stephanie Weckend, Andreas Wade, Garvin Heath. *End of Life Management: Solar Photovoltaic Panels*. June 2016. Accessed November 2016.

http://www.irena.org/DocumentDownloads/Publications/IRENA_IEAPVPS_End-of-Life_Solar_PV_Panels_2016.pdf

46 TLCP test results from third-party laboratories for REC, Jinko, and Canadian Solar silicon-based panels. Provided by PV panel manufacturers directly or indirectly to authors

47 Sinovoltaics, *Introduction to Solar Panel Recycling*, March 2014. Accessed October 2016.

<http://sinovoltaics.com/solarbasics/introduction-to-solar-panel-recycling/>

48 Brookhaven National Laboratory. Vasilis Fthenakis,

Regulations on Photovoltaic Module Disposal and Recycling. January 29, 2001.

49 Parikhith Sinha, et al. Evaluation of Potential Health and Environmental Impacts from End-Of-Life Disposal of Photovoltaics, Photovoltaics, 2014.

50 First Solar. Parikhith Sinha, Andreas Wade. *Assessment of Leaching Tests for Evaluating Potential Environmental Impacts of PV Module Field Breakage*. October 2015. Accessed August 2016.

<http://www.firstsolar.com/-/media/Documents/Sustainability/PVSC42-Manuscript-20150912--Assessment-of-Leaching-Tests-for-Evaluating-Potential-Environmental-Impa.ashx>

51 First Solar. Dr. Yasunari Matsuno. December 2013. *Environmental Risk Assessment of CdTe PV Systems to be considered under Catastrophic Events in Japan*.

http://www.firstsolar.com/-/media/Documents/Sustainability/PeerReviews/Japan_Peer-Review_Matsuno_CdTe-PV-Tsunami.ashx

52 Phone interview, February 3, 2016, TT&E Iron & Metal, Garner, NC www.ncscrapmetal.com

53 Wen-His Huang, et al. *Strategy and Technology To Recycle Water-silicon Solar Modules*. Solar Energy, Volume 144, March 2017, Pages 22-31

54 International Renewable Energy Agency. Stephanie Weckend, Andreas Wade, Garvin Heath. *End of Life Management: Solar Photovoltaic Panels*. June 2016. Accessed November 2016.

http://www.irena.org/DocumentDownloads/Publications/IRENA_IEAPVPS_End-of-Life_Solar_PV_Panels_2016.pdf

55 Official Journal of the European Union. *Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on Waste Electrical and Electronic Equipment*. July 2012. Accessed November 2016.

<http://eurlex.europa.eu/legal-content/EN/TXT/?uri=cel-ex%3A32012L0019>

56 PV CYCLE. *Annual Report 2015*. Accessed November 2016.

<https://pvcyclepublications.cld.bz/Annual-Report-PV-CYCLE-2015/6-7>

57 Official Journal of the European Union. *Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on Waste Electrical and Electronic Equipment*. July 2012. Accessed November 2016.

<http://eurlex.europa.eu/legal-content/EN/TXT/?uri=cel-ex%3A32012L0019>

58 SEIA National PV Recycling Program:

www.seia.org/seia-national-pv-recycling-program

59 RBI Solar, Decommissioning Plan submitted to Catawba County associated with permitting of a 5MW solar project in June 2016. Accessed April 2017.

www.catawbacountync.gov/Planning/Projects/Rezoning/RZ2015-05_DecommissioningPlan.pdf

60 Birdseye Renewables, Decommissioning Plan submitted to Catawba County associated with permitting of a 5MW solar project in May 2015. Accessed April 2017.

www.catawbacountync.gov/Planning/Projects/Rezoning/RZ2015-04_DecommissioningPlan.pdf

61 Cypress Creek Renewables, Decommissioning Plan submitted to Catawba County associated with permitting of a 5MW solar project in September 2016. Accessed April 2017.

www.catawbacountync.gov/Planning/Projects/Rezoning/RZ2016-06decommission.pdf

62 Sun Raised Farms:

<http://sunraisedfarms.com/index.html>

63 National Institute of Environmental Health Sciences and National Institutes of Health, EMF: Electric and Magnetic Fields Associated with Electric Power: Questions and Answers, June 2002

64 World Health Organization. *Electromagnetic Fields and Public Health: Exposure to Extremely Low Frequency Fields*. June 2007. Accessed August 2016.

<http://www.who.int/peh-emf/publications/facts/fs322/en/>

65 Committee on the Possible Effects of Electromagnetic Fields on Biologic Systems, National Research Council, Possible Health Effects of Exposure to Residential Electric and Magnetic Fields, ISBN: 0-309-55671-6, 384 pages, 6 x 9, (1997) This PDF is available from the National Academies Press at:

<http://www.nap.edu/catalog/5155.html>

66 World Health Organization. *Electromagnetic Fields and Public Health: Exposure to Extremely Low Frequency Fields*. June 2007. Accessed August 2016.

<http://www.who.int/peh-emf/publications/facts/fs322/en/>

67 World Health Organization. *Electromagnetic Fields and Public Health: Static Electric and Magnetic Fields*. March 2006. Accessed August 2016.

<http://www.who.int/peh-emf/publications/facts/fs299/en/>

68 Asher Sheppard, Health Issues Related to the Static and Power-Frequency Electric and Magnetic Fields (EMFs) of the Soitec Solar Energy Farms, April

30, 2014. Accessed March 2017:

www.sandiegocounty.gov/content/dam/sdc/pds/ceqa/Soitec-Documents/Final-EIR-Files/Appendix_9.0-1_EMF.pdf

69 Massachusetts Clean Energy Center. *Study of Acoustic and EMF Levels from Solar Photovoltaic Projects*. December 2012. Accessed August 2016.

70 Duke Energy Corporation. *Frequently Asked Questions: Electric and Magnetic Fields*. Accessed August 2016.

https://www.duke-energy.com/about-energy/frequently_asked_questions.asp

71 National Institute of Environmental Health Sciences, *Electric and Magnetic Fields Associate with the use of Electric Power: Questions and Answers*, 2002. Accessed November 2016

www.niehs.nih.gov/health/materials/electric_and_magnetic_fields

72 Duke Energy Corporation. *Frequently Asked Questions: Electric and Magnetic Fields*. Accessed August 2016.

https://www.duke-energy.com/about-energy/frequently_asked_questions.asp

73 R.A. Tell et al, *Electromagnetic Fields Associated with Commercial Solar Photovoltaic Electric Power Generating Facilities*, Journal of Occupational and Environmental Hygiene, Volume 12, 2015,- Issue 11. Abstract Accessed March 2016:

<http://www.tandfonline.com/doi/full/10.1080/15459624.2015.1047021>

74 Massachusetts Department of Energy Resources,

Massachusetts Department of Environmental Protection, and Massachusetts Clean Energy Center. *Questions & Answers: Ground-Mounted Solar Photovoltaic Systems*. June 2015. Accessed August 2016.

<http://www.mass.gov/eea/docs/doer/renewables/solar/solar-pv-guide.pdf>

75 Ibid.

76 Ibid.

77 *EMFs and medical devices*, Accessed March 2017.

www.emfs.info/effects/medical-devices/

78 Ibid.

79 Damon McCluer. *Electrical Construction & Maintenance: NFPA 70E's Approach to Considering DC Hazards*. September 2013. Accessed October 2016. <http://ecmweb.com/safety/nfpa-70e-s-approach-considering-dc-hazards>

80 Hong-Yun Yang, et. al. *Experimental Studies on the Flammability and Fire Hazards of Photovoltaic Modules, Materials*. July 2015. Accessed August 2016.

<http://www.mdpi.com/1996-1944/8/7/4210/pdf>

81 Matt Fountain. The Tribune. *Fire breaks out at Topaz Solar Farm*. July 2015. Accessed August 2016.

www.sanluisobispo.com/news/local/article39055539.html

82 Cooperative Research Network. Matthew Paiss. *Tech Surveillance: PV Safety & Code Developments*. October 2014. Accessed August 2016.

http://www.nreca.coop/wp-content/uploads/2013/06/ts_pv_fire_safety_oct_2014.pdf

[page intentionally left blank]



Appendix K:

Market Impact Analysis

MARKET IMPACT ANALYSIS
ELM LAWN SOLAR PARK
MONTGOMERY COUNTY, ILLINOIS

June 24, 2026

Elm Lawn Solar Park
c/o Solar Development Group LLC
2250 Lucien Way - Suite 305
Maitland, Florida 32751

Attention: Luis Gonzalez - Solar Development Manager

Subject: Market Impact Analysis
Elm Lawn Solar Park
Montgomery County, Illinois

In accordance with your request, the proposed development of Elm Lawn Solar Park in Montgomery County, Illinois, has been analyzed and this market impact analysis has been prepared.

MaRous & Company has conducted similar market impact studies for a variety of clients and for a number of different proposed developments over the last 45 years. Clients have ranged from municipalities, counties, and school districts, to corporations, developers, and citizen's groups. The types of proposals analyzed include commercial developments such as shopping centers and big-box retail facilities; religious facilities such as mosques and mega-churches; residential developments such as high-density multifamily and congregate-care buildings and large single-family subdivisions; recreational uses such as skate parks and lighted high school athletic fields; and industrial uses such as waste transfer stations, landfills, and quarries.

MaRous & Company has conducted numerous market studies of energy-related projects. As well analyzed the impact of transmission lines on adjacent residential uses and a number of proposed natural gas-fired electric plants in various locations. The following tables represent each of the solar and wind energy projects that MaRous & Company has provided expert services to in the form of a full market impact analysis report.

State	Solar Project Name	Primary County	Secondary County
Illinois	Alexander-Johnson Farm Solar	Kane	
Illinois	Beckham Solar	Livingston	
Illinois	Black Diamond Solar	Christian	
Illinois	Blue Violet Energy Facility	Stephenson	
Illinois	Buffalo Solar	Grundy	
Illinois	Bull Valley Solar	McHenry	
Illinois	Camelot Solar	Perry	
Illinois	Capron Solar	Boone	
Illinois	Casey Fork Solar	Livingston	
Illinois	Cornell Solar	Livingston	
Illinois	Coyote Solar	Tazewell	
Illinois	Double Black Diamond Solar	Sangamon	Morgan
Illinois	Fowl Solar	Rock Island	
Illinois	Genoa Solar	DeKalb	
Illinois	Greensburg Solar	Decatur	
Illinois	Hickory Point Solar Energy Center	Christian	
Illinois	Kendall Solar	Kendall	
Illinois	McHenry County Solar	McHenry	
Illinois	Monee Solar I & II	Will	
Illinois	Mulligan Solar	Logan	
Illinois	Mural Energy Facility	Vermilion	
Illinois	North Springfield Solar	Winnebago	
Illinois	Osagrove Flats Solar	LaSalle	
Illinois	Pleasant Grove Solar	Boone	McHenry
Illinois	Pleasant Grove Solar	McHenry	Boone
Illinois	Pulse Solar II	Lee	
Illinois	Sandpiper Solar	Rock Island	
Illinois	Shenandoah Solar	DeKalb	
Illinois	South Dixon Solar	Lee	
Illinois	Sugar Creek Solar	Logan	
Indiana	Bluestem Solar	LaPorte	
Indiana	Cold Spring Solar	Putnam	
Indiana	Hardy Hills Solar	Clinton	
Indiana	Lone Oak Solar Farm	Madison	
Indiana	Mammoth Solar	Pulaski	Starke County
Iowa	Creston Solar	Union	
Iowa	Duane Arnold Solar I-II	Linn	
Iowa	Goldfinch Solar	Washington	
Iowa	Rock Creek Solar	Clinton	
Iowa	Weaver Solar	Lee	
Kansas	Chisholm Trail Solar	Sedgwick	
Maryland	Dorchester County Solar Farms	Dorchester	
Michigan	45 th Parallel Solar	Otsego	
Michigan	Cereal City Solar	Calhoun	
Michigan	Grass Lake Solar	Jackson	
Minnesota	Benton Solar	Benton	
Oklahoma	Shamrock Solar	Tulsa	
South Dakota	Grant Solar	McCook	
Wisconsin	Koshkonong Solar Energy Center	Dane	
Wisconsin	Badger Hollow Solar Farm	Iowa	
Wisconsin	Darien Solar Energy Center	Rock	Walworth
Wisconsin	Grant County Solar	Grant	
Wisconsin	High Noon Solar Energy Center	Columbia	
Wisconsin	Langdon Mills Solar	Columbia	
Wisconsin	Paris Solar Energy Center	Kenosha	
Wisconsin	St. Croix Solar	St. Croix	

State	Wind Project Name	Primary County	Secondary County	Tertiary County
Illinois	Grand Ridge V	LaSalle		
Illinois	Otter Creek	LaSalle		
Illinois	Pleasant Ridge Wind Farm	Livingston		
Illinois	Walnut Ridge Wind Farm	Bureau		
Illinois	McLean County Wind Farm	McLean		
Illinois	Radford's Run Wind Farm	Macon		
Illinois	Midland Wind Project	Henry		
Illinois	Harvest Ridge Wind Project	Douglas		
Illinois	Lincoln Land Wind	Morgan		
Illinois	Bennington Wind Project	Marshall		
Illinois	Goose Creek Wind	Platt		
Illinois	Shady Oaks II	Lee		
Illinois	Osagrove Flats Wind Project	LaSalle		
Illinois	Sapphire Sky Wind Farm	McLean		
Illinois	Crescent Ridge Wind Farm	McLean		
Illinois	Blue Violet Energy Facility	Stephenson		
Illinois	Tazewell County Wind	Tazewell		
Illinois	Top Hat Wind	Logan		
Illinois	Lotus Wind	Macoupin	Morgan	
Illinois	Mural Energy Facility	Vermilion		
Illinois	Camp Creek Wind	McDonough		
Illinois	Musketeer Wind Energy	Vermilion		
Illinois	Greenswitch Wind	Macon		
Illinois	Providence Heights Wind	Bureau		
Illinois	Blue Violet Energy Facility	Stephenson		
Illinois	Tazewell County Wind	Tazewell		
Illinois	Top Hat Wind Logan County	Vermilion		
Indiana	Tippecanoe County Wind Farm	Tippecanoe		
Indiana	Roaming Bison Wind Farm	Montgomery		
Indiana	Prairie Creek Wind	Blackford		
Arizona	West Camp Wind Farm	Navajo		
West Virginia	Short Mountain Wind	Hardy		
Iowa	Ida County Wind Farm	Ida		
Iowa	Palo Alto County Wind Farm	Palo Alto		
Iowa	Worthwhile Wind	Worth		
Iowa	Three Waters Wind	Dickinson		
Iowa	Shenandoah Hills Wind	Page	Fremont	
Iowa	Ida Grove II	Ida		
Iowa	Red Rock Wind	Clay	Dickinson	Emmet
Kansas	Neosho Ridge Wind Farm	Neosho		
Kansas	Jayhawk Wind	Bourbon	Crawford	
Michigan	Crescent Wind	Hillsdale		
Michigan	Heartland Farms Wind Project	Jackson	Gratiot	
Michigan	Riverbend Wind	Sanilac		
South Dakota	Dakota Range Wind Project I	Codington		
South Dakota	Dakota Range Wind Project II	Grant		
South Dakota	Dakota Range Wind Project III	Roberts		
South Dakota	Deuel Harvest Wind Farm North	Deuel		
South Dakota	Deuel Harvest Wind Farm South	Deuel		
South Dakota	Crocker Wind Farm	Clark		
South Dakota	Prevailing Wind Park	Charles Mix	Bon Homme	Hutchinson
South Dakota	Triple-H Wind Project	Hyde		
South Dakota	Crowned Ridge Wind II	Codington	Deuel	Grant
South Dakota	Tatanka Ridge Wind Farm	Deuel		
South Dakota	Sweetland Wind Farm	Hand		
New York	Orangeville Wind Farm	Wyoming		
New York	Alle-Catt Wind Farm	Allegany	Cattaraugus	Wyoming
Ohio	Seneca Wind	Seneca		
Ohio	Republic Wind	Seneca	Sandusky	
Ohio	Emerson Creek Wind Farm	Erie	Huron	Seneca
Wisconsin	Badger Hollow Wind	Iowa		
Montana	Wibaux Wind Farm	Wibaux		

Table of Contents

PROJECT SUMMARY	1
PROJECT BENEFITS	2
PURPOSE AND INTENDED USE OF THE STUDY	3
EXECUTIVE SUMMARY	3
DEFINITION OF MARKET VALUE	6
SCOPE OF WORK AND REPORTING PROCESS	6
PROJECT AREA DEMOGRAPHICS	8
OPERATIONAL SOLAR PROJECTS IN ILLINOIS	9
RESIDENTIAL SALES NEAREST TO THE PROJECT AREA	15
FACTORS THAT AFFECT PROPERTY VALUES CONSIDERED	16
MARKET IMPACT ANALYSIS	18
MATCHED PAIR ANALYSIS	19
ILLINOIS ANALYSIS - CLAY COUNTY MATCHED PAIR No. 1	20
ILLINOIS ANALYSIS - LASALLE COUNTY MATCHED PAIR No. 1	23
ILLINOIS ANALYSIS - PERRY COUNTY MATCHED PAIR No. 1	26
ILLINOIS ANALYSIS - PERRY COUNTY MATCHED PAIR No. 2	28
ILLINOIS ANALYSIS - LOGAN COUNTY MATCHED PAIR No. 1	32
ILLINOIS ANALYSIS - LOGAN COUNTY MATCHED PAIR No. 2	34
MATCHED PAIR ANALYSIS - WISCONSIN, IOWA, MICHIGAN, MINNESOTA, INDIANA, OKLAHOMA, ARIZONA, AND NORTH CAROLINA	37
WISCONSIN ANALYSIS - WOOD COUNTY MATCHED PAIR No. 1	37
WISCONSIN ANALYSIS - IOWA COUNTY MATCHED PAIR No. 1	40
WISCONSIN ANALYSIS - MANITOWOC COUNTY MATCHED PAIR No. 1	43
WISCONSIN ANALYSIS - MANITOWOC COUNTY MATCHED PAIR No. 2	45
IOWA ANALYSIS - MUSCATINE COUNTY MATCHED PAIR No. 1	48
IOWA ANALYSIS - LOUISA COUNTY MATCHED PAIR No. 1	51
IOWA ANALYSIS - DUBUQUE COUNTY MATCHED PAIR No. 1	53
IOWA ANALYSIS - DUBUQUE COUNTY MATCHED PAIR No. 2	56
INDIANA ANALYSIS - STARK COUNTY MATCHED PAIR No. 1	58
INDIANA ANALYSIS - PULASKI COUNTY MATCHED PAIR No. 1	61
INDIANA ANALYSIS - JASPER COUNTY MATCHED PAIR No. 1	63
INDIANA ANALYSIS - SHELBY COUNTY MATCHED PAIR No. 1	66
INDIANA ANALYSIS - SHELBY COUNTY MATCHED PAIR No. 2	68
INDIANA ANALYSIS - MADISON COUNTY MATCHED PAIR No. 1	71
MICHIGAN ANALYSIS - CALHOUN COUNTY MATCHED PAIR No. 1	73
MICHIGAN ANALYSIS - LAPEER COUNTY MATCHED PAIR No. 1	75
MINNESOTA ANALYSIS - ISANTI COUNTY MATCHED PAIR #1	78
MINNESOTA ANALYSIS - WABASHA COUNTY MATCHED PAIR No. 1	81
NEW MEXICO ANALYSIS - CHAVES COUNTY MATCHED PAIR No. 1	84
OKLAHOMA ANALYSIS - GARFIELD COUNTY MATCHED PAIR No. 1	87
ARIZONA ANALYSIS - MATCHED PAIR No. 1	89
ARIZONA ANALYSIS - MATCHED PAIR No. 2	92
MATCHED PAIR ANALYSIS CONCLUSIONS	94

PROPERTY VALUE ANALYSIS NEAR SOLAR ENERGY IN OTHER STATES	95
SINGLE-FAMILY RESIDENTIAL SALES SUMMARY IN THE AREA NEAREST TO THE BADGER HOLLOW SOLAR FARM IN IOWA COUNTY, WISCONSIN.....	96
SINGLE-FAMILY RESIDENTIAL SALES SUMMARY IN THE AREA NEAREST TO THE TWO CREEKS SOLAR IN MANITOWOC COUNTY, WISCONSIN.....	97
SINGLE-FAMILY RESIDENTIAL SALES SUMMARY IN THE AREA NEAREST TO THE NORTH STAR SOLAR FARM IN NORTH BRANCH, MINNESOTA	98
BEFORE AND AFTER SALES COMPARISON ANALYSIS – NORTH BRANCH, MINNESOTA	99
BEFORE AND AFTER SALES COMPARISON ANALYSIS – GOLDSBORO, NORTH CAROLINA	106
SOLAR FARM ASSESSOR SURVEYS	109
ILLINOIS ASSESSORS SURVEY – JULY 2019	109
IOWA ASSESSORS SURVEY – JULY 2021	110
WISCONSIN ASSESSORS SOLAR FARM SURVEY - APRIL 2018	111
INDIANA ASSESSORS SURVEY – FEBRUARY & MARCH 2019	112
MICHIGAN ASSESSORS SURVEY - DECEMBER 2021	113
MINNESOTA ASSESSORS SOLAR FARM SURVEY - JUNE 2023	114
SOUTH DAKOTA ASSESSORS SURVEY – NOVEMBER 2023	115
COLORADO ASSESSORS SURVEY – MAY 2025	116
OKLAHOMA ASSESSORS SURVEY – DECEMBER 2024	117
NEW MEXICO ASSESSORS SURVEY – DECEMBER 2025	118
NORTH CAROLINA ASSESSORS SOLAR FARM SURVEY (PARTIAL) - JULY 2018	119
MARYLAND ASSESSORS SOLAR FARM SURVEY - OCTOBER 2017	120
REAL ESTATE PROFESSIONALS.....	121
AGRICULTURAL LAND VALUES	123
AGRICULTURAL LAND SALES	125
AGRICULTURAL LAND SALES: SOLAR FARMS AND WIND FARMS	126
SOLAR ENERGY PEER-REVIEWED LITERATURE REVIEW	128
THE UNIVERSITY OF TEXAS AT AUSTIN, 2018	128
UNIVERSITY OF RHODE ISLAND, 2020	129
LAWRENCE BERKELEY NATIONAL LABORATORY (LBNL) STUDY - 2023	130
LOYOLA UNIVERSITY CHICAGO, 2024	131
VIRGINIA TECH - VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY, 2025	132
APPRAISAL INSTITUTE, 2025	133
PURDUE UNIVERSITY, 2024	133
CONCLUSIONS.....	134
CERTIFICATE OF REPORT	135

ADDENDA	A
ELM LAWN SOLAR PARK FOOTPRINT	I
RECENT SINGLE-FAMILY HOUSE SALES LOCATION MAP	II
LAND SALES LOCATION MAP	III
CLAY COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP	IV
LASALLE COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP	V
PERRY COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP	VI
LOGAN COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP	VII
WOOD COUNTY, WISCONSIN MATCHED PAIR LOCATION MAP	VIII
IOWA COUNTY, WISCONSIN MATCHED PAIR LOCATION MAP	IX
MANITOWOC COUNTY, WISCONSIN MATCHED PAIR LOCATION MAP	X
MUSCATINE COUNTY, IOWA MATCHED PAIR LOCATION MAP	XI
LOUISA COUNTY, IOWA MATCHED PAIR LOCATION MAP	XII
DUBUQUE COUNTY, IOWA MATCHED PAIR LOCATION MAP	XIII
CALHOUN COUNTY, MICHIGAN MATCHED PAIR LOCATION MAP	XIV
LAPEER COUNTY, MICHIGAN MATCHED PAIR LOCATION MAP	XV
STARK COUNTY, INDIANA MATCHED PAIR LOCATION MAP	XVI
PULASKI COUNTY, INDIANA MATCHED PAIR LOCATION MAP	XVII
JASPER COUNTY, INDIANA MATCHED PAIR LOCATION MAP	XVIII
SHELBY COUNTY, INDIANA MATCHED PAIR LOCATION MAP	XIX
MADISON COUNTY, INDIANA MATCHED PAIR LOCATION MAP	XX
CALHOUN COUNTY, MICHIGAN MATCHED PAIR LOCATION MAP	XXI
LAPEER COUNTY, MICHIGAN MATCHED PAIR LOCATION MAP	XXII
ISANTI COUNTY, MINNESOTA MATCHED PAIR LOCATION MAP	XXIII
WABASHA COUNTY, MINNESOTA MATCHED PAIR LOCATION MAP	XXIV
GARFIELD COUNTY, OKLAHOMA MATCHED PAIR LOCATION MAP	XXV
ARIZONA MATCHED PAIR LOCATION MAP	XXVI
BADGER HOLLOW SOLAR FARM RECENT RESIDENTIAL SALES LOCATION MAP	XXVII
TWO CREEKS SOLAR RECENT RESIDENTIAL SALES LOCATION MAP	XXVIII
NORTH BRANCH, MINNESOTA RECENT RESIDENTIAL SALES LOCATION MAP	XXIX
NORTH BRANCH, MINNESOTA BEFORE AND AFTER SALES LOCATION MAP	XXX
ELIZABETH CITY, NORTH CAROLINA RECENT RESIDENTIAL SALES LOCATION MAP	XXXI
GOLDSBORO, NORTH CAROLINA RECENT RESIDENTIAL SALES LOCATION MAP	XXXII
GOLDSBORO, NORTH CAROLINA BEFORE AND AFTER SALES LOCATION MAP	XXXIII
IMPROVED SALE PHOTOGRAPHS	XXXIV
SALE #1 — 304 ELIZABETH DRIVE, LITCHFIELD	XXXV
SALE #2 — 261 YAEGER LAKE TRAIL, LITCHFIELD	XXXV
SALE #3 — 298 YAEGER LAKE TRAIL, LITCHFIELD	XXXVI
SALE #4 — 172 BALLPARK TRAIL, LITCHFIELD	XXXVI
SALE #5 — 55 HORSESHOE LANE, LITCHFIELD	XXXVII
SALE #6 — 74 HORSESHOE LANE, LITCHFIELD	XXXVII
ILLINOIS COUNTY ASSESSOR SURVEY ANALYSIS	XXXVIII
CONCLUSIONS OF THE STUDY	XXXIX
SCOPE OF PROJECT	XXXIX
RESIDENTIAL MARKET VALUES	XL
RESIDENTIAL ASSESSED VALUES, COMPLAINTS/TAX APPEAL FILINGS	XL
AGRICULTURAL VALUES/ASSESSED VALUES	XL
DEMAND AND ECONOMIC FEASIBILITY ANALYSIS – NEW SINGLE-FAMILY DEVELOPMENT	XLIII
LAWRENCE BERKELEY NATIONAL LAB STUDY - SHEDDING LIGHT ON LARGE-SCALE SOLAR IMPACTS: AN ANALYSIS OF PROPERTY VALUES AND PROXIMITY TO PHOTOVOLTAICS ACROSS SIX U.S. STATES	XLIV
KEY AREAS TO CONSIDER	XLV
SUMMARY OF THE VARIABLES THAT WOULD NEED TO BE CONSIDERED	XLV
MICHAEL S. MAROUS STATEMENT OF QUALIFICATIONS	XLVII
JOSEPH M. MAROUS STATEMENT OF QUALIFICATIONS	LIV

Project Summary

Project Description	
Project Name	Elm Lawn Solar Park
Project Legal Name/Entity Name	SDG IL DG, LLC
Project Type	Solar Farm
Lead Development Company	Solar Development Group LLC
Lead Developer Name/Main Contact	Luis Gonzalez
Project Location	
Address	173 Yaeger Lake Trail, Litchfield, IL 62056
State	Illinois
County	Montgomery
Townships	North Litchfield
Latitude	39.1842805
Longitude	-89.6346546
Solar Farm Description	
Total Footprint Land Acreage	27.42 Acres
Actual Land Acreage Used by Panels	15.00 Acres
Panel Height (Approx. Min)	3.0 Feet
Panel Height (Approx. Max)	15.0 Feet
Total Capacity	2.0 MWAC / 3.0 MWDC
Total Project Cost	\$5,000,000
Setbacks	
Setback to public right-of-way	50 feet from all public rights-of-way
Setback to non-participating property lines	75 feet (top array) and 200 feet (bottom array) from non-participating property lines
Setback to dwelling units	150 feet minimum from residential buildings on adjoining parcels (south boundary)
Setback to community buildings	25 feet minimum from racking and modules to the perimeter fence
All Ancillary (non-solar panel) Construction	
Ancillary Construction Item	8-foot-tall woven-wire perimeter fence
Ancillary Construction Item	20-foot landscaping Buffer A (6 evergreen trees, 3 deciduous trees, 20 shrubs, vegetative groundcover)
Ancillary Construction Item	10-foot landscaping Buffer B (20 shrubs, vegetative groundcover)
Ancillary Construction Item	20-foot site entrance and parking area
Ancillary Construction Item	Point of Interconnection and utility metering/recloser components placed along E Clark St
Ancillary Construction Item	Existing vegetative buffer retained in the northeast corner of the parcel

Project Benefits

Tax Summary Overview	
Property taxes to be paid by the project	\$305,000 over 25 years (approximately \$419,000 over 40 years)
Tax Beneficiaries	Montgomery County; North Litchfield Township; North Litchfield Township Road District; Litchfield Community Unit School District #12; Lincoln Land Community College District #526; Litchfield Rural Fire Protection District; Montgomery County Emergency Telephone System Board (911 ETSB)
Participants	
Number of Participants	1 Landowner
Participant Acreage	27.42 Acres
Land Agreements	
Participating Landowner Lease Payments	Yes — annual lease payments over the 25-year operational term (per-acre and per-MW basis, with escalation)
Good Neighbor Agreements/Payments	Yes — annual stipends offered to eligible adjoining non-participating landowners
Job Creation	
Temporary/Construction Jobs	30 Construction Jobs
Permanent Jobs	1 Permanent Job

Purpose and Intended Use of the Study

The purpose of this appraisal assignment is to analyze the potential impact, if any, on the value of the surrounding residential properties of the development of a solar farm. The report is intended specifically for the use of the client for a proposed solar farm in Montgomery County, Illinois. Any other use or user of this report is considered to be unintended.

Executive Summary

As a result of the market impact analysis undertaken, MaRous & Company concluded that there is no market data indicating the project will have a negative impact on either rural residential or agricultural property values in the surrounding area. Further, market data from Illinois, as well as from other states, supports the conclusion that the project will not have a negative impact on rural residential or agricultural property values in the surrounding area. Finally, for agricultural properties that host photovoltaic panels, the additional income from the solar lease may increase the value and marketability of those properties. These conclusions are based on the following:

- ✧ The use will meet or exceed all the required development and operating standards.
- ✧ Controls are in place to ensure on-going compliance.
- ✧ The project area will experience significant financial benefits to the local economy and to the local taxing bodies from the development of the solar farm.
- ✧ The project will create well-paid jobs in the area which will benefit overall market demand.
- ✧ An analysis of recent residential sales proximate to existing solar farms in Illinois and other states, which includes residential sales as close as 165 feet, to photovoltaic panels, did not support any finding that proximity to a photovoltaic panel had any impact on property values.
- ✧ An in-depth analysis of recent residential sales proximate to the existing solar farms in North Branch, Minnesota; in Elizabeth City, North Carolina; and in Goldsboro, North Carolina; which includes residential sales within approximately 5,500 feet, and as close as 165 feet, to photovoltaic panels, did not support any finding that proximity to a photovoltaic panel had any impact on property values.
- ✧ An analysis of agricultural land values in the area and in other areas of Illinois with solar farms did not support any finding that the agricultural land values are negatively impacted by the proximity to photovoltaic panels.
- ✧ Studies indicate that solar farm leases add value to agricultural land.
- ✧ Interviews of over 150 assessors, assessment professionals, or appraisal consultants, with whom are involved in setting property values, as well as reviewing and resolving real estate tax complaints throughout the Midwest. Assessment structures can be different on a state-by-state basis, nonetheless, any state's statute must maintain that a property is to be assessed at fair market value.
 - The exception to the fair market value assessment process is agricultural land, which is assessed based on productivity.

- ❖ A survey of County Assessors in 6 counties within Illinois in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ❖ A survey of Municipal Assessors within 11 counties throughout Wisconsin in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
 - Many of the solar farms are located in unincorporated areas, therefore appropriate assessing officials were contacted.
 - This survey is currently being updated, and to date there is no contrary evidence to the original assessor survey that found no successful appeals granted based on assessment officials or boards granting value reductions to residential properties based on proximity to solar farms.
- ❖ A survey of County Assessors in 7 counties within Iowa in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ❖ A survey of Township Assessors within 20 counties in Michigan in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ❖ A survey of County Assessors in 36 counties within Minnesota in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ❖ A survey of County Assessors in 9 counties within Indiana in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ❖ A survey of County Assessors in 24 counties within New Mexico in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ❖ A survey of County Assessors in 9 counties within Oklahoma in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.

- ✧ A survey of County Assessors in 14 counties within Colorado in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ✧ A survey of County Assessors in 5 counties within North Carolina in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ✧ A survey of County Assessors in 13 counties within Maryland in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ✧ An analysis and comparison of solar energy production facilities to wind energy production facilities describing the similarities in economic benefits and similarities in lack of any support for finding that residential or agricultural land values are negatively impacted by the proximity to photovoltaic panels and wind turbines.
- ✧ The finding of fact provided by the Public Service Commission of Wisconsin for the application for a Certificate of Public Convenience and Necessity of Koshkonong Solar Energy Center, LLC in Dane County, Wisconsin on property value impacts expressed that negative impact concerns cannot be substantiated.
- ✧ The finding of fact provided by the Public Service Commission of Wisconsin for the application for a Certificate of Public Convenience and Necessity of Badger Hollow Solar Farm LLC in Iowa County, Wisconsin on property value impacts expressed that negative impact concerns cannot be substantiated.
- ✧ The finding of fact provided by the Public Service Commission of Wisconsin for the application for a Certificate of Public Convenience and Necessity of Darien Solar Energy Center, LLC in Walworth County, Wisconsin on property value impacts expressed that negative impact concerns cannot be substantiated.
- ✧ The finding of fact provided by the Public Service Commission of Wisconsin for the application for a Certificate of Public Convenience and Necessity of Grant County Solar, LLC in Grant County, Wisconsin on property value impacts expressed that negative impact concerns cannot be substantiated.
- ✧ The finding of fact provided by the Public Service Commission of Wisconsin for the application for a Certificate of Public Convenience and Necessity of Paris Solar Farm LLC in Kenosha County, Wisconsin on property value impacts expressed that negative impact concerns cannot be substantiated.
- ✧ The finding of fact provided by the Public Service Commission of Wisconsin for the application for a Certificate of Public Convenience and Necessity of Two Creeks Solar LLC in Manitowoc County, Wisconsin on property value impacts expressed that there are no negative impacts anticipated.

Definition of Market Value

When discussing market value, the following definition is used:

The most probable price a property should bring in a competitive and open market under all condition's requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

- ⋄ Buyer and seller are typically motivated.
- ⋄ Both parties are well informed or well advised and acting in what they consider their own best interests.
- ⋄ A reasonable time is allowed for exposure in the open market.
- ⋄ Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto.
- ⋄ The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.¹

Scope of Work and Reporting Process

Information was gathered concerning the real estate market generally and the market of the area surrounding the project specifically. The uses in the surrounding area were considered. The following summarizes the actions taken:

- ⋄ Review of the Montgomery County Public Documents and map.
- ⋄ Review of the project's supporting documents provided by Elm Lawn Solar Park.
- ⋄ Review of the demographics in the area of the proposed solar farm.
- ⋄ Data on the general market area of the solar farm, and on the other areas in Illinois and/or Montgomery County in which existing solar farms are located.
 - Review of the market data for the proposed Wildflower Subdivision located to the west of the proposed Elm Lawn Solar Park.
 - Data suggests that there will be no impact from the proposed solar project on the proposed subdivision. Further details are provided in the addendum to this report.
- ⋄ Data on the market for single-family houses in the immediate area of the proposed solar farm and from other areas in the county from private sources, public sources, and sources from the Montgomery County and/or Illinois public records.
- ⋄ Illinois and other Midwestern real estate professionals were interviewed concerning recent sales in their area, local market conditions, and the impact of solar farms on property values in the area.
- ⋄ Properties used for development of the matched pairs were physically inspected by MaRous & Company on the exterior, and photographs of the interiors were reviewed where available.
- ⋄ Inspections were performed of the subject area and the areas in nearby counties with existing solar farms by Michael S. MaRous in May 2026.

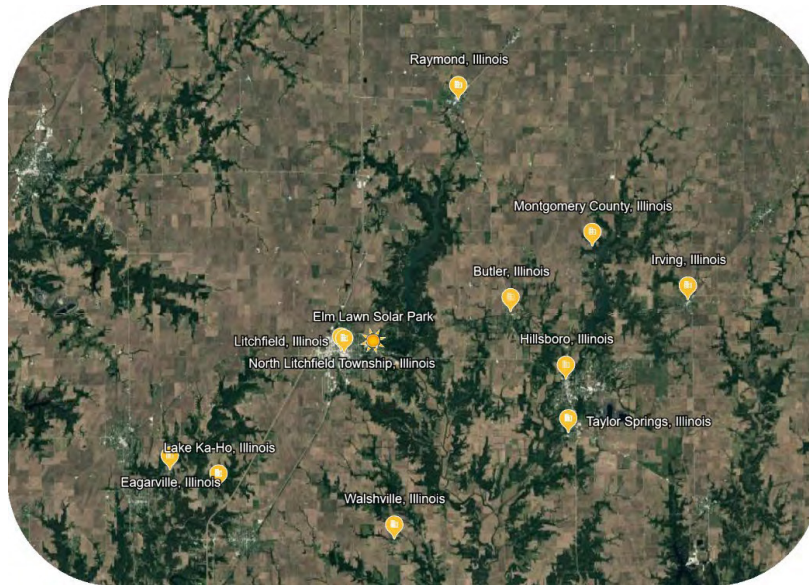
¹ (12 C.F.R. Part 34.42(g); 55 Federal Register 34696, August 24, 1990, as amended at 57 Federal Register 12202, April 9, 1992; 59 Federal Register 29499, June 7, 1994)

This document is considered to conform to the requirements of the *Uniform Standards of Professional Appraisal Practice and Advisory Opinions* (USPAP). This letter is a brief recapitulation of the appraisal data, analyses, and conclusions; additional supporting documentation is retained in the MaRous & Company office file. There are no extraordinary assumptions or hypothetical conditions included in the market study.

In order to form a judgment concerning the potential impact, if any, on the value of the surrounding residential properties of the approval of the conditional use for the solar farm, the following have been considered:

- ∴ The character and the value of the residential and agricultural properties in the general area of the existing solar farm.
- ∴ Agricultural land values in Montgomery County, and in other Illinois counties in which solar farms are located.
- ∴ Market trends for both residential and agricultural land within the market area up to the past 5 years.
- ∴ The economic impact on the larger community by the proposed solar farm.
- ∴ The impact on the value of the surrounding residential and agricultural properties by the proposed solar farm.

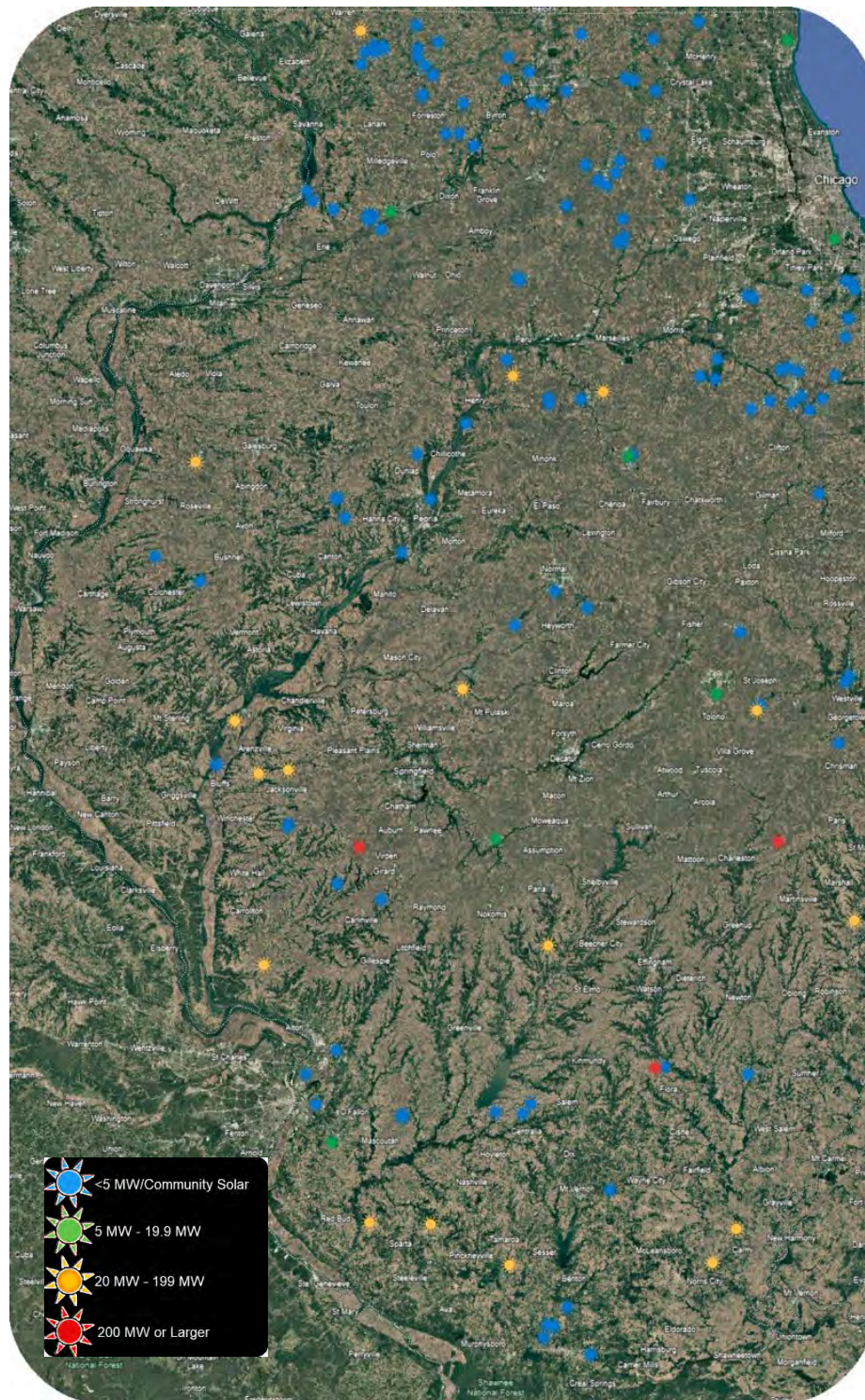
Project Area Demographics



Location	Elm Lawn Solar Park	Montgomery County, Illinois	North Litchfield Township, Illinois	Litchfield, Illinois	Hillsboro, Illinois	Raymond, Illinois
2010 Total Population	0 Persons	30,105 Persons	5,148 Persons	7,184 Persons	6,288 Persons	1,007 Persons
2020 Total Population	0 Persons	28,288 Persons	4,939 Persons	6,760 Persons	5,913 Persons	949 Persons
2025 Total Population	0 Persons	27,500 Persons	4,742 Persons	6,540 Persons	5,812 Persons	909 Persons
2025 Population Density (Per Square Mile)	0.0 Ppl/Sq. mi.	39.1 Ppl/Sq. mi.	131.1 Ppl/Sq. mi.	730.2 Ppl/Sq. mi.	665.4 Ppl/Sq. mi.	722.9 Ppl/Sq. mi.
2025 Median Home Value	N/A	\$137,449	\$136,139	\$111,868	\$121,329	\$118,598
2025 Median Household Income	N/A	\$68,737	\$68,190	\$56,955	\$65,959	\$75,285
2025 Households	0 Households	10,941 Households	2,067 Households	2,867 Households	1,733 Households	392 Households
2025 Housing Units	0 Units	12,465 Units	2,344 Units	3,247 Units	2,036 Units	428 Units
2025 Vacant Housing Units	0 Units	1,524 Units	277 Units	380 Units	303 Units	36 Units
2025 Unemployment Rate	N/A	2.7%	2.2%	2.3%	1.6%	2.1%

Location	Taylor Springs, Illinois	Irving, Illinois	Lake Ka-Ho, Illinois	Butler, Illinois	Eagarville, Illinois	Walshville, Illinois
2010 Total Population	732 Persons	495 Persons	237 Persons	180 Persons	127 Persons	60 Persons
2020 Total Population	726 Persons	373 Persons	194 Persons	164 Persons	114 Persons	61 Persons
2025 Total Population	737 Persons	325 Persons	185 Persons	163 Persons	103 Persons	59 Persons
2025 Population Density (Per Square Mile)	698.5 Ppl/Sq. mi.	362.3 Ppl/Sq. mi.	652.5 Ppl/Sq. mi.	273.6 Ppl/Sq. mi.	113.0 Ppl/Sq. mi.	232.0 Ppl/Sq. mi.
2025 Median Home Value	\$110,000	\$153,125	\$70,000	\$236,364	\$104,167	\$268,750
2025 Median Household Income	\$61,408	\$65,381	\$58,158	\$94,989	\$78,996	\$103,571
2025 Households	252 Households	153 Households	96 Households	68 Households	42 Households	20 Households
2025 Housing Units	287 Units	179 Units	128 Units	74 Units	45 Units	25 Units
2025 Vacant Housing Units	35 Units	26 Units	32 Units	6 Units	3 Units	5 Units
2025 Unemployment Rate	1.8%	3.0%	10.8%	3.4%	11.4%	0.0%

Operational Solar Projects in Illinois



Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

Project Name	Capacity (MW)	Start Year	City	County
JM Huber at Quincy solar farm	1.5 MW	2021	Quincy	Adams County
Kish CSG solar farm	2.0 MW	2021	Cherry Valley	Boone County
Route 76 Boone Solar 1	2.0 MW	2020	Poplar Grove	Boone County
Depue Holdings solar farm	20.0 MW	2023	DePue	Bureau County
DPC York solar project	1.5 MW	2019	Thompson	Carroll County
Cass County Renewable Energy Center	150.0 MW	2024	Beardstown	Cass County
Northern Cardinal Solar SCS IL 1	10.0 MW	2021	Champaign	Champaign County
Phoenix Solar South Farms Solar Farm	4.7 MW	2015	Champaign	Champaign County
IL Sidney Project1 solar project	2.0 MW	2021	Sidney	Champaign County
Rantoul Solar	2.0 MW	2016	Rantoul	Champaign County
SCS COUNTY 012631 Champaign solar farm	2.0 MW	2021	Champaign	Champaign County
Solar Star Urbana Landfill Central	1.9 MW	2021	Urbana	Champaign County
Solar Star Urbana Landfill East	1.9 MW	2021	Urbana	Champaign County
CED Champaign Solar	1.6 MW	2020	Champaign	Champaign County
Skyline solar project	5.0 MW	2024	Taylorville	Christian County
The GSI Group at Assumption solar farm	1.5 MW	2021	Assumption	Christian County
River Ferry Solar	165.3 MW	2023	West Union	Clark County
Clay FC solar project	2.0 MW	2021	Louisville	Clay County
Clinton Solar 4 CSG	2.0 MW	2020	Carlyle	Clinton County
Sandoval solar farm	2.0 MW	2021	Centralia	Clinton County
Trenton East solar project	2.0 MW	2024	Trenton	Clinton County
Trenton West solar project	2.0 MW	2024	Trenton	Clinton County
Prairie Wolf Solar	200.0 MW	2021	Ashmore Township	Coles County
Exelon Solar Chicago	9.0 MW	2009	Chicago	Cook County
Gooseberry Solar, LLC solar project	2.0 MW	2024	Chicago Heights	Cook County
IGS Frankfort 2 CSG solar farm	2.0 MW	2021	Frankfort	Cook County
North Cottage Grove Solar 1, LLC solar project	2.0 MW	2024	Glenwood	Cook County
Torrence Ave Solar 1 LLC solar project	2.0 MW	2024	Sauk Village	Cook County
Albertsons at Melrose Park solar farm	1.9 MW	2021	Melrose Park	Cook County
FedEx Chicago Solar Facility	1.5 MW	2020	Bedford Park	Cook County
ESIL-PFCHICAGO 3 solar farm	1.4 MW	2020	Chicago	Cook County
Northrop Grumman Solar Rolling Meadows IL	1.1 MW	2020	Rolling Meadows	Cook County
ESIL-PFCHICAGO 2 solar farm	1.0 MW	2020	Chicago	Cook County
Long John CSG solar farm	2.0 MW	2021	Sandwich	DeKalb County
Pine Road Solar CSG	2.0 MW	2021	Sandwich	DeKalb County
Plote Somonauk solar project	2.0 MW	2024	Sandwich	DeKalb County
SV CSG South Dekalb 1 LLC solar project	2.0 MW	2023	Dekalb	DeKalb County
SV CSG South Dekalb 2 LLC solar project	2.0 MW	2023	Dekalb	DeKalb County
Somonauk Road Solar 1	2.0 MW	2021	Somonauk	DeKalb County
USS Sycamore Solar	2.0 MW	2022	Sycamore	DeKalb County
Whiskey Acres solar project	2.0 MW	2024	Dekalb	DeKalb County
Wolfcastle solar farm	2.0 MW	2021	Dekalb	DeKalb County

Cortland solar farm	2.0 MW	2021	Cortland	Dekalb County
Tower Road Solar CSG	2.0 MW	2021	Lee	Dekalb County
SCS Plainfield 011755 Naperville solar farm	1.0 MW	2021	Naperville	DuPage County
Dressor Plains Solar	99.0 MW	2021	Herrick	Fayette County
Conagra Foods at St. Elmo solar farm	1.8 MW	2021	St. Elmo	Fayette County
Kern A Community Solar CSG	2.0 MW	2021	West Frankfort	Franklin County
Illinois PV Fulton 1 CSG solar farm	2.0 MW	2020	Farmington	Fulton County
Ahern Community Solar I, LLC	2.0 MW	2023	Morris	Grundy County
SV Gardner 1 Lutz CSG solar farm	2.0 MW	2021	Gardner	Grundy County
Galesburg Solar Array	1.4 MW	2020	Oquawka	Henderson County
Geneseo solar farm	1.2 MW	2015	Geneseo	Henry County
Iroquois Solar 1B LLC CSG	2.0 MW	2020	Watseka	Iroquois County
Marlow Solar CSG	2.0 MW	2020	Bluford	Jefferson County
Hickory Solar Park	110.0 MW	2024	Jerseyville	Jersey County
IGS Stockton DG CSG solar farm	1.9 MW	2020	Stockton	Jo Daviess County
IGS Stockton DG CSG solar farm	1.9 MW	2020	Stockton	Jo Daviess County
Apple Canyon Lake Solar	1.2 MW	2020	Apple River	Jo Daviess County
French Road Solar II	2.0 MW	2022	Burlington	Kane County
Mooseheart School Solar	2.0 MW	2020	Mooseheart	Kane County
SV CSG Lily Lake 2 solar farm	2.0 MW	2020	Maple Park	Kane County
AES Griggs Solar	2.0 MW	2020	Grant Park	Kankakee County
CED Spring Creek Solar	2.0 MW	2021	St Anne	Kankakee County
Kankakee Solar 1 solar project	2.0 MW	2024	Bourbonnais	Kankakee County
Kankakee Solar 3 solar project	2.0 MW	2024	Manteno	Kankakee County
Kankakee Solar 4	2.0 MW	2020	Kankakee	Kankakee County
Lafayette 2 - Kankakee Yonke solar farm	2.0 MW	2020	Kankakee	Kankakee County
Nostrand solar farm	2.0 MW	2021	Manteno Township	Kankakee County
Peterman II solar farm	2.0 MW	2021	St. Anne	Kankakee County
USS Goodrich Solar	2.0 MW	2022	Bonfield	Kankakee County
Vulcan solar farm	2.0 MW	2021	Kankakee	Kankakee County
Bourbonnais solar project	1.7 MW	2024	Bourbonnais	Kankakee County
Kankakee 2 solar project	1.5 MW	2022	Bourbonnais	Kankakee County
Elba Solar LLC	2.0 MW	2023	Williamsfield	Knox County
Illinois PV Knox 1A solar project	2.0 MW	2024	Yates City	Knox County
Illinois PV Knox 1B solar project	2.0 MW	2024	Yates City	Knox County
Grand Ridge solar farm	20.0 MW	2012	Streator	LaSalle County
Briscoe 1A solar project	2.0 MW	2023	Tonica	LaSalle County
Briscoe 2A solar project	2.0 MW	2023	Lostant	LaSalle County
Mendota Rich Dev CSG solar farm	2.0 MW	2022	Mendota	LaSalle County
Mendota solar farm	2.0 MW	2020	Mendota	LaSalle County
Segunda II CSG solar farm	2.0 MW	2021	Streator	LaSalle County
Yeoman Creek solar farm	7.0 MW	2025	Waukegan	Lake County
Walldog solar project	5.0 MW	2024	Pontiac	Livingston County

Pontiac solar farm	2.0 MW	2021	Pontiac	Livingston County
Mulligan Solar	70.0 MW	2022	Lincoln	Logan County
USS Solar Brick	2.0 MW	2021	Standard City	Macoupin County
Viking Solar CSG	2.0 MW	2021	Palmyra	Macoupin County
Edwardsville Solar II	2.0 MW	2021	Edwardsville	Madison County
Mulberry Solar, LLC solar project	2.0 MW	2024	Granite City	Madison County
Marion Solar 4b LLC solar project	2.0 MW	2024	Sandoval	Marion County
Schulte 2 Community Solar	2.0 MW	2020	Lacon	Marshall County
McDonough Solar 1 CSG	2.0 MW	2020	Blandinsville	McDonough County
McDonough Solar 1 CSG	2.0 MW	2020	Blandinsville	McDonough County
Sullivan B Community Solar	2.0 MW	2020	Macomb	McDonough County
Alden Road Harvard Solar 1	2.0 MW	2020	Harvard	McHenry County
Lafayette 2 - McHenry Franks 1 solar farm	2.0 MW	2020	Marengo	McHenry County
Lafayette 2 - McHenry Franks 2 solar farm	2.0 MW	2020	Huntley	McHenry County
Lobelia 1 solar project	2.0 MW	2025	Harvard	McHenry County
Marengo Solar	2.0 MW	2020	Marengo	McHenry County
N Solon Road (South) solar project	2.0 MW	2024	Richmond	McHenry County
Harmony Road Solar	1.9 MW	2020	Huntley	McHenry County
Square Barn Solar	1.5 MW	2020	Algonquin	McHenry County
Reed Road Solar	1.3 MW	2020	Lake In The Hills	McHenry County
Charter Durabar at Woodstock solar farm	1.0 MW	2021	Woodstock	McHenry County
Charter Durabar at Woodstock solar farm	1.0 MW	2021	Woodstock	McHenry County
Breezewood solar project	2.0 MW	2024	Bloomington	McLean County
Moraine CSG solar farm	2.0 MW	2021	Downs	McLean County
Wolf Run Solar	140.0 MW	2024	Concord	Morgan County
Prairie Creek (Illinois) solar farm	30.0 MW	2023	Lincoln	Morgan County
Morgan Solar 1 CSG	2.0 MW	2021	Meredosia	Morgan County
Morgan Solar 1b CSG	2.0 MW	2021	Meredosia	Morgan County
Morgan Solar 2 CSG	2.0 MW	2020	Murrayville	Morgan County
Morgan Solar 4 CSG	2.0 MW	2020	Murrayville	Morgan County
CSG Mt. Morris 2 solar farm	2.0 MW	2021	Mt. Morris	Ogle County
Mt. Morris Solar CSG	2.0 MW	2020	Polo	Ogle County
OE IL Solar 3	2.0 MW	2022	Oregon	Ogle County
CED Peoria Solar	2.0 MW	2021	Mapleton	Peoria County
IL West Hallock Project1 solar project	2.0 MW	2021	Edelstein	Peoria County
SCS Galena 012589 Peoria solar farm	2.0 MW	2021	Peoria	Peoria County
Prairie State Solar Project	99.0 MW	2021	Swanwick Township	Perry County
Kimmel Road Solar	50.0 MW	2024	Du Quoin	Perry County
Putnam Solar 1 solar project	2.0 MW	2024	Granville	Putnam County
Putnam Solar 1B solar project	2.0 MW	2024	Winnebago	Putnam County
Olney Solar II CSG	2.0 MW	2021	Olney	Richland County
Double Back Diamond Solar	593.0 MW	2025	Lowder	Sangamon County
AES Belleville Solar	9.9 MW	2021	Belleville	St Clair County

St. Clair Solar 3 solar project	2.0 MW	2024	East Saint Louis	St Clair County
SCS American Bottoms 009885 Sauget solar farm	1.8 MW	2020	Sauget	St Clair County
High Point Solar	100.0 MW	2023	Lena	Stephenson County
2662 Freeport Solar 1 CSG	2.0 MW	2020	Freeport	Stephenson County
Cedarville (IL) solar project	2.0 MW	2024	Freeport	Stephenson County
Cedarville Road solar farm	2.0 MW	2020	Lena	Stephenson County
DG Harlem Solar solar project	2.0 MW	2024	Leaf River	Stephenson County
Dakota Solar 1, LLC solar project	2.0 MW	2024	Dakota	Stephenson County
Dodds CSG solar farm	2.0 MW	2021	Lena	Stephenson County
Gala CSG solar farm	2.0 MW	2021	Lena	Stephenson County
IL17021 Brush Creek I CSG solar farm	2.0 MW	2022	Freeport	Stephenson County
Kent School Road Solar 1	2.0 MW	2020	Kent	Stephenson County
Lena solar farm	2.0 MW	2021	Lena	Stephenson County
Olmstead II CSG solar farm	2.0 MW	2021	Lena	Stephenson County
Pretzel CSG solar farm	2.0 MW	2022	Freeport	Stephenson County
SV CSG Baileyville 1 LLC solar project	2.0 MW	2023	Baileyville	Stephenson County
SV CSG Baileyville 2 LLC solar project	2.0 MW	2023	Baileyville	Stephenson County
Trinity Freeport solar project	2.0 MW	2024	Freeport	Stephenson County
Ameresco Danville Solar	2.0 MW	2021	Tilton	Vermilion County
Ridge Farm solar farm	2.0 MW	2020	Ridge Farm	Vermilion County
Vermilion Solar 1 CSG	2.0 MW	2020	Danville	Vermilion County
SCS West Fairchild 011958 Danville solar farm	1.6 MW	2021	Danville	Vermilion County
Earp Solar	47.0 MW	2024	Monmouth	Warren County
Boomtown Renewable Energy Center	150.0 MW	2024	Carmi	White County
Big River Solar	149.0 MW	2022	Norris City	White County
Galt solar project	5.0 MW	2024	Galt	Whiteside County
Abel Solar solar project	2.0 MW	2021	Morrison	Whiteside County
Blue Goose Solar CSG	2.0 MW	2020	Morrison	Whiteside County
Bunker Hill Solar solar project	2.0 MW	2021	Round Grove	Whiteside County
Cattail (CSG) solar project	2.0 MW	2022	Fulton	Whiteside County
Prophet CSG solar farm	2.0 MW	2021	Rock Falls	Whiteside County
Round Grove 1 solar project	2.0 MW	2021	Round Grove	Whiteside County
Round Grove 2 solar project	2.0 MW	2021	Round Grove	Whiteside County
Whiteside Solar 1 CSG	2.0 MW	2020	Fulton	Whiteside County
Yorktown 1 Solar solar project	2.0 MW	2024	Morrison	Whiteside County
Yorktown 2 Solar solar project	2.0 MW	2024	Lyndon	Whiteside County
SCS Beltway 011754 Rock Falls solar farm	1.0 MW	2020	Rock Falls	Whiteside County
CED Beecher Sun Solar	2.0 MW	2021	Beecher	Will County
IGS East Central solar farm	2.0 MW	2020	Joliet	Will County
IKEA Joliet Rooftop PV System solar farm	2.0 MW	2017	Joliet	Will County
Keeversville Solar CSG	2.0 MW	2021	Braidwood	Will County
Monee Solar 1, LLC solar project	2.0 MW	2024	Monee	Will County
Woodlawn CSG solar farm	2.0 MW	2021	Crete	Will County

Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

Woodlawn II CSG solar farm	2.0 MW	2021	Crete	Will County
Amazon MDW6 Solar Project	1.9 MW	2020	Romeoville	Will County
Amazon MDW7 Solar Project	1.9 MW	2022	Monee	Will County
Lineage Logistics Solar	1.6 MW	2019	University Park	Will County
Clendenin A Community Solar CSG	2.0 MW	2021	Herrin	Williamson County
Hurricane Creek CSG solar farm	2.0 MW	2021	Carterville	Williamson County
Lukuc B Community Solar CSG	2.0 MW	2021	Herrin	Williamson County
SV CSG Barrass Farms II LL solar project	2.0 MW	2023	Marion	Williamson County
John A Logan College Solar	1.3 MW	2019	Carterville	Williamson County
Rockford Solar Farm	2.6 MW	2012	Rockford	Winnebago County
AES Bend Solar I, LLC solar project	2.0 MW	2025	Rockford	Winnebago County
CED Hilltop Solar	2.0 MW	2021	Rockford	Winnebago County
Rockford CS 1 solar project	2.0 MW	2021	Rockford	Winnebago County
Rockford CS 2 solar project	2.0 MW	2021	Rockford	Winnebago County
Rockford CSG solar farm	2.0 MW	2021	Rockford	Winnebago County
Rockford Solar	2.0 MW	2021	Rockford	Winnebago County
AES Bend Solar II, LLC solar project	1.9 MW	2025	Rockford	Winnebago County
Slidematic at Rockford solar project	1.8 MW	2022	Rockford	Winnebago County
All World Solar Facility solar project	1.5 MW	2023	Roscoe	Winnebago County

Residential Sales Nearest to the Project Area

Like many areas of Illinois, this area is primarily rural in nature. In addition to farms, there are single-family houses situated on either smaller lots or larger farmsteads adjacent to the project. The following table summarizes a sample of recent sales of these types of residences in the general area of the proposed Elm Lawn Solar Park which consisted of sales that had consistent data across private and public sources. A map illustrating the location of each of these sales is included in the addenda to this market impact study.

SINGLE-FAMILY RESIDENTIAL SALES SUMMARY IN THE AREA NEAREST TO THE PROPOSED PROJECT						
Sale #	#1	#2	#3	#4	#5	#6
Owner Name	Stieren Mindi G	Priddle Thomas C	Wright Eric S	Priddle Delbert L	Vega Branden	Short Christopher & Stephanie
Address	304 Elizabeth Drive, Litchfield	261 Yaeger Lake Trail, Litchfield	298 Yaeger Lake Trail, Litchfield	172 Ballpark Trail, Litchfield	55 Horseshoe Lane, Litchfield	74 Horseshoe Lane, Litchfield
County	Montgomery	Montgomery	Montgomery	Montgomery	Montgomery	Montgomery
State	Illinois	Illinois	Illinois	Illinois	Illinois	Illinois
Sale Price	\$220,000	\$235,000	\$238,500	\$280,000	\$350,000	\$207,000
Sale Date	October 10, 2025	March 24, 2025	November 25, 2024	May 21, 2026	September 20, 2023	July 15, 2021
Year Built	2014	1988	1996	1962	1979	1983
Site Size	0.44 Acres	2.18 Acres	1.56 Acres	3.71 Acres	0.81 Acres	1.79 Acres
Building Area	1,265 Sq. Ft.	2,334 Sq. Ft.	2,405 Sq. Ft.	1,472 Sq. Ft.	2,730 Sq. Ft.	2,603 Sq. Ft.
Bedrooms	N/A	3 Beds	4 Beds	4 Beds	4 Beds	3 Beds
Bathrooms	N/A	4 Bath	3 Bath	2 Bath	3 Bath	3 Bath
Sale \$/Sq. Ft. of Bldg. Area Incl. Land	\$173.91/Sq. Ft.	\$100.69/Sq. Ft.	\$99.17/Sq. Ft.	\$190.22/Sq. Ft.	\$128.21/Sq. Ft.	\$79.52/Sq. Ft.
Latitude	39.1812223	39.1858723	39.1853633	39.1886611	39.1909109	39.1901483
Longitude	-89.6335753	-89.6277237	-89.6250984	-89.6360879	-89.6242538	-89.6232375

The above table outlines the recent single-family residential sales in and around the project area that were performed under the definition of market value. Each sale must be an arm's-length transaction, meaning a voluntary sale between unrelated parties acting in their own self-interest. Some of the remaining single-family residential sales may have been bought and sold between related parties and cannot be considered to be sold at arm's length; and therefore, do not conform to the definition of market value.

Factors that Affect Property Values Considered

Appearance

- Utility-grade solar farms have a passive use of the land they occupy and are compatible with rural or agricultural uses in their immediate area. Solar panels, typically, have a low-profile with a height of up to 15 feet causing the visual impact from street level to be minimal. Fencing is commonly used around solar. Below you will see photographs of other common agricultural structures, such as ethanol plants, grain storage facilities, commercial greenhouses, hog farms, dairy farms, poultry farms, racetracks, quarries, coal burning power plants, airports, wind farms, and solar farms.



Ethanol Plant



Grain Storage Facility



Commercial Greenhouse



Hog Farm



Dairy Farm



Poultry Farm



Quarry



Coal Burning Power Plant



Airport



Shooting Range



Wind Farm



Solar Farm

Environment & Sustainability²

- “Solar technologies offer a number of environmental benefits, including the reduction of greenhouse gas emissions and waste in comparison to fuel-based energy sources. [Environmental conditions], sustainability, and recycling are all concerns of the solar industry, which is taking steps to address environmental issues through the lifecycle of solar products.”

² Environment & Sustainability. <https://www.seia.org/initiative-topics/environment>

- “Solar energy plays an important role in transitioning the U.S. to a low-carbon, sustainable future. Solar energy technologies can provide innovative, cost-effective solutions to reduce emissions in a number of sectors of the economy.”

Noise and Odor

- Photovoltaic panels do not emit sound. However, the Power Conversion Stations, tracking system motors, and the main transformer are audible, yet produce a very low sound output. Solar farms do not produce any odor.

Traffic

- Due to the low maintenance requirements of solar farms, there is an insignificant amount of traffic that is associated with solar farms.

Hazardous Materials

- Solar farms are reported to not produce any hazardous materials, toxins, or associated odors.

Public Services

- Infrastructure Benefits
 - Development of solar farms positively impacts the resiliency of the power grid. Further, building utility scale solar farms increases the need for local construction workers. Solar farms also pay significant real estate taxes that go to the surrounding community to improve existing infrastructure.
- Schools
 - Real estate taxes paid by solar farms benefit schools with greater funding. As well as funding, they do not add extra students to the classrooms causing overcrowding, such as a residential development that would add new families and students.
- Public Safety
 - The real estate taxes paid by solar farms also benefit public safety concerns by adding funding to first responder departments. This funding could add benefits by giving more opportunities for training, allowing for better equipment, upgrading existing departments, and creating higher salaries.

Market Impact Analysis

A market impact analysis is undertaken to develop an opinion as to whether the proposed solar farm will have an effect on the value of residential uses and/or agricultural land in proximity to the panels. This analysis includes:

- ∴ An analysis of residential sales in an attempt to study the impact on the value of residential properties near Montgomery County, Illinois, proximate to a solar farm and/or facility. As well as matched pairs developed in counties with similar demographics, land use, and economic characteristics of other states with a presence of solar energy, specifically, Wisconsin, Iowa, Michigan, Minnesota, Indiana, Oklahoma, Arizona, and North Carolina.
- ∴ The value of agricultural land near Montgomery County.
- ∴ The results of a survey of assessors in Illinois, Iowa, Wisconsin, Indiana, Michigan, Minnesota, South Dakota, Colorado, Oklahoma, New Mexico, North Carolina, and Maryland with existing solar farms with a capacity of, at least, 1 megawatt in their respective jurisdictions.
- ∴ Interviews of local real estate professionals concerning solar farms.
- ∴ The results of several academic and peer-reviewed studies of the impact of solar panels on residential property values.

Matched Pair Analysis

A matched pair analysis is a methodology which analyzes the importance of a selected characteristic, in this instance proximity to a photovoltaic panel, to the value of a property.³ This technique compares the sale of a property in proximity to the selected characteristic to the sale of a similar property in the same market area and under similar market conditions but without the proximity to the selected characteristic. MaRous & Company uses the following requirements to consider a property for a matched pair analysis:

- ∴ Distances to create an analysis should be under 1,500 feet from the house to the nearest solar panel, with the ideal distance to a solar panel of under 750 feet, and a maximum distance to a solar panel of approximately 2,500 feet.
- ∴ Each sale must be an arm's-length transaction.⁴
- ∴ If the state where the proposed project will be located has existing utility-scale solar projects (≥ 5 MW), then any sales analyzed must be found from those larger-scale projects.
- ∴ Each utility-scale solar facility known to MaRous & Company at the time of the analysis, within the subject state, must be observed in the attempt to provide an exhaustive investigation.

Numerous analyses of properties proximate to established solar farms in other states, specifically Illinois, Wisconsin, Iowa, Michigan, Minnesota, Indiana, Oklahoma, Arizona, and North Carolina, were conducted to further analyze any potential impact on value to residential properties proximate to solar farms. An additional analysis of specific Wisconsin, Minnesota, and North Carolina solar farms is in the section following the matched pair analysis.

³ See the discussion "Paired Sales Analysis" and "Sale/Resale Analysis" in Bell, Randall, MAI, *Real Estate Damages, Applied Economics and Detrimental Conditions, Second Edition*, Appraisal Institute, 2008, pages 25-27. The ideal is to review a sale and resale of a property in proximity to a selected characteristic, to compare it to a sale and resale of a similar property without such proximity, and to then analyze whether the proximity to the selected characteristic influenced the change in value. However, in rural areas it usually is not possible to find data for this type of "pure pair" analysis.

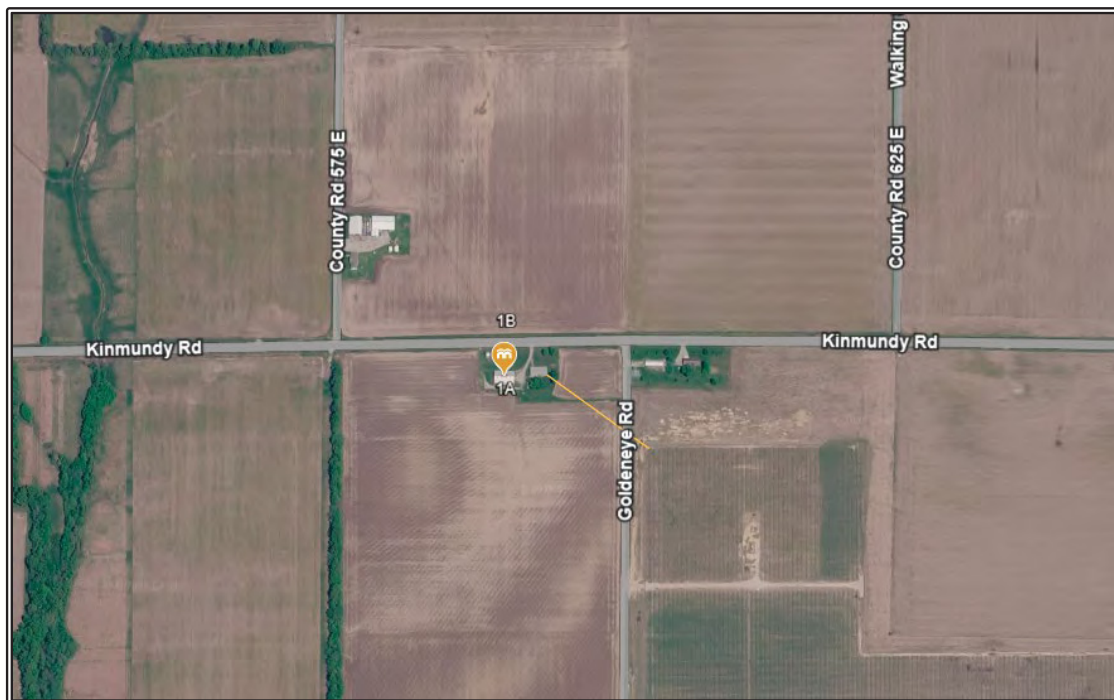
⁴ <https://www.mckissock.com/blog/appraisal/what-does-arms-length-mean-in-real-estate/>

Illinois Analysis - Clay County Matched Pair No. 1

Clay County, Illinois, is located in the southeast region of Illinois. Matched Pair #1 considers the sale of a property near the footprint of the Maple Flats Solar in Clay County, which has been operational since 2024 and generates approximately 250 megawatts of power. A house located at 4921 Kinmundy Road, Louisville, Illinois, was contingently sold in March 2026. This house is approximately 572 feet from the Maple Flats Solar, and the existence of the project footprint was known at the time of the sale.

This sale is compared to the prior sale of the property in April 2025 and with a similar property located at 274 Gravel Lane, Louisville, Illinois, which sold in February 2024. The 274 Gravel Lane property is not located near photovoltaic panels. The salient details of these properties are summarized in the table below.

The following aerial map illustrates the relationship of the 4921 Kinmundy Road property to the closest solar farm footprint.



CLAY COUNTY MATCHED PAIR NO. 1			
	1A - Proximate to a Photovoltaic Panel	1B - Proximate to a Photovoltaic Panel	1C - Not Proximate to a Photovoltaic Panel
	<i>(Contingent Sale)</i>		
Address	4921 Kinmundy Rd. Louisville, IL 62858	4921 Kinmundy Rd. Louisville, IL 62858	274 Gravel Ln. Louisville, IL 62858
Distance from P.V. Panel (Ft.)	572 Feet	572 Feet	N/A
Sale Date	March 18, 2026	April 4, 2025	February 6, 2024
Sale Price	\$213,000	\$179,250	\$260,000
Sale Price/Sq. Ft. (A.G.)	\$151.28/Sq. Ft.	\$127.31/Sq. Ft.	\$126.95/Sq. Ft.
Year Built	1968	1968	2013
Building Size (Sq. Ft.)	1,408 Sq. Ft.	1,408 Sq. Ft.	2,048 Sq. Ft.
Lot Size (Acres)	2.04 Acres	2.04 Acres	2.00 Acres
Style	One-story Frame (vinyl)	One-story Frame (vinyl)	One-story Frame (vinyl)
	3 Beds	3 Beds	3 Beds
	2.0 Bath	2.0 Bath	2.0 Bath
Basement	Full, unfinished	Full, unfinished	N/A
	Central air	Central air	Central air
Utilities	Forced-air heat	Forced-air heat	Forced-air heat
	Well and septic	Well and septic	Well and septic
	2-car attached garage	2-car attached garage	2-car detached garage
Other	Deck	Deck	Machine shed, Garden shed
	Machine Shed	Machine Shed	Stocked pond



4921 Kinmundy Road



274 Gravel Lane

Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

Both sales of the 4921 Kinmundy Road property are essentially identical, however the 2026 sale is superior in market conditions. The 2026 sale of 4921 Kinmundy Road property is superior to the 274 Gravel Lane property in market conditions and basement, yet the 274 Gravel Lane property has superior vintage and building size. The two properties are similar in lot size, location, building style, utilities, and outbuildings to the 869 County Road 1300 N property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	4921 Kinmundy Rd. Louisville, IL 62858 (2025)	+	o	o	o	o	o	o	o	o
1C	274 Gravel Ln. Louisville, IL 62858	+	-	-	o	o	o	+	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Upward adjustments are made to the 2025 sale of the 4921 Kinmundy Road property for the superior market conditions of the 2026 sale of the 4921 Kinmundy Road property. Upward adjustments are made to the 274 Gravel Lane property for the superior market conditions and basement of the 2026 sale of the 4921 Kinmundy Road property. Downward adjustments are made for the superior vintage and building size, utilities of the 274 Gravel Lane property compared to those features of the 4921 Kinmundy Road property. The two properties are essentially similar lot sizes, are located in a similar area, have similar building styles, utilities, and outbuildings. Although the properties give the impression of being superior, the per square foot sale price for the 2026 sale of the 4921 Kinmundy Road property appears to be higher than the per square foot sale of the 2025 sale of the 4921 Kinmundy Road property and the 274 Gravel Lane property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 4921 Kinmundy Road property to a solar farm.

Illinois Analysis - LaSalle County Matched Pair No. 1

LaSalle County, Illinois, is located in the northeast region of Illinois. Matched Pair #1 considers the sale of a property in the footprint of the Grand Ridge Solar Farm in LaSalle County, which has been operational since 2012 and generates approximately 20 megawatts of power. A house located at 2098 North 15th Road, Streator, Illinois, sold in October 2016. This house is approximately 485 feet from the nearest photovoltaic panel.

This sale is compared with a similar property located at 1794 East 1391st Road, Streator, Illinois, that sold in October 2010. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 2098 North 15th Road property to the closest photovoltaic panels.



LaSALLE COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	2098 N. 15 th Rd. Streator, IL 61364	1794 E. 1391 st Rd. Streator, IL 61365
Distance from P.V. Panel (Ft.)	485	N/A
Sale Date	October 31, 2016	October 21, 2010
Sale Price	\$186,000	\$151,000
Sale Price/Sq. Ft. (A.G.)	\$79.90	\$85.31
Year Built	1997	1994
Building Size (Sq. Ft.)	2,328	1,770
Lot Size (Acres)	2.00	0.76
Style	One-story; frame (vinyl) 3 bedrooms, 4 bath	One-story; frame (vinyl/metal/brick) 3 bedrooms, 2.5 bath
Basement	Full, unfinished, walkout	Crawlspace
Utilities	Central air forced-air heat well & septic	Central air propane, forced-air heat well & septic
Other	3-car attached garage three-season room corner lot	2-car attached garage above-ground pool deck



2098 North 15th Road



1794 East 1391st Road

Both the 15th Road property and the 1391st Road property are one-story ranch style houses. However, the 15th Road property is superior to the 1391st Road property because it has a full, walkout basement. In the case of the outbuildings, the 15th Road property is superior with a three-car attached garage and a three-season room compared to the 1391st Road property with a two-car attached garage and an above-ground pool. The superiority of the 15th Road outbuildings requires an upward adjustment to the 1391st Road property. Both properties are considered to be of similar vintage, and both are considered to be in normal condition by the LaSalle County Assessor. An upward adjustment of 1391st Road is required for the superior market conditions of the 15th Road property. The 15th Road property is situated on a larger lot than that of the 1391st Road property requiring an upward adjustment; however, both lots are surrounded by agricultural and pastureland, which mitigates the size differential to some degree.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	1794 E. 1391 st Road Streator, Illinois	+	o	+	+	o	o	+	o	+
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Considering the adjustments noted in the above table for the inferior market conditions and outbuildings of the 1391st Road property, the difference in the sale price does not support the conclusion that proximity to the photovoltaic panels had a negative impact on the value of the 15th Road property.

Illinois Analysis - Perry County Matched Pair No. 1

Perry County, Illinois, is located in the southwest region of Illinois. Matched Pair #1 considers the sale of a property near the footprint of the Prairie State Solar Farm in Perry County, which has been operational since 2021 and generates approximately 99 megawatts of power. A house located at 955 Violet Road, Coulterville, Illinois, was sold in June 2020. This house is approximately 2,530 feet from the nearest photovoltaic panel of the Prairie State Solar Farm, and the existence of the project footprint was known at the time of the sale.

This sale is compared with a similar property located at 4632 Swanwick-Rice Road, Pinckneyville, Illinois, which was sold in July 2020. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 955 Violet Road property to the closest photovoltaic panels.



PERRY COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	955 Violet Rd. Coulterville, IL 62237	4632 Swanwick-Rice Rd. Pinckneyville, IL 62274
Distance from P.V. Panel (Ft.)	2,530	N/A
Sale Date	June 30, 2020	July 24, 2020
Sale Price	\$240,000	\$230,000
Sale Price/Sq. Ft. (A.G.)	\$84.54	\$59.90
Year Built	1980	2004
Building Size (Sq. Ft.)	2,839	3,840
Lot Size (Acres)	2.01	7.00
Style	1.5-story; frame (vinyl) 4 bedrooms, 2.1 bath	One-story; frame (vinyl) 4 bedrooms, 2.2 bath
Basement	N/A	Full, partially finished, walkout
Utilities	Central air Forced-air heat Public water & septic	Central air Forced-air heat Well & septic
Other	4-car attached garage Machine shed, shed In-ground pool, pool house Patio, porch	2-car detached garage Machine shed Pond frontage, above-ground pool Porch, deck, patio



955 Violet Road



4632 Swanwick-Rice Road

Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

Both properties were sold in similar market conditions, similar in location, similar building styles, and have similar utilities. The 4632 Swanwick-Rice Road property is superior to the 955 Violet Road property in vintage, in building size, lot size, and basement, yet the 955 Violet Road property has slightly superior outbuildings to the 4632 Swanwick-Rice Road property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	4632 Swanwick-Rice Rd. Pinckneyville, IL 62274	o	-	-	-	o	o	-	o	+
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Upward adjustments are made to the 4632 Swanwick-Rice Road property for superior outbuildings of the 955 Violet Road property. Downward adjustments are made for the superior vintage, building size, lot size, and basement of the 4632 Swanwick-Rice Road property compared to those features of the 955 Violet Road property. The two properties are essentially similar in market conditions, location, building style, and utilities. Although the 4632 Swanwick-Rice Road property gives the impression of being superior, the per square foot sale price for the 955 Violet Road property appears to be higher than the per square foot sale of the 4632 Swanwick-Rice Road property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 955 Violet Road property to a photovoltaic panel.

Illinois Analysis - Perry County Matched Pair No. 2

Perry County, Illinois, is located in the southwest region of Illinois. Matched Pair #2 considers the sale of a property near the footprint of the Prairie State Solar Farm in Perry County, which has been operational since 2021 and generates approximately 99 megawatts of power. A house located at 7028 Aster Road, Coulterville, Illinois, was sold in January 2022. This house is approximately 2,200 feet from the nearest photovoltaic panel of the Prairie State Solar Farm, and the existence of the project footprint was known at the time of the sale.

This sale is compared with two similar properties located at 707 Old Duquoin Road, Du Quoin, Illinois, which was sold in April 2024, and 365 Snider Drive, Percy, Illinois, which was sold in May 2024. Neither of the properties are located near photovoltaic panels. The salient details of these properties are summarized in the table below.

The following aerial map illustrates the relationship of the 7028 Aster Road property to the closest photovoltaic panels.



PERRY COUNTY MATCHED PAIR NO. 2			
	2A - Proximate to a Photovoltaic Panel	2B - Not Proximate to a Photovoltaic Panel	2C - Not Proximate to a Photovoltaic Panel
Address	7028 Aster Rd. Coulterville, IL 62237	707 Old Duquoin Rd. Du Quoin, IL 62832	365 Snider Dr. Percy, IL 62272
Distance from P.V. Panel (Ft.)	2,220	N/A	N/A
Sale Date	January 24, 2022	April 22, 2024	May 2, 2024
Sale Price	\$146,502	\$129,900	\$131,000
Sale Price/Sq. Ft. (A.G.)	\$55.75	\$52.72	\$57.58
Year Built	1915	1921	1916
Building Size (Sq. Ft.)	2,628	2,464	2,275
Lot Size (Acres)	9.00	1.00	5.00
Style	One-story; frame (vinyl) 3 bedrooms, 2 bath	One-story; frame (vinyl) 3 bedrooms, 1.1 bath	1.5-story; frame (vinyl) 4 bedrooms, 2.1 bath
Basement	Partial, unfinished	Full, unfinished, walkout	Full, partially finished
Utilities	Electric air Forced-air heat Well & septic	Central air Forced-air heat Well & septic	Central air Electric heat Well & septic
Other	4-car detached garage Pole barn RV Hook-up Pond	1-car attached garage 1-car detached garage shed Porch, patio	2-car attached garage Machine shed Lean-to shed Porch, deck, patio



7028 Aster Road



707 Old Duquoin Road



365 Snider Drive

All of the properties were of similar vintage, similar building size, similar in location, and have similar utilities. 7028 Aster Road is similar to the 707 Old Duquoin Road property in building style and has similar outbuildings to the 365 Snider Drive property. The 707 Old Duquoin Road property is superior to the 7028 Aster Road property in market conditions and basement, yet the 7028 Aster Road property has a superior lot size and superior outbuildings to the 707 Old Duquoin Road property. The 365 Snider Drive property is superior to the 7028 Aster Road property in market conditions, building style, and basement, yet the 7028 Aster Road property has a superior lot size to the 365 Snider Drive property.

ADJUSTMENT GRID MATCHED PAIR NO. 2										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
2B	707 Old Duquoin Rd. Du Quoin, IL 62832	-	o	o	+	o	o	-	o	+
2C	365 Snider Dr. Percy, IL 62272	-	o	o	+	o	-	-	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #2A									
-	Negative adjustment based on comparable being superior in comparison to property #2A									
o	No adjustment necessary									

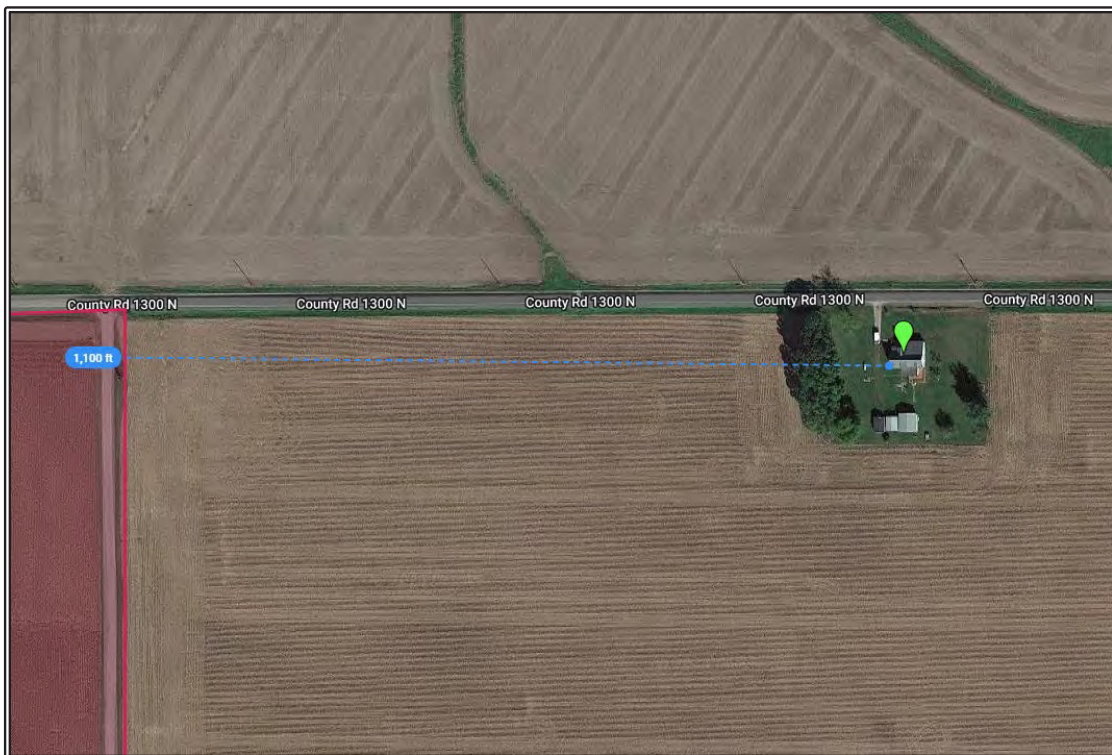
Upward adjustments are made to the 707 Old Duquoin Road property for superior lot size and outbuildings of the 7028 Aster Road property. Upward adjustments are made to the 365 Snider Drive property for superior lot size of the 7028 Aster Road property. Downward adjustments are made for the superior market conditions and basement of the 707 Old Duquoin Road property compared to those features of 7028 Aster Road property. Downward adjustments are made for the superior market conditions, building style, and basement of the 365 Snider Drive property compared to those features of the 7028 Aster Road property. The 707 Old Duquoin Road and 7028 Aster Road properties are essentially similar in vintage, building size, location, building style, and utilities. The 365 Snider Drive and 7028 Aster Road properties are essentially similar in vintage, building size, location, utilities, and outbuildings. The three properties give the impression of being similar in physical aspects and per square foot sale price. Therefore, the evidence does not support a finding that there is a negative impact on value resulting from the proximity of the 7028 Aster Road property to a photovoltaic panel.

Illinois Analysis - Logan County Matched Pair No. 1

Logan County, Illinois, is located in the central region of Illinois. Matched Pair #1 considers the sale of a property near the footprint of the Mulligan Solar in Logan County, which has been operational since 2022 and generates approximately 92 megawatts of power. A house located at 869 County Road 1300 N, Lincoln, Illinois, was sold in July 2020. This house is approximately 1,100 feet from the Mulligan Solar, and the existence of the project footprint was known at the time of the sale.

This sale is compared with a similar property located at 615 1200th Street, Middletown, Illinois, that sold in October 2021. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 869 County Road 1300 N property to the closest solar farm footprint.



LOGAN COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Solar Farm	1B - Not Proximate to a Solar Farm
Address	869 County Rd. 1300 N Lincoln, IL 62656	615 1200 th St. Middletown, IL 62666
Distance from Solar Farm (Ft.)	1,100	N/A
Sale Date	July 21, 2020	October 4, 2021
Sale Price	\$140,000	\$138,500
Sale Price/Sq. Ft. (A.G.)	\$65.18	\$44.68
Year Built	1900	1969
Building Size (Sq. Ft.)	2,148	3,100
Lot Size (Acres)	1.00	1.46
Style	Two-story; frame (vinyl) 3 bedrooms, 2 bath	One-story; frame (stucco/metal/brick) 4 bedrooms, 3 bath
Basement	Partial, unfinished	N/A
Utilities	Central air Forced-air heat Well & septic	Central air, solar cooling Radiant, forced-air heat Well & septic
Other	2-car detached garage 1-car detached garage Carport Deck, 3-season porch	2-car attached garage Porch, patio



869 County Road 1300 N

615 1200th Street



Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

Both properties have similar lot sizes, are similar in location, and have similar building styles. The 869 County Road 1300 N property is superior to the 615 1200th Street property in basement and outbuildings, yet the 615 1200th Street property has slightly superior market conditions, vintage, building size, and utilities to the 869 County Road 1300 N property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	615 1200th St. Middletown, IL 62666	-	-	-	o	o	o	+	-	+
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Upward adjustments are made to the 615 1200th Street property for superior basement and outbuildings of the 869 County Road 1300 N property. Downward adjustments are made for the superior market condition, vintage, building size, and utilities of the 615 1200th Street property compared to those features of the 869 County Road 1300 N property. The two properties are essentially similar lot sizes, are located in a similar area, and have similar building styles. Although the 615 1200th Street property gives the impression of being superior, the per square foot sale price for the 869 County Road 1300 N property appears to be higher than the per square foot sale of the 615 1200th Street property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 869 County Road 1300 N property to a solar farm.

Illinois Analysis - Logan County Matched Pair No. 2

Logan County, Illinois, is located in the central region of Illinois. Matched Pair #2 considers the sale of a property near the footprint of the Mulligan Solar in Logan County, which was announced on June 4, 2020, and has been operational since 2022 and generates approximately 92 megawatts of power. A house located at 1255 900th Avenue, Lincoln, Illinois, was sold in March 2021. This property sits within the Mulligan Solar footprint, 293 feet from the nearest photovoltaic panel. The existence of the project footprint was known at the time of the sale.

This sale is compared with a similar property located at 1351 1300th Street, Lincoln, Illinois, which sold in July 2021. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 1255 900th Avenue property to the closest solar farm footprint.



LOGAN COUNTY MATCHED PAIR NO. 2		
	2A - Proximate to a Solar Farm	2B - Not Proximate to a Solar Farm
Address	1255 900 th Ave. Lincoln, IL 62656	1351 1300 th St. Lincoln, IL 62656
Distance from Solar Farm (Ft.)	293	N/A
Sale Date	March 1, 2021	July 26, 2021
Sale Price	\$288,000	\$269,900
Sale Price/Sq. Ft. (A.G.)	\$106.94	\$87.43
Year Built	N/A	1935
Building Size (Sq. Ft.)	2,693	3,087
Lot Size (Acres)	4.24	4.60
Style	Two-story; frame (vinyl) 3 bedrooms, 2 bath	1.5 story; frame (vinyl) 4 bedrooms, 2 bath
Basement	Partial, unfinished	N/A
Utilities	Central air Forced-air heat Well & septic	Central air Forced-air heat Well & septic
Other	2-car detached garage Shed Pole barn Porch	2-car attached garage Machine shed Pole barn, grain bins Porch, deck



1255 900th Avenue



1351 1300th Street

Both properties are similar in market conditions, building size, lot size, location, building style, and utilities. The 1255 900th Avenue property is superior to the 1351 1300th Street property in its basement, yet the 1351 1300th Street property has superior outbuildings and to the 1255 900th Avenue property.

ADJUSTMENT GRID MATCHED PAIR NO. 2										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
2B	1351 1300th St. Lincoln, IL 62656	o	N/A	o	o	o	o	+	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #2A									
-	Negative adjustment based on comparable being superior in comparison to property #2A									
o	No adjustment necessary									

Upward adjustments are made to the 1351 1300th Street property for superior basement and of the 1255 900th Avenue property. Downward adjustments are made for the superior outbuildings of the 1351 1300th Street property compared to those features of the 1255 900th Avenue property. The two properties are of essentially similar market conditions, building size, lot size, are located in a similar area, have similar building styles, and utilities. Although the two properties give the impression of being similar, the per square foot sale price for the 1255 900th Avenue property appears to be significantly higher than the per square foot sale of the 1351 1300th Street property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 1255 900th Avenue property to a solar farm.

Matched Pair Analysis - Wisconsin, Iowa, Michigan, Minnesota, Indiana, Oklahoma, Arizona, and North Carolina

In addition to analyzing sales in the subject project area, sales have researched in proximity to several existing solar farms in rural areas of Wisconsin, Iowa, Michigan, Minnesota, Indiana, Oklahoma, Arizona, and North Carolina in order to discover whether residential property values in these areas were impacted by their locations. The following are the results of the most recent of these studies.

As with the research from Illinois, details of these sales are retained in the MaRous & Company office files; maps in the addenda to this report illustrate the location of these matched pairs. Unless otherwise indicated, none of the purchasers in these transactions appear to own any other property in proximity, and none of the transactions appear to have a solar panel lease associated with the property.

Wisconsin Analysis - Wood County Matched Pair No. 1

Matched Pair #1 considers the sale of a property near the footprint of Wood County Solar in Wood County, which has been operational since 2022 and generates approximately 150 megawatts of power. This analysis considers a house located at 14046 Love Road, Nekoosa, that was sold in October 2024. This house is approximately 580 feet from the nearest photovoltaic panel.

This sale is compared to a prior sale of the property, which sold in March 2017, before any knowledge of the existence of the solar farm. The property was not located near photovoltaic panels at the time of the sale. The salient details of the sales of the property are summarized in the table below.

The following aerial map illustrates the relationship of the 14046 Love Road property to the closest photovoltaic panels.



Wood County Matched Pair # 1		
	1A - Proximate to a Photovoltaic Panel	1B - Prior Sale
Address	14046 Love Rd.	14046 Love Rd.
City	Nekoosa, WI 54457	Nekoosa, WI 54457
Distance from P.V. Panel (Ft.)	580 Feet	N/A
Sale Date	October 8, 2024	March 31, 2017
Sale Price	\$260,000	\$128,000
Sale Price/Sq. Ft. (A.G.)	\$91.26/Sq. Ft.	\$44.93/Sq. Ft.
Year Built	1991	1991
Building Size	2,849 Sq. Ft.	2,849 Sq. Ft.
Lot Size	2.11 Acres	2.11 Acres
Building Style	One-story	One-story
Construction Style	Frame (vinyl)	Frame (vinyl)
Beds	4 Beds	4 Beds
Baths	2.0 Bath	2.0 Bath
Basement	Full, partially finished	Full, partially finished
Air Conditioning	Central air	Central air
Heat	Forced-air heat	Forced-air heat
Water and Sewage	Well and septic	Well and septic
Other Outbuildings and Amenities	3-car attached garage, Porch	3-car attached garage, Porch



14046 Love Road

Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

The property is similar throughout both sales in vintage, building size, lot size, location, building style, basement, utilities, and outbuildings. The 2024 sale was performed in superior market conditions to the 2017 sale.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	14046 Love Rd. Nekoosa, WI 54457	+	o	o	o	o	o	o	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

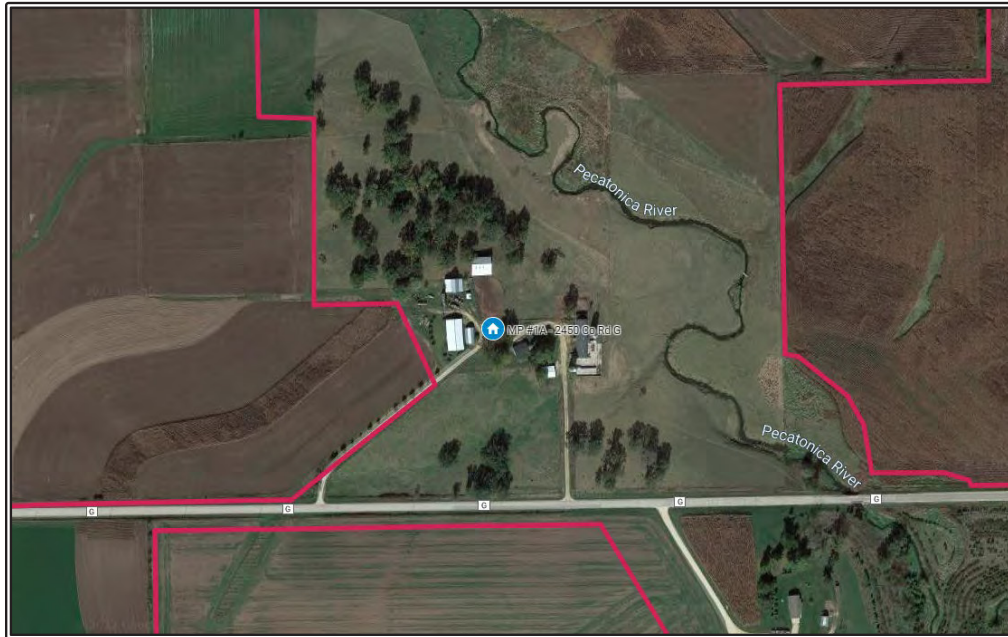
Upward adjustments are made to the 2017 sale of the 14046 Love Road property for the slightly superior market conditions of the 2024 sale of the 14046 Love Road property. The two sales of the property have essentially the same vintage, building size, lot size, location, building style, basement, utilities, and outbuildings. The 2024 sale of the 14046 Love Road property gives the impression of being only slightly superior to the 2017 sale of the 14046 Love Road property, however, the per square foot sale price for the 2024 sale of the 14046 Love Road property appears to be significantly higher than the per square foot sale price of the 2017 sale of the 14046 Love Road property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 14046 Love Road property to a photovoltaic panel.

Wisconsin Analysis - Iowa County Matched Pair No. 1

Matched Pair #1 considers the sale of a property near the footprint of Badger Hollow Solar in Iowa County, which has been operational since 2021 and generates approximately 300 megawatts of power. A house located at 2450 County Road G, Montfort, was sold in June 2021. This house is approximately 270 feet from the nearest photovoltaic panel.

This sale is compared to two prior sales of the property, which were sold in June 2018 and April 2010. The property was not located near photovoltaic panels at the time of either sales. The salient details of these three sales of the property are summarized in the table below.

The following aerial map illustrates the relationship of the 2450 County Road G property to the closest photovoltaic panels.



IOWA COUNTY MATCHED PAIR NO. 1			
	1A - Proximate to a Photovoltaic Panel	1B – Prior Sale	1C – Prior Sale
Address	2450 County Road G Montfort, WI 53569	2450 County Road G Montfort, WI 53569	2450 County Road G Montfort, WI 53569
Distance from P.V. Panel (Ft.)	270	N/A	N/A
Sale Date	June 11, 2021	June 6, 2018	April 8, 2010
Sale Price	\$493,000	\$400,000	\$255,000
Sale Price/Sq. Ft. (A.G.)	\$152.35	\$123.61	\$78.80
Year Built	1962	1962	1962
Building Size (Sq. Ft.)	3,236	3,236	3,236
Lot Size (Acres)	52.25	52.25	52.25
Style	One-story; frame (vinyl) 3 bedrooms, 2.1 bath	One-story; frame (vinyl) 3 bedrooms, 2.1 bath	One-story; frame (vinyl) 3 bedrooms, 2.1 bath
Basement	Partial, partially finished, walkout	Partial, partially finished, walkout	Partial, partially finished, walkout
Utilities	Forced-air heat Propane heat Well and Septic	Forced-air heat Propane heat Well and Septic	Forced-air heat Propane heat Well and Septic
Other	2-Car Attached Garage Barns, Machine Shed, Silo Riverfront and Horse Pasture	2-Car Attached Garage Barns, Machine Shed, Silo Riverfront and Horse Pasture	2-Car Attached Garage Barns, Machine Shed, Silo Riverfront and Horse Pasture



2450 County Road G

The property is similar throughout each sale year in vintage, building size, lot size, location, building style, basement, utilities, and outbuildings. The 2021 sale was performed in superior market conditions to the 2018 and 2010 sales.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B/1C	2450 County Road G Montfort, WI 53569	+	o	o	o	o	o	o	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

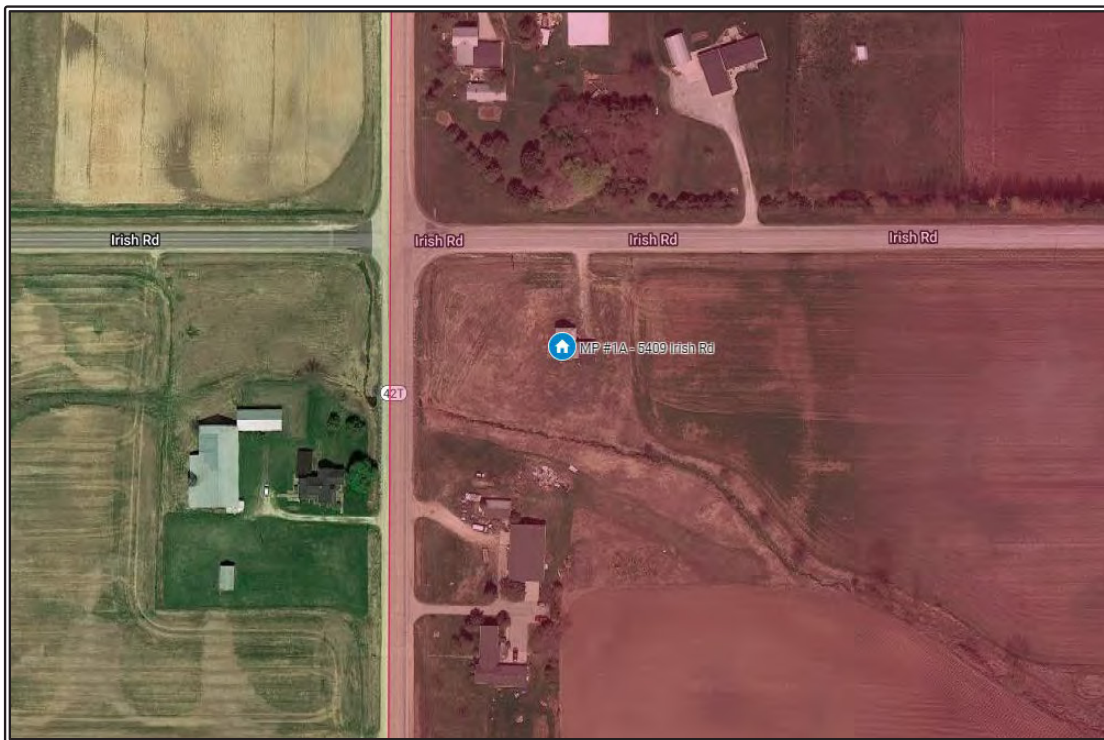
Upward adjustments are made to the 2018 and 2010 sales of the 2450 County Road G property for the slightly superior market conditions of the 2021 sale of the 2450 County Road G property. The three sales of the property have essentially the same sale date, building size, lot size, location, building style, basement, utilities, and outbuildings. The 2021 sale of the 2450 County Road G property gives the impression of being only slightly superior to the 2018 and 2010 sales of the 2450 County Road G property, however, the per square foot sale price for the 2021 sale of the 2450 County Road G property appears to be significantly higher than the per square foot sale price of the 2018 and 2010 sales of the 2450 County Road G property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 2450 County Road G property to a photovoltaic panel.

Wisconsin Analysis - Manitowoc County Matched Pair No. 1

Matched Pair #1 considers the sale of a property within the footprint of Two Creeks Solar in Manitowoc County, which has been operational since 2020 and generates approximately 150 megawatts of power. A house located at 5409 Irish Road, Mishicot, sold in January 2021. This house is approximately 575 feet from the nearest photovoltaic panel.

This property is compared with a similar property located at 311 Cherokee Court, Mishicot, which was sold in July 2019, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 5409 Irish Road property to the closest photovoltaic panels.



MANITOWOC COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	5409 Irish Rd. Mishicot, WI 54228	311 Cherokee Ct. Mishicot, WI 54228
Distance from P.V. Panel (Ft.)	575	N/A
Sale Date	January 29, 2021	July 8, 2019
Sale Price	\$220,000	\$210,000
Sale Price/Sq. Ft. (A.G.)	\$110.00	\$80.58
Year Built	1900	1999
Building Size (Sq. Ft.)	2,000	2,606
Lot Size (Acres)	1.30	0.34
Style	Two-story; frame (vinyl) 3 bedrooms, 2 bath	Two-story; frame (vinyl) 3 bedrooms, 3.1 bath
Basement	Full	Full, finished
Utilities	Central air Forced-air heat Well and Septic	Well and Septic
Other	4-car detached garage Porch, deck, and creek/stream Recently renovated	2-car attached garage Porch and Patio



5409 Irish Road

311 Cherokee Court



Both properties are similar in building size, similar in location, and have similar basements. The 311 Cherokee Court property is superior to the 5409 Irish Road property in vintage, and building style, yet the 5409 Irish Road property was sold in slightly superior market conditions, has a superior lot size, has central air making utilities superior, and superior outbuildings to the 311 Cherokee Court property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	311 Cherokee Ct. Mishicot, WI 54228	+	-	-	+	o	-	o	+	+
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Upward adjustments are made to the 311 Cherokee Court property for superior market conditions, lot size, utilities, and outbuildings of the 5409 Irish Road property. Downward adjustments are made for the superior vintage, building size, and building style of the 311 Cherokee Court property compared to those features of the 5409 Irish Road property. The two properties are essentially similar in location, and basement. Although the two properties give the impression of being similar, the per square foot sale price for the 5409 Irish Road property appears to be higher than the per square foot sale of the 311 Cherokee Court property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 5409 Irish Road property to a photovoltaic panel.

Wisconsin Analysis - Manitowoc County Matched Pair No. 2

Matched Pair #2 considers the sale of a property within the footprint of Two Creeks Solar in Manitowoc County, which has been operational since 2020 and generates approximately 150 megawatts of power. A house located at 11916 Meyer Road, Two Rivers, was sold in July 2020. This house is approximately 325 feet from the nearest photovoltaic panel.

This property is compared with a similar property located at 311 Cherokee Court, Mishicot, which was sold in July 2019, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 11916 Meyer Road property to the closest photovoltaic panels.



MANITOWOC COUNTY MATCHED PAIR NO. 2		
	2A - Proximate to a Photovoltaic Panel	2B - Not Proximate to a Photovoltaic Panel
Address	11916 Meyer Rd. Two Rivers, WI 54241	311 Cherokee Ct. Mishicot, WI 54228
Distance from P.V. Panel (Ft.)	325	N/A
Sale Date	July 28, 2020	July 8, 2019
Sale Price	\$215,000	\$210,000
Sale Price/Sq. Ft. (A.G.)	\$97.73	\$80.58
Year Built	2000	1999
Building Size (Sq. Ft.)	2,200	2,606
Lot Size (Acres)	9.00	0.34
Style	Two-story; frame (vinyl) 4 bedrooms, 2 bath	Two-story; frame (vinyl) 3 bedrooms, 3.1 bath
Basement	Full, unfinished	Full, finished
Utilities	Forced-air heat Propane/Butane heat Well and Septic	Well and Septic
Other	Machine Shed Deck and Patio	2-car attached garage Porch and Patio



11916 Meyer Road



311 Cherokee Court

Both properties are of similar vintage, similar in location, have similar building style, and have similar outbuildings. The 311 Cherokee Court property is superior to the 11916 Meyer Road property in market conditions, superior in building size, and has a superior basement, yet the 11916 Meyer Road property has a superior lot size and superior utilities to the 311 Cherokee Court property.

ADJUSTMENT GRID MATCHED PAIR NO. 2										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
2B	311 Cherokee Ct. Mishicot, WI 54228	-	0	-	+	0	0	-	+	0
+	Positive adjustment based on comparable being inferior in comparison to property #2A									
-	Negative adjustment based on comparable being superior in comparison to property #2A									
0	No adjustment necessary									

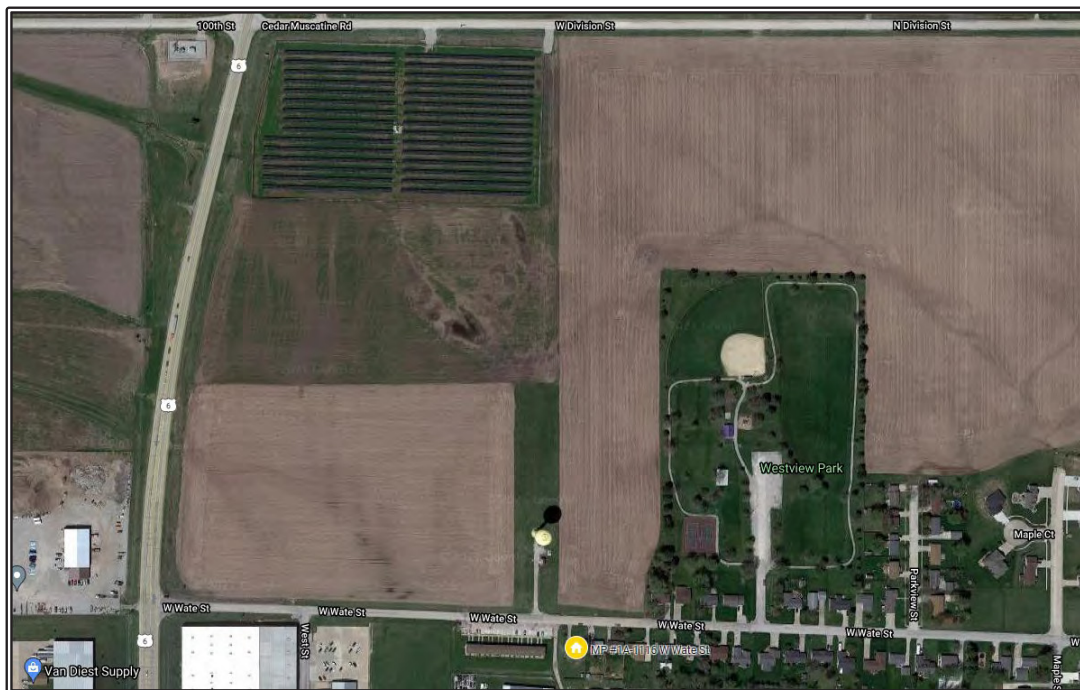
Upward adjustments are made to the 311 Cherokee Court property for the superior lot size and utilities of the 11916 Meyer Road property. Downward adjustments are made for the superior market conditions, building size, and basement of the 11916 Meyer Road property compared to those features of the 311 Cherokee Court property. The two properties are essentially similar vintage, location, building style, and similar outbuildings. Although the two properties give the impression of being somewhat similar, the per square foot sale price for the 11916 Meyer Road property appears to be higher than the per square foot sale of the 311 Cherokee Court property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 11916 Meyer Road property to a photovoltaic panel.

Iowa Analysis - Muscatine County Matched Pair No. 1

Matched Pair #1 considers the sale of a property near the footprint of Eastern Iowa Solar in Muscatine County, which has been operational since 2016 and generates approximately 1.8 megawatts of power. A house located at 1116 West Wate Street, Wilton, Iowa, sold in June 2020. This house is approximately 1,450 feet from the nearest photovoltaic panel.

This sale is compared with a similar property located at 1007 East Street, Wilton, Iowa, which sold in December 2020. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 1116 West Wate Street property to the closest photovoltaic panels.



MUSCATINE COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	1116 W Wate St. Wilton, IA 52778	1007 East St. Wilton, IA 52778
Distance from P.V. Panel (Ft.)	1,450	N/A
Sale Date	June 19, 2020	December 1, 2020
Sale Price	\$170,000	\$150,000
Sale Price/Sq. Ft. (A.G.)	\$89.10	\$80.39
Year Built	1982	1971
Building Size (Sq. Ft.)	1,908	1,866
Lot Size (Acres)	0.24	0.19
Style	One-story; frame (vinyl) 3 bedrooms, 1.1 bath	One-story; frame (vinyl) 3 bedrooms, 2.1 bath
Basement	Full, finished	Full, finished
Utilities	Central air Forced-air heat Public sewer & water	Central air Electric heat Public sewer & water
Other	2-car detached garage Porch and patio	1-car attached garage Patio



1116 West Wate Street

1007 East Street



Luis Gonzalez
Elm Lawn Solar Park
June 24, 2026

Both properties are similar in market conditions, building size, lot size, location, building style basements, and utilities. The 1116 West Wate Street property has slightly superior outbuildings to the 1007 East Street property. The 1007 East Street property has slightly superior vintage to the 1116 West Wate Street property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	1007 East St. Wilton, IA 52778	o	-	o	o	o	o	o	o	+
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

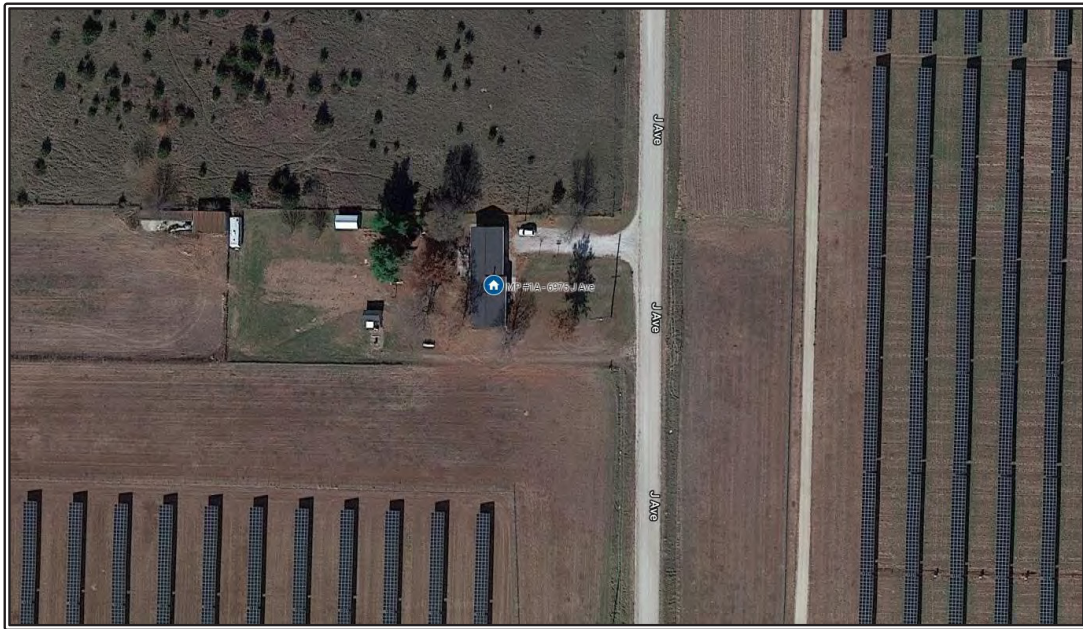
Upward adjustments are made to the 1007 East Street property for the slightly superior outbuildings of the 1116 West Wate Street property. Downward adjustments are made for the superior vintage of the 1007 East Street property compared to those features of the 1116 West Wate Street property. The two properties have essentially the same sale date, building size, lot size, location, building style, basements, and utilities. The 1116 West Wate Street property gives the impression of being only slightly superior to the 1007 East Street property, however, the per square foot sale price for the 1116 West Wate Street property appears to be significantly higher than the per square foot sale of the 1007 East Street property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 1116 West Wate Street property to a photovoltaic panel.

Iowa Analysis - Louisa County Matched Pair No. 1

Matched Pair #1 considers the sale of a property near the footprint of Wapello Solar LLC in Louisa County, which has been operational since 2021 and generates approximately 100 megawatts of power. A house located at 6975 J Avenue, Wapello, Iowa, sold in June 2021. This house is approximately 135 feet from the nearest photovoltaic panel.

This sale is compared with a similar property located at 21943 County Road G62, Winfield, Iowa, which sold in August 2022. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 6975 J Avenue property to the closest photovoltaic panels.



LOUISA COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	6975 J Ave. Wapello, IA 52653	21943 County Road G62 Winfield, IA 52659
Distance from P.V. Panel (Ft.)	137	N/A
Sale Date	June 25, 2021	August 18, 2022
Sale Price	\$215,500	\$228,000
Sale Price/Sq. Ft. (A.G.)	\$131.40	\$105.56
Year Built	1963	1981
Building Size (Sq. Ft.)	1,640	2,160
Lot Size (Acres)	3.75	5.00
Style	One-story; frame (vinyl) 3 bedrooms, 1.2 bath	One-story; frame (vinyl) 3 bedrooms, 1.1 bath
Basement	Full, finished	Full, partially finished
Utilities	Central air Forced-air heat Private sewer & Public water	Central air Forced-air heat Well & Septic
Other	2-car attached garage Porch and patio	2-car attached garage Machine shed, workshop Deck



6975 J Avenue

21943 County Road G62



Both properties are similar in location, building style, and basements. The 6975 J Avenue property has superior utilities to the 21943 County Road G62 property. The 21943 County Road G62 property has slightly superior market conditions, vintage, building size, lot size, and outbuildings to the 6975 J Avenue property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	21943 County Road G62 Winfield, IA 52659	-	-	-	-	o	o	o	+	-
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

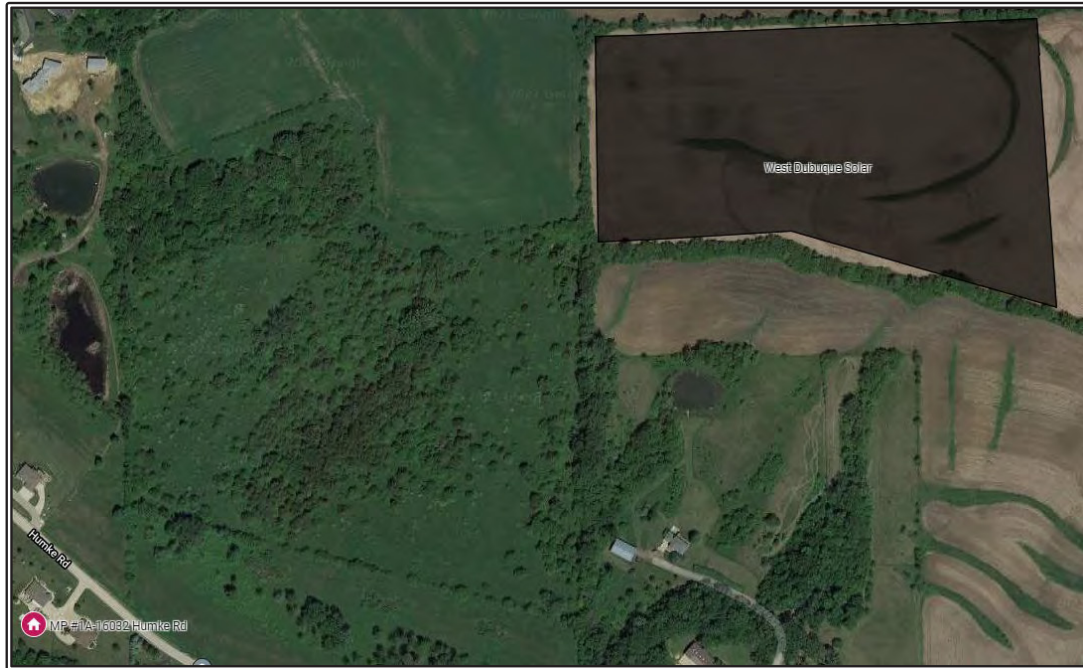
Upward adjustments are made to the 21943 County Road G62 property for the superior utilities of the 6975 J Avenue property. Downward adjustments are made for the superior sale date, vintage, building size, lot size, and outbuildings of the 21943 County Road G62 property compared to those features of the 6975 J Avenue property. The two properties have essentially the same location, building style, and basements. The 21943 County Road G62 property gives the impression of being superior in many categories to the 6975 J Avenue property, however, the per square foot sale price for the 6975 J Avenue property appears to be significantly higher than the per square foot sale of the 21943 County Road G62 property. Therefore, the evidence does not support a finding that there is a negative impact on value resulting from the proximity of the 6975 J Avenue property to a photovoltaic panel.

Iowa Analysis - Dubuque County Matched Pair No. 1

Matched Pair #1 considers the sale of a property near the footprint of West Dubuque Solar in Dubuque County, which has been operational since 2017 and generates approximately 3.8 megawatts of power. A house located at 16032 Humke Road, Dubuque, Iowa, was sold in October 2020. This house is approximately 1,900 feet from the nearest photovoltaic panel.

This sale is compared with a similar property located at 16575 Asbury Road, Dubuque, Iowa, which sold in September 2018. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 16032 Humke Road property to the closest photovoltaic panels.



DUBUQUE COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	16032 Humke Rd. Dubuque, IA 52002	16575 Asbury Rd. Dubuque, IA 52002
Distance from P.V. Panel (Ft.)	1,900	N/A
Sale Date	September 15, 2020	September 6, 2018
Sale Price	\$352,000	\$354,000
Sale Price/Sq. Ft. (A.G.)	\$89.98	\$105.67
Year Built	2002	2006
Building Size (Sq. Ft.)	3,912	3,350
Lot Size (Acres)	1.33	1.02
Style	One-story; frame (brick) 4 bedrooms, 3 bath	One-story; frame (brick, vaulted ceilings) 4 bedrooms, 3.1 bath
Basement	Full, finished	Full, finished, walkout
Utilities	Central air Forced-air heat Public sewer & water	Central air Forced-air heat Public sewer & water
Other	3-car detached garage Deck and patio	3-car attached garage 2-car attached garage Patio, porch Wet bar, theater



16032 Humke Road



16575 Asbury Road

Both properties are similar in building size, lot size, location, and utilities. The 16032 Humke Road property has superior market conditions outbuildings to the 16575 Asbury Road property. The 16575 Asbury Road property has superior vintage, building style, basement, and outbuildings to the 16032 Humke Road property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	16575 Asbury Rd. Dubuque, IA 52002	+	-	o	o	o	-	-	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

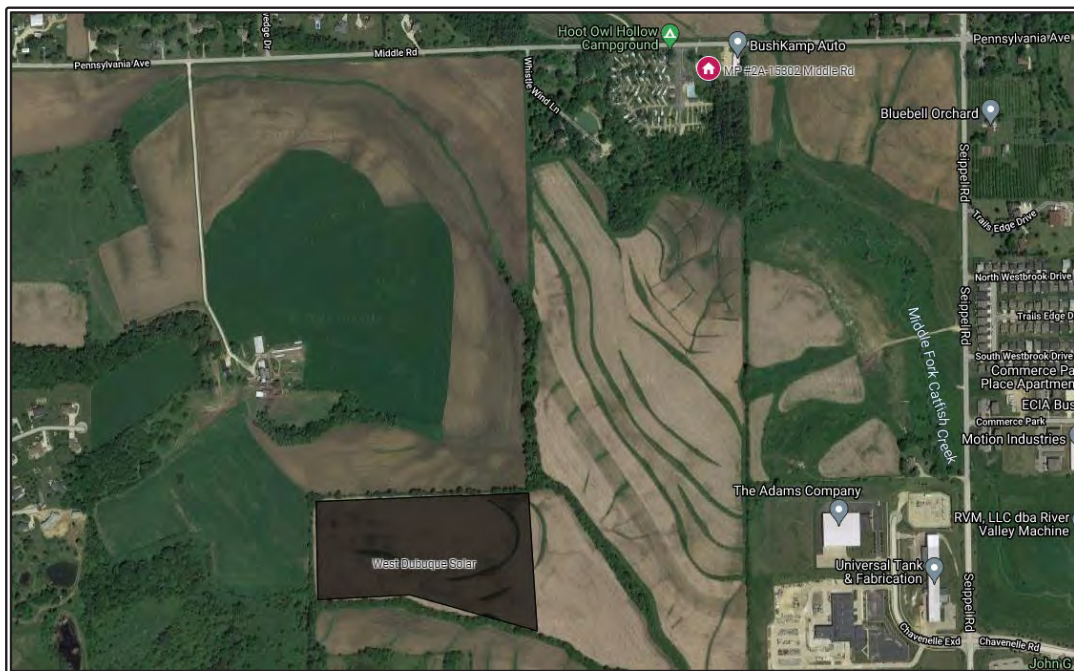
Upward adjustments are made to the 16575 Asbury Road property for the superior sale date of the 16032 Humke Road property. Downward adjustments are made for the superior vintage, building style, basement, and outbuildings of the 16575 Asbury Road property compared to those features of the 16032 Humke Road property. The two properties have essentially the same, building size, lot size, location, and utilities. The 16575 Asbury Road property gives the impression of being superior to the 16032 Humke Road property, therefore, the per square foot sale price for the 16575 Asbury Road property appears to be significantly higher than the per square foot sale of the 16032 Humke Road property, the result is that the adjusted sale does not support a finding that there is a negative impact on value resulting from the proximity of the 16032 Humke Road property to a photovoltaic panel.

Iowa Analysis - Dubuque County Matched Pair No. 2

Matched Pair #2 considers the sale of a property near the footprint of West Dubuque Solar in Dubuque County, which has been operational since 2017 and generates approximately 3.8 megawatts of power. A house located at 15302 Middle Road, Dubuque, Iowa, sold in June 2019. This house is approximately 2,750 feet from the nearest photovoltaic panel.

This sale is compared with a similar property located at 6066 Seven Springs Drive, Asbury, Iowa, which sold in December 2018. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 15302 Middle Road property to the closest photovoltaic panels.



DUBUQUE COUNTY MATCHED PAIR NO. 2		
	2A - Proximate to a Photovoltaic Panel	2B - Not Proximate to a Photovoltaic Panel
Address	15302 Middle Rd. Dubuque, IA 52002	6066 Seven Springs Dr. Asbury, IA 52002
Distance from P.V. Panel (Ft.)	2,750	N/A
Sale Date	June 6, 2019	December 1, 2018
Sale Price	\$225,000	\$228,000
Sale Price/Sq. Ft. (A.G.)	\$121.75	\$158.00
Year Built	1985	2018
Building Size (Sq. Ft.)	1,848	1,443
Lot Size (Acres)	0.84	1.02
Style	One-story; frame (vinyl) 3 bedrooms, 2 bath	One-story; frame (stone/vinyl, vaulted ceilings, new build) 4 bedrooms, 3.1 bath
Basement	Full, finished	Full, finished
Utilities	Central air Forced-air heat Public sewer & water	Central air Forced-air heat Public sewer & water
Other	2-car attached garage Deck	4-car attached garage Patio



15302 Middle Road



6066 Seven Springs Drive

Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

Both properties are similar in building size, lot size, location, basements, and utilities. The 15302 Middle Road property has superior market conditions outbuildings to the 6066 Seven Springs Drive property. The 6066 Seven Springs Drive property has superior vintage, building style, and outbuildings to the 15302 Middle Road property.

ADJUSTMENT GRID MATCHED PAIR NO. 2										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
2B	6066 Seven Springs Dr. Asbury, IA 52002	+	-	o	o	o	-	o	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #2A									
-	Negative adjustment based on comparable being superior in comparison to property #2A									
o	No adjustment necessary									

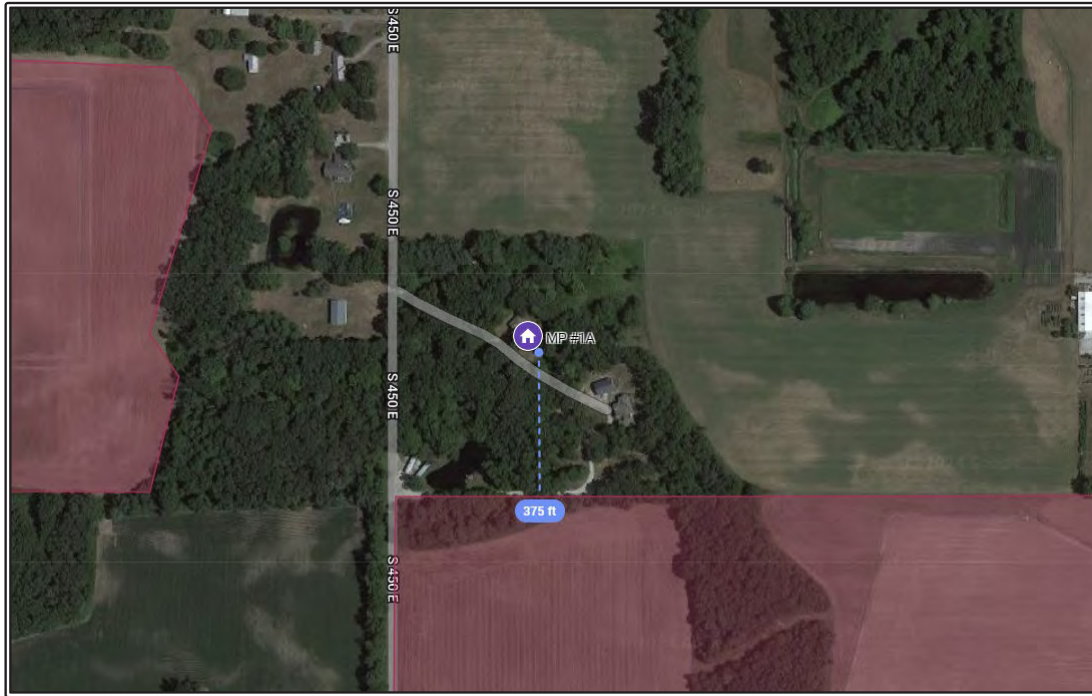
Upward adjustments are made to the 6066 Seven Springs Drive property for the superior sale date of the 15302 Middle Road property. Downward adjustments are made for the superior vintage, building style, and outbuildings of the 6066 Seven Springs Drive property compared to those features of the 15302 Middle Road property. The two properties have essentially the same, building size, lot size, location, basements, and utilities. The 6066 Seven Springs Drive property gives the impression of being superior to the 15302 Middle Road property, however, the per square foot sale price for the 15302 Middle Road property appears to be significantly higher than the per square foot sale of the 6066 Seven Springs Drive property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 15302 Middle Road property to a photovoltaic panel.

Indiana Analysis – Stark County Matched Pair No. 1

Mammoth Solar is located in Stark and Pulaski County. The solar farm was approved by the Board of Zoning & Appeals in May 2022, was under construction at the time of sale, and will generate approximately 1,560 megawatts of power between three phases. A property located at 7420 South 450 East, Knox, Indiana, sold in June 2023 for \$406,000, well after the initial announcement of the solar project. The nearest future photovoltaic panel will be approximately 375 feet to the south of this property.

This property is compared with a similar property located at 10740 East Division Road, Knox, Indiana, which sold in April 2023, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 7420 South 450 East property to the solar farm under development.



STARK COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Future Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	7420 S 450 E Knox, IN 46534	10740 E. Division Rd. Knox, IN 46534
Distance from P.V. Panel (Ft.)	375	N/A
Sale Date	June 14, 2023	May 10, 2023
Sale Price	\$406,000	\$385,000
Sale Price/Sq. Ft. (A.G.)	\$131.82	\$113.40
Year Built	1978	2005
Building Size (Sq. Ft.)	3,080	3,395
Lot Size (Acres)	6.00	5.00
Style	One-story; frame (vinyl) 4 bedrooms, 4.1 bath	Split-level; frame (brick) 3 bedrooms, 3 bath
Basement	Crawlspace	Full, finished
Utilities	Central air Forced-air heat Well & septic	Central air Forced-air heat Well & septic
Other	2-car attached garage Balcony Covered porch	2-car attached garage Deck



7420 South 450 East



10740 East Division Road

Both properties are similar in market conditions, building size, lot size, location, utilities, and outbuildings, crawlspace style. The 7420 South 450 East property is superior to the 10740 East Division Road property in building style. The 10740 East Division Road property is of superior vintage and basement to the 7420 South 450 East property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	10740 E. Division Rd. Knox, IN 46534	o	-	o	o	o	+	-	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

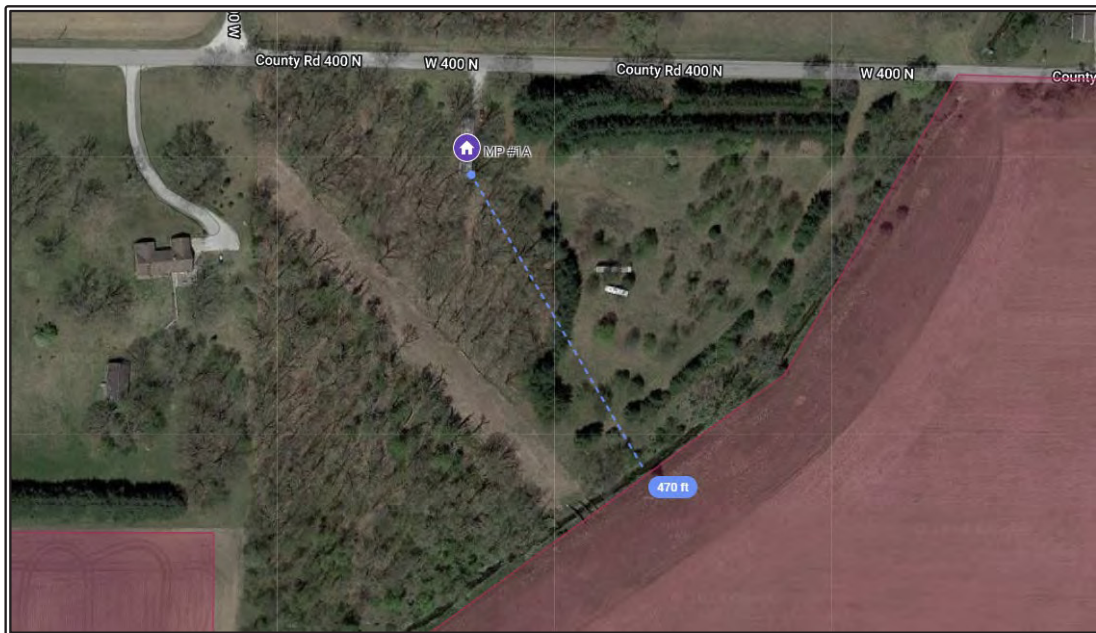
Upward adjustments are made to the 10740 East Division Road property for the superior building style of the 7420 South 450 East property. Downward adjustments are made for the superior vintage and basement of the 10740 East Division Road property compared to those features of the 7420 South 450 East property. The two properties have essentially the same sale date, building size, lot size, location, utilities, and outbuildings. The two properties give the impression of being overall similar, however, the per square foot sale price for the 7420 South 450 East property appears to be higher than the per square foot sale of the 10740 East Division Road property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 7420 South 450 East property to the development of a solar farm.

Indiana Analysis – Pulaski County Matched Pair No. 1

Mammoth Solar is located in Pulaski and Stark County. The solar farm was approved by the Board of Zoning & Appeals in May 2022, was under construction at the time of sale, and will generate approximately 1,560 megawatts of power between three phases. A property located at 4985 West 400 North, Winamac, Indiana, sold in July 2022 for \$90,000, well after the initial announcement of the solar project. The nearest future photovoltaic panel will be approximately 470 feet to the southeast of this property.

This property is compared with a similar property located at 5269 South 250 East, Star City, Indiana, which sold in September 2022, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 4985 West 400 North property to the solar farm under development.



PULASKI COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Future Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	4985 W 400 N Winamac, IN 46996	5269 S 250 E Star City, IN 46985
Distance from P.V. Panel (Ft.)	470	N/A
Sale Date	July 16, 2022	September 29, 2022
Sale Price	\$90,000	\$95,000
Sale Price/Sq. Ft. (A.G.)	\$82.42	\$55.33
Year Built	1987	1910
Building Size (Sq. Ft.)	1,092	1,717
Lot Size (Acres)	10.00	0.50
Style	Manufactured; frame (aluminum) 3 bedrooms, 2 bath	1.5-story; frame (vinyl) 4 bedrooms, 1.1 bath
Basement	N/A	Crawlspace
Utilities	Window-unit cooling Forced-air heat Well & septic	Central air Forced-air heat Well & septic
Other	Shed	2-car attached garage



4985 West 400 North



5269 South 250 East

Both properties are similar in market conditions and location. The 4985 West 400 North property is superior to the 5269 South 250 East property in vintage and lot size. The 5269 South 250 East property is of superior building size, building style, basement, utilities, and outbuildings to the 4985 West 400 North property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	5269 S 250 E Star City, IN 46985	o	+	-	+	o	-	-	-	-
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

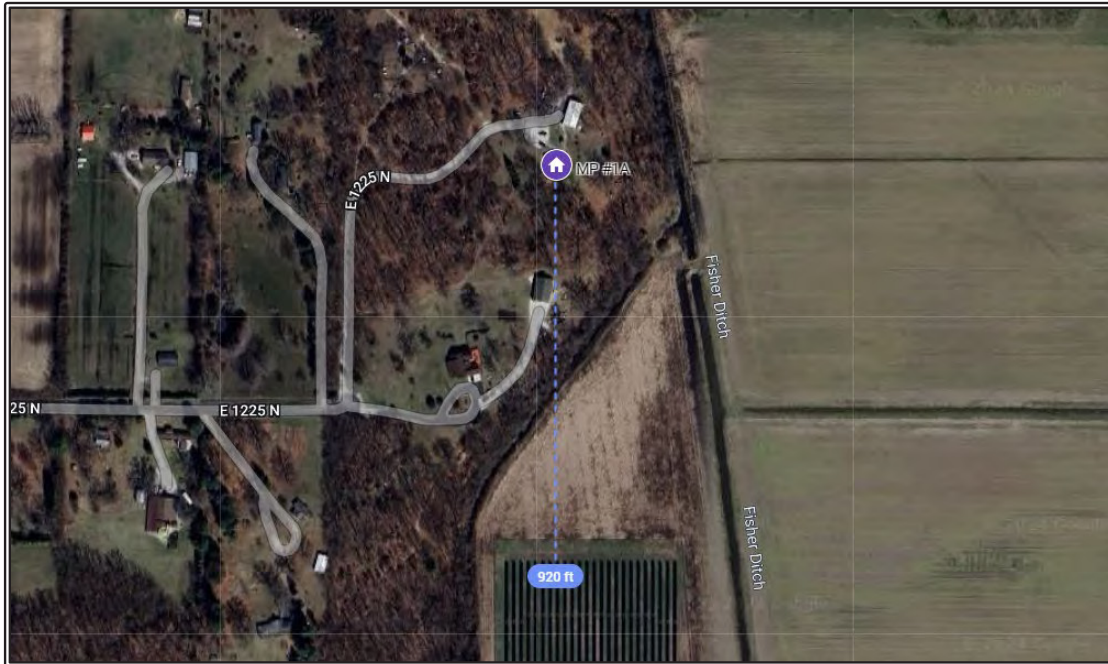
Upward adjustments are made to the 5269 South 250 East property for the superior vintage and lot size of the 4985 West 400 North property. Downward adjustments are made for the superior building size, building style, basement, utilities, and outbuildings of the 5269 South 250 East property compared to those features of the 4985 West 400 North property. The two properties have essentially the same market conditions and location. The 5269 South 250 East property gives the impression of being notably superior to the 4985 West 400 North property, however, the per square foot sale price for the 4985 West 400 North property appears to be significantly higher than the per square foot sale of the 5269 South 250 East property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 4985 West 400 North property to the development of a solar farm.

Indiana Analysis – Jasper County Matched Pair No. 1

Dunn’s Bridge 1 Solar is located in Jasper County. The solar project came online in 2023 and generates approximately 265 megawatts of power. A property located at 1546 East 1225 North, Wheatfield, Indiana, sold in February 2022, for \$499,900, well after the initial announcement of the solar project. The nearest future photovoltaic panel will be approximately 920 feet to the south of this property.

This property is compared with a similar property located at 10310 North 100 West, Wheatfield, Indiana, which sold in September 2022, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 1546 East 1225 North property to the solar farm under development.



JASPER COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Future Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	1546 E 1225 N Wheatfield, IN 46392	10310 N 100 W Wheatfield, IN 46392
Distance from P.V. Panel (Ft.)	920	N/A
Sale Date	February 11, 2022	September 16, 2022
Sale Price	\$499,900	\$585,000
Sale Price/Sq. Ft. (A.G.)	\$159.71	\$159.10
Year Built	2004	2003
Building Size (Sq. Ft.)	3,130	3,677
Lot Size (Acres)	15.90	10.00
Style	1.5-story; frame (vinyl) 2 bedrooms, 2.1 bath	1.5-story; frame (vinyl) 3 bedrooms, 2.1 bath
Basement	Full, finished, walkout	Full, unfinished with crawlspace
Utilities	Forced-air heat Well & septic	Forced-air heat Well & septic
Other	4-car detached garage Covered deck & porch	2-car detached garage 2-car attached garage Covered deck & porch



10310 North 100 West



1546 East 1225 North

Both properties are similar in vintage, location, utilities, and outbuildings. The 1546 East 1225 North property is superior to the 10310 North 100 West property in lot size, and basement. The 10310 North 100 West property is of superior market conditions, building size, and building style to the 1546 East 1225 North property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	1546 E 1225 N Wheatfield, IN 46392	-	o	-	+	o	-	+	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

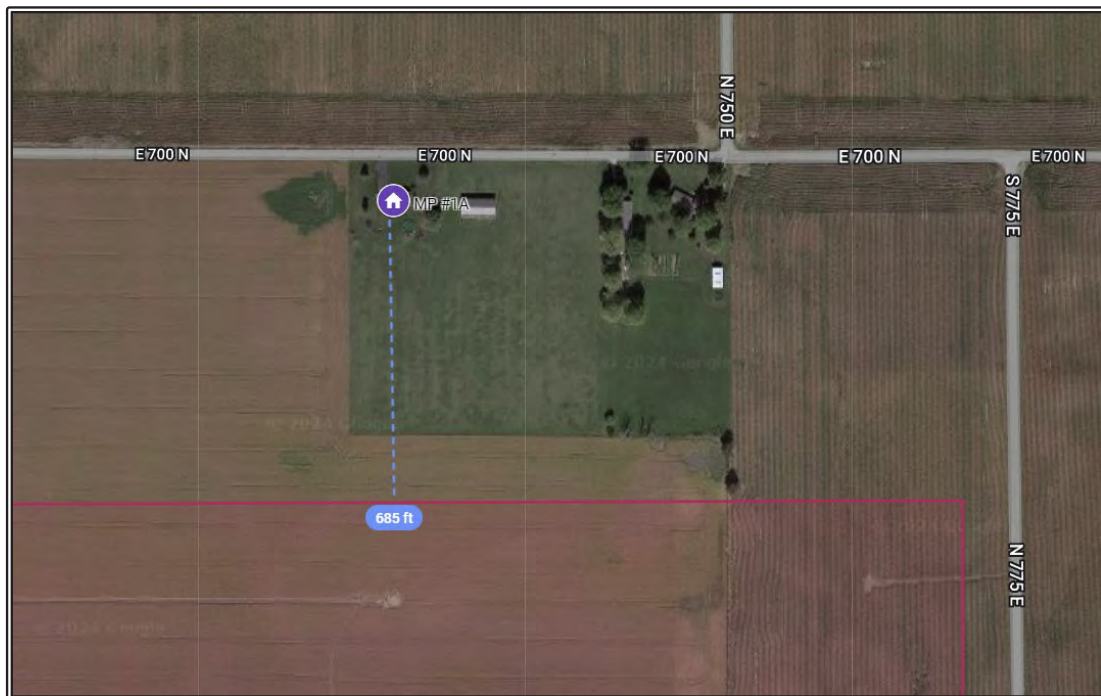
Upward adjustments are made to the 1546 East 1225 North property for the superior market conditions, building size, and building style of the 10310 North 100 West property. Downward adjustments are made for the superior lot size, and basement of the 10310 North 100 West property compared to those features of the 1546 East 1225 North property. The two properties have essentially the same vintage, location, utilities, and outbuildings. The two properties give the impression of being generally similar physically, in addition to having an effectively similar per square foot sale price. Therefore, the similarities of the sales do not support a finding that there is a negative impact on value resulting from the proximity of the 10310 North 100 West property to the development of a solar farm.

Indiana Analysis - Shelby County Matched Pair No. 1

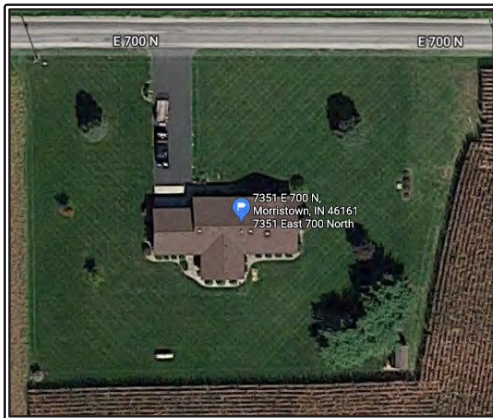
Speedway Solar is located in Shelby County adjacent to Shelbyville, Indiana. The solar farm was approved by the Board of Zoning & Appeals in March 2019, was approved by the Shelby County Board in May 2019, is currently under development, and will generate approximately 199 megawatts of power. A property located at 7351 East 700 North, Morristown, Indiana, sold in February 2019 for \$246,000. The nearest future photovoltaic panel will be approximately 685 feet to the south of this property.

This property is compared with a similar property located at 7179 East 550 South, Morristown, Indiana, which sold in May 2017, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 7351 East 700 North property to the solar farm under development.



SHELBY COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Future Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	7351 E 700 N Morristown, IN 46161	7179 E 550 S Morristown, IN 46161
Distance from P.V. Panel (Ft.)	685	N/A
Sale Date	February 28, 2019	May 16, 2017
Sale Price	\$246,000	\$265,000
Sale Price/Sq. Ft. (A.G.)	\$131.48	\$120.24
Year Built	1992	2005
Building Size (Sq. Ft.)	1,871	2,204
Lot Size (Acres)	9.25	4.87
Style	One-story; frame (vinyl) 3 bedrooms, 2 bath	One-story; frame (brick) 3 bedrooms, 2 bath
Basement	Crawlspace	Crawlspace
Utilities	Central air forced-air heat well & septic	Central air forced-air heat well & septic
Other	2-car attached garage	1-car attached garage porch covered deck



7351 East 700 North

7179 East 550 South



Luis Gonzalez
Elm Lawn Solar Park
June 24, 2026

Both properties are similar in building style outbuildings, crawlspace style basements, utilities, and outbuildings. The 7351 East 700 North property is superior to the 7179 East 550 South property in lot size and market conditions. The 7179 East 550 South property is of superior vintage and building size to the 7351 East 700 North property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	7179 E 550 S Morristown, IN 46161	+	-	-	+	o	o	o	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Upward adjustments are made to the 7179 East 550 South property for the superior sale date and lot size of the 7351 East 700 North property. Downward adjustments are made for the superior vintage and building size of the 7179 East 550 South property compared to those features of the 7351 East 700 North property. The two properties have essentially the same location, building style, basements, utilities, and outbuildings. The two properties give the impression of being overall similar, however, the per square foot sale price for the 7351 East 700 North property appears to be higher than the per square foot sale of the 7179 East 550 South property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 7351 East 700 North property to the development of a solar farm.

Indiana Analysis - Shelby County Matched Pair No. 2

Speedway Solar is located in Shelby County adjacent to Shelbyville, Indiana. The solar farm was approved by the Board of Zoning & Appeals in March 2019, was approved by the Shelby County Board in May 2019, was under development, and will generate approximately 199 megawatts of power. A property located at 6509 North 700 East, Morristown, Indiana, sold in July 2023, for \$300,000. The nearest future photovoltaic panel will be approximately 125 feet to the west of this property.

This property is compared with a similar property located at 4122 North 500 East, Morristown, Indiana, which sold in September 2023, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 6509 North 700 East property to the solar farm under development.



SHELBY COUNTY MATCHED PAIR NO. 2

	2A - Proximate to a Future Photovoltaic Panel	2B - Not Proximate to a Photovoltaic Panel
Address	6509 N 700 E Morristown, IN 46161	4122 N 500 E Morristown, IN 46161
Distance from P.V. Panel (Ft.)	125	N/A
Sale Date	July 7, 2023	September 20, 2023
Sale Price	\$300,000	\$310,000
Sale Price/Sq. Ft. (A.G.)	\$105.30	\$67.33
Year Built	1880	1959
Building Size (Sq. Ft.)	2,849	4,604
Lot Size (Acres)	2.85	3.17
Style	Two-story; frame (vinyl) 4 bedrooms, 2 bath	1.5-story; frame (wood) 5 bedrooms, 3 bath
Basement	Full, unfinished	Partial finished, crawlspace
Utilities	Central air Forced-air heat Well & septic	Central air Forced-air heat Well & septic
Other	2-car detached garage Pole barn Wrap around porch	2-car detached garage Deck Covered porch



6509 North 700 East



4122 North 500 East

Both properties were sold in similar market conditions have similar lot sizes basements, and utilities. The 6509 North 700 East property has superior outbuildings to the 4122 North 500 East property. The 4122 North 500 East property is of superior vintage, building size, and building style to the 6509 North 700 East property.

ADJUSTMENT GRID MATCHED PAIR NO. 2										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
2B	4122 N 500 E Morristown, IN 46161	o	-	-	o	o	-	o	o	+
+	Positive adjustment based on comparable being inferior in comparison to property #2A									
-	Negative adjustment based on comparable being superior in comparison to property #2A									
o	No adjustment necessary									

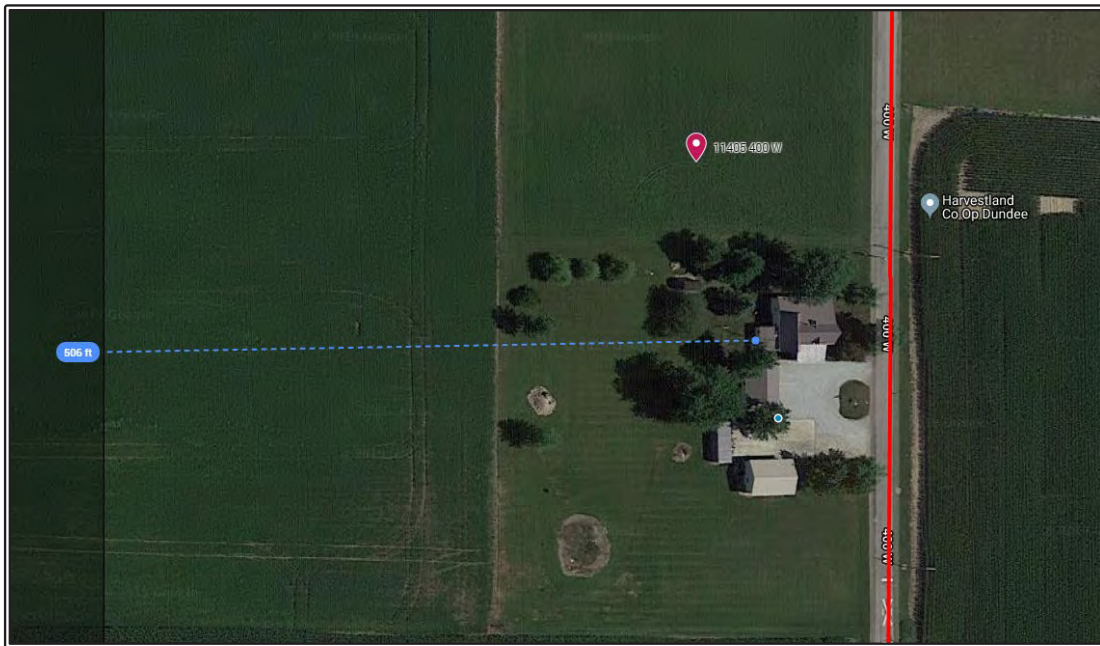
Upward adjustments are made to the 4122 North 500 East property for the superior outbuildings of the 6509 North 700 East property. Downward adjustments are made for the superior vintage, building size, and building style of the 4122 North 500 East property compared to those features of the 6509 North 700 East property. The two properties have essentially the same sale date, lot size, location, basements, and utilities. The 4122 North 500 East property gives the impression of being superior to the 6509 North 700 East property, however, the per square foot sale price for the 6509 North 700 East property appears to be significantly higher than the per square foot sale of the 4122 North 500 East property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 6509 North 700 East property to the development of a solar farm.

Indiana Analysis - Madison County Matched Pair No. 1

Lone Oak Solar is located in Madison County in Alexandria, Indiana. The solar farm was under development and will generate approximately 120 megawatts of power. A property located at 11405 North 400 West, Alexandria, Indiana, sold in February 2019, for \$199,000. The property sits within the footprint of the solar project; however, the nearest photovoltaic panel is approximately 500 feet to the west of this property.

This property is compared with a similar property located at 4950 East 700 North, Alexandria, Indiana, which sold in February 2019, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 11405 North 400 West property to the closest photovoltaic panels.



MADISON COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	11405 N 400 W Alexandria, IN 46001	4950 E 700 N Alexandria, IN 46001
Distance from P.V. Panel (Ft.)	500	N/A
Sale Date	February 12, 2019	February 15, 2019
Sale Price	\$199,000	\$180,000
Sale Price/Sq. Ft. (A.G.)	\$92.17	\$60.89
Year Built	1915	1972
Building Size (Sq. Ft.)	2,159	2,956
Lot Size (Acres)	5.15	4.00
Style	1.5-story; frame (vinyl) 4 bedrooms, 2 bath	One-story; frame (brick) 3 bedrooms, 2 bath
Basement	Crawlspace	Crawlspace
Utilities	Central air baseboard heat well & septic	Central air forced-air heat well & septic
Other	2-car attached garage pole barn, utility shed porch	2-car attached garage utility shed, patio above ground pool



11405 North 400 West

4950 East 700 North



Both properties have similar sale dates, lot size, location, basements, and outbuildings. The 11405 North 400 West property is superior to the 4950 East 700 North property in building style. The 4950 East 700 North is superior in vintage, building size, and utilities to the 11405 North 400 West property.

ADJUSTMENT GRID MATCHED PAIR NO. 3										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	4950 E 700 N Alexandria, IN 46001	o	-	-	o	o	+	o	-	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

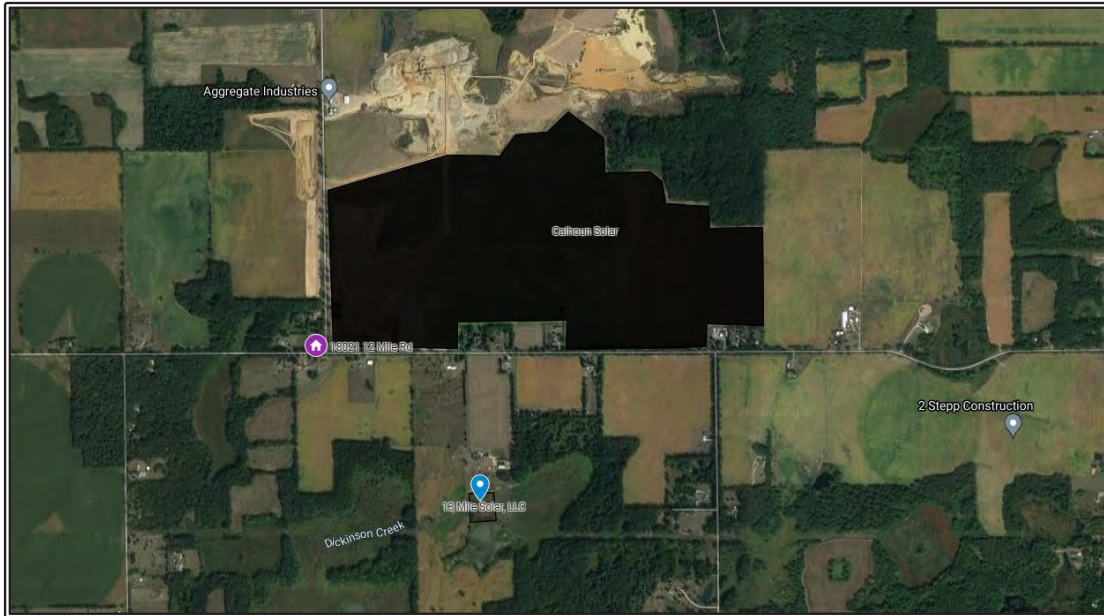
An upward adjustment is made to the 4950 East 700 North property for the superior style of the 11405 North 400 West property. Downward adjustments are made for the superior vintage, building size, and utilities of the 4950 East 700 North property compared to those features of the 11405 North 400 West property. The two properties have essentially the same sale date, lot size, location, basements, and outbuildings. The 4950 East 700 North property gives the impression of being superior to the 11405 North 400 West property, however, the per square foot sale price for the 11405 North 400 West property appears to be significantly higher than the per square foot sale of the 4950 East 700 North property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 11405 North 400 West property to the development of a solar farm.

Michigan Analysis – Calhoun County Matched Pair No. 1

A property located at 18021 12 Mile Road, Battle Creek, Michigan, sold in August 2021, for \$225,000. The property sits between the operating 13 Mile Solar, LLC, and the under-construction Calhoun Solar. 13 Mile Solar, LLC was installed in 2020, generates approximately 2 megawatts of power and is located in Calhoun County. Calhoun Solar was announced to the public in 2019, is to be operational in 2022, will generate approximately 200 megawatts of power and is located in Calhoun County. The nearest photovoltaic panel is sited at approximately 185 feet to the east of this property.

This sale is compared with the sale of the same property that sold in January 2014 for \$108,400 and is not located proximate to any photovoltaic panels. The salient details of these two sales are summarized in the following table.

The following aerial map illustrates the relationship of the 18021 12 Mile Road property to the closest photovoltaic panels.



CALHOUN COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	18021 12 Mile Rd. Battle Creek, MI 49014	18021 12 Mile Rd. Battle Creek, MI 49014
Distance from P.V. Panel (Ft.)	185	N/A
Sale Date	August 24, 2021	January 21, 2014
Sale Price	\$225,000	\$108,400
Sale Price/Sq. Ft. (A.G.)	\$144.60	\$69.67
Year Built	1901	1901
Building Size (Sq. Ft.)	1,556	1,556
Lot Size (Acres)	1.37	1.37
Style	Two-story; frame (vinyl) 3 bedrooms, 2 bath	Two-story; frame (vinyl) 3 bedrooms, 2 bath
Basement	N/A	N/A
Utilities	Well and Septic Machine Shed	Well and Septic Machine Shed
Other	Shed Porch	Shed Porch



18021 12 Mile Road

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	18021 12 Mile Rd. Battle Creek, MI 49014	-	o	o	o	o	o	o	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Both sales consider the same house in every physical aspect. The 2021 sale is slightly superior to the 2014 sale in market conditions.

Downward adjustments are made for the superior market conditions of the 2021 sale of the 18021 12 Mile Road property compared to those features of the 2014 sale. The two properties have a similar vintage, the same building size, lot size, location, building style, basements, utilities, and outbuildings. Therefore, although the property was identical at the time of both sales except for the two solar farms in the area, the per square foot sale price for the 2021 sale appears to be significantly higher than the per square foot sale of the 2014 sale, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 18021 12 Mile Road property to a photovoltaic panel.

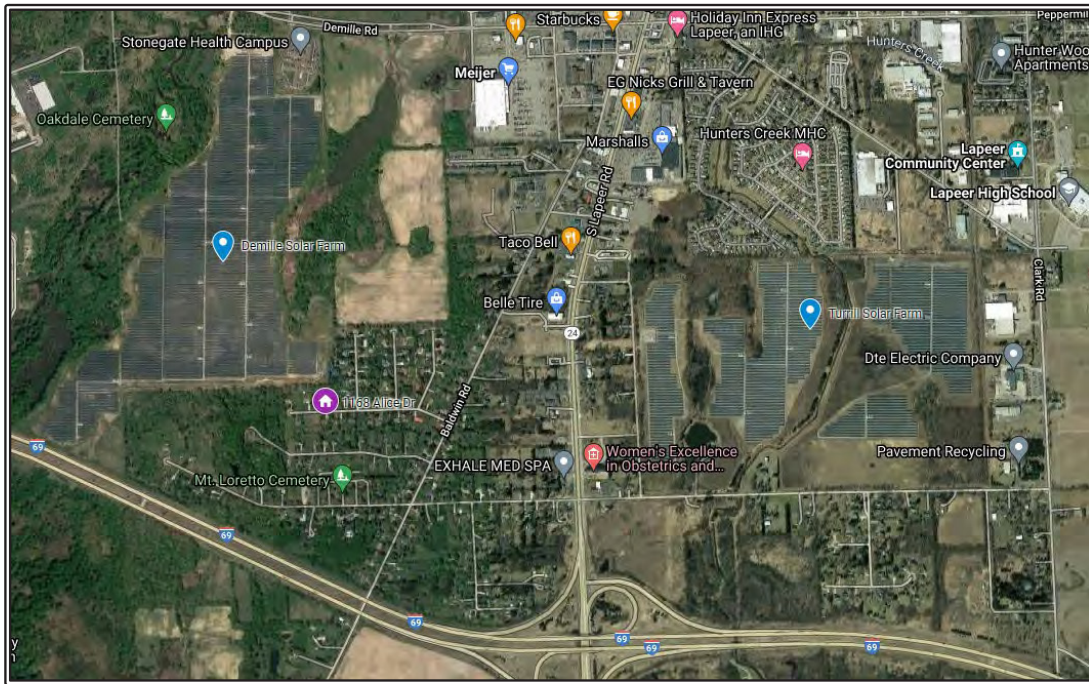
Michigan Analysis – Lapeer County Matched Pair No. 1

A property located at 1168 Alice Drive, Lapeer, Michigan, sold in October 2019, for \$176,000. The property sits between the Demille Solar Farm, and the Turrill Solar Farm. The Demille Solar Farm came online in 2017, generates approximately 28.4 megawatts of power and is located in Lapeer County. The Turrill Solar Farm came online in 2017, generates approximately 19.6 megawatts of power and is located in Lapeer County. The nearest photovoltaic panel is approximately 275 feet to the west of this property.

This sale is compared with two sales of the same property. The first sold in December 2017 for \$144,000 and is approximately 275 feet from the nearest panel. The second sold in August 2008 for \$116,875 and is not located proximate to any photovoltaic panels. The salient details of these three sales are summarized in the following table.

Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

The following aerial map illustrates the relationship of the 1168 Alice Drive property to the closest photovoltaic panels.



LAPEER COUNTY MATCHED PAIR NO. 1			
	1A - Proximate to a Photovoltaic Panel	1B - Proximate to a Photovoltaic Panel	1C - Not Proximate to a Photovoltaic Panel
Address	1168 Alice Dr. Lapeer, MI 48446	1168 Alice Dr. Lapeer, MI 48446	1168 Alice Dr. Lapeer, MI 48446
Distance from P.V. Panel (Ft.)	275	275	275
Sale Date	October 9, 2021	December 19, 2017	January 21, 2014
Sale Price	\$176,000	\$144,000	\$116,875
Sale Price/Sq. Ft. (A.G.)	\$105.26	\$86.12	\$69.90
Year Built	1975	1975	1975
Building Size (Sq. Ft.)	1,672	1,672	1,672
Lot Size (Acres)	0.46	0.46	0.46
Style	Two-story; frame (vinyl/brick) 3 bedrooms, 1.1 bath	Two-story; frame (vinyl/brick) 3 bedrooms, 1.1 bath	Two-story; frame (vinyl/brick) 3 bedrooms, 1.1 bath
Basement	Full, unfinished	Full, unfinished	Full, unfinished
Utilities	Central air Forced-air heat Well and Septic	Central air Forced-air heat Well and Septic	Central air Forced-air heat Well and Septic
Other	Attached Garage Deck, Porch Remodeled in 2018	Attached Garage Deck, Porch	Attached Garage Deck, Porch



1168 Alice Drive

All three sales consider the house similar in every physical aspect. The 2019 sale is slightly superior to the 2017 and 2008 sales in market conditions.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B/1C	1168 Alice Dr. Lapeer, MI 48446	-	o	o	o	o	o	o	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

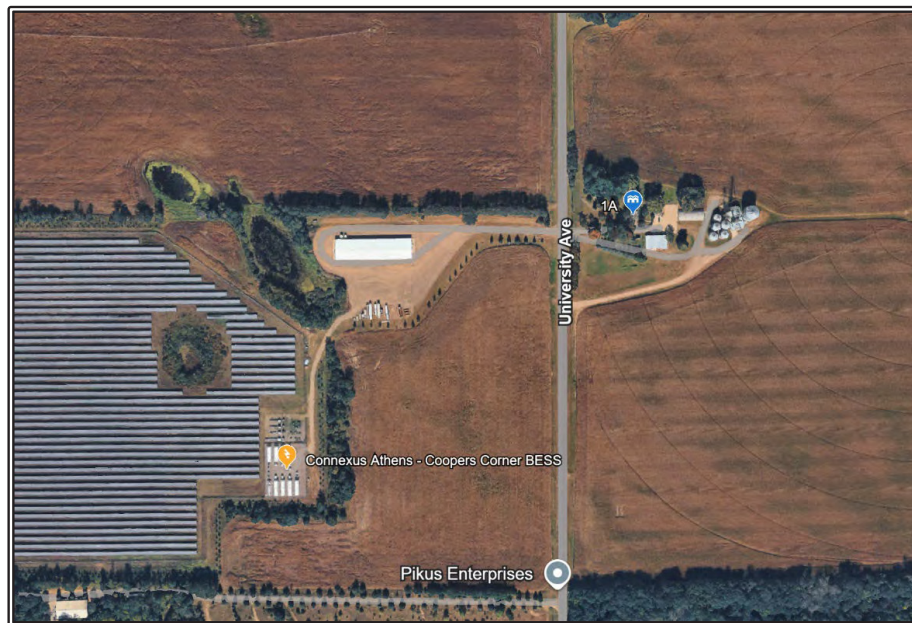
Downward adjustments are made for the superior market conditions of the 2019 sale of the 1168 Alice Drive property compared to that of the 2017 and 2008 sales. The three sales have a similar vintage, the same building size, lot size, location, building style, basements, utilities, and outbuildings. Therefore, although the property was similar at the time of each sales except for the two solar farms in the area, the per square foot sale price for the 2019 sale appears to be significantly higher than the per square foot sale of both, the 2017 and 2008, sales, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 1168 Alice Drive property to a photovoltaic panel.

Minnesota Analysis - Isanti County Matched Pair #1

Isanti County, Minnesota, is located in the east-central region of Minnesota. Matched Pair #1 considers the sale of a property near the footprint of the Sherco Solar project near Becker, Minnesota, which has been operational since 2018. This analysis considers a house located at 27095 University Avenue NE, Isanti, Minnesota, which sold in December 2023. This house is approximately 1,262 feet from the nearest solar panel.

This sale is compared with a similar property located at 25492 Rum River Drive NW, Isanti, Minnesota, which sold in May 2023. It is not located near any solar panel. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 27095 University Avenue NE property to the closest solar farm.



ISANTI COUNTY MATCHED PAIR NO. 1		
	1A Proximate to a Photovoltaic Panel	1B Not Proximate to a Photovoltaic Panel
Address	27095 University Ave NE, Isanti, MN 55040	25492 Rum River Dr NW, Isanti, MN 55041
Distance from P.V. Panel (Ft.)	1,262 Feet	N/A
Distance from P.V. (Ft.)	1,379 Feet	N/A
Sale Date	December 13, 2023	May 26, 2023
Sale Price	\$300,000	\$232,000
Sale Price/Sq. Ft. (A.G.)	\$260.64/Sq. Ft.	\$179.01/Sq. Ft.
Year Built	1900	1970
Building Size (Sq. Ft.)	1,151 Sq. Ft.	1,296 Sq. Ft.
Lot Size (Acres)	5.14 Acres	1.00 Acres
Building Style	One-story	One-story
Construction Style	Frame (vinyl)	Frame (vinyl)
Beds	3 Beds	3 Beds
Baths	1.0 Bath	1.0 Bath
Basement	N/A	Full, unfinished
Air Conditioning	No Cooling	Central air
Heat	Other Heating	Forced-air heat
Water and Sewage	Well and septic	Well and septic
Other Outbuildings and Amenities	Attached Garage, Detached Garage Machine Shed Pole Barn, Grain Elevator	2-Car Detached Garage



27095 University Avenue NE



25492 Rum River Drive NW

Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

Both properties are similar in building size, location, and building style. The 27095 University Avenue NE property is superior to the 25492 Rum River Drive NW property in its lot size and outbuildings, yet the 25492 Rum River Drive NW property has superior market conditions, vintage, basement, and utilities to the 27095 University Avenue NE property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	25492 Rum River Dr NW, Isanti, MN 55041	-	-	o	+	o	o	-	-	+
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Upward adjustments are made to the 25492 Rum River Drive NW property for superior lot size and outbuildings of the 27095 University Avenue NE property. Downward adjustments are made for the superior market conditions, vintage, basement, and utilities of the 25492 Rum River Drive NW property compared to those features of the 27095 University Avenue NE property. The two properties are of essentially similar building size, location, and building style. Although the 25492 Rum River Drive NW property gives the impression of being superior, the per square foot sale price for the 27095 University Avenue NE property appears to be significantly higher than the per square foot sale of the 25492 Rum River Drive NW property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 27095 University Avenue NE property to a solar farm.

Minnesota Analysis - Wabasha County Matched Pair No. 1

Wabasha County is located in the southeast region of Minnesota. The county has one solar farm, the Wabasha Holdco Solar Farm.

Matched Pair No.1 considers the sale of a property in the footprint of the Wabasha Holdco Solar Farm in Wabasha County, which has been operational since 2017 and generates approximately 3 megawatts of power. A house located at 943 Freedom Avenue, Wabasha, Minnesota, sold in August 2017. This house is approximately 634 feet from the nearest photovoltaic panel.

This property is compared with a similar property located at 108 Skyline Drive, Wabasha, Minnesota, which sold in June 2015, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 943 Freedom Avenue property to the closest photovoltaic panels.



WABASHA COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	943 Freedom Ave. Wabasha, MN 55981	108 Skyline Dr. Wabasha, MN 55981
Distance from P.V. Panel (Ft.)	634	N/A
Sale Date	August 28, 2017	June 8, 2015
Sale Price	\$193,000	\$185,000
Sale Price/Sq. Ft. (A.G.)	\$71.48	\$80.43
Year Built	2008	1992
Building Size (Sq. Ft.)	2,700	2,300
Lot Size (Acres)	0.16	0.78
Style	One-story; frame (vinyl) 4 bedrooms, 3 bath	Two-story; frame (metal) 3 bedrooms, 3 bath
Basement	Full, finished	Full, finished
Utilities	Central air/fresh-air exchange forced-air heat public water & sewer	Central air forced-air heat public water & sewer
Other	2-car attached garage Porch	2-car attached garage deck and patio



943 Freedom Avenue



108 Skyline Drive

Both properties have similar basements and have similar amenities. The 943 Freedom Avenue property is superior to the 108 Skyline Drive property in vintage, building size, utilities, and was sold during superior market conditions. The Skyline house offsets this by having a superior building style and a larger lot.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	108 Skyline Drive Wabasha, Minnesota	+	+	+	-	o	-	o	+	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Upward adjustments are made to the 108 Skyline Drive property for the superior market conditions, vintage, building, and utilities of the 943 Freedom Avenue property. Downward adjustments were made for the superior lot size and building style of the 108 Skyline Drive property compared to the 943 Freedom Avenue property. The two properties have essentially the same location, basement, and outbuildings. Therefore, the comparison of the two properties the 943 Freedom Avenue property appears to support the conclusion that there is not any viable impact in value resulting from the proximity of the 943 Freedom Avenue property to a photovoltaic panel.

New Mexico Analysis - Chaves County Matched Pair No. 1

Matched Pair #1 considers the sale of a property near the footprint of the Chaves Solar in Chaves County, which has been operational since 2016 and generates approximately 700 megawatts of power. A house located at 3783 East Pine Lodge Road, Roswell, New Mexico, was sold in November 2023. This house is approximately 535 feet from the nearest photovoltaic panel of the Chaves Solar.

This sale is compared with a similar property located at 6004 Rincon Road, Roswell, New Mexico, which was sold in December 2023. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 3783 East Pine Lodge Road property to the closest photovoltaic panels.



Chaves County Matched Pair # 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	3783 East Pine Lodge Road	6004 Rincon Road
City	Roswell, NM 88201	Roswell, NM 88201
Distance from P.V. Panel (Ft.)	535 Feet	N/A
Sale Date	November 8, 2023	December 4, 2023
Sale Price	\$220,924	\$225,834
Sale Price/Sq. Ft. (A.G.)	\$154.28/Sq. Ft.	\$144.03/Sq. Ft.
Year Built	1999	1995
Building Size	1,432 Sq. Ft.	1,568 Sq. Ft.
Lot Size	10.00 Acres	0.52 Acres
Building Style	One-story	One-story
Construction Style	Manufactured (steel)	Manufactured (steel)
Beds	3 Beds	3 Beds
Baths	2.0 Bath	3.0 Bath
Basement	N/A	N/A
Air Conditioning	Electric air	Electric air
Heat	Electric heat	Electric heat
Water and Sewage	Well and septic	Well and septic
Other Outbuildings and Amenities	Deck, shed, horse corral	Deck, porch, shed



3783 East Pine Lodge Road



6004 Rincon Road

Both properties are of similar market conditions, similar vintages, similar building sizes, similar locations, similar building styles, have similar basements, and similar utilities. The 3783 East Pine Lodge Road property is superior to the 6004 Rincon Road property in in lot size, and outbuildings.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	6004 Rincon Road Roswell, NM 88201	o	o	o	+	o	o	o	o	+
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

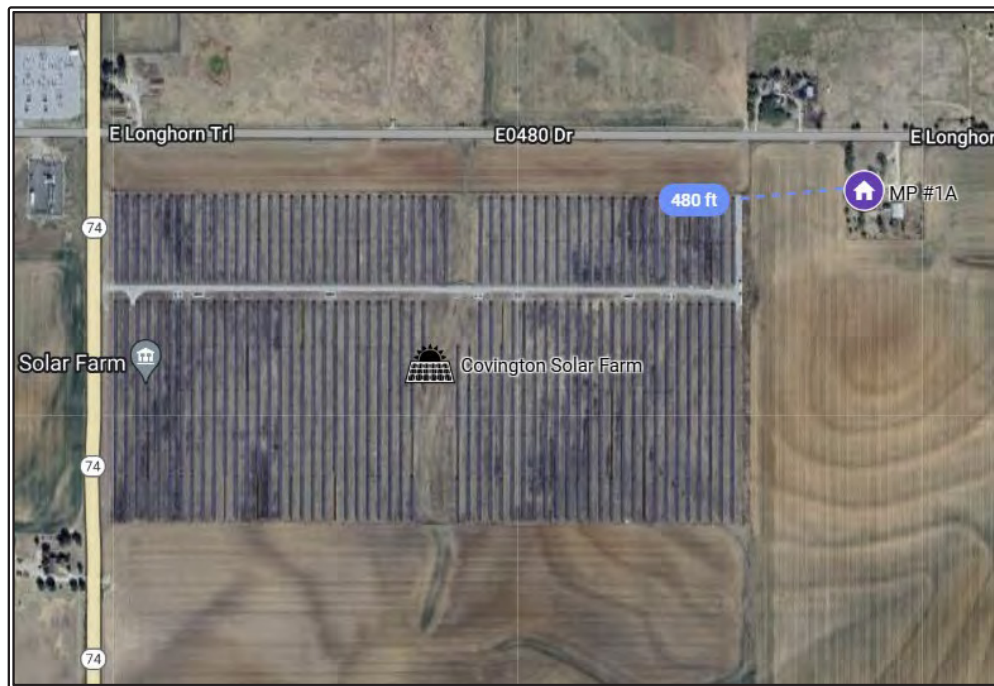
Upward adjustments are made to the 6004 Rincon Road property for superior lot size and slightly superior outbuildings of the 3783 East Pine Lodge Road property. The two properties are essentially similar in vintage, location, building style, basement, and utilities. Although the 3783 East Pine Lodge Road property gives the impression of being slightly superior, the per square foot sale price for the 3783 East Pine Lodge Road property nevertheless confirms that the per square foot sale of the 16425 East Breckenridge Road property is superior, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 3783 East Pine Lodge Road property to a photovoltaic panel.

Oklahoma Analysis - Garfield County Matched Pair No. 1

Garfield County, Oklahoma, is located in the north-central region of Oklahoma. Matched Pair #1 considers the sale of a property near the footprint of the Covington Solar Farm in Garfield County, which has been operational since 2018 and generates approximately 10 megawatts of power. A house located at 20509 East Longhorn Trail, Covington, Oklahoma, was sold in April 2023. This house is approximately 480 feet from the nearest photovoltaic panel of the Covington Solar Farm.

This sale is compared with a similar property located at 16425 East Breckenridge Road, Garber, Oklahoma, which was sold in November 2024. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 20509 East Longhorn Trail property to the closest photovoltaic panels.



GARFIELD COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	20509 E Longhorn Trl. Covington, OK 73730	16425 E Breckenridge Rd. Garber, OK 73738
Distance from P.V. Panel (Ft.)	480	N/A
Sale Date	April 14, 2023	November 19, 2024
Sale Price	\$260,000	\$272,900
Sale Price/Sq. Ft. (A.G.)	\$137.71	\$125.76
Year Built	1950	1951-1973
Building Size (Sq. Ft.)	1,888	2,170
Lot Size (Acres)	2.83	1.30
Style	One-story; frame (vinyl) 3 bedrooms, 2 bath	One-story; frame (brick & wood) 4 bedrooms, 2.2 bath
Basement	Full, unfinished	Raised foundation
Utilities	Central air Forced-air heat Well & septic	Electric air Electric heat Well & septic
Other	4-car detached garage Machine shed Shed Livestock fencing	2-car detached garage Carport Machine shed Porch, patio



20509 East Longhorn Trail

16425 East Breckenridge Road



Both properties are of similar vintage, similar in location, similar building styles, and have similar outbuildings. The 16425 East Breckenridge Road property is superior to the 20509 East Longhorn Trail property in market conditions, in building size, lot size, and basement, yet the 20509 East Longhorn Trail property has slightly superior utilities to the 16425 East Breckenridge Road property.

ADJUSTMENT GRID MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	16425 E. Breckenridge Rd. Garber, OK 73738	-	o	-	+	o	o	+	+	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

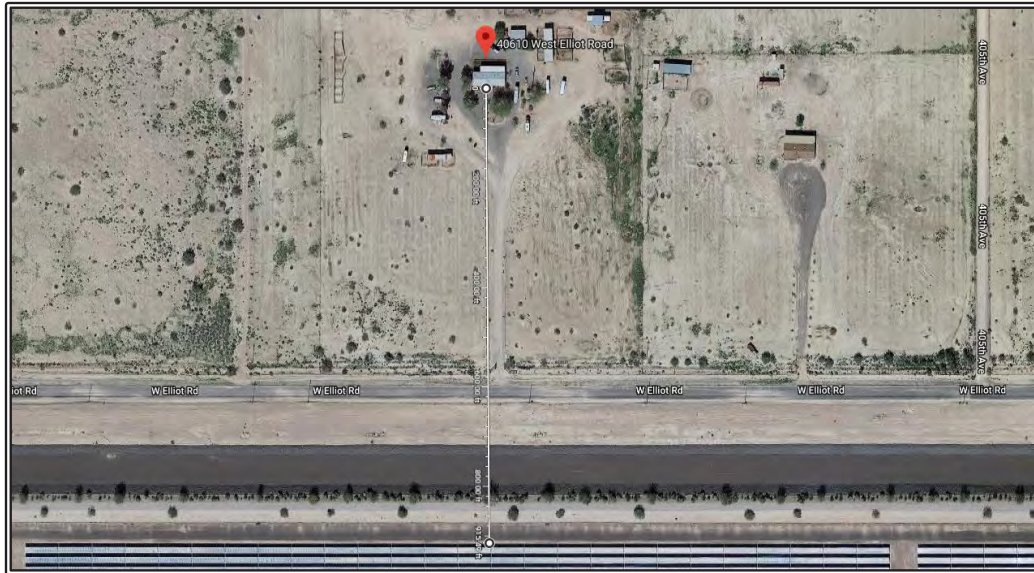
Upward adjustments are made to the 16425 East Breckenridge Road property for superior lot size, basement, and utilities of the 20509 East Longhorn Trail property. Downward adjustments are made for the superior market conditions and building size of the 16425 East Breckenridge Road property compared to those features of the 20509 East Longhorn Trail property. The two properties are essentially similar in vintage, location, building style, and outbuildings. Although the two properties give the impression of being similar, the per square foot sale price for the 20509 East Longhorn Trail property appears to be higher than the per square foot sale of the 16425 East Breckenridge Road property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 20509 East Longhorn Trail property to a photovoltaic panel.

Arizona Analysis - Matched Pair No. 1

Mesquite Solar 3, LLC, a subset of the overall Mesquite Solar Project, is located in Arlington, Arizona. The solar farm was installed in December 2016 and generates approximately 154 megawatts of power. A property located at 40610 West Elliot Road, Tonopah, Arizona, sold in October 2018 for \$300,000. The nearest solar panel is approximately 915 feet to the south of this property. The residence appears to have a direct view of the solar panels at the time of the sale without any obstruction from buildings, landscape, or natural screening.

This property is compared with a similar property located at 4621 South 357th Avenue, Tonopah, Arizona, which sold in March 2019 for \$278,000, and is not located proximate to any solar panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 40610 West Elliot Road property to the closest solar panels.



ARIZONA MATCHED PAIR NO. 1		
	1A - Proximate to a Solar Panel	1B - Not Proximate to a Solar Panel
Address	40610 W. Elliot Rd. Tonopah, AZ 85354	4621 S. 357 th Ave. Tonopah, AZ 85354
Distance from P.V. Panel (Ft.)	915	N/A
Sale Date	October 30, 2018	March 15, 2019
Sale Price	\$300,000	\$278,000
Sale Price/Sq. Ft. (A.G.)	\$151.21	\$148.82
Year Built	1996	2007
Building Size (Sq. Ft.)	1,984	1,868
Lot Size (Acres)	19.95	5.27
Style	One-story; manufactured (steel) 3 bedrooms, 2 bath	One-story; frame (stucco) 4 bedrooms, 2 bath
Basement	N/A	N/A
Utilities	Refrigeration cooling Electric heat Well & septic	Refrigeration cooling Electric heat Well & septic
Other	Patio Porch	2-car attached garage Patio



40610 West Elliot Road



4621 South 357th Avenue

The house at 40610 West Elliot Road, is located approximately 915 feet away from the nearest solar panel, in a rural area. Both houses are of similar building size, are located in a similar rural location with paved roads, have similar basements, and have similar utilities. The 40610 West Elliot Road property has a superior lot size. The 4621 South 357th Avenue property was sold in superior market conditions, is of a superior vintage, is superior in building style, and has superior outbuildings.

ADJUSTMENT GRID - ARIZONA MATCHED PAIR NO. 1										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	4621 S. 357th Ave. Tonopah, AZ 85354	-	-	o	+	o	-	o	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

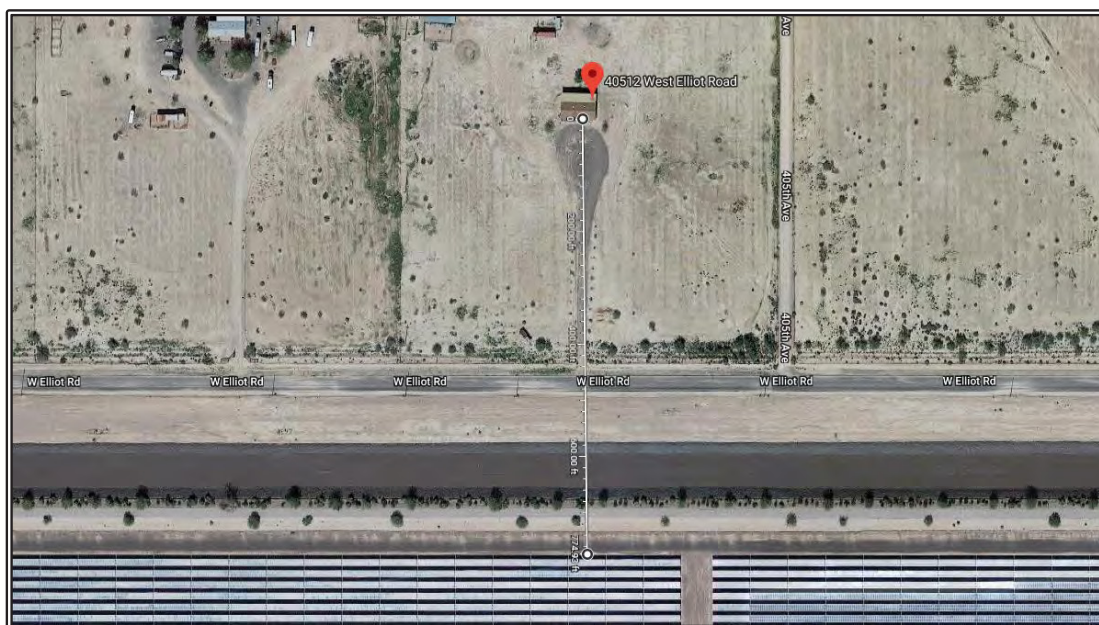
Upward adjustments are made to the 4621 South 357th Avenue property for the superior lot size of the 40610 West Elliot Road property. Downward adjustments are made for the superior market conditions, vintage, style, and outbuildings of the 4621 South 357th Avenue property compared to those features of the 40610 West Elliot Road property. The two properties have essentially the same building size, location, basement, and utilities. Therefore, although the 4621 South 357th Avenue property gives the impression of being superior in many categories, the per square foot sale price for the 40610 West Elliot Road property appears to be higher than the per square foot sale price of the 4621 South 357th Avenue property, thus does not support a finding that there is a negative impact on value resulting from the proximity of the 40610 West Elliot Road property to a solar panel.

Arizona Analysis - Matched Pair No. 2

Mesquite Solar 3, LLC, a subset of the overall Mesquite Solar Project, is located in Arlington, Arizona. The solar farm was installed in December 2016 and generates approximately 154 megawatts of power. A property located at 40512 West Elliot Road, Tonopah, Arizona, sold in March 2019 for \$192,000. The property was previously sold in January 2012 for \$198,000. The nearest solar panel is approximately 775 feet to the south of this property. The residence appears to have a direct view of the solar panels at the time of the sale without any obstruction from buildings, landscape, or natural screening.

This property is compared with a similar property located at 1309 South 393rd Avenue, Tonopah, Arizona, which sold in April 2019 for \$215,000, and is not located proximate to any solar panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 40512 West Elliot Road property to the closest solar panels.



ARIZONA MATCHED PAIR NO. 2			
	2A - Proximate to a Solar Panel	2A - Prior Sale	2B - Not Proximate to a Solar Panel
Address	40512 W. Elliot Rd. Tonopah, AZ 85354	40512 W. Elliot Rd. Tonopah, AZ 85354	1309 S. 393 rd Ave. Tonopah, AZ 85354
Distance from P.V. Panel (Ft.)	775	N/A	N/A
Sale Date	March 8, 2019	January 31, 2012	April 23, 2019
Sale Price	\$192,000	198,000	\$215,000
Sale Price/Sq. Ft. (A.G.)	\$122.45	\$126.28	\$126.47
Year Built	1999	1999	2001
Building Size (Sq. Ft.)	1,568	1,568	1,700
Lot Size (Acres)	5.00	5.00	4.00
Style	One-story; manufactured (steel) 3 bedrooms, 2 bath	One-story; manufactured (steel) 3 bedrooms, 2 bath	One-story; manufactured (steel) 4 bedrooms, 2 bath
Basement	N/A	N/A	N/A
Utilities	Refrigeration cooling Electric heat Well & septic	Refrigeration cooling Electric heat Well & septic	Refrigeration cooling Electric heat Well & septic
Other	Porch	Porch	Corral Tack room, barn, and stall Horse arena



40512 West Elliot Road



1309 South 393rd Avenue

The house at 40512 West Elliot Road, is located approximately 775 feet away from the nearest solar panel, in a rural area. Both houses sold during similar market conditions, are of similar vintage, have a similar lot size, located in a similar rural location, have similar basements, and have similar utilities. The 1309 South 393rd Avenue property is of superior building size, has superior style, and has superior outbuildings.

ADJUSTMENT GRID - ARIZONA MATCHED PAIR NO. 2										
Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
2B	1309 S. 393rd Ave. Tonopah, AZ 85354	o	o	-	o	o	-	o	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #2A									
-	Negative adjustment based on comparable being superior in comparison to property #2A									
o	No adjustment necessary									

Downward adjustments are made for the superior building size, style, and outbuildings of the 1309 South 393rd Avenue property compared to those features of the 40512 West Elliot Road property. The two properties sold during essentially the same market conditions, and have similar vintage, lot size, location, basement, and utilities. Therefore, although the 1309 South 393rd Avenue property gives the impression of being superior in many categories, the per square foot sale price for the 40512 West Elliot Road property appears to have sold slightly lower than the per square foot sale price of the 1309 South 393rd Avenue property. An interview with the listing real estate broker stated that the adjacent solar farm was not a factor in the sale, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 40512 West Elliot Road property to a solar panel.

Matched Pair Analysis Conclusions

Studies in Illinois counties, as well as studies in similar market areas of other states, comparing the sale of properties proximate to photovoltaic panels to similar properties selling under similar market conditions without proximity to photovoltaic panels have not discovered any sales in which proximity to photovoltaic panels appear to have had a negative impact on property values. Therefore, the conclusion is that there does not appear to have been any measurable negative impact on surrounding residential property values due to the proximity of a solar farm.

Property Value Analysis Near Solar Energy in other States

In addition to analyzing recent single-family residential sales in the area of the Elm Lawn Solar Park, as well as other areas in Wisconsin, and Illinois, Iowa, Minnesota, Indiana, Michigan, Oklahoma, and Arizona, research has been conducted on improved residential sales in proximity to other separate solar projects in various states in order to discover whether residential property values in these areas were impacted by their location.

The solar projects being discussed start with the Badger Hollow Solar Farm in Iowa County, Wisconsin, which has a total capacity of approximately 300 megawatts and was made known to the public in 2018. Phase one came online in 2021. Two Creeks Solar in Manitowoc County, Wisconsin which has a total capacity of approximately 150 megawatts and came online in 2020. The North Star Solar Project in North Branch, Minnesota, went online in 2017 with a capacity of 100 megawatts. Morgan's Corner Solar Farm in Elizabeth City, North Carolina, went online in 2015 with a capacity of 20 megawatts. The AM Best Solar Farm in Goldsboro, North Carolina, went online in 2013 with a capacity of 6.7 megawatts. The research carried out around Goldsboro, North Carolina was based on the *Edgecombe Solar Impact Study* conducted by Richard C. Kirkland, Jr., MAI of Kirkland Appraisal, LLC. The recent single-family residential sales and the matched pairs that follow are recreations of Kirkland Appraisal, LLC's Matched Pair #1 with updated information provided by MaRous & Company. The following are the results of this research.⁵

⁵ As with the Illinois research, details of these sales are retained in my office files; maps in the addenda to this report illustrate the location of these matched pairs. Unless otherwise indicated, none of the purchasers in these transactions appear to own any other property in proximity, and none of the transactions appear to have a photovoltaic panel lease associated with the property.

SINGLE-FAMILY RESIDENTIAL SALES SUMMARY IN THE AREA NEAREST TO THE BADGER HOLLOW SOLAR FARM IN IOWA COUNTY, WISCONSIN ONLINE IN 2021								
No.	Location	Sale Price	Sale Date	Proposed Distance from Solar Farm (Ft.)	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1	891 County Road Ig Livingston, Wisconsin	\$166,500	5/29/20	498	N/A	N/A	1,500	\$111.00
2a	2450 County Road G Montfort, Wisconsin	\$400,000	6/5/18	544	53.60	2015	3,236	\$123.61
2b	2450 County Road G Montfort, Wisconsin	\$493,000	6/11/21	544	53.60	2015	3,236	\$152.35
3	514 Marilyn Drive Cobb, Wisconsin	\$267,500	12/30/18	2,000	0.60	2015	2,258	\$118.47
4a	12227 Laplatte Road Montfort, Wisconsin	\$260,000	10/1/19	10,000	2.00	2000	2,434	\$106.82
4b	12227 Laplatte Road Montfort, Wisconsin	\$380,000	3/24/22	10,000	2.00	2000	2,434	\$156.12
5a	11117 Hickory Grove Road Livingston, Wisconsin	\$220,000	10/9/19	20,031	5.76	N/A	2,334	\$94.26
5b	11117 Hickory Grove Road Livingston, Wisconsin	\$250,000	6/1/20	20,031	5.76	N/A	2,334	\$107.11

The table above illustrates the relationship between proximity to a solar panel and the sale price per square foot of building area including land for the properties nearest to the proposed Badger Hollow Solar Farm. The price per square foot appears to become larger as the properties grow closer to the project border, although, accounting for an adjustment made for the lot size, outbuildings, and other property factors the 2450 County Road G property possesses, the price per square foot can be assumed to be only slightly lower than the price per square foot of the 514 Marilyn Drive property. Therefore, the properties nearest to the proposed Badger Hollow Solar Farm provide evidence of no negative impact.

SINGLE-FAMILY RESIDENTIAL SALES SUMMARY IN THE AREA NEAREST TO THE TWO CREEKS SOLAR IN MANITOWOC COUNTY, WISCONSIN ONLINE IN 2020								
No.	Location	Sale Price	Sale Date	Proposed Distance from Solar Farm (Ft.)	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1	11916 Meyer Road Two Rivers, Wisconsin	\$215,000	7/28/20	350	9.00	2000	2,200	\$97.73
2 ^{A*}	6506 County Road V Two Rivers, Wisconsin	\$145,000	4/30/19	370	5.00	2009	1,280	\$113.28
2 ^{B*}	6506 County Road V Two Rivers, Wisconsin	\$33,000	6/9/17	Prior to Project Announcement	5.00	2009	1,280	\$25.78
3	5409 Irish Road Mishicot, Wisconsin	\$220,000	1/29/21	970	1.30	1900	2,000	\$110.00
4	13504 Lakeshore Road Two Rivers, Wisconsin	\$102,500	7/15/18	1,230	1.70	2007	1,821	\$56.29
5	11719 Ravine Drive Two Rivers, Wisconsin	\$260,000	10/11/22	1,430	16.26	1900	1,386	\$187.59
6	12395 Sandy Bay Road Two Rivers, Wisconsin	\$179,900	7/22/19	2,090	2.75	1967	1,352	\$133.06
7	5701 Two Creeks Road Two Rivers, Wisconsin	\$99,400	9/10/17	12,000	1.21	N/A	1,440	\$69.03

*Manufactured Home

The table above illustrates the relationship between proximity to a solar panel and the sale price per square foot of building area including land for the properties nearest to the proposed Two Creeks Solar. The prices per square foot appear to have no pattern in relation to their proximation to the project border. However, when comparing the most recent sale and the prior sale of the 6506 County Road V property, it appears that the only differing factor upon the sale was the announcement of the Two Creeks Solar project, and the sale price of the property substantially grew in value. Therefore, the properties nearest to the proposed Two Creeks Solar provide evidence of no negative impact.

Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

**SINGLE-FAMILY RESIDENTIAL SALES SUMMARY IN THE AREA NEAREST TO THE
 NORTH STAR SOLAR FARM IN NORTH BRANCH, MINNESOTA**
 ONLINE IN 2017

No.	Location	Sale Price	Sale Date	Distance from Solar Farm (Ft.)	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1	10095 367 th St. North Branch, Minnesota	\$415,000	10/28/22	175	10.00	2010	2,677	\$155.02
2a	10009 375 th St. North Branch, Minnesota	\$219,900	3/30/16	200	5.05	1980	1,548	\$142.05
2b	10009 375 th St. North Branch, Minnesota	\$260,000	7/12/19	200	5.05	1980	1,548	\$167.96
3	10270 380 th St. North Branch, Minnesota	\$163,800	11/29/18	230	3.00	2004	2,200	\$74.45
4	37096 Little Oak Ln. North Branch, Minnesota	\$289,000	4/17/17	230	2.07	2001	2,684	\$107.68
5a	37056 Little Oak Ln. North Branch, Minnesota	\$208,000	7/8/13	280	2.38	2001	2,121	\$98.07
5b	37056 Little Oak Ln. North Branch, Minnesota	\$435,000	8/20/21	280	2.38	2001	2,121	\$205.09
6	10655 367 th St. North Branch, Minnesota	\$304,900	10/1/18	290	5.00	1998	1,560	\$195.45
7	10505 367 th St. North Branch, Minnesota	\$260,500	9/8/16	360	5.00	1999	1,930	\$134.97
8a	10132 367 th St. North Branch, Minnesota	\$371,800	9/23/16	320	9.31	2001	2,376	\$156.48
8b	10132 367 th St. North Branch, Minnesota	\$333,000	10/20/17	320	9.31	2001	2,376	\$140.15
8c	10132 367 th St. North Branch, Minnesota	\$415,000	12/23/20	320	9.31	2001	2,376	\$174.66
9	10200 367 th St. North Branch, Minnesota	\$454,900	1/31/22	390	9.30	2003	2,350	\$193.57
10a	11210 367 th St. North Branch, Minnesota	\$280,000	2/22/15	400	5.34	2004	3,756	\$74.55
10b	11210 367 th St. North Branch, Minnesota	\$430,000	4/30/21	400	5.34	2004	3,756	\$114.48
11	10865 367 th St. North Branch, Minnesota	\$500,000	9/26/23	480	4.90	1998	2,514	\$198.89
12	37081 Little Oak Ln. North Branch, Minnesota	\$310,000	5/24/17	540	2.71	2003	2,790	\$111.11
13	36640 Kost Trl. North Branch, Minnesota	\$310,000	12/16/19	770	8.10	1987	2,219	\$139.70
14	36438 July Ave. North Branch, Minnesota	\$225,000	10/1/15	910	10.00	1985	2,130	\$105.63
15	9624 375 th St. North Branch, Minnesota	\$415,000	9/29/23	1,510	9.97	1992	2,984	\$139.08
16a	35919 Jensen Rd. North Branch, Minnesota	\$307,686	8/27/18	1,770	4.44	2005	2,938	\$104.73
16b	35919 Jensen Rd. North Branch, Minnesota	\$347,500	7/14/20	1,770	4.44	2005	2,938	\$118.28
17	37101 Kost Trl. North Branch, Minnesota	\$154,900	11/23/16	2,350	8.95	1970	1,044	\$148.37
18a	10000 Saint Croix Trl. North Branch, Minnesota	\$210,000	7/28/17	4,675	9.92	1988	1,272	\$165.09
18b	10000 Saint Croix Trl. North Branch, Minnesota	\$350,000	11/16/21	4,675	9.92	1988	1,428	\$245.10
19a	10467 Saint Croix Trl. North Branch, Minnesota	\$169,000	3/27/14	5,544	5.55	1980	2,132	\$79.27
19b	10467 Saint Croix Trl. North Branch, Minnesota	\$250,000	1/2/18	5,544	5.55	1980	2,132	\$117.26

Based on the data shown in the above improved sales table, and the location to photovoltaic panels at 175 feet to 5,544 feet, there does not appear to have been any measurable negative impact on surrounding property values due to the proximity of a solar farm. The sales furthest from the photovoltaic panels do show a higher price per square foot, however, these superior prices can be attributed significantly to the larger land sizes of the properties.

Before and After Sales Comparison Analysis – North Branch, Minnesota

Along with research of sales near the footprint, a study was performed on some homes that were purchased within the footprint during the development of the North Star project. These sales were not purchased at arm's length, or in a way that the buyers and sellers act independently and do not have any relationship or influence with each other, but then were subsequently sold at market value. What follows is an analysis of those second sales. The sales information for the non-arm's length transactions is maintained in our files.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 1		
	Proximate to a Photovoltaic Panel	Prior Sale
Address	10090 367 th St. North Branch, MN 55056	10090 367 th St. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	165	N/A
Sale Date	March 22, 2018	May 14, 2010
Sale Price	\$302,500	\$219,900
Sale Price/Sq. Ft. (A.G.)	\$108.42	\$78.82
Year Built	2000	2000
Building Size (Sq. Ft.)	2,790	2,790
Lot Size (Acres)	10.00	10.00
Style	Two-story; frame (vinyl) 4 bedrooms, 3 bath	Two-story; frame (vinyl) 4 bedrooms, 3 bath
Basement	Full, finished	Full, finished
Utilities	Central air other heat well & septic	Central air other heat well & septic
Other	2.5-car attached garage patio renovated in 2008	2.5-car attached garage patio renovated in 2008

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 165 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 2			
	Proximate to a Photovoltaic Panel	Proximate to a Photovoltaic Panel	Prior Sale
Address	10095 367 th St. North Branch, MN 55056	10095 367 th St. North Branch, MN 55056	10095 367 th St. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	175	175	N/A
Sale Date	October 28, 2022	June 16, 2017	July 9, 2010
Sale Price	\$415,000	\$336,667	\$299,000
Sale Price/Sq. Ft. (A.G.)	\$155.02	\$125.76	\$111.69
Year Built	2002	2002	2002
Building Size (Sq. Ft.)	2,677	2,677	2,677
Lot Size (Acres)	10.00	10.00	10.00
Style	Two-story; frame (vinyl) 4 bedrooms, 2.1 bath	Two-story; frame (vinyl) 4 bedrooms, 2.1 bath	Two-story; frame (vinyl) 4 bedrooms, 2.1 bath
Basement	Full, finished	Full, finished	Full, finished
Utilities	Central air other heat well & septic	Central air other heat well & septic	Central air other heat well & septic
Other	2-car attached & 2-car detached garage deck, patio renovated in 2010	2-car attached & 2-car detached garage deck, patio renovated in 2010	2-car attached & 2-car detached garage deck, patio renovated in 2010

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 175 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 3		
	Proximate to a Photovoltaic Panel	Prior Sale
Address	37083 Keystone Ave. North Branch, MN 55056	37083 Keystone Ave. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	300	N/A
Sale Date	August 28, 2017	August 8, 2000
Sale Price	\$252,290	\$100,000
Sale Price/Sq. Ft. (A.G.)	\$151.07	\$59.88
Year Built	1964	1964
Building Size (Sq. Ft.)	1,670	1,670
Lot Size (Acres)	6.00	6.00
Style	One-story; frame (wood) 3 bedrooms, 2.0 bath	One-story; frame (wood) 3 bedrooms, 2.0 bath
Basement	N/A	N/A
Utilities	Central air forced-air heat well & septic	Central air forced-air heat well & septic
Other	2 pole barns, shed, and lean-to covered patio renovated in 1984	2 pole barns, shed, and lean-to covered patio renovated in 1984

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 300 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 4		
	Proximate to a Photovoltaic Panel	Prior Sale
Address	10254 367 th St. North Branch, MN 55056	10254 367 th St. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	330	N/A
Sale Date	October 27, 2017	December 16, 2005
Sale Price	\$335,000	\$373,000
Sale Price/Sq. Ft. (A.G.)	\$144.02	\$160.36
Year Built	2005	2005
Building Size (Sq. Ft.)	2,326	2,326
Lot Size (Acres)	9.28	9.28
Style	Two-story; frame (vinyl) 3 bedrooms, 3.0 bath	Two-story; frame (vinyl) 3 bedrooms, 3.0 bath
Basement	N/A	N/A
Utilities	Central air forced-air heat well & septic	Central air forced-air heat well & septic
Other	3-car attached garage 48x72 aluminum workshop renovated in 2009	3-car attached garage 48x72 aluminum workshop

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 330 feet to the proximate property, there does not appear to have been any measurable negative impact on surrounding property values due to the proximity of a solar farm. The prior sale does show a higher price per square foot; however, these superior prices can be significantly attributed to the superior market conditions in which the year 2005 reflected prices at the top of the residential market. A downward market condition adjustment is necessary for the December 16, 2005, sale.

Luis Gonzalez
 Elm Lawn Solar Park
 June 24, 2026

NORTH STAR SOLAR FARM SALE COMPARISON NO. 5			
	Proximate to a Photovoltaic Panel	Prior Sale - Proximate to a Photovoltaic Panel	Prior Sale
Address	10132 367 th St. North Branch, MN 55056	10132 367 th St. North Branch, MN 55056	10132 367 th St. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	340	340	N/A
Sale Date	December 23, 2020	October 20, 2017	July 3, 2001
Sale Price	\$415,000	\$333,000	\$226,800
Sale Price/Sq. Ft. (A.G.)	\$193.02	\$154.88	\$105.49
Year Built	2001	2001	2001
Building Size (Sq. Ft.)	2,150	2,150	2,150
Lot Size (Acres)	10.00	10.00	10.00
Style	Two-story; frame (vinyl) 4 bedrooms, 2.5 bath	Two-story; frame (vinyl) 4 bedrooms, 2.5 bath	Two-story; frame (vinyl) 4 bedrooms, 2.5 bath
Basement	Full, finished, walkout	Full, finished, walkout	Full, finished, walkout
Utilities	Central air forced-air heat well & septic	Central air forced-air heat well & septic	Central air forced-air heat well & septic
Other	3-car attached garage 48x28 pole barn renovated in 2008	3-car attached garage 48x28 pole barn renovated in 2008	3-car attached garage 48x28 pole barn

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 340 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 6			
	Proximate to a Photovoltaic Panel	Proximate to a Photovoltaic Panel	Prior Sale
Address	10200 367 th St. North Branch, MN 55056	10200 367 th St. North Branch, MN 55056	10200 367 th St. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	400	400	N/A
Sale Date	January 31, 2022	November 28, 2017	November 8, 2004
Sale Price	\$454,900	\$322,938	\$309,900
Sale Price/Sq. Ft. (A.G.)	\$193.57	\$137.42	\$131.87
Year Built	2003	2003	2003
Building Size (Sq. Ft.)	2,350	2,350	2,350
Lot Size (Acres)	9.30	9.30	9.30
Style	Two-story; frame (vinyl) 4 bedrooms, 2.5 bath	Two-story; frame (vinyl) 4 bedrooms, 2.5 bath	Two-story; frame (vinyl) 4 bedrooms, 2.5 bath
Basement	Full, finished, walkout	Full, finished, walkout	Full, finished, walkout
Utilities	Central air forced-air heat well & septic	Central air forced-air heat well & septic	Central air forced-air heat well & septic
Other	2.5-car attached garage 42x60 pole barn, porch, deck renovated in 2009	2.5-car attached garage 42x60 pole barn, porch, deck renovated in 2009	2.5-car attached garage porch, deck 42x60 pole barn

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 400 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

**SINGLE-FAMILY RESIDENTIAL SALES SUMMARY
 IN THE AREA NEAREST TO THE MORGAN'S CORNER SOLAR FARM
 IN ELIZABETH CITY, NORTH CAROLINA
 ONLINE IN 2015**

No.	Location	Sale Price	Sale Date	Distance from Solar Farm (Ft.)	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1	1364 Blindman Rd. Elizabeth City, North Carolina	\$175,000	2/28/17	640	1.00	2013	1,762	\$99.32
2	1363 Blindman Rd. Elizabeth City, North Carolina	\$160,900	5/4/18	830	10.01	2004	1,820	\$88.41
3	1493 Millpond Rd. Elizabeth City, North Carolina	\$204,000	10/19/21	1,720	2.20	2004	2,110	\$96.68
4 ^A	1461 Millpond Rd. Elizabeth City, North Carolina	\$180,000	6/25/15	1,893	0.99	1994	2,517	\$71.51
4 ^B	1461 Millpond Rd. Elizabeth City, North Carolina	\$216,900	9/1/20	1,893	0.99	1994	2,517	\$86.17
5	974 U.S Hwy. 158 Elizabeth City, North Carolina	\$162,000	9/28/16	1,955	0.96	2001	1,848	\$87.66
6	740 Firetower Rd. Elizabeth City, North Carolina	\$144,000	6/26/15	3,770	0.89	1976	1,701	\$84.66
7	214 Linwood Dr. Elizabeth City, North Carolina	\$197,250	4/9/18	4,400	0.69	2006	2,100	\$93.93
8	773 U.S Hwy. 158 Elizabeth City, North Carolina	\$290,000	2/26/16	4,645	4.41	2008	2,460	\$117.89
9	1401 Brothers Ln. Elizabeth City, North Carolina	\$100,000	12/4/15	5,597	0.30	2012	1,344	\$74.40

Based on the data shown in the above improved sales table, and the location to photovoltaic panels at 640 feet to 5,597 feet, there does not appear to have been any measurable negative impact on surrounding property values due to the proximity of a solar farm. The sale of the 773 U.S. Highway 158 property does show a higher price per square foot; however, these superior prices can be significantly attributed to the larger land size of the property. Also, in comparison, the 1401 Brothers Lane sale is furthest from the solar farm and sold at the second lowest price per square foot.

SINGLE-FAMILY RESIDENTIAL SALES SUMMARY IN THE AREA NEAREST TO THE AM BEST SOLAR FARM IN GOLDSBORO, NORTH CAROLINA ONLINE IN 2013 (BASED ON MATCHED PAIR #1 FROM KIRKLAND APPRAISAL, LLC)								
No.	Location	Sale Price	Sale Date	Distance from Solar Farm (Ft.)	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1	103 Erin Pl. Goldsboro, North Carolina	\$250,000	3/31/14	450	0.93	2014	3,492	\$71.59
2	2400 Granville Dr. Goldsboro, North Carolina	\$224,000	6/19/14	560	0.81	2014	2,464	\$90.91
3	2311 Granville Dr. Goldsboro, North Carolina	\$248,000	10/22/13	630	1.12	2013	3,400	\$72.94
4	2309 Granville Dr. Goldsboro, North Carolina	\$238,000	10/25/13	635	1.12	2013	3,194	\$75.51
4 ^A	2309 Granville Dr.* Goldsboro, North Carolina	\$258,000	6/8/17	635	1.12	2013	3,194	\$80.78
4 ^B	2309 Granville Dr.* Goldsboro, North Carolina	\$279,900	2/7/20	635	1.12	2013	3,194	\$87.63
5	2401 Granville Dr. Goldsboro, North Carolina	\$258,000	4/7/14	650	0.91	2013	3,511	\$73.48
5 ^A	2401 Granville Dr. Goldsboro, North Carolina	\$292,000	12/17/20	650	0.91	2013	3,511	\$83.17
6	2402 Granville Dr. Goldsboro, North Carolina	\$253,000	12/3/13	715	0.95	2013	3,400	\$74.41
7	2403 Granville Dr. Goldsboro, North Carolina	\$242,000	6/3/14	845	0.67	2014	2,388	\$101.34
7 ^A	2403 Granville Dr.* Goldsboro, North Carolina	\$265,000	4/24/19	845	0.67	2014	2,388	\$110.97
8	2404 Granville Dr. Goldsboro, North Carolina	\$255,000	4/17/14	875	0.73	2014	3,643	\$70.00
SINGLE-FAMILY RESIDENTIAL SALES (NOT FROM REPORT BY KIRKLAND APPRAISAL, LLC)								
9	2312 Granville Dr. Goldsboro, North Carolina	\$357,000	9/24/21	400	0.75	2013	3,453	\$103.39
10	2310 Granville Dr. Goldsboro, North Carolina	\$280,000	5/15/19	410	0.76	2013	3,292	\$85.05
11	2308 Granville Dr. Goldsboro, North Carolina	\$345,000	4/1/21	420	1.49	2013	3,596	\$95.94
12	2304 Granville Dr. Goldsboro, North Carolina	\$277,000	5/5/21	465	1.61	2012	2,434	\$113.80

* - Updated resale of the property found in Kirkland Appraisals, LLC's Matched Pair #1

The data used is based on the Matched Pair #1 from the report *Edgecombe Solar Impact Study* performed by Richard C. Kirkland, Jr., MAI of Kirkland Appraisals, LLC. The data in the above improved sales table, and the location to photovoltaic panels at 450 feet to 875 feet, shows there does not appear to have been any measurable negative impact on surrounding property values due to the proximity of a solar farm. The table shows that the 2404 Granville Drive sale is furthest from the solar farm and sold at the lowest price per square foot.

Before and After Sales Comparison Analysis – Goldsboro, North Carolina

Along with research of sales near the footprint a before and after sales comparison analysis was performed on the homes that were most proximate and were originally analyzed by Richard C. Kirkland, Jr., MAI of Kirkland Appraisals, LLC. These sales comparisons include the sales research performed by Kirkland Appraisals, LLC, and the updated sales information of their research.

AM BEST SOLAR FARM SALE COMPARISON NO. 1		
	Proximate to a Photovoltaic Panel	Prior Sale (Kirkland Appraisals, LLC)
Address	102 Erin Pl. Goldsboro, NC 27530	102 Erin Pl. Goldsboro, NC 27530
Distance from P.V. Panel (Ft.)	300	300
Sale Date	November 28, 2016	August 12, 2014
Sale Price	\$270,000	\$253,000
Sale Price/Sq. Ft. (A.G.)	\$79.41	\$74.41
Year Built	2014	2014
Building Size (Sq. Ft.)	3,400	3,400
Lot Size (Acres)	1.13	1.13
Style	Two-story; frame (vinyl) 4 bedrooms, 3 bath	Two-story; frame (vinyl) 4 bedrooms, 3 bath
Basement	N/A	N/A
Utilities	Central air electric/forced-air heat well & septic	Central air electric/forced-air heat well & septic
Other	2-car attached garage shed pool	2-car attached garage shed pool

The more current sale reflects a superior price per square foot than the previous sale. Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 300 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

AM BEST SOLAR FARM SALE COMPARISON NO. 2		
	Proximate to a Photovoltaic Panel	Prior Sale (Kirkland Appraisals, LLC)
Address	104 Erin Pl. Goldsboro, NC 27530	104 Erin Pl. Goldsboro, NC 27530
Distance from P.V. Panel (Ft.)	300	300
Sale Date	June 19, 2017	July 30, 2014
Sale Price	\$280,000	\$250,000
Sale Price/Sq. Ft. (A.G.)	\$82.35	\$73.53
Year Built	2014	2014
Building Size (Sq. Ft.)	3,400	3,400
Lot Size (Acres)	2.24	2.24
Style	Two-story; frame (vinyl) 5 bedrooms, 3.5 bath	Two-story; frame (vinyl) 5 bedrooms, 3.5 bath
Basement	N/A	N/A
Utilities	Central air heat pump well & septic	Central air heat pump well & septic
Other	2-car attached garage	2-car attached garage

The more current sale reflects a superior price per square foot than the previous sale. Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 300 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

AM BEST SOLAR FARM SALE COMPARISON NO. 3		
	Proximate to a Photovoltaic Panel	Prior Sale (Kirkland Appraisals, LLC)
Address	2312 Granville Dr. Goldsboro, NC 27530	2312 Granville Dr. Goldsboro, NC 27530
Distance from P.V. Panel (Ft.)	400	400
Sale Date	May 1, 2018	December 16, 2013
Sale Price	\$285,000	\$255,000
Sale Price/Sq. Ft. (A.G.)	\$82.54	\$73.85
Year Built	2013	2013
Building Size (Sq. Ft.)	3,453	3,453
Lot Size (Acres)	0.75	0.75
Style	Two-story; frame (vinyl) 5 bedrooms, 4 bath	Two-story; frame (vinyl) 5 bedrooms, 4 bath
Basement	N/A	N/A
Utilities	Central air heat pump well & septic	Central air heat pump well & septic
Other	2-car attached garage above-ground pool	2-car attached garage

The more current sale reflects a superior price per square foot than the previous sale. Based on the data shown in the above before and after sales table, and the location to photovoltaic panels at 400 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

AM BEST SOLAR FARM SALE COMPARISON NO. 4		
	Proximate to a Photovoltaic Panel	Prior Sale (Kirkland Appraisals, LLC)
Address	2308 Granville Dr. Goldsboro, NC 27530	2308 Granville Dr. Goldsboro, NC 27530
Distance from P.V. Panel (Ft.)	415	415
Sale Date	November 15, 2015	September 15, 2013
Sale Price	\$267,500	\$260,000
Sale Price/Sq. Ft. (A.G.)	\$74.39	\$72.30
Year Built	2013	2013
Building Size (Sq. Ft.)	3,596	3,596
Lot Size (Acres)	1.49	1.49
Style	Two-story; frame (vinyl) 6 bedrooms, 4 bath	Two-story; frame (vinyl) 6 bedrooms, 4 bath
Basement	N/A	N/A
Utilities	Central air heat pump well & septic	Central air heat pump well & septic
Other	2-car attached garage covered patio	2-car attached garage covered patio

The more current sale reflects a superior price per square foot than the previous sale. Based on the data shown in the above before and after sales table, and the location to photovoltaic panels at 415 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

Overall, the improved sales of properties, the before and after sales comparisons, and the proximation to photovoltaic panels at 165 feet to 5,597 feet from each property, shows that there does not appear to have been any measurable negative impact on surrounding property values due to the proximity of a solar farm. This conclusion is based on proximity to the photovoltaic panels, price per square foot, condition based on year built, and if the property was sold before or after the construction of the solar farm.

Solar Farm Assessor Surveys

Surveys and interviews with supervisors of assessments or staff members of counties that host solar farms that include a total capacity of 5 megawatts or more. The surveys and interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The surveys and interviews were intended to be conversational; however, they thoroughly discussed residential and agricultural values and impacts. The following sections summarize each of the surveys and interviews performed.

Illinois Assessors Survey – July 2019

In July 2019, MaRous & Company conducted a survey of the supervisor of assessments or a staff member in 6 counties in Illinois in which solar farms with more than 1.0 megawatts of capacity are currently in operation. As of the date of this report, there are more than 10 utility-scale solar farms with a total capacity of greater than 50.7 megawatts within these counties, with additional farms being added each year. An updated study performed by the Solar Energy Industries Association (SEIA) in Q1 of 2019 states that, in total, Illinois has 119.7 megawatts of solar energy installed. The total capacity reported in the study includes utility, residential, and non-residential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to photovoltaic panels.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.
- ∴ The survey is currently being updated, and to the date of this report there is no contrary evidence to the original assessor survey.

Iowa Assessors Survey – July 2021

In July 2021, MaRous & Company conducted a survey of the supervisor of assessments or a staff member in 7 counties in Iowa in which solar farms with more than 1.0 megawatts of capacity are currently in operation. As of the date of this report, there are approximately 8 utility-scale solar farms with a total capacity of approximately 18.0 megawatts within these counties, with additional farms being added each year. A study performed by the Solar Energy Industries Association (SEIA) on June 15, 2021, states that, in total, Iowa has 423.71 megawatts of solar energy installed. The total capacity reported in the study includes utility, residential, and non-residential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to photovoltaic panels.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Wisconsin Assessors Solar Farm Survey - April 2018

In April 2018, a survey of assessment professionals in their designated municipalities and unincorporated jurisdictions within Wisconsin in which solar farms are currently operational. As of the date of this report, there are more than 13 solar farms with a total capacity of greater than 18 megawatts within these counties, with additional farms being added each year. An updated study performed by the Solar Energy Industries Association (SEIA) in June 2018 states that, in total, Wisconsin has 52.2 megawatts of solar energy installed. The total capacity reported in the study includes utility, residential, and non-residential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ There have been no tax appeals in any county based upon solar farm-related concerns.
- ∴ In the past 18 months, the assessor's offices had not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to solar panels.
- ∴ Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural property assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ The survey is currently being updated, and to the date of this report there is no contrary evidence to the original assessor survey.

Indiana Assessors Survey – February & March 2019

In February & March 2019, MaRous & Company conducted a survey of the supervisor of assessments or a staff member in 9 counties in Indiana in which solar farms with more than 3 megawatts of capacity are currently in operation. As of the date of this report, there are more than 16 solar farms with a total capacity of greater than 111 megawatts within these counties, with additional farms being added each year. An updated study performed by the Solar Energy Industries Association (SEIA) in Q4 of 2018 states that, in total, Indiana has 331.19 megawatts of solar energy installed. The total capacity reported in the study includes utility, residential, and non-residential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to photovoltaic panels.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.
- ∴ The survey is currently being updated, and to the date of this report there is no contrary evidence to the original assessor survey.

Michigan Assessors Survey - December 2021

In December 2021, MaRous & Company conducted a survey of the township supervisor of assessments or a staff member in 20 counties in Michigan in which solar farms with more than 10 megawatts of capacity are currently in operation. As of the date of this report, there are more than 30 solar farms with a total capacity of greater than 173 megawatts within these counties, with additional farms being added each year. An updated study performed by the Solar Energy Industries Association (SEIA) in March 2021 states that, in total, Michigan has 599.4 megawatts of solar energy installed. The total capacity reported in the study includes utility, residential, and non-residential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ There have been no tax appeals in any county based upon solar farm-related concerns.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to solar panels.
- ∴ Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural property assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.

Minnesota Assessors Solar Farm Survey - June 2023

In June 2023, MaRous & Company conducted a survey of the supervisor of assessments or a staff member in 36 counties in Minnesota in which solar farms with 3.0 megawatts of capacity or more are currently in operation. As of the date of this report, there are more than 131 solar farms with a total capacity of greater than 777.2 megawatts within these counties, with additional farms being added each year. A study performed by the Solar Energy Industries Association (SEIA) states that Minnesota has a total of 1,782 megawatts of solar energy installed, as of 2022. The total capacity reported in the study includes utility, residential, and non-residential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ There have been no tax appeals in any county based upon solar farm-related concerns.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to solar panels.
- ∴ Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural property assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.

South Dakota Assessors Survey – November 2023

In November 2023, MaRous & Company conducted a survey of the supervisor of assessments in 1 county in South Dakota in which a solar farm with more than 1.0 megawatts of capacity is currently in operation. As of the date of this report, there is only 1 utility-scale solar farm with a total capacity of approximately 80.0 megawatts. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to photovoltaic panels.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Colorado Assessors Survey – May 2025

In May 2025, MaRous & Company conducted a survey of the supervisor of assessments or a staff member in 14 counties in Colorado in which solar farms with more than 5.0 megawatts of capacity are currently in operation. As of the date of this report, there are more than 37 solar farms with more than 2,110 megawatts within these counties, with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ A single county assessor's office has experienced one official real estate tax appeal based upon solar farm-related concerns; however, the Assessor found no warrant for the complaint and denied the appeal. Throughout the state, there have been no reductions in assessed valuations related to photovoltaic panels.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Oklahoma Assessors Survey – December 2024

In December 2024, MaRous & Company conducted a survey of the supervisor of assessments or a staff member in 9 counties in Oklahoma in which solar farms with more than 1.0 megawatts of capacity are currently in operation. As of the date of this survey, there are more than 11 utility-scale solar farms with a total capacity of greater than 202.5 megawatts within these counties, with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to photovoltaic panels.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

New Mexico Assessors Survey – December 2025

In December 2025, MaRous & Company conducted a survey of the supervisor of assessments or a staff member in 24 counties in New Mexico in which solar farms with more than 1.0 megawatts of capacity are currently in operation. As of the date of this survey, there are more than 85 utility-scale solar farms with a total capacity of greater than 2,314 megawatts within these counties, with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to photovoltaic panels.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

North Carolina Assessors Solar Farm Survey (Partial) - July 2018

In July 2018, MaRous & Company conducted a partial survey of the supervisor of assessments or a staff member in 5 counties in North Carolina that, as of the date of this report, have more than 44 solar farms with a total capacity of over 645 megawatts within those solar farms. A study performed by the Solar Energy Industries Association (SEIA) in June 2018 states that, in total, North Carolina has 4,411.65 megawatts of solar energy installed within 7,527 installations and is ranked second in the country for solar generation. The total capacity reported in the study includes utility, residential, and non-residential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ There have been no tax appeals in any county based upon solar farm-related concerns.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to solar panels.
- ∴ Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural property assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.

Maryland Assessors Solar Farm Survey - October 2017

In October 2017, MaRous & Company conducted a survey of the supervisor of assessments or a staff member in 13 counties in Maryland in which solar farms with more than 0.9 megawatts currently in operation. As of the date of this report, there are more than 25 solar farms with a total capacity of greater than 60 megawatts within these counties, with additional farms being added each year. An updated study performed by the Solar Energy Industries Association (SEIA) in June 2018 states that, in total, Maryland has 932.7 megawatts of solar energy installed. The total capacity reported in the study includes utility, residential, and non-residential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ There have been no tax appeals in any county based upon solar farm-related concerns.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to solar panels.
- ∴ Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural property assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.

Real Estate Professionals

Midwestern real estate professionals were contacted to discuss market conditions, specific market transactions, and to investigate whether they had experience with, or knowledge of any impact of solar farms on residential property values.

Some interviews have been conducted with market participants, real estate brokers, and real estate professionals in the Midwest that have had experience with residential properties proximate to solar farms, however, they wish to remain anonymous. The interviewees indicated that there have not been any negative impacts on residential property values due to the proximity to solar farms.

Joy Boyd, a local Illinois licensed broker in Christian County, Illinois has observed rural residential property values near existing energy facilities, such as wind farms, have not been negatively impacted due to the proximity to a wind turbine. Ms. Boyd also states that during peak farming season, systems such as solar panels essentially disappear behind the crops on the land. Ms. Boyd also reported that rural residential properties in the general area are overall accepting of alternative uses for the land due to the proximity of existing intense agricultural uses, agricultural and industrial type buildings, gravel roads, and other intrusive uses of the land. It has been observed that the residents within Christian County and the general project area have consistently agree that the only negative land use possibly impacting property values and buyers' decisions are the existing hog containment facilities within the county.

Andrew Kida, the City Administrator for the City of Comanche, Iowa stated that the proposed Rock Creek Solar is expected to be a very positive economic addition to their community, which has not had strong economic growth in the past decade.

Dustin Dolezalek of Scott Appraisal in Madison, Wisconsin, has observed positive feedback from residents proximate to other solar farms throughout southern Wisconsin. He also notes that the solar farms he has witnessed have a somewhat rolling topography in which the land acts as a natural view shield to any major road.

Jeff Thomas of Mineral Point Real Estate, the highest selling broker in Iowa County, Wisconsin. He states that he is very cognizant of all of the activity in the Iowa County market. He is aware that the Montfort housing market is stable, however, it is not in strong demand because the purchasing trend is typically between family members and parties looking to get housing from \$100,000 up to \$200,000. Mr. Thomas has observed patterns of no impact or no negative impact from alternative energy in the area, however, there is more of a concern from the nearby power lines developed by American Transmission Company.

Anne Larson of True-Blue Real Estate located near Barneveld, Wisconsin, states that in her opinion, minimal transactional activity is happening in or around Montfort, Wisconsin. Typical buyers are interested in properties that have values under \$200,000. Basically, purchasing demand for the area is only driven by affordability. In her opinion, there is no negative impact based on the proposed solar farm.

Prior to the approval of the Badger Hollow Solar Farm in Iowa County, Wisconsin, interveners, Brenda and Casey Kite, requested appraisal services for their property at 2680 County Road G #80, from Kurt Kielisch of Forensic Appraisal Group. The residence is a 1,987-square-foot farmhouse with a 5,040-square-foot pole barn and grain bin that sits on 3.73 acres of land. The Kite property is located in an area that is surrounded by tall crops, such as corn, and Badger Hollow Solar Farm agreed to an appropriate 500-foot setback from the residence. Within the immediate view of the property is a small wind farm, the Montfort Wind that came online in 2001, in which the Kites were aware of at the time that they purchased the property in 2005.

The Kites purchased the property December 5, 2005, for \$179,999, which is understood to be near the top of the local residential real estate market up to the year 2015. There is limited information that indicate that significant improvements were made between 2005 and the eventual 2019 sale.

The Kites listed the property as “For Sale by Owner”, which implies that the sale was substantially under exposed to the market. Due to the Kites not using a broker for the listing, the sale price did not factor in the market broker commission. Also, throughout the marketing period the Kites had a large anti-solar sign posted on the front of their property which used tactical scare verbiage in an attempt to persuade their neighbors, however, the sign acted as a disservice to them by deterring potential buyers from their “property. The property sold on August 1, 2019, for \$253,700. Therefore, by adding a market commission of 5.5%, the sale price of the property is adjusted to \$267,600. Another adjustment of 5% should be added to the property’s selling price for the lack of market exposure and the anti-solar sign, to create a final adjusted sale price of \$281,000.

Kurt Kielisch appraised the property with an effective date of November 14, 2019, with a *before solar development* value of \$298,500 and an *after solar development* value of \$179,000. The adjusted August 1, 2019, sale price of \$281,000, which occurred with the knowledge of the solar development, which reflects a difference of \$102,000 or a 57% increase compared to Kielisch’s *after solar development* value estimate of \$179,000. Utilizing the unadjusted Kite sale price of \$253,700 with the Kielisch after solar value of \$179,000, reflects an overall price increase of \$74,700 or 41.7% price increase.

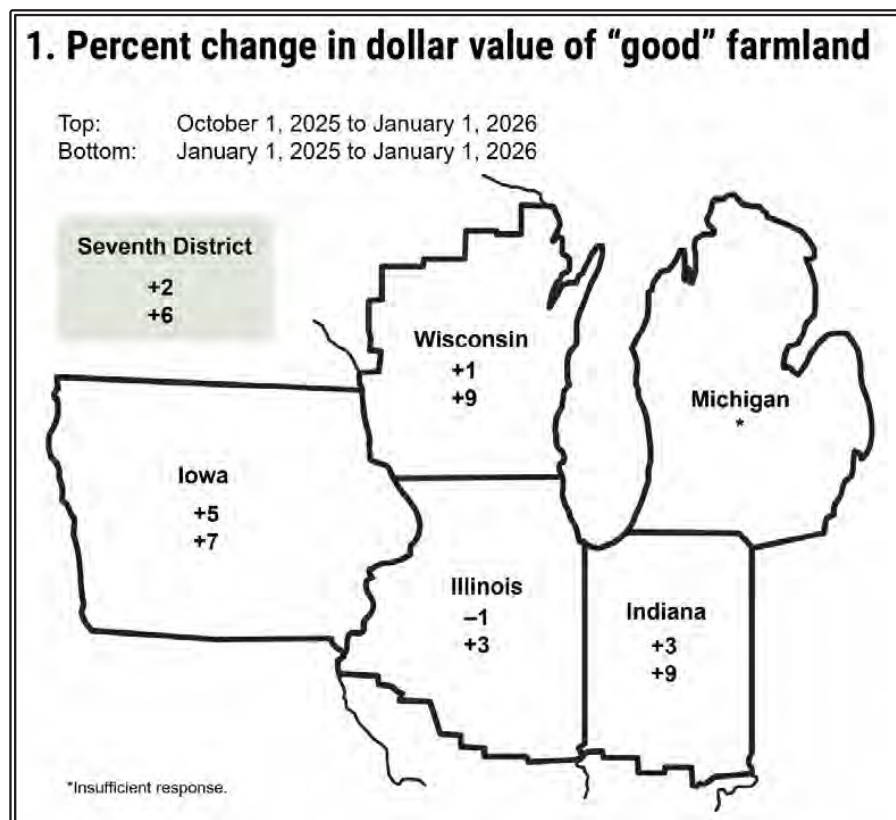
Other interviews have been conducted with market participants, real estate brokers, and real estate professionals in Iowa, Illinois, Wisconsin, and Indiana that have had experience with residential properties proximate to solar farms.⁶ The interviewees indicated that there have not been any negative impacts to residential property values due to the proximity to solar farms, however, feel that the information could be too sensitive and wish to remain anonymous.⁷

⁶ Certain areas were not contacted due to lack of experience with sales near solar farms.

⁷ In areas of potential sensitive local issues due to solar farms, professionals were not contacted.

Agricultural Land Values

Agricultural land values are typically tied to the productivity of the land and to the commodity prices of crops like corn and soybeans. Other factors include favorable interest rates and the supply of land compared to the number of buyers. The February 2026 edition of the AgLetter, published by the Federal Reserve Bank of Chicago from the Federal Reserve 7th District, which includes Montgomery County, stated “An annual increase of 6% in the Seventh Federal Reserve District’s agricultural land values in 2025 reversed the modest decrease in 2024. Values for ‘good’ farmland in the District moved up 2% in the fourth quarter of 2025 from the third quarter, according to 102 respondents from agricultural banks who completed the January 1 survey (figure 1). Illinois, Indiana, and Iowa had single-digit annual increases in their farmland values for 2025, following annual decreases for 2024. Wisconsin also had an annual increase in agricultural land values for 2025, which was slightly higher than last year’s increase. From 2014 through 2019, the yearly changes in District farmland values were somewhat negative to flat. In contrast, there were annual increases in farmland values from 2020 through 2025, except for in 2024, when there was a small decline.”⁸



⁸ Oppedahl, D., & Kepner, E. (2026, February). Midwest farmland values ended 2025 with solid growth (AgLetter No. 2011). Federal Reserve Bank of Chicago.

The following charts from the 2025 edition of the annual publication of *Illinois Land Values and Lease Trends* illustrate the prices of agricultural land sold in the eastern region of Illinois, or Region 5, and includes Montgomery County. In 2024, average-productivity agricultural land sales showed an average value between \$10,000 per acre and \$8,500 per acre, which is up from the previous year. The values of excellent-productivity agricultural land sales showed an average value between \$17,500 per acre and \$15,500 per acre, which is down from the previous year.

“Land values in our region were mostly steady through the first 6-8 months of 2024. Softening was observed early in the fourth quarter, with possible firming as pre-election jitters passed. The higher commodity price trend also provided a psychological and financial boost as year-end approached. Total number of cropland sales reported was up 9 percent from last year, a partial recovery of the 30 percent drop the year before. Total acres analyzed for our region’s data was just over 24,000. Overall average sale price for Excellent/Good/ Average combined declined 1 percent from 2023. It is noted that statistics in the text of our report include all representative sales for the region instead of only the sales listed in this publication.

The uptick in Average Productivity values despite the softening of Excellent Productivity is not an anomaly based on a review of the “Illinois Land Values Summary by Soil Productivity Class” chart for Region 7. Note that in 2013 to 2014 and again in 2018 to 2019 Average Productivity values continued higher even though Excellent and Good had both turned lower, similar to this year’s data for our region.

Aggregately for Region 7 sale prices averaged \$108/tillable PI for the first half of 2024 and \$113/tillable PI for the last half. This compares to \$113 in Q4 of 2023. This year’s data shows “Good” and “Average” Productivity land averaging 77 percent and 56 percent of the value of ‘Excellent’ Productivity land respectively.”⁹

Illinois Farmland Values — 2024 Summary (ISPFMRA / University of Illinois)				
Farm Classification (Productivity Index)	Statewide Avg. Value / Acre (2024)	2023-24 % Change	Region 7 (West Central) Typical Range / Acre	Statewide Avg. Cash Rent / Acre
Excellent (PI 133-147)	\$16,359	-3.3%	15,750-19,800	~\$370
Good (PI 117-132)	\$12,626	-0.8%	—	~\$300
Average (PI 100-116)	\$9,978	+4.5%	—	~\$260
Fair (PI < 100)	\$8,141	+8.8%	—	~\$205

Source: 2025 Illinois Farmland Values and Lease Trends (ISPFMRA / University of Illinois), reflecting 2024 sales. Montgomery County lies in Region 7 (West Central).

⁹ Region 5 – Eastern. (2025). 2025 Illinois Land Values and Lease Trends. <https://ispfmra.org/category/land-values/2025>

Agricultural Land Sales

The following table summarizes a sample of recent agricultural land sales nearest to the footprint of the proposed Elm Lawn Solar Park in Montgomery County.

AGRICULTURAL LAND SALES SUMMARY IN THE AREA NEAREST TO THE PROPOSED PROJECT							
Sale #	#1	#2	#3	#4	#5	#6	#7
Owner Name	Hyam Meghan E Trust	Blaine H & Karissa B Ray	Justin Weatherford	Litchfield Cmnty Youth Dev Pro	Joyce Bishop, William Bottom	Timothy B & Brittain S Osborne	City of Litchfield
Number of Parcels	1	1	1	2	2	1	1
APN	10-22-200-023	15-02-300-007	10-24-300-012	15-03-203-011/012	15-10-200-019/002	10-28-400-001	10-31-400-004
Township Section	Sec 22	Sec 2	Sec 24	Sec 3	Sec 10	Sec 28	Sec 31
Address	3238 N 15th Ave, Litchfield	Old Quarry Tr, Litchfield	567 Rainmaker Trl, Butler	225 Old Quarry Tr, Litchfield	10292 Old Litchfield Tr, Litchfield	13163 Harrison Tr, Litchfield	W Side I-55, Litchfield
County	Montgomery	Montgomery	Montgomery	Montgomery	Montgomery	Montgomery	Montgomery
State	Illinois	Illinois	Illinois	Illinois	Illinois	Illinois	Illinois
Sale Price	\$50,000	\$120,000	\$120,000	\$285,000	\$380,000	\$495,000	\$515,375
Sale Date	May 1, 2025	November 30, 2023	September 26, 2025	January 18, 2026	November 7, 2025	July 28, 2025	July 15, 2025
Assessed Year	2024	2024	2024	2024	2024	2024	2024
Assessed Property Value	\$24,250	\$18,120	\$35,420	\$5,960	\$77,550	\$108,632	\$34,350
Land Area	11.60 Acres	17.02 Acres	10.02 Acres	28.21 Acres	16.16 Acres	12.95 Acres	70.02 Acres
Productivity Index	64.8	101.9	78.6	93.1	89.3	62.6	107.4
Sale Price Per Acre	\$4,310.34/Acre	\$7,050.53/Acre	\$11,976.05/Acre	\$10,102.80/Acre	\$23,514.85/Acre	\$38,223.94/Acre	\$7,360.40/Acre
Latitude	39.1895	39.1610	39.2088	39.1699	39.1560	39.1945	39.1784
Longitude	-89.6296	-89.6648	-89.5948	-89.6294	-89.6290	-89.6502	-89.6851

	Summary Averages	County Averages
	Average of all Sales	Montgomery
Sale Price	\$206,904	
Sale Date	March 13, 2025	
Land Area	26.44 Acres	
Productivity Index	97.5	128.5
Sale Price Per Acre	\$9,692.32/Acre	\$10,775.00/Acre

The above sample of agricultural land sales reveals that the productivity of the majority of agricultural land that is nearest to the area of the proposed project footprint in Montgomery County appears to be below average for the county with an average Productivity Index of 97.5. The average Productivity Index for Montgomery County is 128.5. These above average plots of land will only benefit from adding a diversified income that is not productivity reliant, while any plots of land with lower crop productivity nearest to the proposed solar farm should also benefit from the potential to counter-balance any farm revenue lost from the lower crop productivity of the land by taking advantage of any participation benefits to add to the overall revenue of the agricultural land.

Agricultural Land Sales: Solar Farms and Wind Farms

Over the past 15-25 years, wind energy has grown rapidly across the Midwest in agricultural communities similar to the project area. Solar energy is increasingly being installed in this region as well. This is driven by several factors, including steep cost declines primarily from decreases in inverter and module prices, and utility and other customers' interest in affordable, low-carbon energy. Although wind and solar energy projects have varying reasons for being placed in the Midwest and other similar locations, their sites have notable attributes in common, including access to an available energy resource, access to the electrical grid, and predominantly agricultural economies in which solar or wind can be located along with other productive uses of the land.

MaRous and Company has extensively researched the question of property value impacts by wind farms and our findings show that responsibly sited wind farms do not have any negative impacts on neighboring property values. Solar farms are significantly lower profile, thus have reduced if not eliminated, visual concerns with negligible, if any, sound emissions. Therefore, it is our observation that if wind farms do not negatively impact property values, solar farms will not either. This is confirmed by the market research presented earlier in this report. The following is a brief summary of a portion of our research into wind farm property values, along with the summaries of the county assessors' surveys conducted in 60 counties within the states of Indiana, South Dakota, Iowa, Minnesota, Kansas, and Illinois in which wind farms are located.

We have compiled research for wind farms and have summarized our findings. The research was not exhaustive, however, in Illinois there was one reported sale of agricultural land close to wind turbines located in McLean County, Illinois, in March 2013. The farm, comprised of two tracts, was considered "highly desirable" with a productivity rating of 135 and 132 respectively (the low end of the excellent range.) The report commented, "...the wind turbine lanes were not a nuisance as they ran the same direction as the farm is planted (north-south.)" In 2014, there were three sales of farms with wind turbines in region 4, which includes the counties of Marshall, Woodford, Mason, Putnam, Livingston, McLean, and Tazewell. The report stated, "In general, investors may have paid a premium for the wind turbine. High quality farmland with wind turbines is stable."

Another reported sale in November 2017 was to be associated with wind turbines within Jerauld County, South Dakota, which is home to the Wessington Springs Wind Farm and has similar demographics as the project area. The property is situated on pastureland of poor quality with significant topography issues, which would reflect a lower price per acre than the region's average price of \$2,011 per acre. However, the sale included multiple wind turbine leases and sold with an above average price per acre of \$2,800, which signifies a direct correlation to the benefit associated with the turbines on the land.

Overall, it appears that there is little or no relationship between agricultural land values and the location of wind farms, with productivity being the driving force behind land values. However, wind farm lease revenue appears to add to the marketability and value.

An article titled *Solar and Wind Contracts Add to Land Value: Illinois Survey*¹⁰, published in the *Illinois Farmer Today*, describes the benefits wind turbines had given to land prices in the area of two land sales in Macon County, Illinois with and without turbines on the land. The article used a report published in the *2019 Illinois Land Values and Lease Trends*¹¹; the report stated “Both tracts brought a premium to farms in the market without wind towers. The estimated increase was roughly \$750 per acre for each tract when factoring out all the other variables. Both properties were on highly productive Macon County land. The larger tract, with 97.6 percent tillable acres, sold for \$11,000 per acre. The 114-acre tract, with 87.1 percent tillable acres and some CRP land, sold for \$10,721.”

Wind turbines typically are considered to be of significant benefit to farmers; Iowa farmers interviewed by the *Omaha World Herald*, were positive about the stable income as opposed to the vicissitudes of commodity prices.¹² Franklin County, Iowa, reported lowering real estate taxes for the county as a whole because of the taxes generated by the wind turbines in that county. Support for good prices comes from the lack of land for sale, stable commodity prices, and low interest rates. Marginal land in areas where wind turbines are located or proposed is popular with investors.¹³

A report in the *2016 Illinois Land Values and Lease Trends*, indicated that the impact of wind turbine leases is being felt in McLean, Livingston, and Woodford counties, where turbine leases have provided “income diversification, beyond agriculture, which makes these tracts more attractive to an outside investor.”¹⁴ Further, they noted that “investors are still paying a little more of a premium for the wind turbines just as they had in the past few years.”¹⁵ The report notes that the premium is related directly to the number of years left on the lease.

Overall, it appears that there is little or no relationship between agricultural land values and the location of wind farms, with productivity being the driving force behind land values. Wind farm lease revenue, however, does appear to add to the marketability and value.

¹⁰ *Solar and Wind Contracts Add to Land Value: Illinois Survey*. https://www.agupdate.com/illinoisfarmertoday/news/state-and-regional/solar-and-wind-contracts-add-to-land-value-illinois-survey/article_61f2d45c-5643-11e9-a283-c78a49e3fa2e.html

¹¹ Klein, David E., 2019 *Illinois Land Values and Lease Trends*, Illinois Society of Professional Farm Managers and Rural Appraisers

¹² http://www.omaha.com/money/turning-to-turbines-as-commodity-prices-remain-low-wind-energy/article_2814e2cf-83a3-547d-a09e-f039e935f399.html Accessed September 18, 2107.

¹³ <http://www.agriculture.com/farm-management/farm-land/farmland-sales-hard-to-find-as-growers-hold-tight-keeping-land-value> Accessed September 18, 2017.

¹⁴ Klein, David E., and Schmitkey, Gary, 2016 *Illinois Land Values and Lease Trends*, Illinois Society of Professional Farm Managers and Rural Appraisers

¹⁵ *Ibid.*

Solar Energy Peer-Reviewed Literature Review

MaRous & Company is familiar with the following academic and peer-reviewed studies on the impact of solar energy facilities on residential property values. These studies are summarized below:

The University of Texas at Austin, 2018¹⁶

An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations

Nationwide

This study's purpose was to investigate any possible amenities, disadvantages, or potential impact a residential property may acquire from the presence of a proximate utility-scale solar facility. To analyze these factors, the study anticipated to determine the scope in which residential properties could potentially be impacted, the scale of the potential impact, and if the value of the potential impact were to be positive or negative by analyzing 956 unique solar sites completed in 2016 or prior across the United States. The conclusions of the study are based on surveys of residential home assessors and in-depth regression analysis. "Results from [the] survey of residential home assessors show that the majority of respondents believe that proximity to a solar installation has either no impact or a positive impact on home values." (Conclusion, Page 23). However, some of these results varied due to some assessors' previous experience with solar installations, the size of the solar facilities, and distances from residences. "Regression analyses suggest that closer proximity to an installation is associated with more negative estimates of property value impacts, as is larger installation size. Prior experience assessing near a solar installation, by contrast, was associated with more conservative estimates of impact. Meanwhile, the median and mode of all estimates of impact was zero, suggesting negative estimates from a few respondents were pulling down the [average]." (Conclusion, Page 23). The study goes on to suggest that in some markets solar developers could possibly benefit from incorporating ancillary items such as vegetation as a view shield, keeping panels lower to the ground, and, in limited cases, siting the facility on land with a use that was previously unappealing.

¹⁶ Al-Hamoodah, L., Koppa, K., Schieve, E., Reeves, D. C., Hoen, B., Seel, J., & Rai, V. (n.d.). *An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations*. Retrieved from <https://emp.lbl.gov/sites/default/files/lbnl-2001000.pdf>

University of Rhode Island, 2020¹⁷

Property Value Impacts of Commercial-Scale Solar Energy in Massachusetts and Rhode Island

Rhode Island and Massachusetts

While utility-scale solar energy is important for reducing dependence on fossil fuels, solar arrays use significant amounts of land (about 5 acres per MW of capacity) and may create local land use disamenities. This paper seeks to quantify the externalities from nearby solar arrays using the hedonic method. This paper studies the states of Massachusetts and Rhode Island, which have high population densities and ambitious renewable energy goals. Over 400,000 transactions within three miles of a solar site are observed. Using a difference-in-differences, repeat sales identification strategy, results suggest that houses within one mile depreciate 1.7% following construction of a solar array, which translates into an annual willingness to pay of \$279. Additional results indicate that the negative externalities are primarily driven by solar developments on farm and forest lands in non-rural areas. For these states, our findings indicate that the global benefits of solar energy in terms of abated carbon emissions are outweighed by the local disamenities.

This study focuses primarily on residential properties within suburban areas. Therefore, these results are skewed negatively due to the populated nature of the areas. The focus was on populated areas with a density of over 850 persons per square mile, and states that no impact was studied for rural impacts similar to the subject. The subject density is far less than 100 persons per square mile, as a result it is the opinion of MaRous & Company that this study does not effectively show the benefits that solar energy provides the properties and municipalities in rural area and is not relevant to the proposed subject solar farm.

¹⁷ Gaur, V. and C. Lang. (2020). *Property Value Impacts of Commercial-Scale Solar Energy in Massachusetts and Rhode Island*. Submitted to University of Rhode Island Cooperative Extension on September 29, 2020. Accessed at <https://web.uri.edu/coopext/valuing-siting-options-for-commercial-scale-solar-energy-in-rhode-island/>.

Lawrence Berkeley National Laboratory (LBNL) Study - 2023¹⁸
Shedding light on large-scale solar impacts: An analysis of property values and proximity to photovoltaics across six U.S. states

Nationwide

Report Abstract: [The LBNL] examine the impact of large-scale photovoltaic projects (LSPVPs) on residential home prices in six U.S. states that account for over 50% of the installed MW capacity of large-scale solar in the U.S. Our analysis of over 1,500 LSPVPs and over 1.8 million home transactions answers two questions: (1) what effect do LSPVPs have on home prices and (2) does the effect of LSPVP on home prices differ based on the prior land use on which LSPVPs are located, LSPVP size, or a home's urbanicity? We find that homes within 0.5 mi of a LSPVP experience an average home price reduction of 1.5% compared to homes 2–4 mi away; statistically significant effects are not measurable over 1 mi from a LSPVP. These effects are only measurable in certain states, for LSPVPs constructed on agricultural land, for larger LSPVPs, and for rural homes. Our results have two implications for policymakers: (1) measures that ameliorate possible negative impacts of LSPVP development, including compensation for neighbors, vegetative shading, and land use co-location are relevant especially to rural, large, or agricultural LSPVPs, and (2) place- and project-specific assessments of LSPVP development and policy practices are needed to understand the heterogeneous impacts of LSPVPs.

MaRous & Company Analysis: There are many factors that impact value of residential properties, but without specific study of individual residential properties, the 1.5% difference in value that was isolated by the authors of the report, is a percentage that is impossible to support based on extensive experience. Initial bullet points and input has been provided based on appraisals of over 12,000 properties, involvement with over 40 solar projects (community and large-scale), review of published data, direct interviews with assessors and brokers that have experience with value impact of proximate solar arrays on residential values, preparing qualitative and quantitative property adjustments, and my experience of participating in significant cross examinations validating my conclusions. Therefore, without performing individually specific studies, a 1.5% adjustment is too small of a percentage to support and quantify significance.

MaRous & Company has provided detailed comments, opinions, and conclusions in the addenda of this report based upon the study.

¹⁸ Salma Elmallah, Ben Hoen, K. Sydney Fujita, Dana Robson, Eric Brunner, *Shedding light on large-scale solar impacts: An analysis of property values and proximity to photovoltaics across six U.S. states*, *Energy Policy*, Volume 175, 2023, 113425, ISSN 0301-4215, <https://doi.org/10.1016/j.enpol.2023.113425>.

Loyola University Chicago, 2024¹⁹

Assessing property value impacts near utility-scale solar in the Midwestern United States
Midwestern Region of the United States

Abstract: Utility-scale solar energy project proposals have been accelerating exponentially in the United States (U.S.) as the energy transition from fossil fuels to renewables continues to unfold. While the emissions and economic related benefits of deploying large-scale solar photovoltaics (PV) for electricity generation are well documented, relatively less is known about their impact on nearby property values. This [study] investigates the location of utility-scale solar facilities in the U.S. Midwest, the average home value in each relevant zip code, and whether the presence of a utility-scale solar project affects nearby property values in any manner. [This] study includes 70 utility-scale solar facilities built in the Midwest from 2009 to 2022 using data from the Lawrence Berkeley National Laboratory. Alongside housing value data from Zillow (i.e., Zestimate), [the authors] incorporate additional data, including solar project size in installed capacity, rurality, and state. Using the difference-in-differences method, [the] results indicate that utility-scale solar projects increase nearby property values by roughly 0.5–2.0 %. Moreover, [the] results show that smaller projects have more of a positive impact on nearby property values than projects that are 20 megawatts or larger. Ultimately, having a better understanding of how these larger-scale solar projects impact property values is essential for a variety of stakeholders – especially local officials and property owners – as they are increasingly faced with making decisions about whether to permit the construction of these facilities in their communities.

¹⁹ Hao, S., & Michaud, G. (2024). (rep.). Assessing property value impacts near utility-scale solar in the Midwestern United States. *Solar Compass*. Retrieved October 2024, from <https://doi.org/10.1016/j.solcom.2024.100090>.

Virginia Tech - Virginia Polytechnic Institute and State University, 2025²⁰
Impact of large-scale solar on property values in the United States: Diverse effects and causal mechanisms

Nationwide

Large-scale solar projects are crucial for decarbonizing the US economy, but growing local resistance may impede the renewable energy transition. [They] estimate the impact of large-scale solar on property prices and the underlying pathways using 8.8 million sales and 3,699 solar sites in the United States. Exposure to solar sites decreases nearby residential home values but increases land values. For large-lot homes, the increase in land value largely mitigates the negative residential impact. Varying county political leaning and land use histories result in significantly different residential value impacts. Empirical evidence indicates that the current negative residential impact might represent a stigma effect attached to solar sites. [The] findings provide important insights for addressing local resistance against large-scale solar projects.

As the renewable energy transition continues into less receptive communities, local opposition is expected to intensify, potentially slowing the process. Since the local impacts are neither well quantified nor widely recognized, we lack policies and common practices to mitigate the potential associated welfare loss in affected communities. Based on a nationwide dataset combining property transactions and large-scale solar photovoltaic (LSSPV) sites, we analyze the heterogeneous effects of LSSPV on property prices and the associated causal pathways. Difference-in-differences estimates show that LSSPV significantly increases agricultural or vacant land value by about 19.4% within a 2-mile radius, while simultaneously reducing residential property values within 3 miles by about 4.8%. The estimated average negative impact on home values is primarily driven by site proximity and diminishes with both distance and time. Effect estimates are more robust to alternative specifications when proximity pairs with visibility rather than invisibility, but no evidence suggests visibility significantly amplifies the proximity effect. Heterogeneous effect estimates indicate that high solar lease potential, being in heavily Democratic-leaning counties, and brownfield redevelopment largely mitigate the negative residential value impact. The analysis reveals no significant heterogeneity across a few factors, including varying site visibility, directional orientation of properties relative to the LSSPV site, and different tracking systems. Evidence indicates that the negative impact on residential values might mainly stem from negative perceptions, but channels through physical conditions cannot be entirely dismissed. Our assessment provides benchmark information for local externality mitigation plans, potentially reducing community opposition and expediting the renewable energy transition.

²⁰ C. Hu, Z. Chen, P. Liu, W. Zhang, X. He, & D. Bosch, *Impact of large-scale solar on property values in the United States: Diverse effects and causal mechanisms*, *Proc. Natl. Acad. Sci. U.S.A.* 122 (24) e2418414122, <https://doi.org/10.1073/pnas.2418414122> (2025).

Appraisal Institute, 2025²¹

Do Utility-Scale Solar Projects Affect Nearby Residential Real Estate Markets?

Nationwide

Abstract: Although public support exists for the development of green energy in the form of large-scale solar projects, specific proposed projects are occasionally met with local opposition. Homeowners in surrounding areas may express concern regarding negative impacts to their properties due to the construction and operation of a large-scale solar project. This research was intended to address the question of whether, in general, residential market areas proximate to a large-scale solar project should expect to see a drop or decline in property value. The market trend analyses of residential homes in markets proximate to three large-scale solar projects did not provide any evidence of a negative impact on sale prices, days on market, or sale price-to-list price ratio. Our findings do not indicate a negative impact due to proximity to a large-scale solar project. The market trends analyses presented here, in combination with the findings from published literature, provide evidence that market demand exists at competitive prices for residential properties proximate to large-scale solar facilities. These findings cannot be generalized or assumed to apply to every market or solar project, as any potential impacts depend on many factors particular to individual projects and locations. Individual, market-specific analysis must be conducted to support any estimate of diminution in value.

Purdue University, 2024²²

Impact of Commercial and Utility-Scale Solar Energy on Farmland Price

Nationwide

The study analyzes bare farmland transactions across all 92 Indiana counties from January 2015 through December 2020. Kunwar applies hedonic price regression — including quantile and expected specifications — to decompose per-acre transaction prices into the contributions of land attributes such as acreage, soil quality (productivity), distance to the nearest town or city, presence of power transmission lines, population density, and distance to the nearest utility-scale solar generation facility. The quantile/expected approach allows the marginal effect of solar proximity to vary across the conditional distribution of farmland prices rather than assuming a single average effect.

The central finding is an inverse, non-linear relationship between distance to solar energy facilities and per-acre farmland prices: parcels closer to solar facilities transact at a premium relative to otherwise comparable parcels farther away. The premium is heterogeneous across the price distribution. For the highest-valued farmland (top decile of conditional prices), the estimated premium is approximately 1.8%, while for the lowest-valued parcels (bottom decile) it is less than 1%. In other words, the price-supporting effect of nearby solar development concentrates on already higher-quality, higher-priced ground.

²¹ Erin Kiella, P. J.-B. (2025). *Do Utility-Scale Solar Projects Affect Nearby Residential Real Estate Markets?* *The Appraisal Journal*, 84-101.

²² Kunwar, B. (2024). *Impact of commercial and utility-scale solar energy on farmland price* [Master's thesis, Purdue University]. Purdue University Graduate School. <https://doi.org/10.25394/PGS.26076679.v1>

Conclusions

As a result of the market impact analysis undertaken, MaRous & Company concluded that there is no market data indicating the project will have a negative impact on either rural residential or agricultural property values in the surrounding area. Further, market data from Illinois, as well as from other states, supports the conclusion that the project will not have a negative impact on rural residential or agricultural property values in the surrounding area. Finally, for agricultural properties that host photovoltaic panels, the additional income from the solar lease may increase the value and marketability of those properties. These conclusions are based on the following:

- ✧ There are significant financial benefits to the local economy and to the local taxing bodies from the development of the solar farm.
- ✧ The solar farm and facility will create well-paid jobs in the area which will benefit overall market demand.
- ✧ An analysis of recent residential sales proximate to existing solar farms did not support any finding that proximity to a photovoltaic panel had a negative impact on property values.
- ✧ An analysis of agricultural land values in Illinois did not support any finding that agricultural land values are negatively impacted by the proximity to photovoltaic panels.
- ✧ Reports from Illinois, Iowa, Indiana, Wisconsin, Minnesota, Michigan, Minnesota, Colorado, Oklahoma, New Mexico, Arizona, and North Carolina indicate that photovoltaic panels leases add value to agricultural land.
- ✧ A survey of counties County Assessors in 6 Illinois counties, 11 unincorporated Wisconsin jurisdictions, 7 Iowa counties, 9 Indiana counties, 20 Michigan counties, 36 Minnesota counties, 1 South Dakota county, 14 Colorado counties, 9 Oklahoma counties, 24 New Mexico counties, 5 North Carolina counties, and 13 Maryland counties in which solar farms with more than 1.0 megawatt of nameplate capacity are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuation.

This report is based on market conditions existing as of June 3, 2026. This market impact study has been prepared specifically for the use of the client to gain information in relation to the development of the proposed Elm Lawn Solar Park, in Montgomery County, Illinois. Any other use or user of this report is considered to be unintended.

Respectfully submitted,
MaRous & Company

Michael S. MaRous, MAI, CRE
Illinois Certified General - #553.000141 (9/27 expiration)

Certificate of Report

I do hereby certify that:

- ✧ The statements of fact contained in this report are true and correct.
- ✧ The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, impartial, and unbiased professional analyses, opinions, conclusions, and recommendations:
- ✧ I have no present or prospective personal interest in the property that is the subject of this report and no personal interest with respect to the parties involved.
- ✧ I have performed no services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.
- ✧ I have no bias with respect to the property that is the subject of the work under review or to the parties involved with this assignment.
- ✧ My engagement in this assignment was not contingent upon developing or reporting predetermined results.
- ✧ My compensation for completing this assignment is not contingent upon the development or reporting of predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal consulting assignment.
- ✧ My analyses, opinions, and conclusions were developed, and this report has been prepared in conformity with the *Uniform Standards of Professional Appraisal Practice*.
- ✧ I have made a personal inspection of the subject of the work under review.
- ✧ Joseph M. MaRous provided significant appraisal research assistance to the person signing this certification.
- ✧ The reported analysis, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Foundation.
- ✧ The use of the report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.
- ✧ As of the date of this report, Michael S. MaRous, MAI, CRE, has completed the continuing education requirements for Designated Members of the Appraisal Institute.

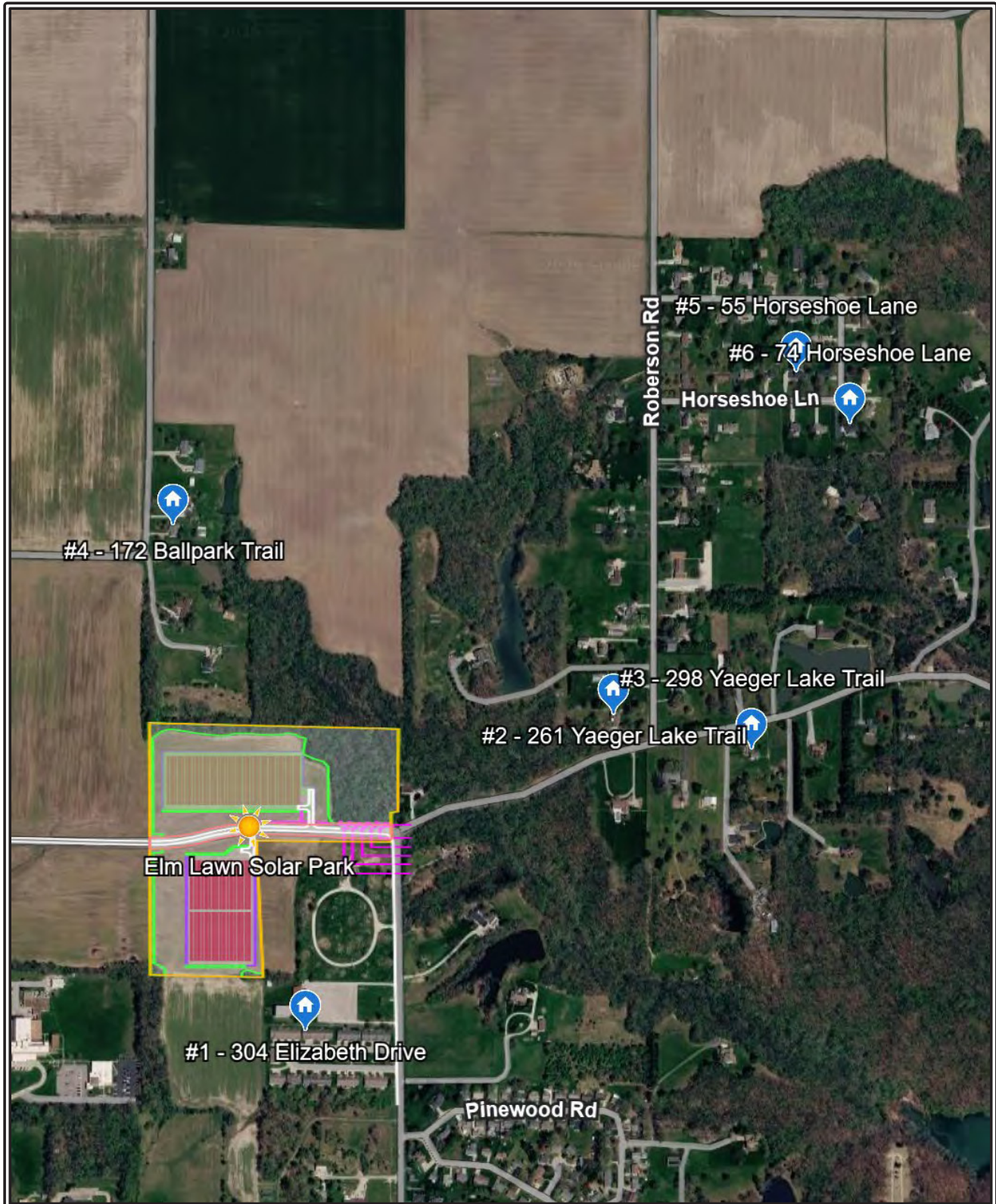
Respectfully submitted,
MaRous & Company

Michael S. MaRous, MAI, CRE
Illinois Certified General - #553.000141 (9/27 expiration)

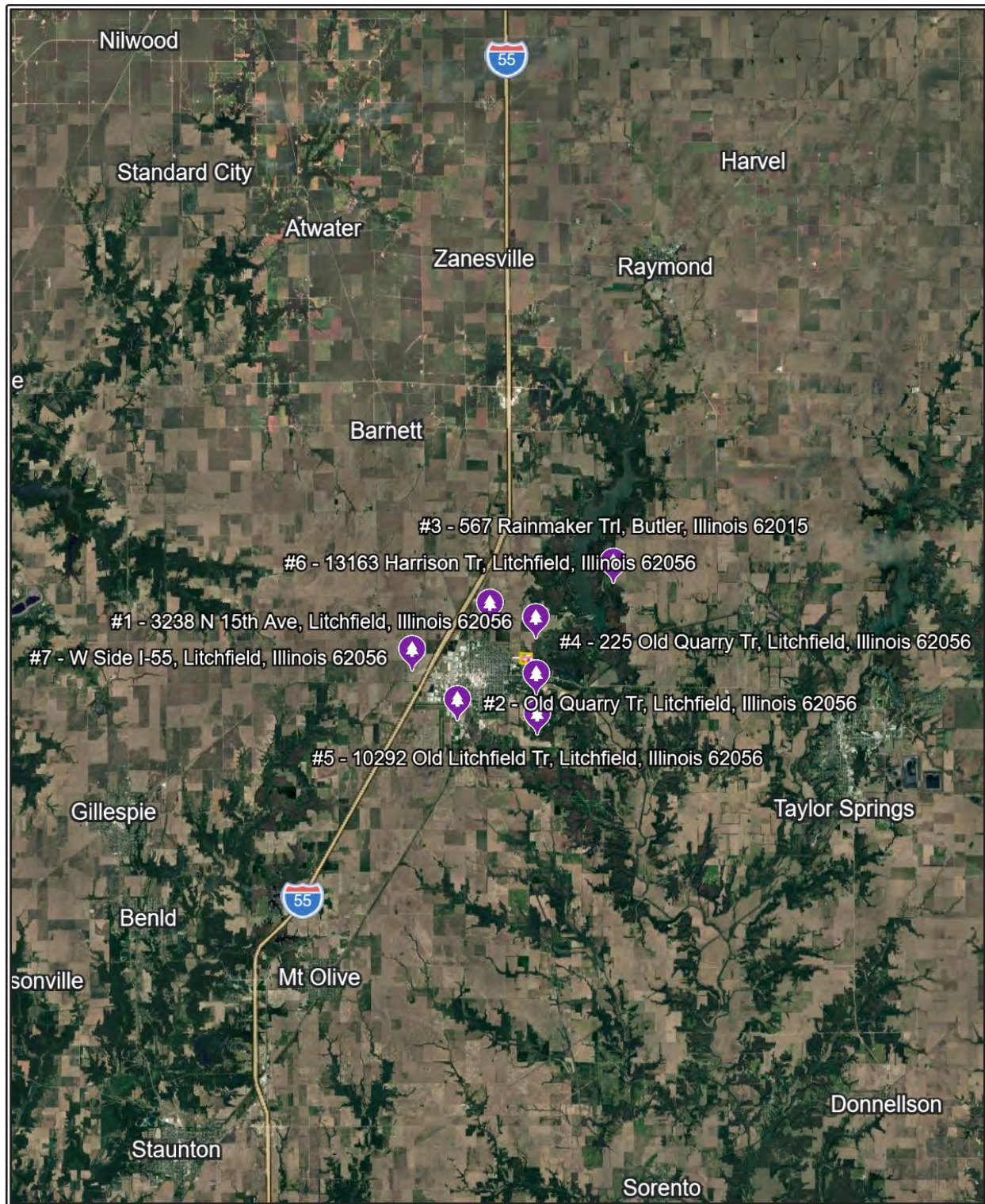
ADDENDA



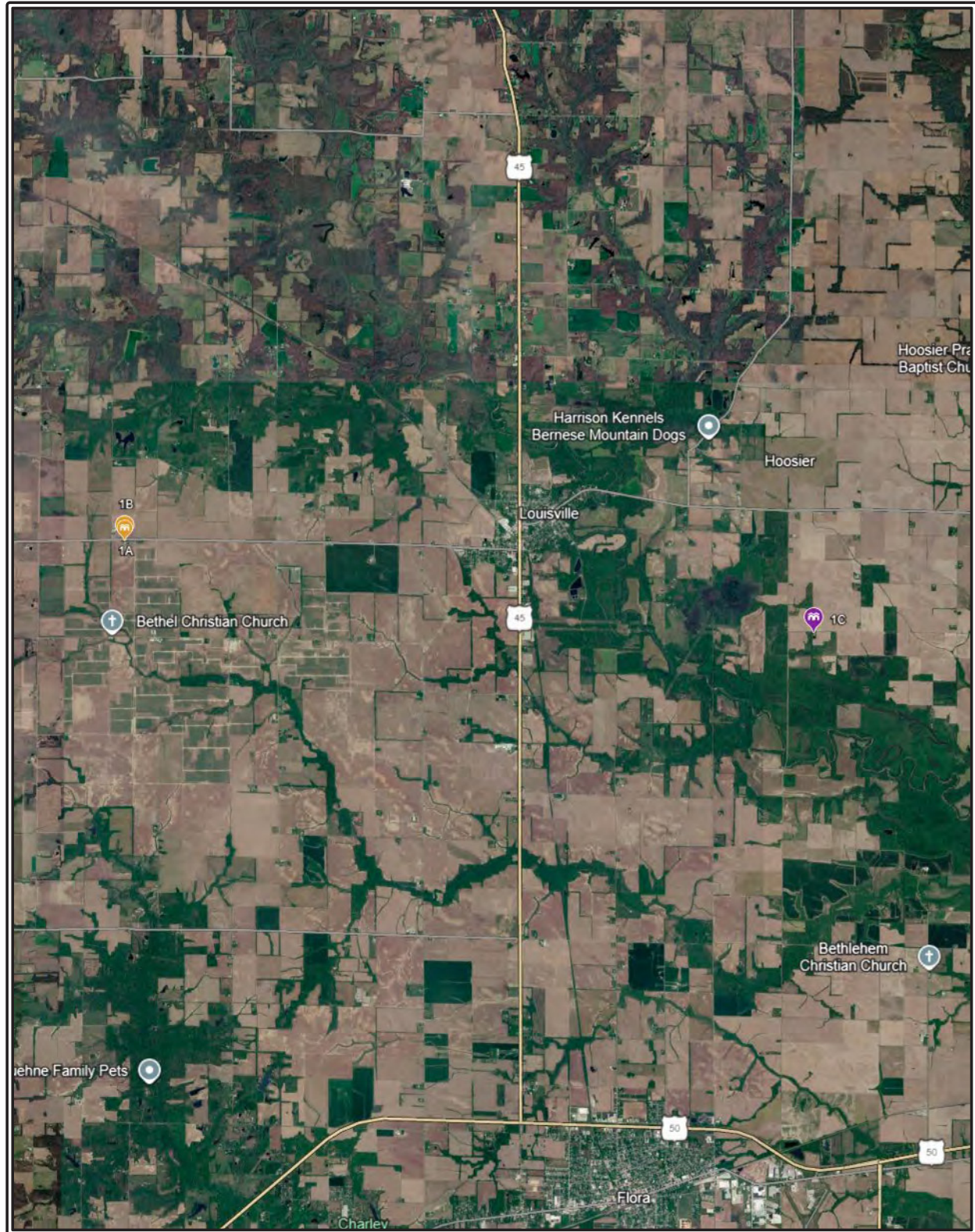
ELM LAWN SOLAR PARK FOOTPRINT



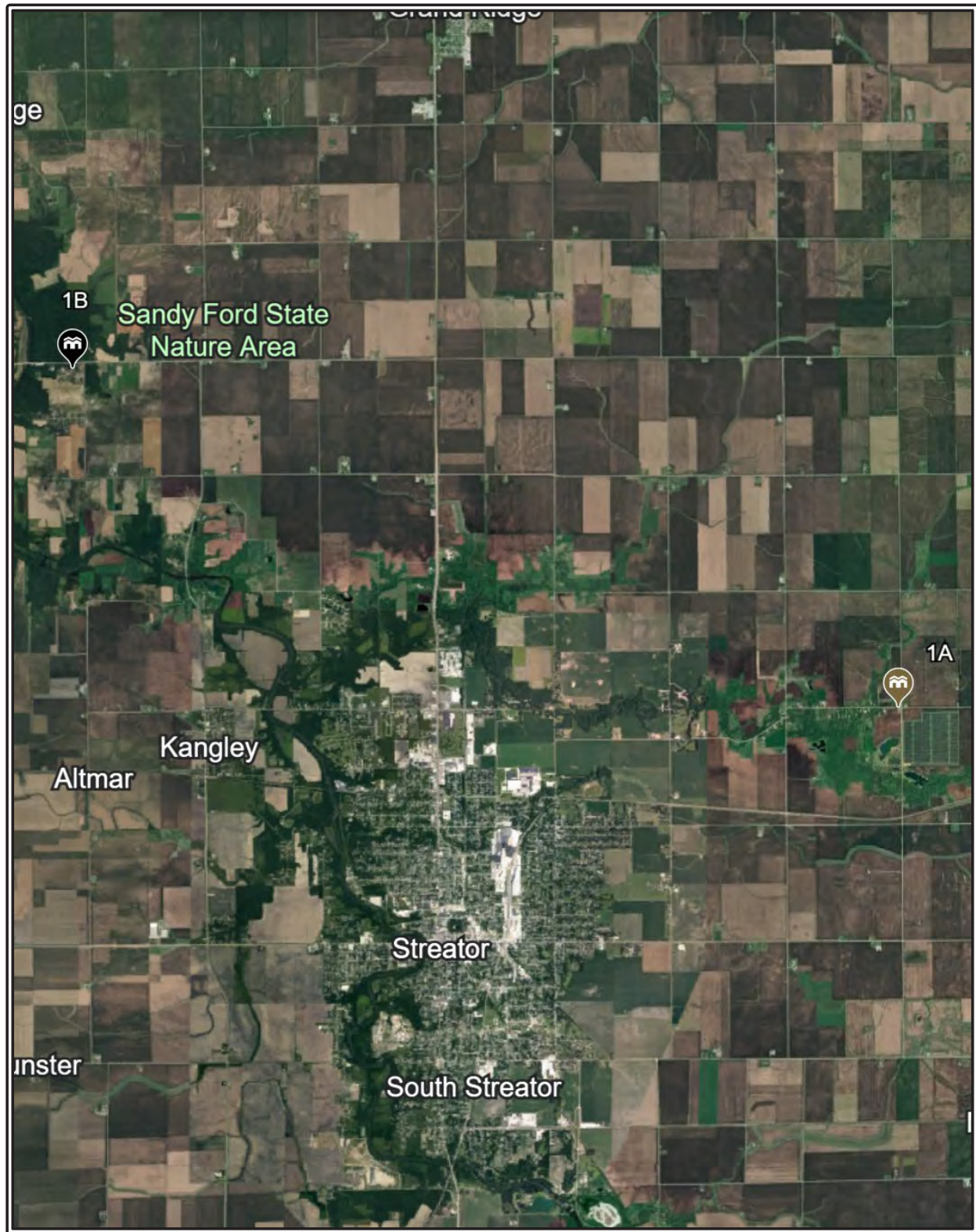
RECENT SINGLE-FAMILY HOUSE SALES LOCATION MAP



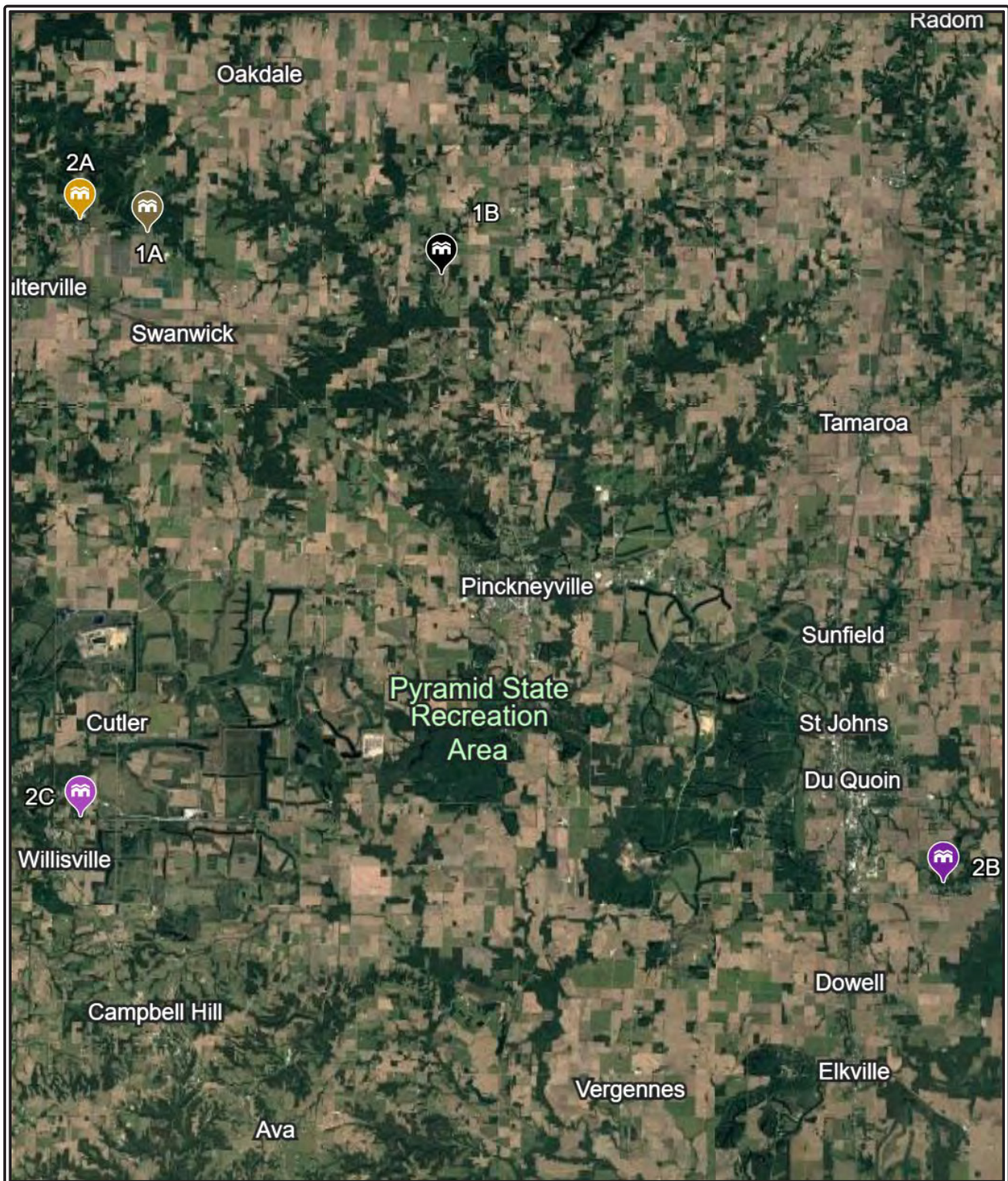
LAND SALES LOCATION MAP



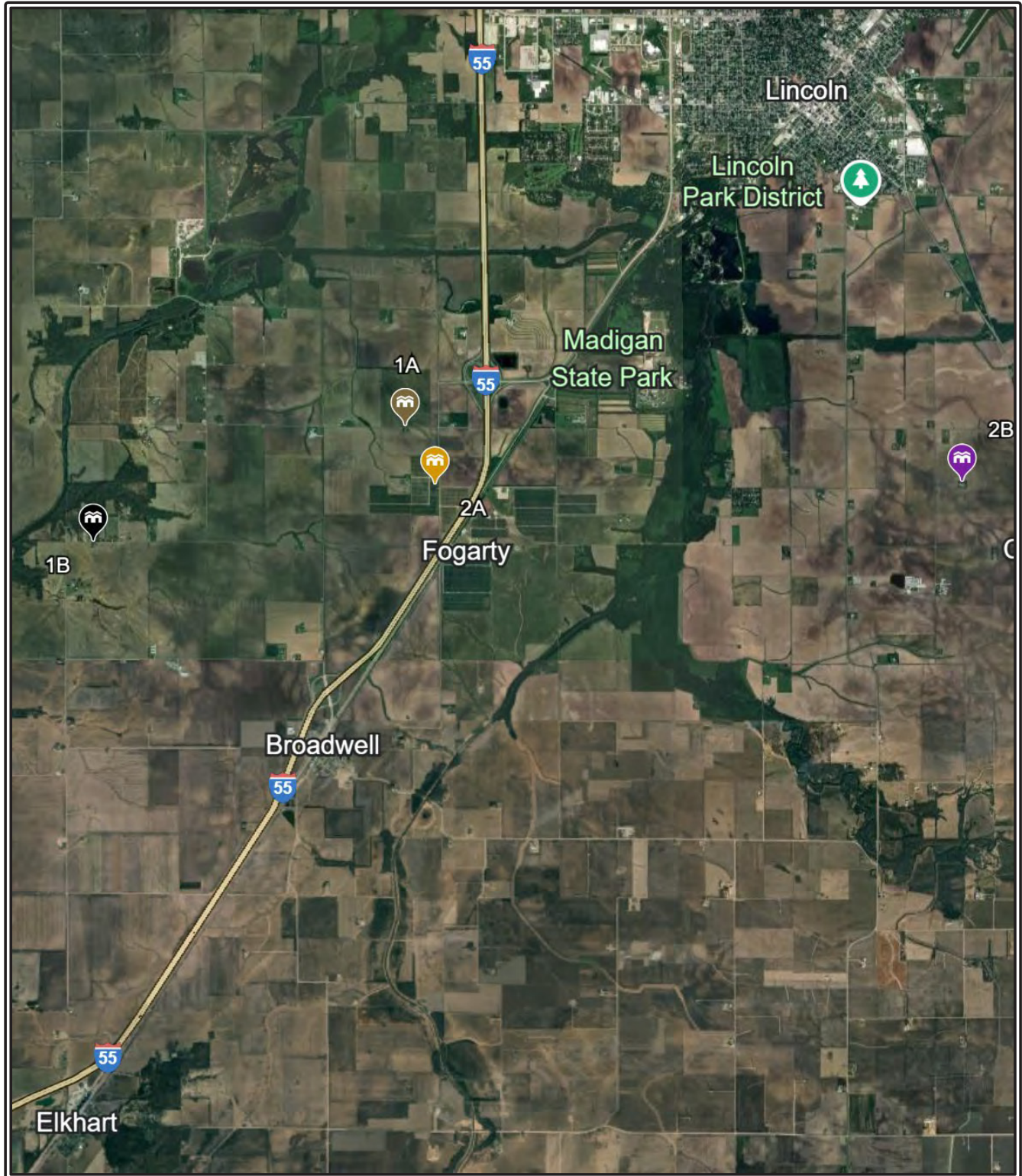
CLAY COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP



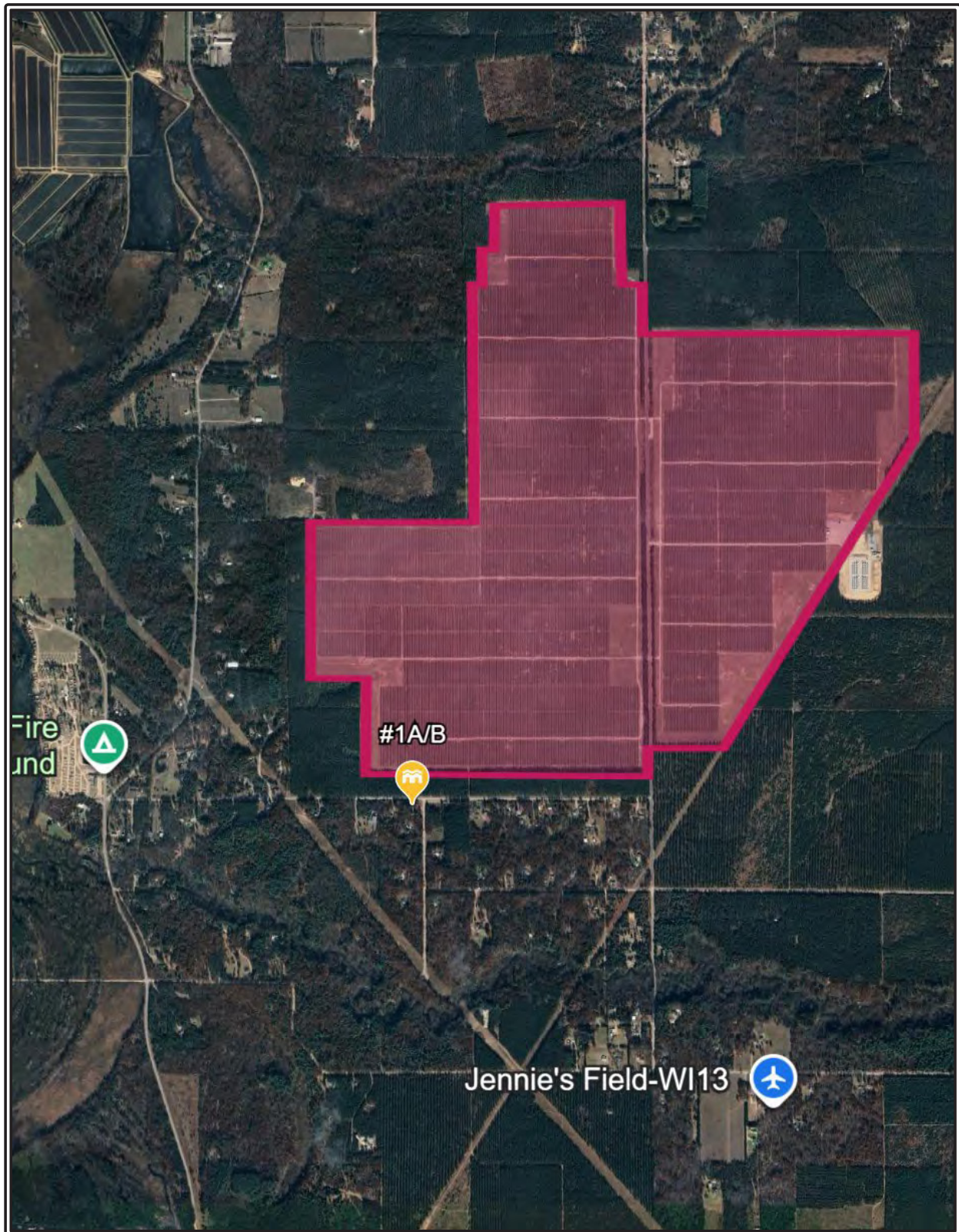
LASALLE COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP



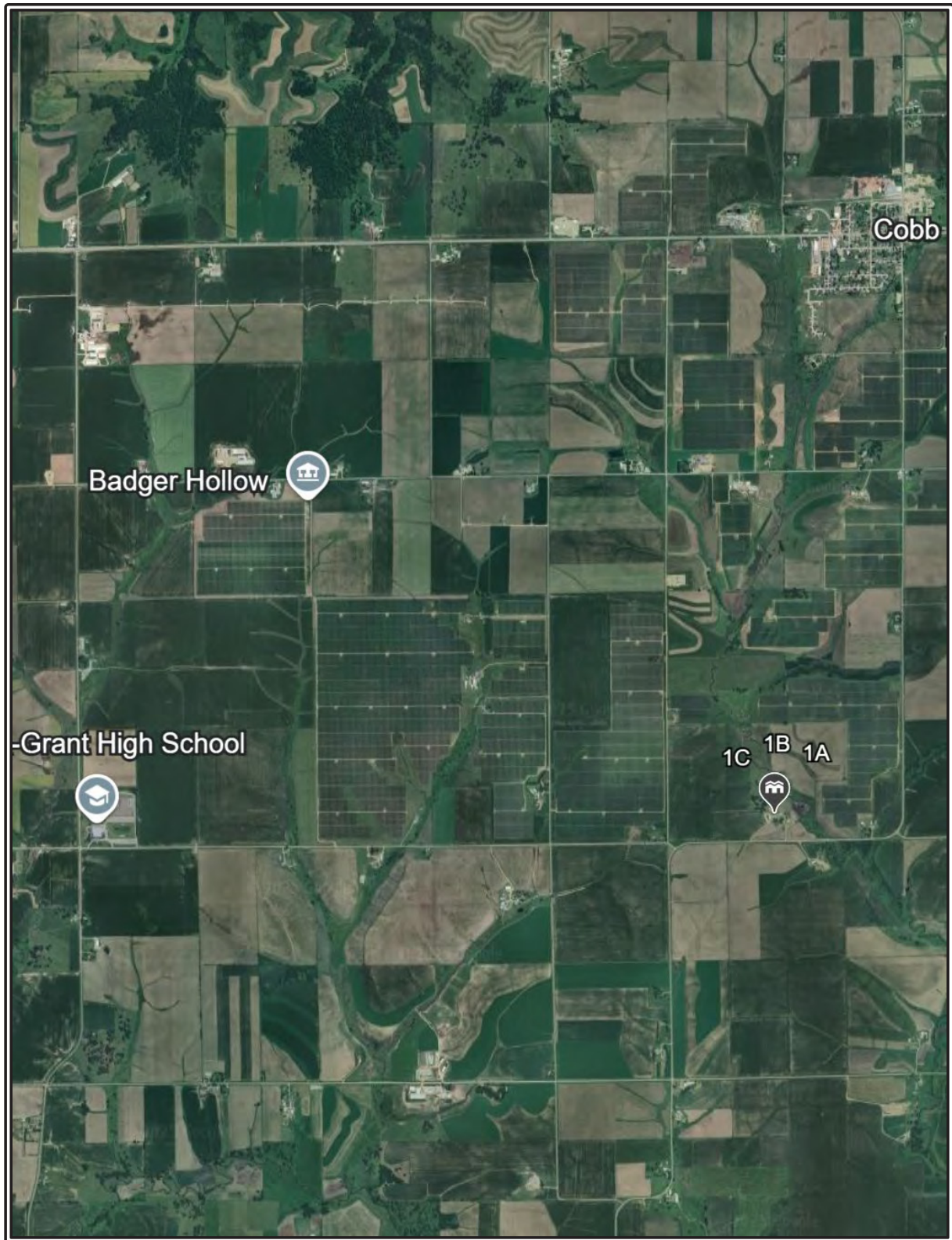
PERRY COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP



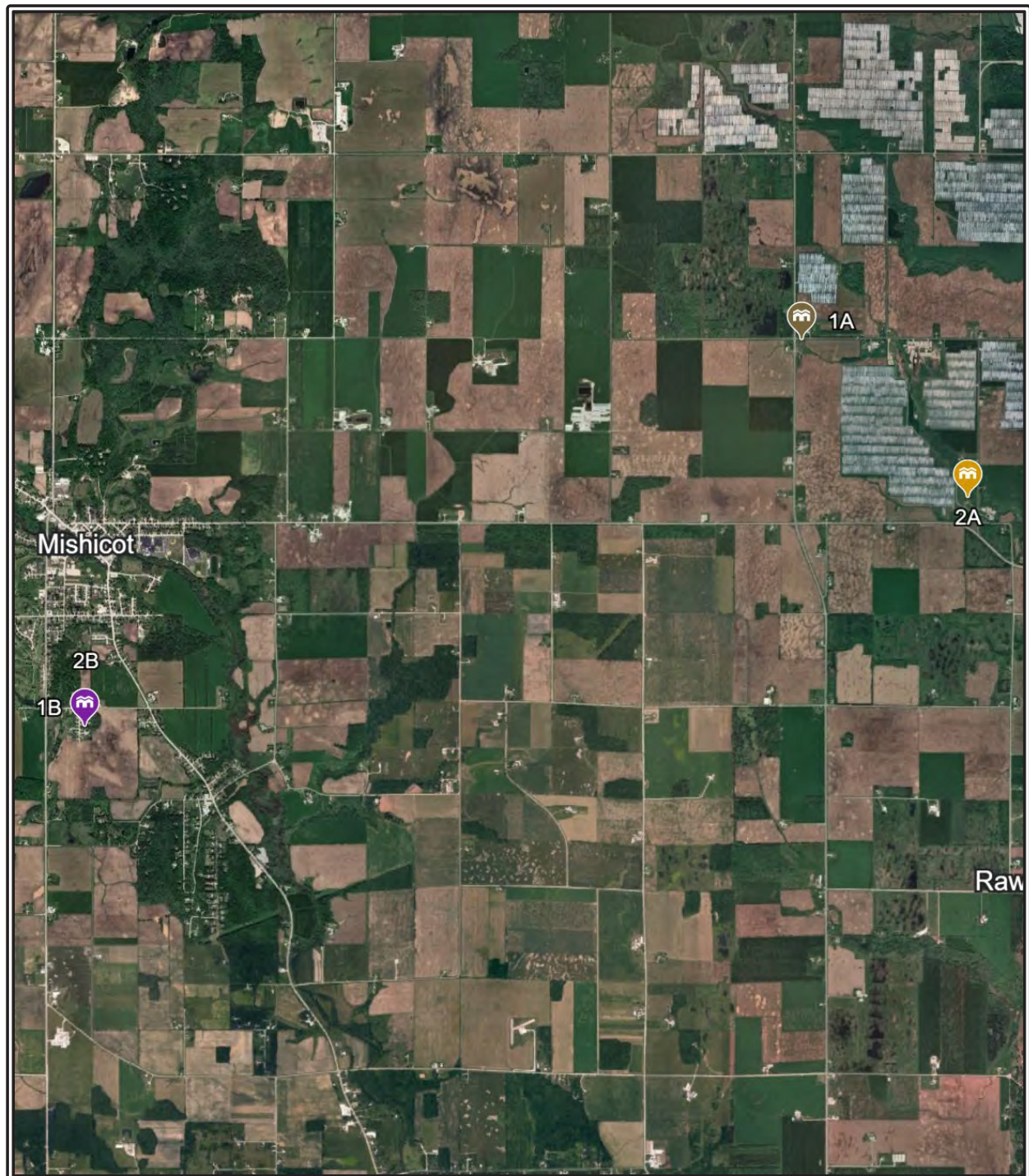
LOGAN COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP



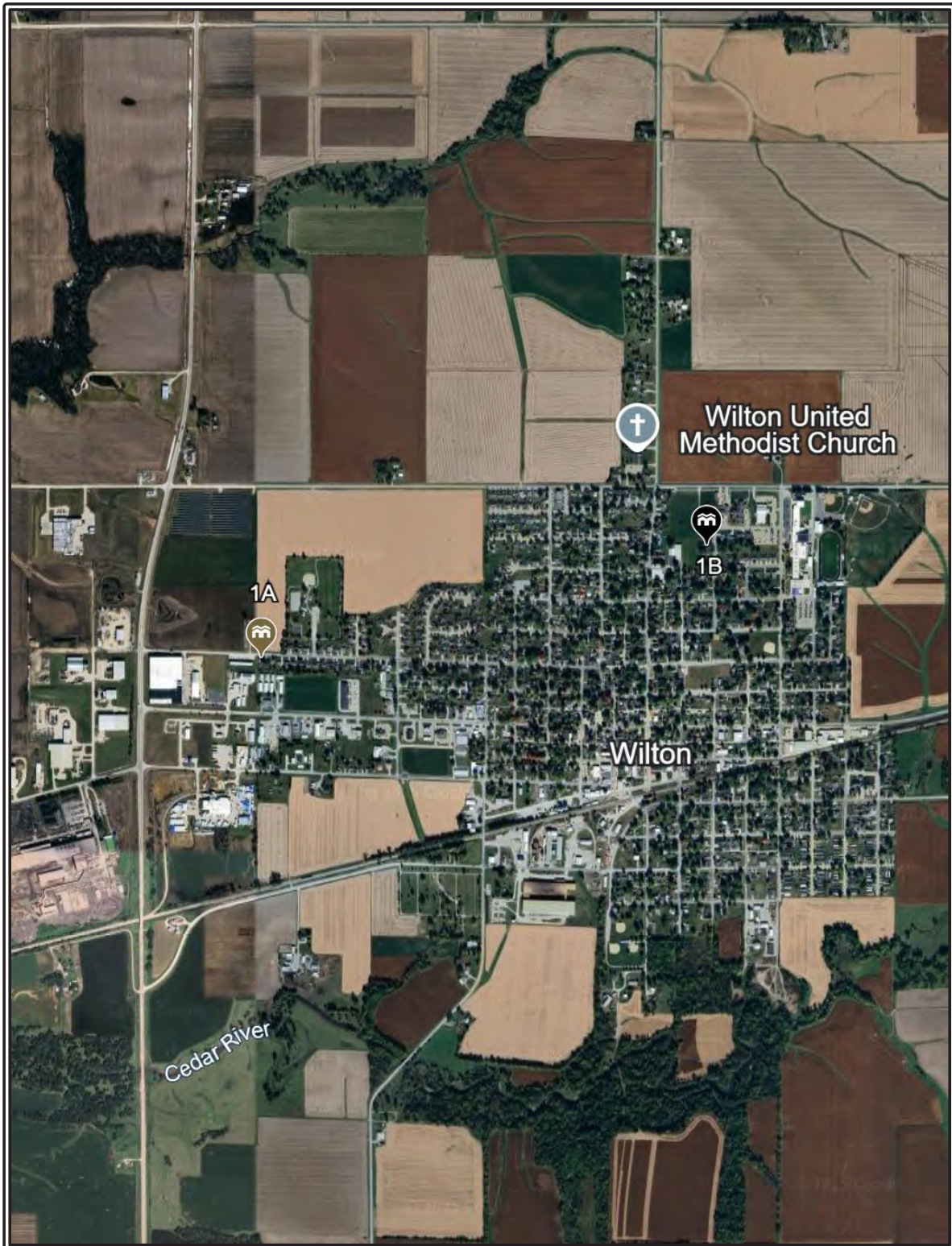
WOOD COUNTY, WISCONSIN MATCHED PAIR LOCATION MAP



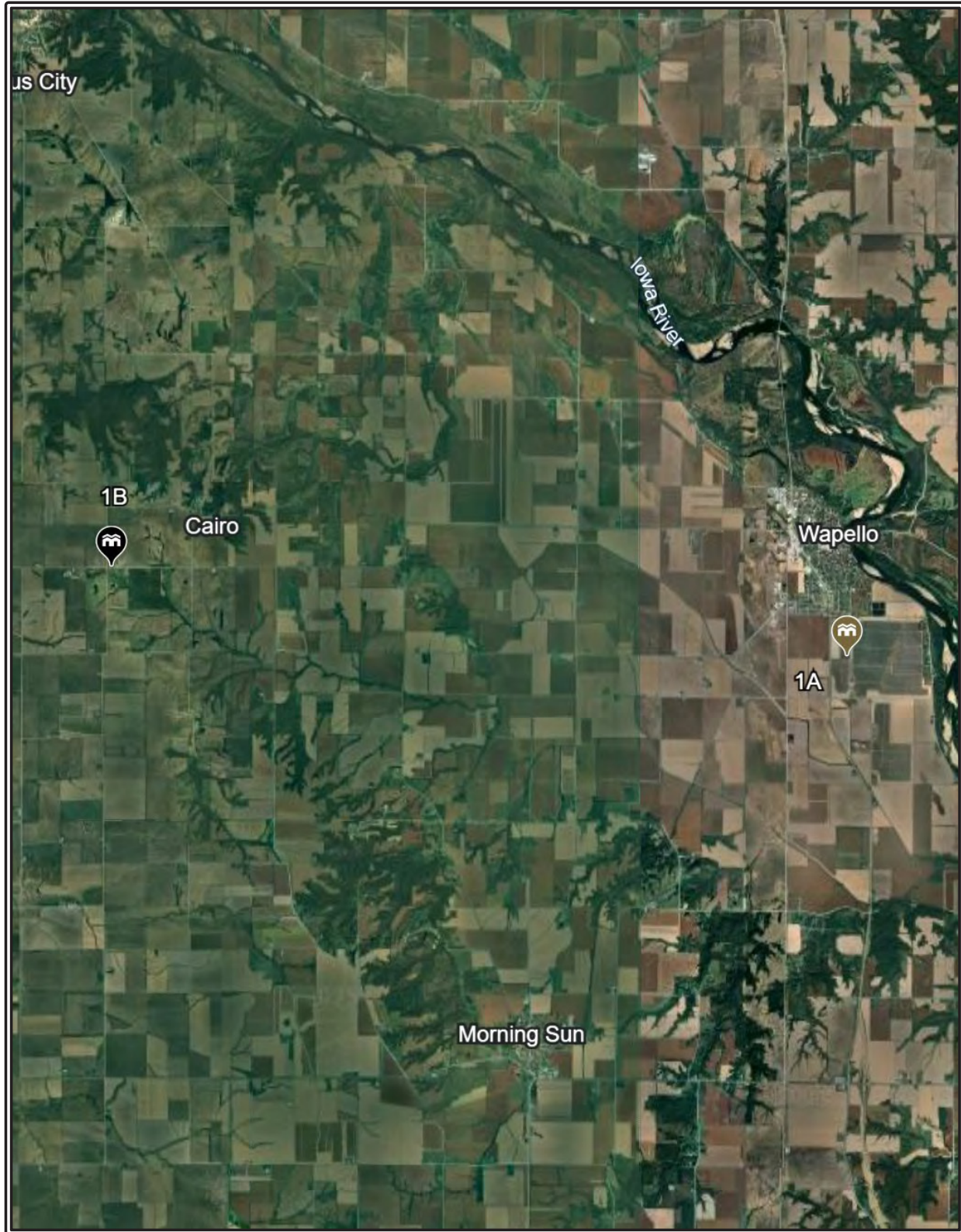
IOWA COUNTY, WISCONSIN MATCHED PAIR LOCATION MAP



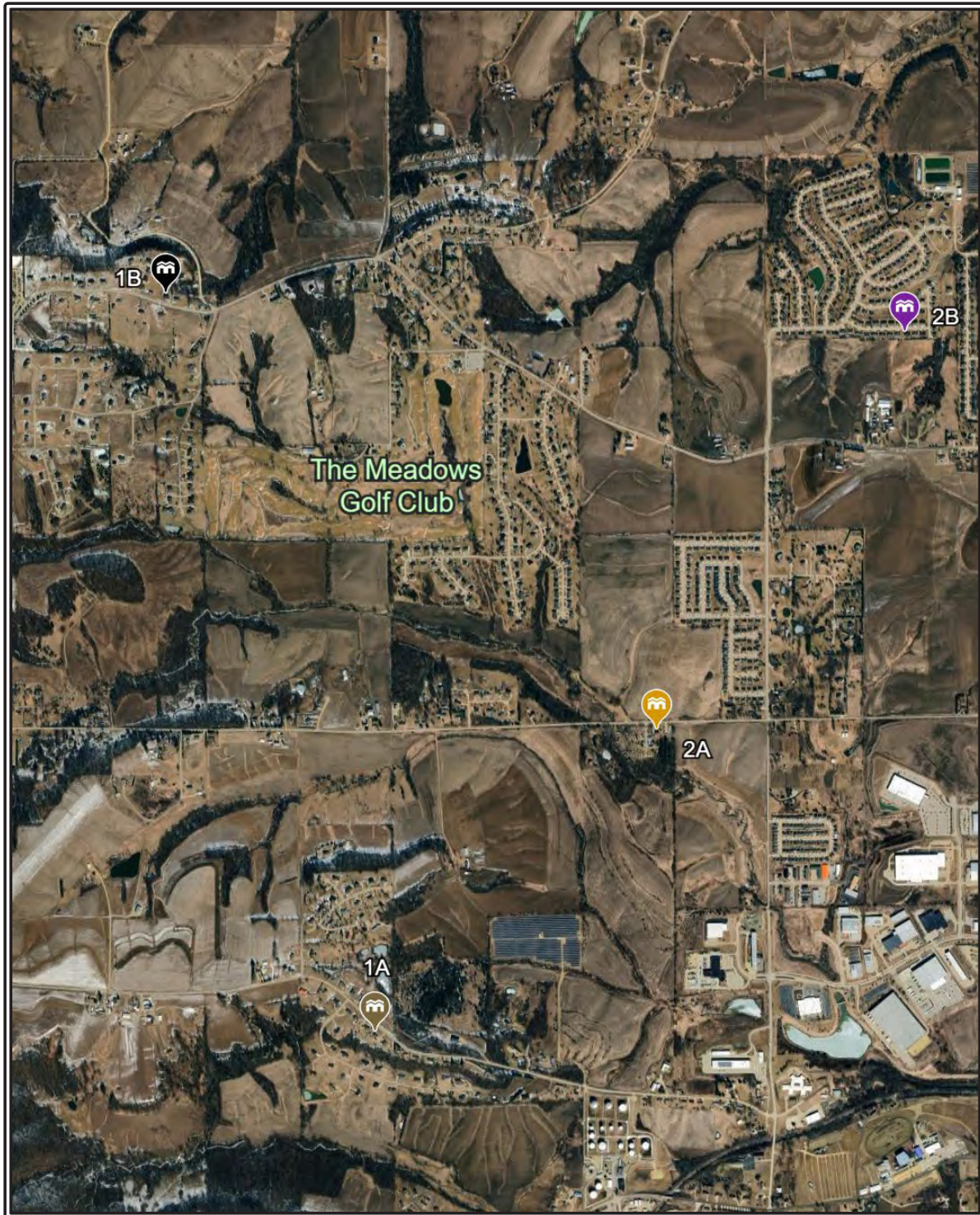
MANISTOWOC COUNTY, WISCONSIN MATCHED PAIR LOCATION MAP



MUSCATINE COUNTY, IOWA MATCHED PAIR LOCATION MAP



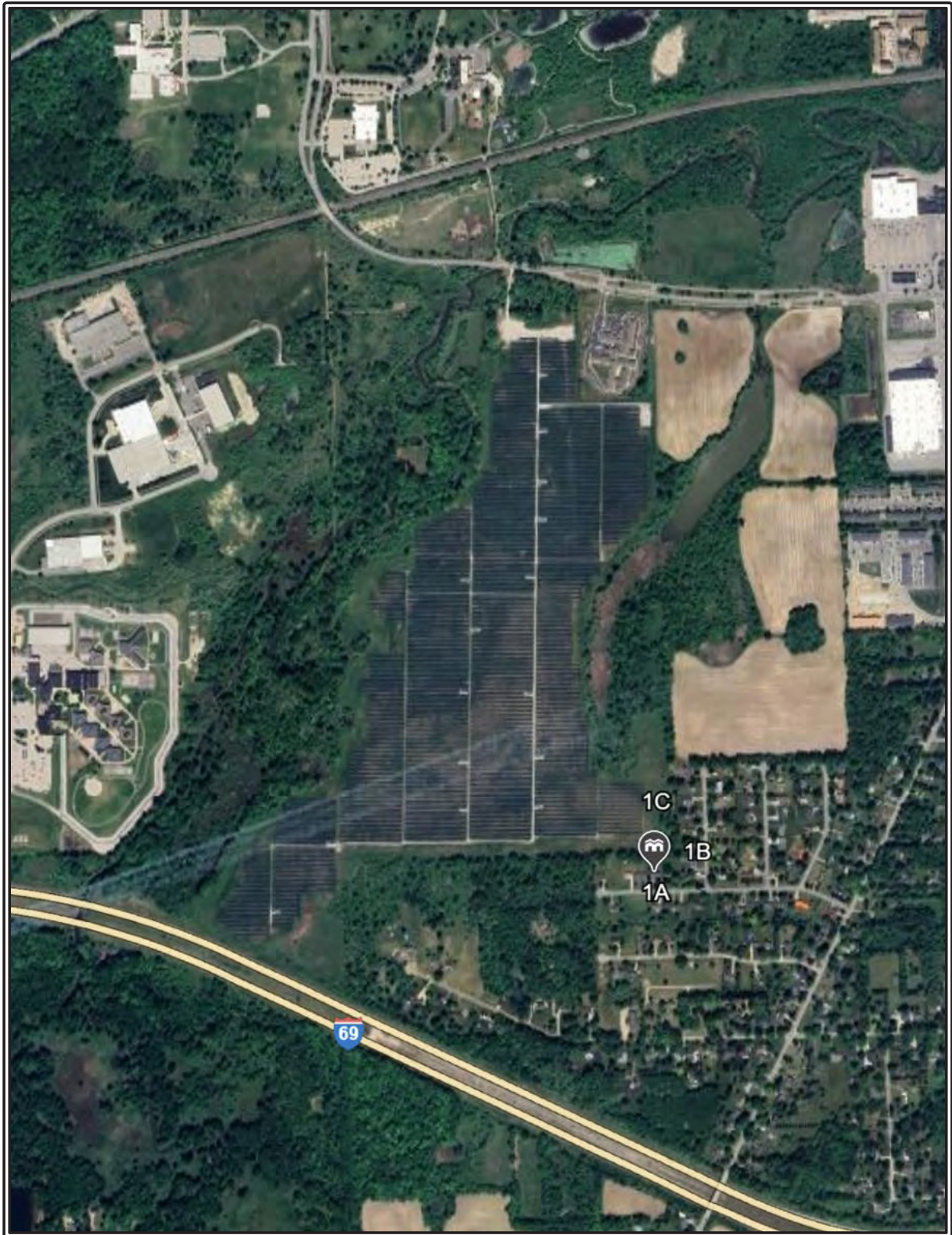
LOUISA COUNTY, IOWA MATCHED PAIR LOCATION MAP



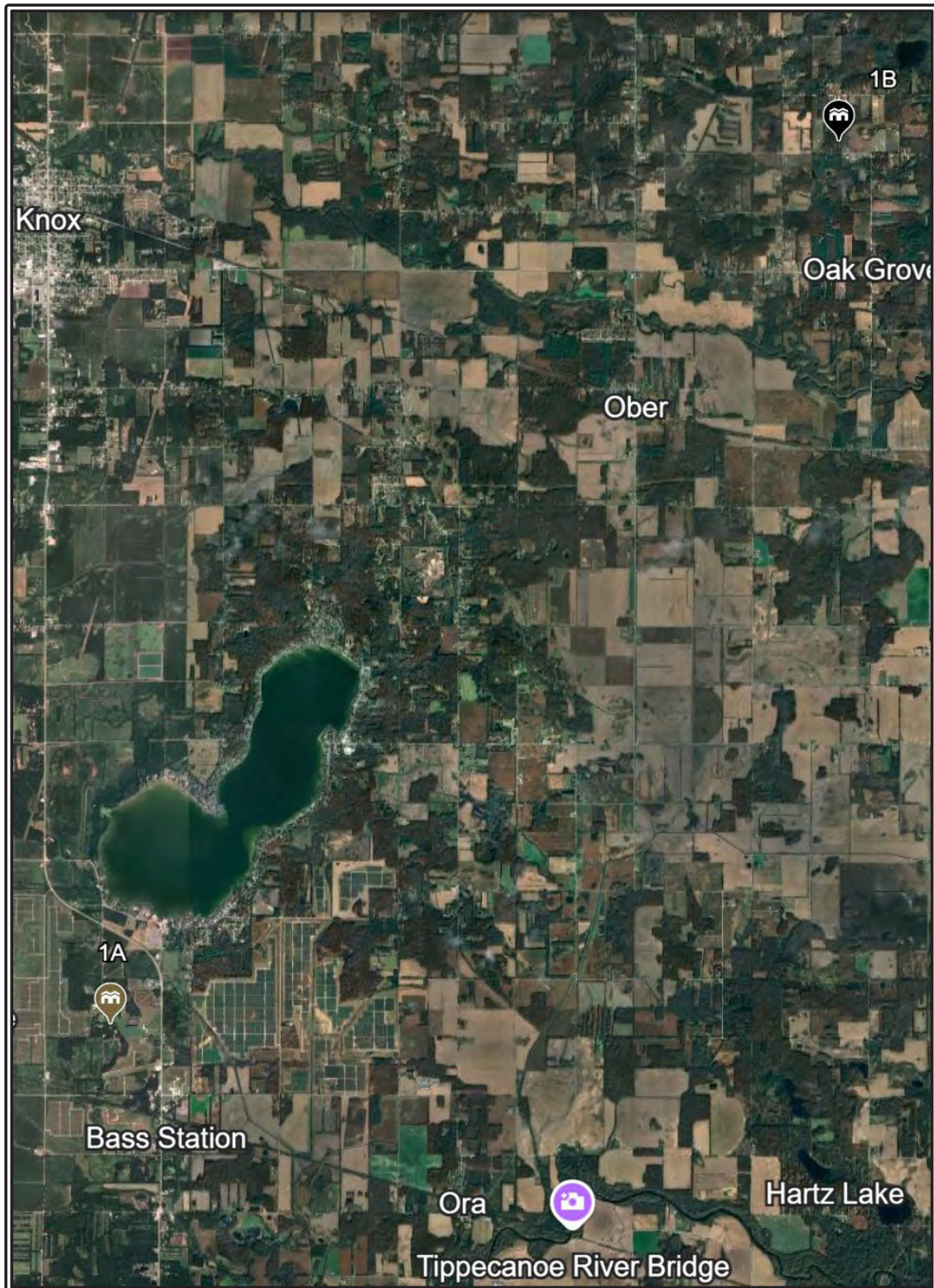
DUBUQUE COUNTY, IOWA MATCHED PAIR LOCATION MAP



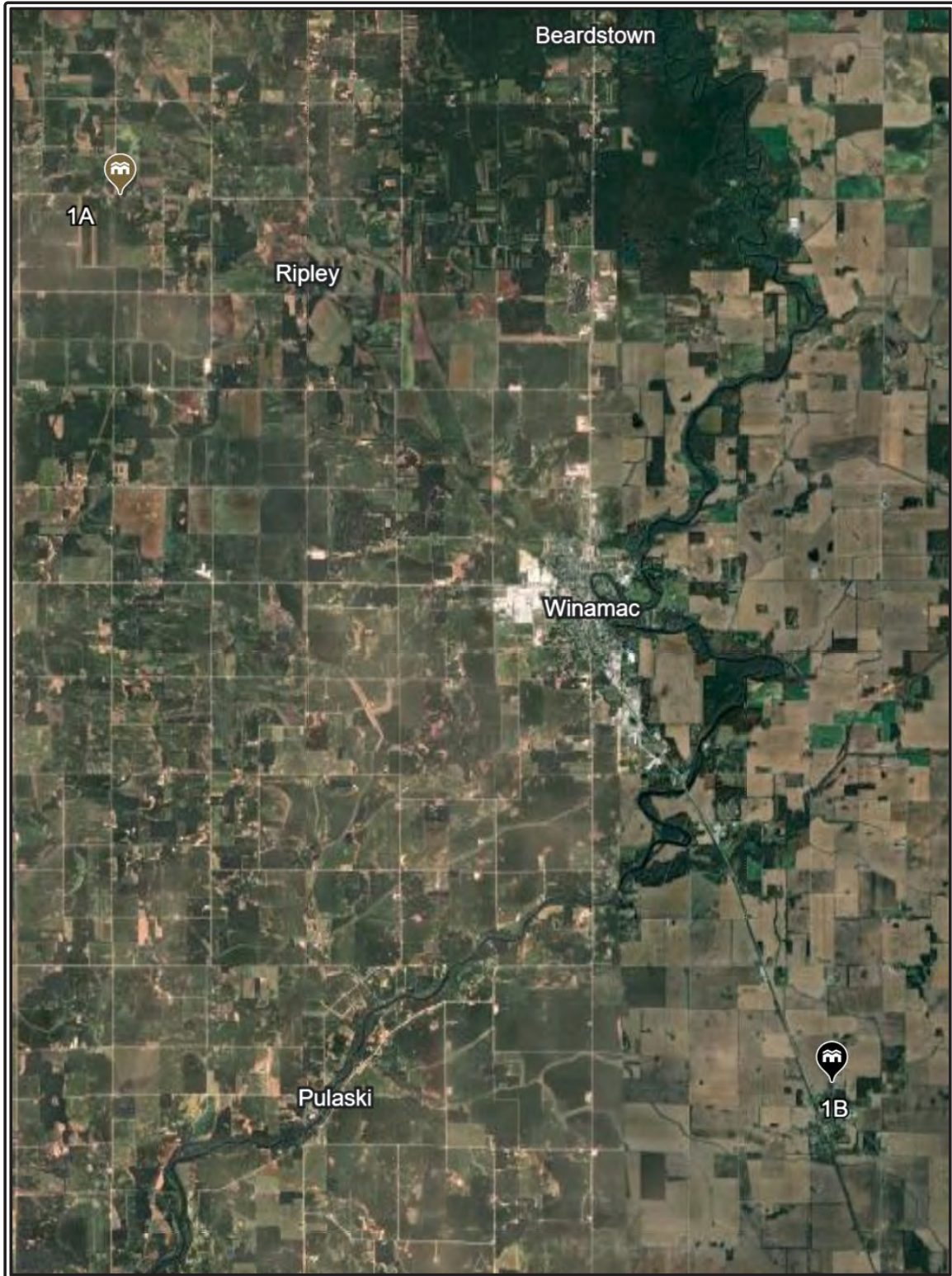
CALHOUN COUNTY, MICHIGAN MATCHED PAIR LOCATION MAP



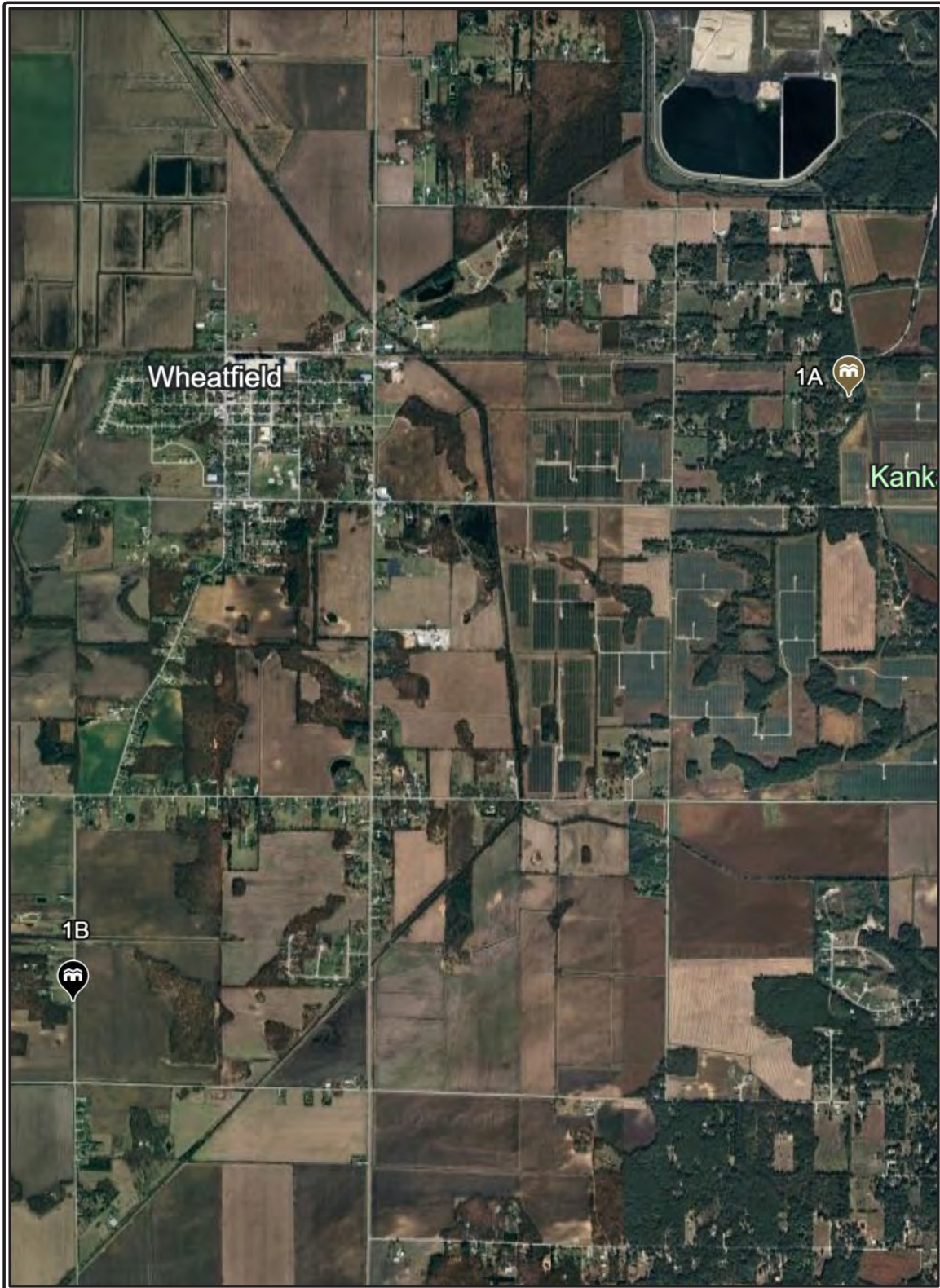
LAPEER COUNTY, MICHIGAN MATCHED PAIR LOCATION MAP



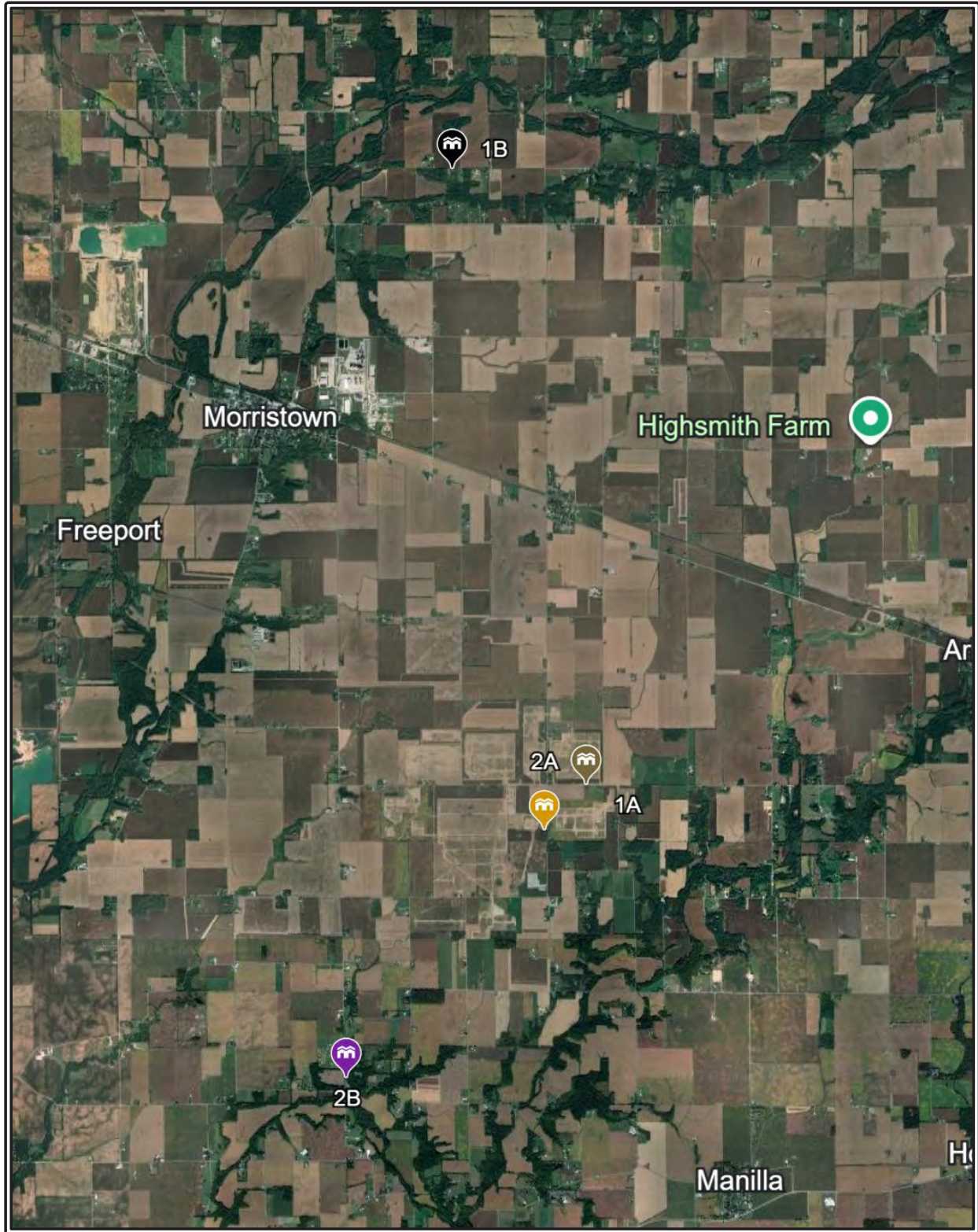
STARK COUNTY, INDIANA MATCHED PAIR LOCATION MAP



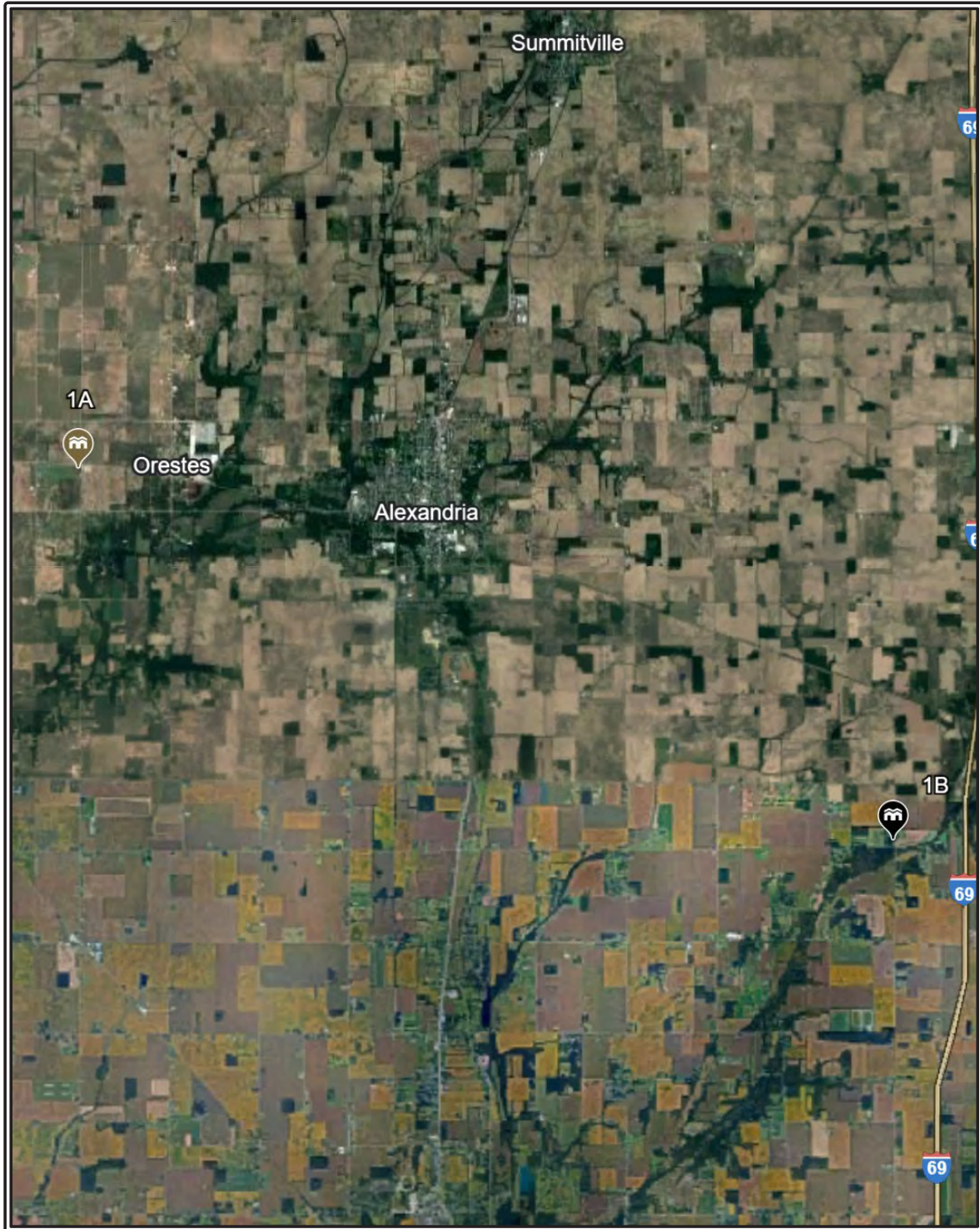
PULASKI COUNTY, INDIANA MATCHED PAIR LOCATION MAP



JASPER COUNTY, INDIANA MATCHED PAIR LOCATION MAP



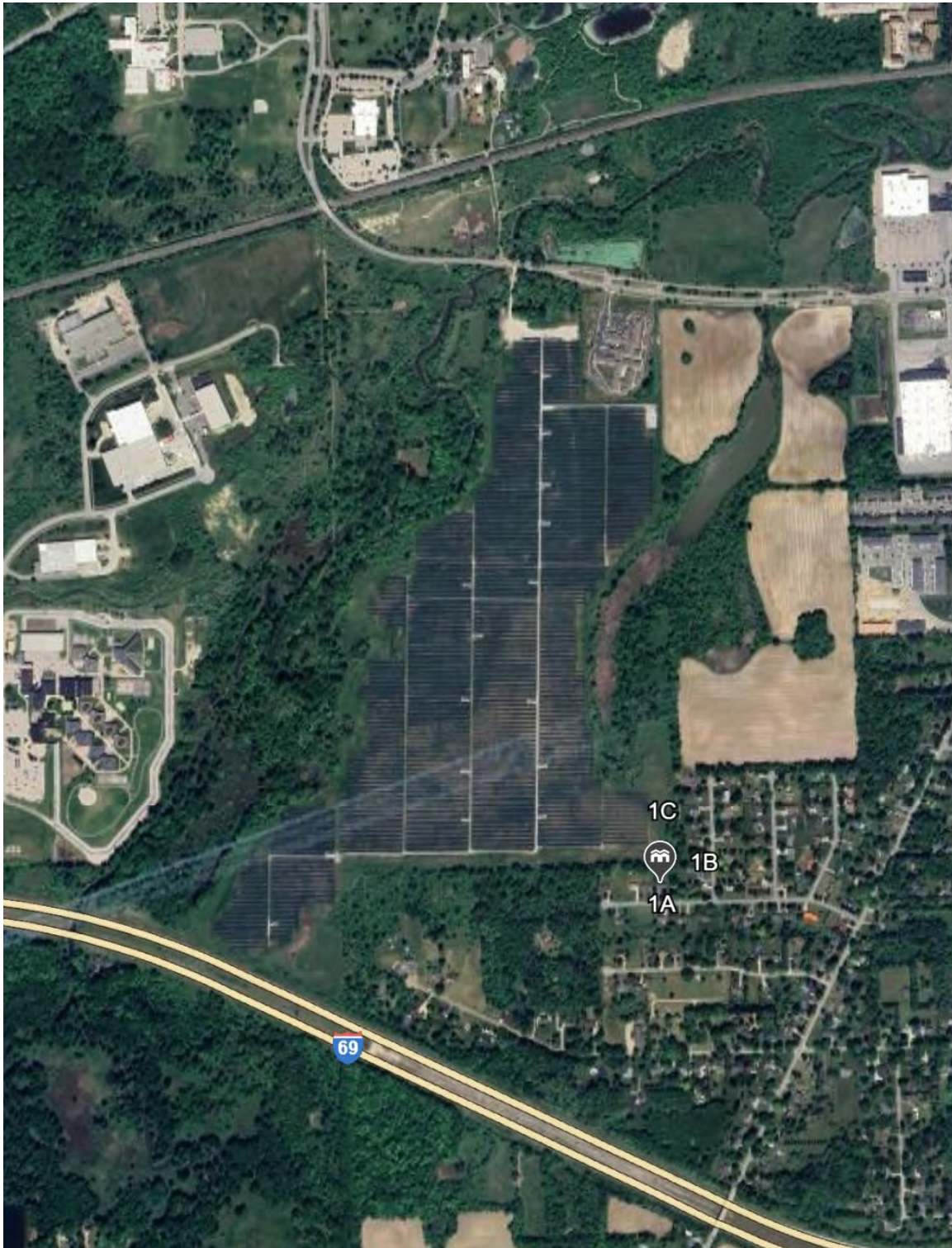
SHELBY COUNTY, INDIANA MATCHED PAIR LOCATION MAP



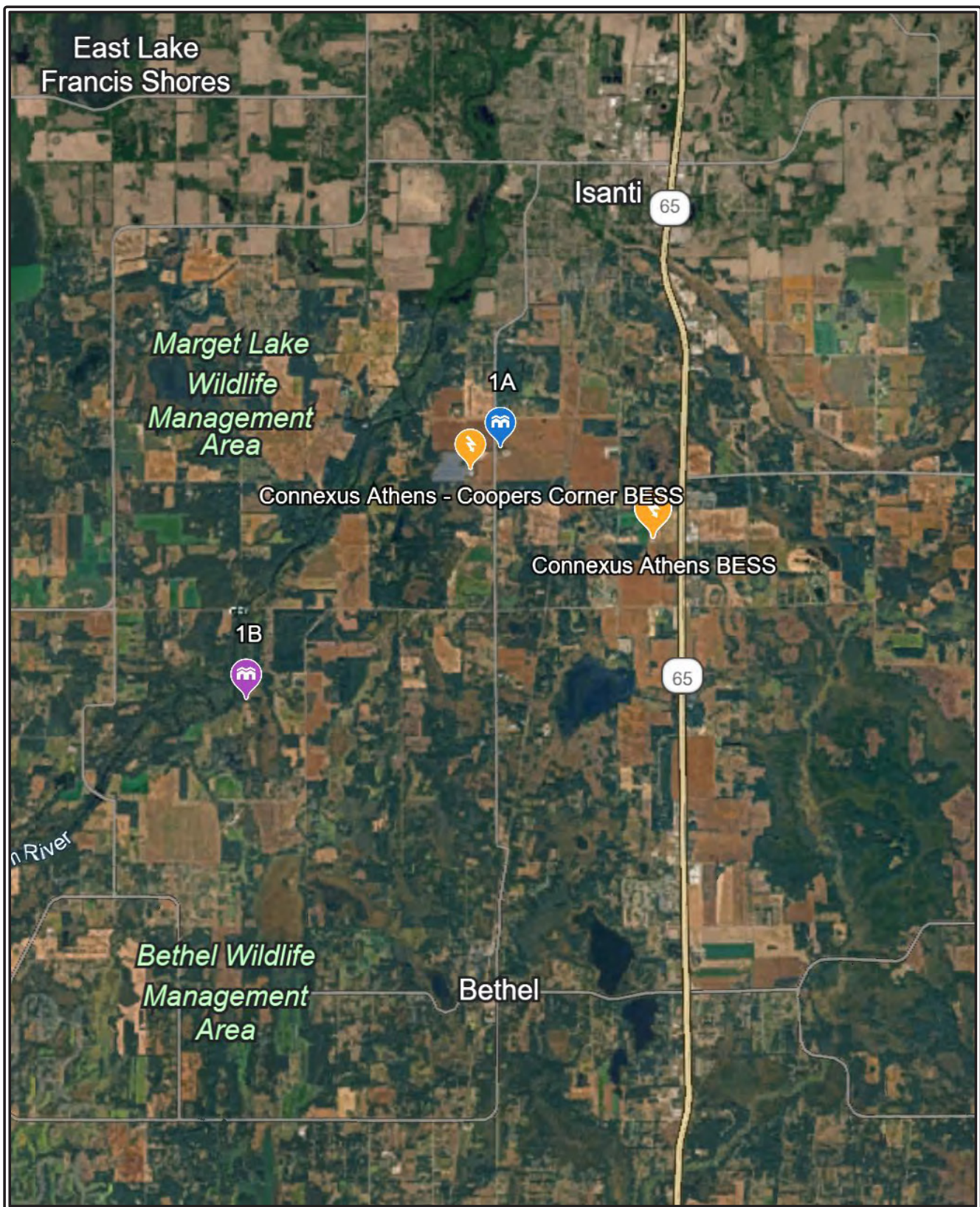
MADISON COUNTY, INDIANA MATCHED PAIR LOCATION MAP



CALHOUN COUNTY, MICHIGAN MATCHED PAIR LOCATION MAP



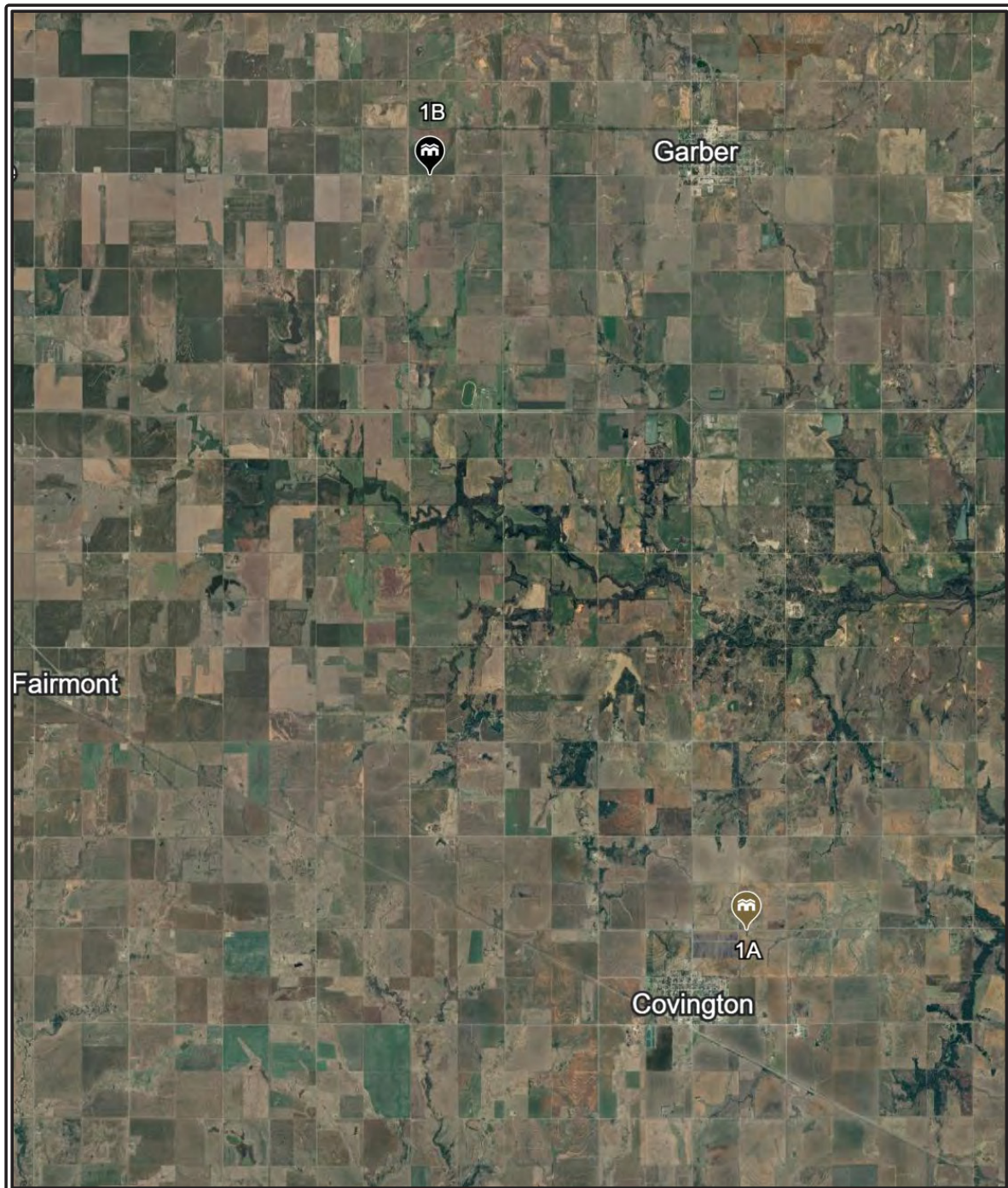
LAPEER COUNTY, MICHIGAN MATCHED PAIR LOCATION MAP



ISANTI COUNTY, MINNESOTA MATCHED PAIR LOCATION MAP



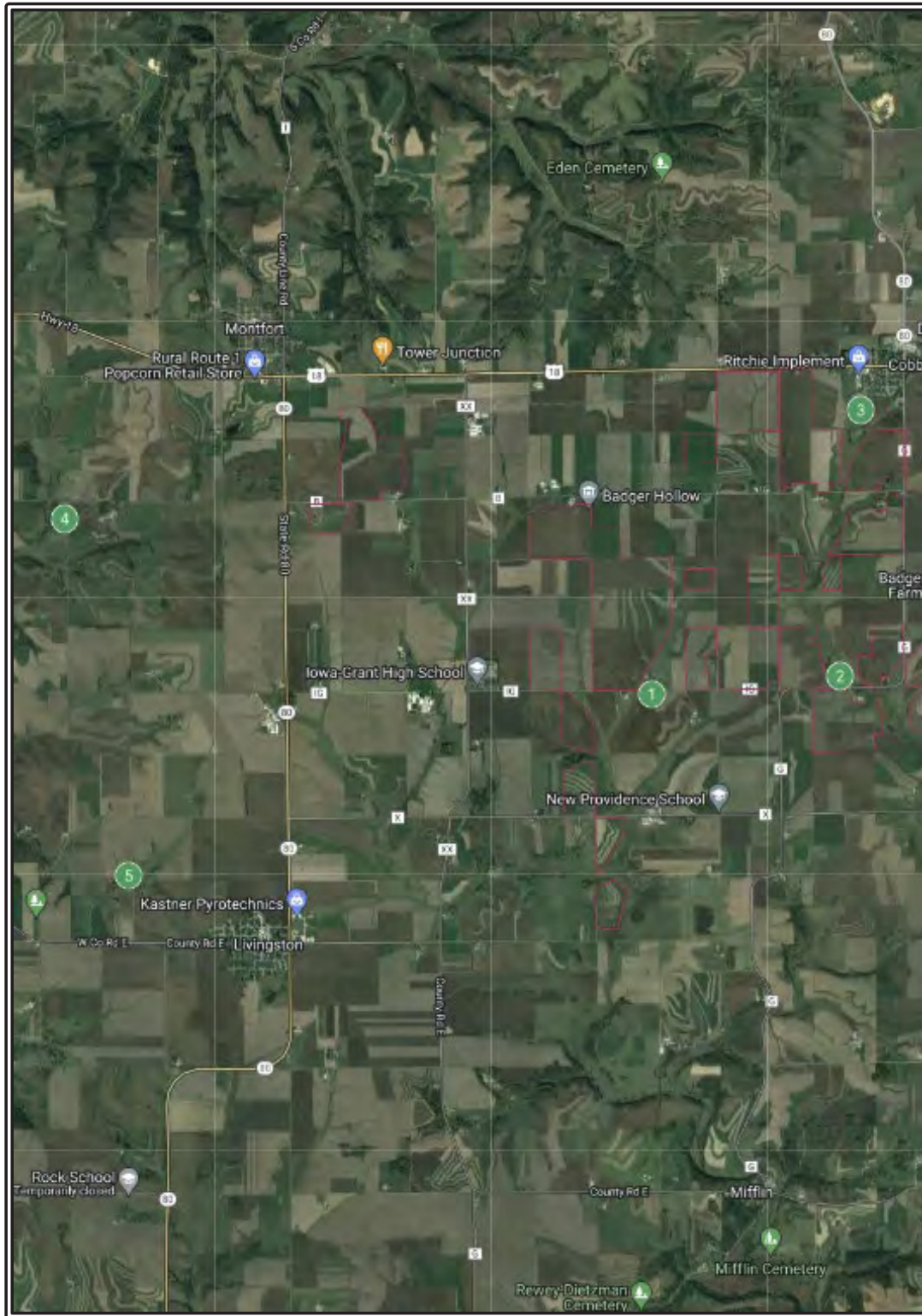
WABASHA COUNTY, MINNESOTA MATCHED PAIR LOCATION MAP



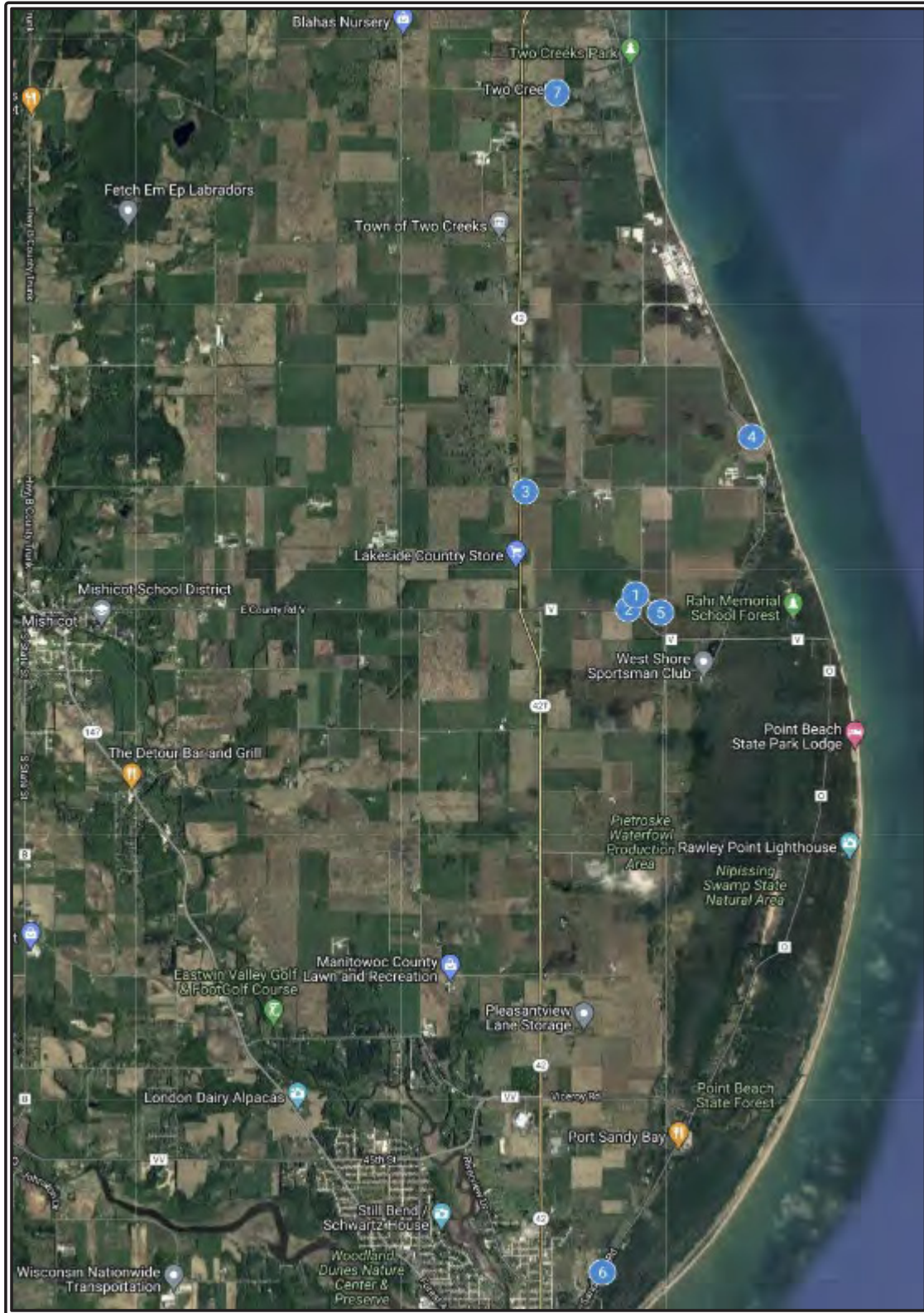
GARFIELD COUNTY, OKLAHOMA MATCHED PAIR LOCATION MAP



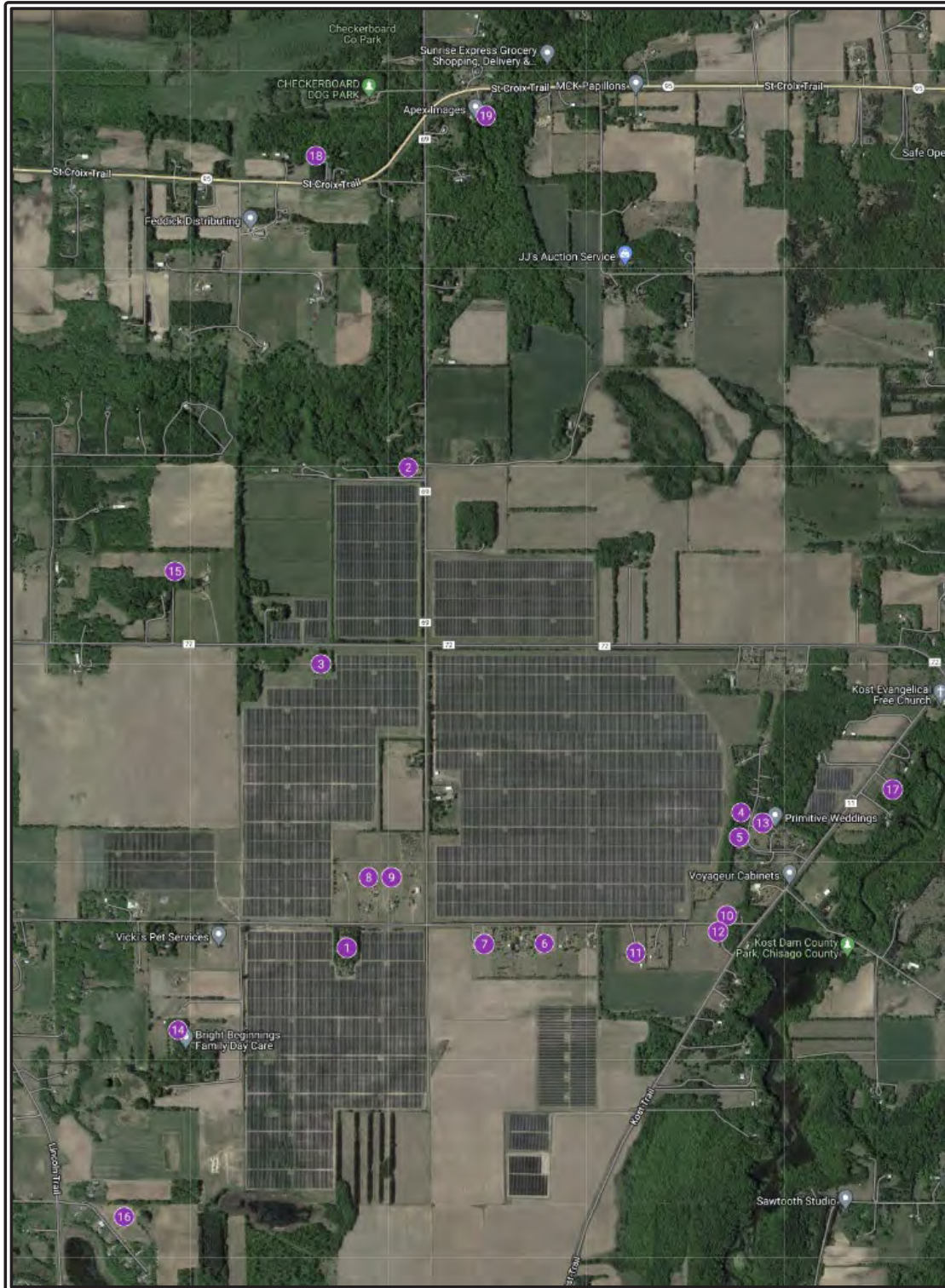
ARIZONA MATCHED PAIR LOCATION MAP



BADGER HOLLOW SOLAR FARM RECENT RESIDENTIAL SALES LOCATION MAP



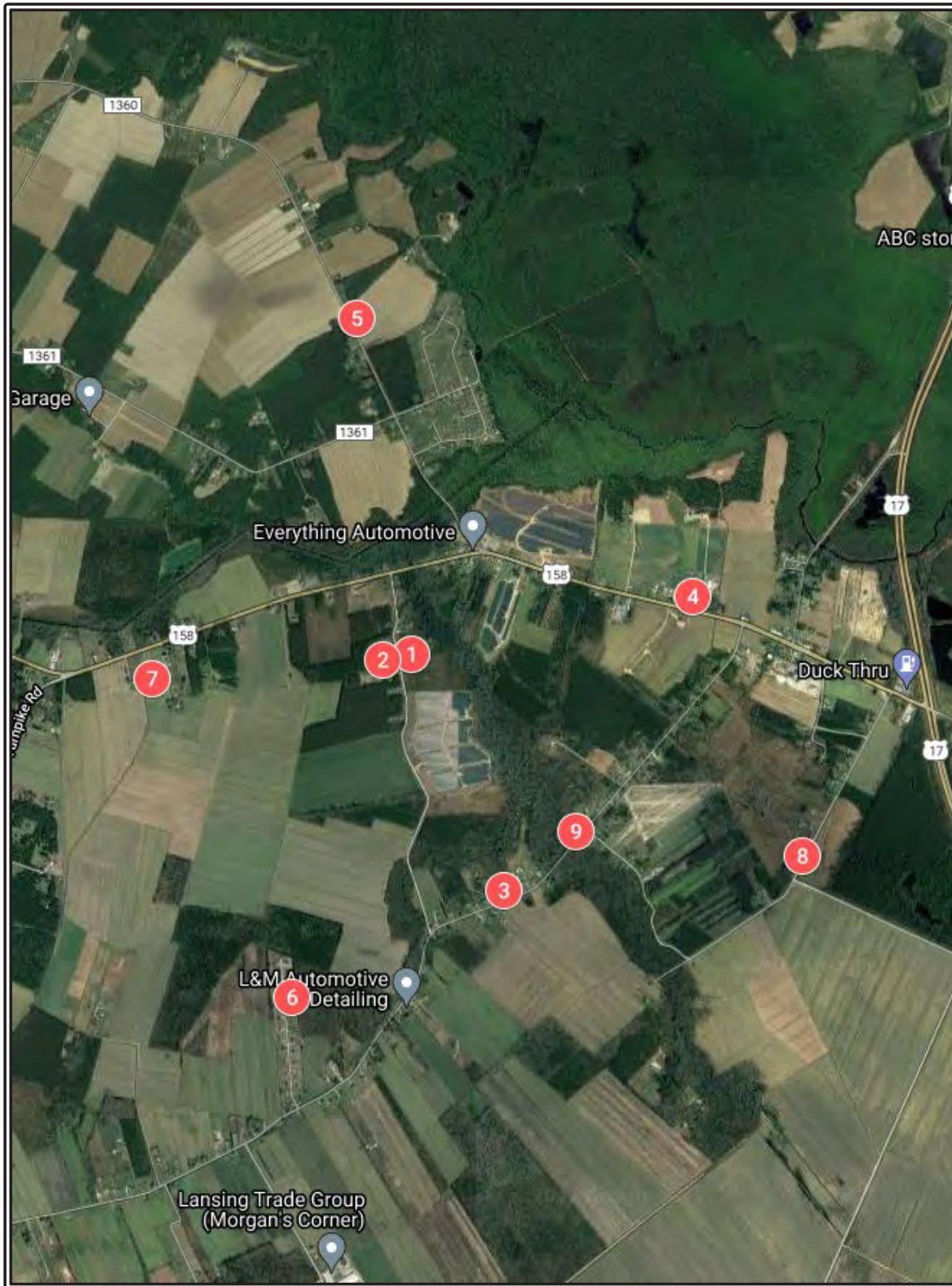
TWO CREEKS SOLAR RECENT RESIDENTIAL SALES LOCATION MAP



NORTH BRANCH, MINNESOTA RECENT RESIDENTIAL SALES LOCATION MAP



NORTH BRANCH, MINNESOTA BEFORE AND AFTER SALES LOCATION MAP



ELIZABETH CITY, NORTH CAROLINA RECENT RESIDENTIAL SALES LOCATION MAP



GOLDSBORO, NORTH CAROLINA RECENT RESIDENTIAL SALES LOCATION MAP



GOLDSBORO, NORTH CAROLINA BEFORE AND AFTER SALES LOCATION MAP

IMPROVED SALE PHOTOGRAPHS



SALE #1 — 304 ELIZABETH DRIVE, LITCHFIELD



SALE #2 — 261 YAEGER LAKE TRAIL, LITCHFIELD



SALE #3 — 298 YAEGER LAKE TRAIL, LITCHFIELD



SALE #4 — 172 BALLPARK TRAIL, LITCHFIELD



SALE #5 — 55 HORSESHOE LANE, LITCHFIELD



SALE #6 — 74 HORSESHOE LANE, LITCHFIELD

ILLINOIS COUNTY ASSESSOR SURVEY ANALYSIS

A survey of the Supervisors of Assessments or the Deputy Assessors of 6 counties in Illinois in which solar farms currently are operational has been undertaken. The supervisors of assessments or a qualified staff member was interviewed. The interviews were intended to allow the assessment officials to share their experiences regarding the impact of the solar farm(s) upon the market values and/or the assessed values of surrounding properties. The interviews were conversational but thoroughly discussed residential and agricultural values and impacts. The interviews were conducted in July 2019.

Conclusions of the Study

Based on these interviews:

- ✧ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ✧ There have been no tax appeals in any county based upon solar farm-related concerns.
- ✧ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. As of the date of this report, there are more than 13 solar farms with more than 18 megawatts within these counties. There have been no reductions in assessed valuations related to photovoltaic panels.
- ✧ Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ✧ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and by external influences.
- ✧ The survey is currently being updated, and to the date of this report there is no contrary evidence to the original assessor survey.

Scope of Project

The supervisors of assessments or a qualified staff member was interviewed. Each of the interviewees was familiar with the solar farm(s) located within each respective county. A map indicating the total capacity of the solar farms in each of these counties is included in this memorandum. A second map illustrates the number of solar farms located in each of these counties. The following is the list of County Supervisors of Assessments contacted, county population, and the solar farms in their counties:

County	Population	Assessor	CA Phone #	Solar Farm Project Name	Capacity (MW)	Year Installed
Champaign	209,983	Paula Bates	(217) 384-3760	Brookfield Properties Retail	1.28	2018
				Rantoul Solar	1.00	2016
Cook	5,180,493	Fritz Kaegi	(312) 443-7550	Exelon Solar Chicago	9.00	2009
				West Pullman Industrial Redevelopment Area	10.00	2010
Henry	49,090	Tracey Vinavich	(309) 937-3570	Geneseo	1.20	2015
				Macy's	2.00	2017
LaSalle	109,430	Stephanie R. Kennedy	(815) 434-8233	Grand Ridge Solar Farm	20.00	2012
Will	692,310	Rhonda Novak	(815) 740-4648	IKEA	1.12	2012
				IKEA Joliet Rooftop PV System	2.00	2017
Winnebago	284,081	Thomas R. Hodges	(815) 319-4460	Rockford Solar Farm	3.06	2012

Residential Market Values

Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. Either as a request by a county board, in an attempt to appropriately assess newly constructed residences, or to support current assessed values, the supervisors of assessments have been particularly attentive to market activity in the area of the solar farms.

Residential Assessed Values, Complaints/Tax Appeal Filings

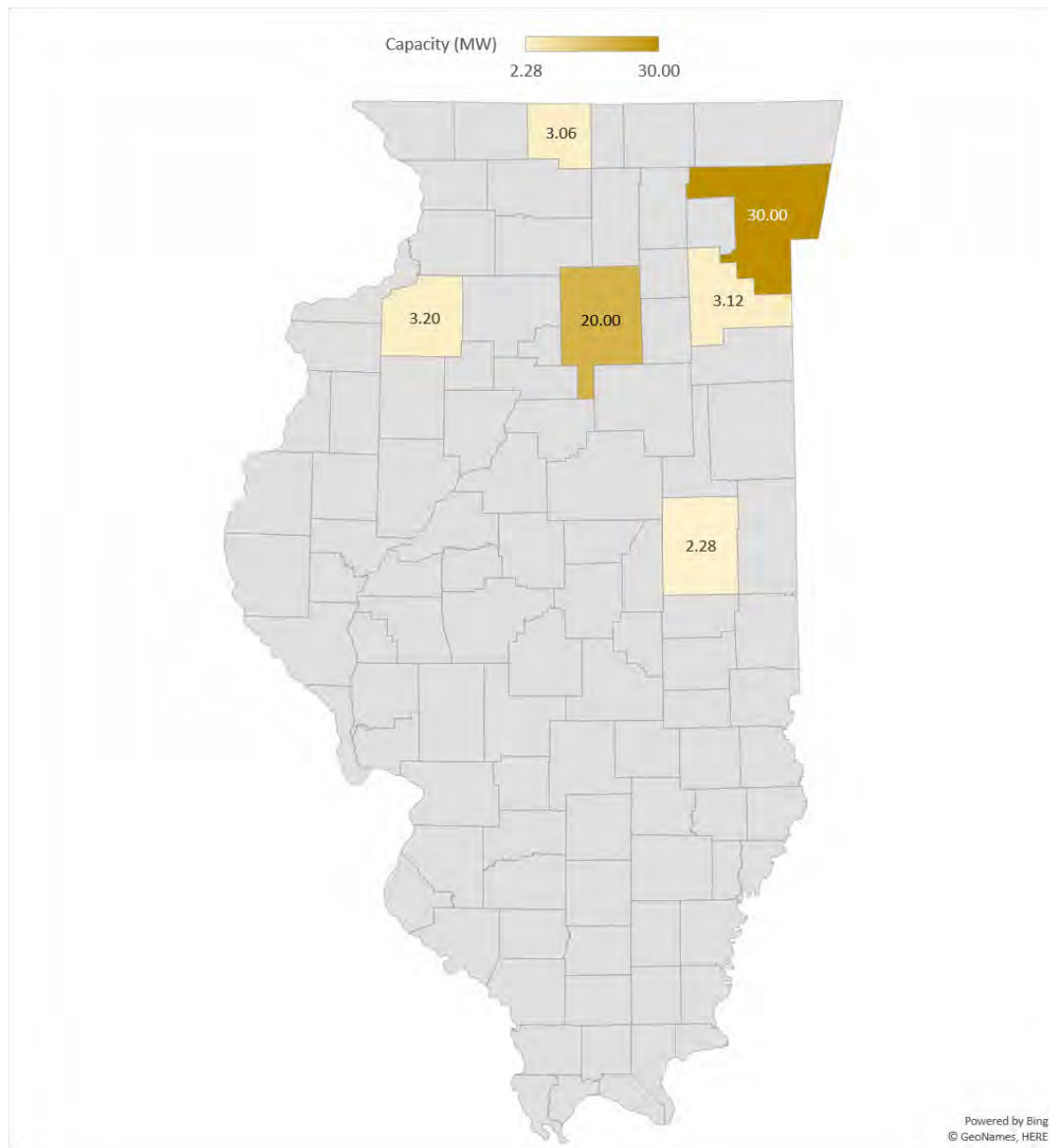
The assessors reported that there have been no tax appeal filings based upon solar farm issues. The deputy assessor of Champaign County, Zebo Zebe, stated that although there have not been any complaints or appeals on existing solar farms, there have been a number of unofficial complaints due to a proposed solar farm that is currently in the development stage.

Consistently, the assessors reported that whatever initial concern there may have been regarding property values during the planning and approval stages of the various solar farms had dissipated once the solar farm was constructed. Repeatedly, the assessors would state that the revenue that would come into the county and to each individual farmer would outweigh any initial concern that the residents would have about the solar farms joining their communities.

Agricultural Values/Assessed Values

The assessed values of agricultural properties are established based upon a productivity formula and are not driven by market data. Reportedly, assessed values of agricultural properties have been steady or increasing in recent years and are projected to continue increasing for the near future. The assessors reported that no major complaints have been received and/or no tax appeal filings have been filed for agricultural properties within a solar farm footprint.

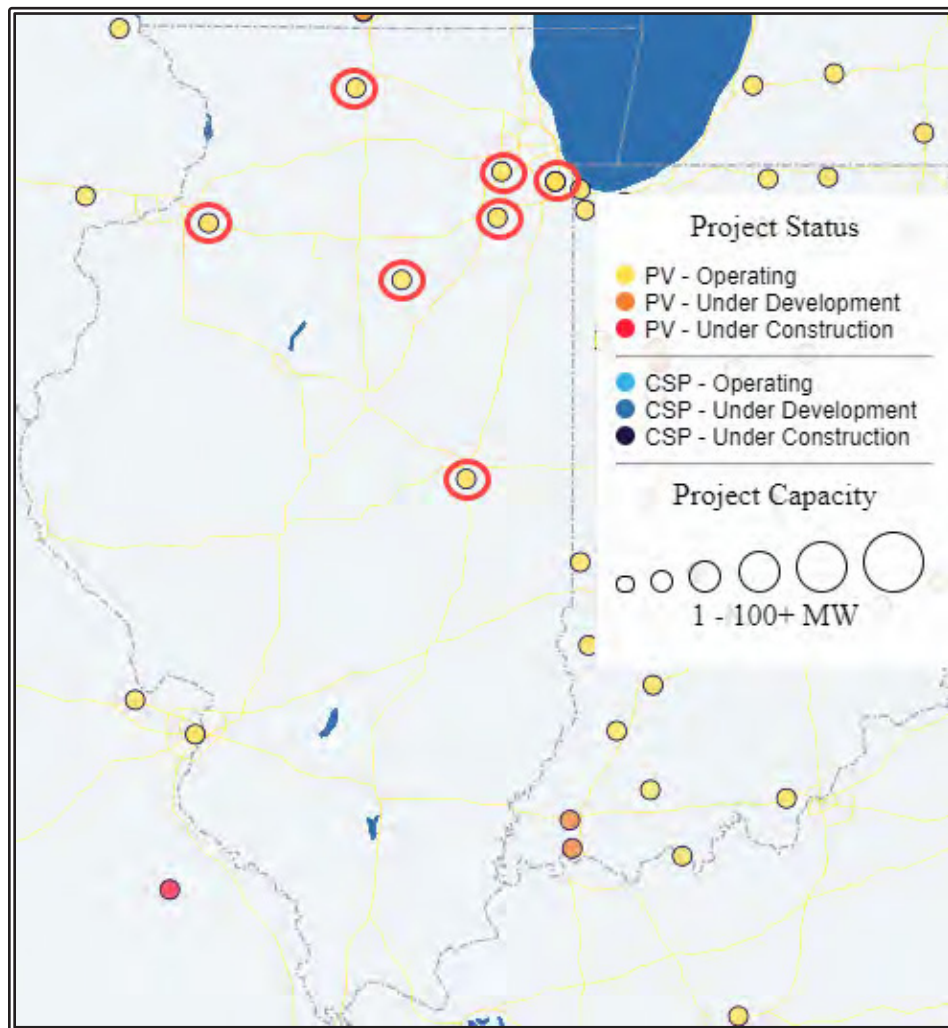
Based on this survey, it does not appear that the Supervisors of Assessments in the surveyed counties in Illinois have reason to believe that the location of photovoltaic panels in their county has had a negative impact on property values.



Map of Illinois Counties Surveyed

Solar Farm Capacity by County

Solar Farms with 1.00-Megawatt Capacity or Higher



Note: As depicted on this map, the locations of certain solar farms are approximations. In some instances, the solar farms are incorrectly shown to be located in adjacent counties. This map, as of the date of this survey, also shows the locations of smaller solar farms, but for the accuracy of this study we have only focused on the farms with a capacity of 1.00 megawatt or higher.

Demand and Economic Feasibility Analysis – New Single-Family Development

Litchfield, Illinois

MaRous & Company analyzed the demand and economic feasibility for new single-family development in Litchfield, Illinois. This analysis took into consideration the median house sale price of \$112,000 for 2025; the highest values, found at the Eagle Ridge Subdivision located on the 1,400-acre Lake Lou Yaeger, are not comparable to the subject location.

Consideration was also given to the thousands of acres of farmland surrounding Litchfield, and to the necessary price points of \$300,000 to \$450,000 required to cover the cost of land, buildings, and infrastructure in order to make a new residential development feasible.

Over the last six to nine years, the average number of new single-family homes constructed appears to have been five to ten per year. The only residential subdivision constructed in the past decade has been the Wildflower Subdivision, with a total of 41 lots. While the roads are in place, to date, no new homes have been constructed. If Wildflower were to find buyers for every new home, it could take approximately ten years to sell at the listed prices of 300% to 400% higher than the median home sale price in Litchfield. It is the opinion of MaRous & Company that the proposed Elm Lawn Solar Park would not negatively impact the Litchfield, Illinois single-family residential market.

Lawrence Berkeley National Lab Study - Shedding light on large-scale solar impacts: An analysis of property values and proximity to photovoltaics across six U.S. states

MaRous & Company has reviewed the study, *Shedding light on large-scale solar impacts: An analysis of property values and proximity to photovoltaics across six U.S. states*²³, and has watched the Webinar presented by the authors. While great respect is given to Ben Hoen, and Lawrence Berkely National Lab, several significant issues were apparent after investigation of the article. Michael S. MaRous has consulted on over 40 solar projects throughout the US, most with preparing full value impact studies. He is a Licensed Certified Appraiser in 6 states and holds the MAI designation. Michael has testified as an expert witness over 100 times in Circuit and Federal Courts, and appeared before plan commissions, county boards, state public utility commissions, and other venues.

Simply concluded, there are many factors that impact value of residential properties, but without specific study of individual residential properties, the 1.5% difference in value that was isolated by the authors of the report, is a percentage that is impossible to support based on extensive experience. Initial findings and input has been provided based on the appraisals of over 12,000 properties, involvement with over 40 solar projects (community and large-scale), review of published data, direct interviews with assessors and brokers that have experience with value impact of proximate solar arrays on residential values, preparing qualitative and quantitative property adjustments, and the experience of participating in significant cross examinations validating the conclusions of MaRous & Company. Therefore, without performing individually specific studies, a 1.5% adjustment is too small of a percentage to support and quantify significance.

The lead author appears to be Salma Elmallah, who is not an appraiser but rather a graduate student. None of the authors of the study appear to be licensed appraisers.

²³ Salma Elmallah, Ben Hoen, K. Sydney Fujita, Dana Robson, Eric Brunner, *Shedding light on large-scale solar impacts: An analysis of property values and proximity to photovoltaics across six U.S. states*, *Energy Policy*, Volume 175, 2023, 113425, ISSN 0301-4215, <https://doi.org/10.1016/j.enpol.2023.113425>.

Key Areas to Consider

- ✧ A solar farm is generally based on 6-9 acres of land needed per megawatt achieved. This is somewhat consistent in both large-scale and community solar. It is influenced by the shape of the solar footprint, road setbacks, residential setbacks, etc. A fair average is 7.5 acres needed per megawatt. Ben Hoen states in the LBNL study that for an average size of a 36-acre site. Therefore, this would be equivalent to a 4.8-megawatt solar farm, which is only comparable to a typical community solar project.
- ✧ Market Conditions constitute a need for the biggest adjustment. The study covered sales from January 2004 to September 2020. Early 2008 through 2010 is considered The Great Real Estate Recession, where many markets reflected a 20-30% drop in value. And then, due to the economic volatility of COVID-19, the market was flat from March 2020 to July 2020, then went up as much as 10% from August 2020-September in many of the stronger markets. These time adjustments are almost impossible to do on a mass basis and were not reflected in the study. As an example, a contract (or meeting of the minds) might have been negotiated in July 2020, but did not close until September 2020. If the only data used in the study was the closing date of September 2020, the value may have gone up 3-5% between the two periods, and the data would be extremely skewed and tainted.

Summary of the Variables That Would Need to be Considered

- ✧ Screening, setbacks, and fencing. Was there differentiation between road setbacks of 20 feet or 100 feet between projects? Were there adjustments for 75- or 500-foot setbacks from residences? What was the adjustment for screening (berms, evergreens, etc.) These factors were not considered in either the report or the webinar.
- ✧ Paved roads vs gravel roads? This is a big adjustment in rural residential areas and can be a 5-10% adjustment. This factor was not considered.
- ✧ Lot size differences? The value of the land or size of the land can have significant impacts on value. Adjustments were not made for lot sizes.
- ✧ Adjacent amenities adjustments (rivers, woods, parks, golf courses, etc.)? These factors were mentioned, but adjustments were not made for amenities, as explained in the webinar.
- ✧ Quality of modernization of houses? This can be a 10-30% adjustment by the market. Adjustments were not made for modernization.
- ✧ Differences in school district adjustments? Again, even though locations of schools can be close to one another, the school districts can be different and adjustments for superior school districts can easily exceed 5%. Adjustments were not made for school districts.
- ✧ Physical condition of improvements adjustments? Adjustments were not made for physical condition of improvements.
- ✧ Adjustments for a high-priced neighborhood to a lower-price neighborhood? Adjustments were not made for neighborhood prices.

- ✧ Age of house adjustment? This appears to be considered but adjustments are not made for renovations and remodeling.
- ✧ Were non-arm's length sales eliminated? How was this issue vetted? CoreLogic is the data source used, which is not typically used by Appraisers, who generally use MLS data. Based on comments made by the authors in the webinar, arm's length issues were not considered.
- ✧ Was the proximity to amenities (shopping, schools, parks, medical services) adjusted? Adjustments were not made for proximity to amenities.
- ✧ How were the employment issues adjusted? Adjustments were not made for employment issues.
- ✧ Was the data verified with brokers, market participants, assessors, etc.? The property/sales data was not verified.

Minnesota, New Jersey, and North Carolina were the only states where the authors found a negative impact on value. However, one of the largest solar farms in Minnesota with significant sales history is located in North Branch, Minnesota. This 100-megawatt solar farm was opened in 2018. The past and current Chisago County Assessors have studied the project and have found no negative impact on value for proximate residential properties from sale transaction data before and after opening of the project, at least through 2022. MaRous & Company has verified this information and reviewed Matched Pair Sales to support the Assessors opinion that the North Star Solar Farm had no negative impact on value. This type of research was not done in the LBNL study.

As reflected by the authors in a phone interview with MaRous & Company and in the webinar that accompanied the study; there needs to be more research, more analysis, more valuation input in order to support any negative impact on value for solar farms. The large amount of data was suitable for the intended research purposes, and it was focused on small community type solar farms in typically suburban locations. To reiterate, a 1.5% reduction is too small of a percentage to be accurately supported with market data evidence.

MICHAEL S. MAROUS STATEMENT OF QUALIFICATIONS

Michael S. MaRous, MAI, CRE, is president and owner of MaRous and Company. He has appraised more than \$15 billion worth of primarily investment-grade real estate in more than 25 states. In addition to providing documented appraisals, he has served as an expert witness in litigation proceedings for many law firms; financial institutions; corporations; builders and developers; architects; local, state, county, and federal governments, and agencies; and school districts in the Chicago metropolitan area. His experience in partial interest, condemnation, damage impact, easement (including aerial and subsurface), marital dissolutions, bankruptcy proceedings, and other valuation issues is extensive. He has provided highest and best use, marketability, and feasibility studies for a variety of properties. Many of the largest redevelopment areas and public projects, including Interstate 355, the Chicago O'Hare International Airport expansion, the Chicago Midway International Airport expansion, and the McCormick Place expansion, are part of Mr. MaRous' experience. Mr. MaRous also has experience in regard to mediation and arbitration proceedings. Also, he has purchased and developed real estate for his own account.

APPRAISAL AND CONSULTATION EXPERIENCE

Business Parks Distribution Centers	Industrial Properties Manufacturing Facilities Research Facilities	Self-storage Facilities Warehouses
Auto Sales/Service Facilities Banquet Halls Big Box Stores	Commercial Properties Gasoline Stations Hotels and Motels Office Buildings	Restaurants Shopping Centers Theaters
Bowling Alleys Cemeteries Farms Golf Courses Lumber Yards	Special-Purpose Properties Nurseries Riverboat Gambling Facilities Schools Stadium Expansion Issues Solar Farms	Tank Farms Underground Gas Aquifers Utility Corridors Waste Transfer Facilities Wind Farms
Apartment Complexes Condominium Conversions	Residential Properties Condominium Developments Single-family Residences	Subdivision Developments Townhouse Developments
Agricultural Alleys Commercial	Vacant Land Easements Industrial Residential	Rights of Way Streets Vacations
Corporations Financial Institutions	Clients Law Firms Not-for-profit Associations	Private Parties Public Entities

EDUCATION

B.S., Urban Land Economics, University of Illinois, Urbana-Champaign
Continuing education seminars and programs through the Appraisal Institute
and the American Society of Real Estate Counselors, and real estate brokerage classes

PUBLIC SERVICE

Mayor, City of Park Ridge, Illinois (2003-2005)

Alderman, City of Park Ridge, including Liaison to the Zoning Board of Appeals and Planning and Zoning and Chairman of the Finance and Public Safety Committees (1997-2005)

PROFESSIONAL AFFILIATIONS AND LICENSES

Appraisal Institute, MAI designation, Number 6159
Counselors of Real Estate, CRE designation
Illinois Certified General Real Estate Appraiser, License Number 553.000141 (9/27)
Indiana Certified General Real Estate Appraiser, License Number CG41600008 (6/26)
Wisconsin Certified General Real Estate Appraiser, License Number 1874-10 (12/27)
Minnesota Certified General Real Estate Appraiser, License Number 40330656 (8/26)
Iowa Certified General Real Estate Appraiser, License Number CG03468 (6/27)
South Dakota Certified General Real Estate Appraiser, License Number 1467CG (9/26)
Michigan Certified General Real Estate Appraiser, License Number 1205004587 (6/27)
Colorado Certified General Real Estate Appraiser, License Number CG.200004173 (12/26)
Licensed Real Estate Broker (Illinois)

PROFESSIONAL ACTIVITIES

Mr. MaRous is past president of the Chicago Chapter of the Appraisal Institute. He is former chair and vice chair of the National Publications Committee and has sat on the board of The Appraisal Journal. In addition, he has served on and/or chaired more than 15 other committees of the Appraisal Institute, the Society of Real Estate Appraisers, and the American Institute of Real Estate Appraisers.

Mr. MaRous served as chair of the Midwest Chapter of the Counselors of Real Estate in 2006 and 2007 and has served on the National CRE Board since 2011. He sat on the Midwest Chapter Board of Directors, the Editorial Board of Real Estate Issues, and on various other committees.

Mr. MaRous also is past president of the Illinois Coalition of Appraisal Professionals. He also has been involved with many other professional associations, including the Real Estate Counseling Group of America, the Northwest Suburban Real Estate Board, the National Association of Real Estate Boards, and the Northern Illinois Commercial Association of Realtors.

PUBLICATIONS AND PROFESSIONAL RECOGNITION

Mr. MaRous has spoken at more than 20 programs and seminars related to real estate appraisal and valuation.

Author

"Low-income Housing in Our Backyards," *The Appraisal Journal*, January 1996
"The Appraisal Institute Moves Forward," *Illinois Real Estate Magazine*, December 1993
"Chicago Chapter, Appraisal Institute," *Northern Illinois Real Estate Magazine*, February 1993
"Independent Appraisals Can Help Protect Your Financial Base," *Illinois School Board Journal*, November-December 1990
"What Real Estate Appraisals Can Do for School Districts," *School Business Affairs*, October 1990

Awards

Appraisal Institute - George L. Schmutz Memorial Award, 2001
Chicago Chapter of the Appraisal Institute – Heritage Award, 2000
Chicago Chapter of the Appraisal Institute - Herman O. Walther, 1987 (Distinguished Chapter Member)

Reviewer or Citation in the Following Books

Rural Property Valuation, 2017
Real Estate Damages, 1999, 2008, and 2016
Golf Property Analysis and Valuation, 2016
Dictionary of Real Estate Appraisal, Fourth Edition, 2002 and Sixth Edition, 2015
Market Analysis for Real Estate, 2005 and 2014
Appraisal of Real Estate, Twelfth Edition, 2001, Thirteenth Edition, 2008, Fourteenth Edition, 2013
Shopping Center Appraisal and Analysis, 2009
Subdivision Valuation, 2008
Valuation of Apartment Properties, 2007
Valuation of Billboards, 2006
Appraising Industrial Properties, 2005
Valuation of Market Studies for Affordable Housing, 2005
Valuing Undivided Interest in Real Property: Partnerships and Cotenancies, 2004
Analysis and Valuation of Golf Courses and Country Clubs, 2003
Valuing Contaminated Properties: An Appraisal Institute Anthology, 2002
Hotels and Motels: Valuation and Market Studies, 2001
Land Valuation: Adjustment Procedures and Assignments, 2001
Appraisal of Rural Property, Second Edition, 2000
Capitalization Theory and Techniques, Study Guide, Second Edition, 2000
Guide to Appraisal Valuation Modeling Land, 2000
Appraising Residential Properties, Third Edition, 1999
Business of Show Business: The Valuation of Movie Theaters, 1999
GIS in Real Estate: Integrating, Analyzing and Presenting Locational Information, 1998
Market Analysis for Valuation Appraisals, 1995

REPRESENTATIVE WORK OF MICHAEL S. MAROUS

Headquarters/Corporate Office Facilities in Illinois

Fortune 500 corporation facility, 200,000 sq. ft., Libertyville
Corporate headquarters, 300,000 sq. ft. and 500,000 sq. ft., Chicago
Fortune 500 corporation facility, 450,000 sq. ft., Northfield
Major airline headquarters, 1,100,000 million sq. ft. on 47 acres, Elk Grove Village
Former communications facility, 1,400,000 million sq. ft. on 62 acres, Skokie and Niles
Corporate Headquarters, 1,500,000+ sq. ft., Lake County
Former Sears Headquarters Redevelopment Project, Chicago

Office Buildings in Chicago

401 South LaSalle Street, 140,000 sq. ft.
134 North LaSalle Street, 260,000 sq. ft.
333 North Michigan Avenue, 260,000 sq. ft.
171 West Randolph Street, 360,000 sq. ft.
20 West Kinzie Street, 405,000 sq. ft.
55 East Washington Street, 500,000 sq. ft.
10 South LaSalle Street, 870,000 sq. ft.
222 West Adams Street, 1,000,000 sq. ft.
141 West Jackson Boulevard, 1,065,000 sq. ft.
333 South Wabash Avenue, 1,125,000 sq. ft.
155 North Wacker Drive, 1,406,000 sq. ft.
70 West Madison Street, 1,430,000 sq. ft.
111 South Wacker Drive, 1,454,000 sq. ft.
175 West Jackson Boulevard, 1,450,000 sq. ft.
227 West Monroe Street, 1,800,000 sq. ft.
10 South Dearborn Street, 1,900,000 sq. ft.

Hotels in Chicago

One West Wacker Drive (Renaissance Chicago Hotel)
10 East Grand Avenue (Hilton Garden Inn)
106 East Superior Street (Peninsula Hotel)
120 East Delaware Place (Four Seasons)
140 East Walton Place (The Drake Hotel)
160 East Pearson Street (Ritz Carlton)
301 East North Water Street (Sheraton Hotel)
320 North Dearborn Street (Westin Chicago River North)
401 North Wabash Avenue (Trump Tower)
505 North Michigan Avenue (Hotel InterContinental)
676 North Michigan Avenue (Omni Chicago Hotel)
800 North Michigan Avenue (The Park Hyatt)

Large Industrial Properties in Illinois

Large industrial complexes, 400,000 sq. ft., 87th Street and Greenwood Avenue, Chicago
Distribution warehouse, 580,000 sq. ft. on 62 acres, Champaign
Publishing house, 700,000 sq. ft. on 195 acres, U.S. Route 45, Mattoon
AM Chicago International, 700,000± sq. ft. on 41 acres, 1800 West Central Road, Mount Prospect
Nestlé distribution center, 860,000 sq. ft. on 153 acres, DeKalb
U.S. Government Services Administration distribution facility, 860,000 sq. ft., 76th Street and Kostner Avenue, Chicago
Fortune 500 company distribution center, 1,000,000 sq. ft., Elk Grove Village
Caterpillar Distribution Facility, 2,231,000 sq. ft., Morton
Self-storage facilities, various Chicago metropolitan locations

Airport Related Properties

Mr. MaRous has performed valuations on more than 100 parcels in and around Chicago O'Hare International Airport, Chicago Midway International Airport, Palwaukee Municipal Airport, Chicago Aurora Airport, DuPage Airport, and Lambert-St. Louis International Airport

Vacant Land in Illinois

15 acres, office, Northbrook	250 acres, Island Lake
20 acres, residential, Glenview	450 acres, residential, Wauconda
25 acres, Hinsdale	475± acres, various uses, Lake County
55 acres, mixed-use, Darien	650 acres, Hawthorne Woods
68 acres, Roosevelt Road and the Chicago River	650 acres, Waukegan/Libertyville
75 acres, I-88 at I-355, Downers Grove	800 acres, Woodridge
100± acres, various uses, Lake County	900 acres, Matteson
100 acres, Western Springs	1,000± acres, Batavia area
140 acres, Flossmoor	2,000± acres, Northern Lake County
142 acres, residential, Lake County	5,000 acres, southwest suburban Chicago area
160 acres, residential, Cary	Landfill expansion, Lake County
200 acres, mixed-use, Bartlett	

Retail Facilities

20 Community shopping centers, various Chicago metropolitan locations
Big box uses, various Chicago metropolitan locations and the Midwest
Gasoline Stations, various Chicago metropolitan locations
More than 50 single-tenant retail facilities larger than 80,000 sq. ft., various Midwest metropolitan locations

Residential Projects

Federal Square townhouse development project, 118 units, \$15,000,000+ sq. ft. project, Dearborn Place, Chicago
Marketability and feasibility study, 219 East Lake Shore Drive, Chicago
Riverview II, Chicago; Old Town East and West, Chicago; Museum Park Lofts II, Museum Park Tower 4, University Commons, Two River Place, River Place on the Park, Chicago,
Timber Trails, Western Springs, Illinois

Market Impact Studies

Land-fill projects in various locations
Quarry expansions in Boone and Kendall counties
Commercial development and/or parking lots in various communities
Zoning changes in various communities
Waste transfer stations in various communities

Business and Industrial Parks

Chevy Chase Business Park, 30 acres, Buffalo Grove
Carol Point Business Center, 300-acre industrial park, Carol Stream, \$125,000,000+ project
Internationale Centre, approximately 1,000 acre-multiuse business park, Woodridge

Properties in Other States

330,000 sq. ft., Newport Beach, California
Former government depot/warehouse and distribution center, 2,500,000 sq. ft. on 100+ acres, Ohio
Shopping Center, St. Louis, Missouri, Office Building, Clayton, Missouri
Condominium Development, South Dakota, South Dakota
Hormel Foods, various Midwest locations
Wisconsin Properties including Lowes, Menards, Milwaukee Zoo, CVS Pharmacy's in Milwaukee, Dairyland Racetrack, Major Industrial Property in Manawa, Class A Office Buildings and Vacant Land

Energy Related Projects

Oakwood Hills Energy Center, McHenry County, Illinois
Lackawanna Power Plant, Lackawanna County, Pennsylvania
Commonwealth Edison, high tension lines

Wind Projects

Illinois

Alta Farms Wind Project II, Dewitt County
Bennington Wind Project, Marshall County
Goose Creek Wind, Piatt County
Harvest Ridge Wind Farm, Douglas County
Lincoln Land Wind Farm, Morgan County
Midland Wind Farm, Henry County
McLean County Wind Farm, McLean County
Otter Creek Wind Farm, LaSalle County
Pleasant Ridge Wind Farm, Livingston County
Radford's Run Wind Farm, Macon County
Shady Oaks II, Lee County
Twin Groves Wind Farm, McLean County
Walnut Ridge Wind Farm, Bureau County

Indiana

Roaming Bison Wind Farm, Montgomery County
Tippecanoe County Wind Farm, Tippecanoe County

Iowa

Great Pathfinder Wind Project, Boone & Hamilton County
Ida Grove II Wind Farm, Ida County

Kansas

Neosho Ridge Wind Farm, Neosho County
Jayhawk Wind, Bourbon County & Crawford County

Illinois

Hickory Point Solar Energy Center, Christian County
Mulligan Solar, Logan County

Indiana

Lone Oak Solar Farm, Madison County

Maryland

Dorchester County Solar Farm, Dorchester County

Wisconsin

Badger Hollow Solar Farm, Iowa County
Darien Solar Energy Center, Rock County & Walworth County
Grant County Solar, Grant County
Paris Solar Energy Center, Kenosha County

New York

Alle-Catt Wind, Allegany County, Cattaraugus County, & Wyoming County
Orangeville Wind Farm, Wyoming County

Ohio

Seneca Wind, Seneca County
Republic Wind, Seneca County & Sandusky County

South Dakota

Deuel Harvest Wind Farm, Deuel County
Dakota Range Wind Project I-III, Codington County, Grant County, & Roberts County
Crocker Wind Farm, Clark County
Crowned Ridge Wind II, Deuel County
Prevailing Wind Park, Bon Homme County, Charles Mix County, & Hutchinson County
Sweet Land Wind Farm, Hand County
Triple H Wind Farm, Hyde County
Tatanka Ridge Wind Project, Deuel County

Solar Projects

South Dakota

Brookhaven Solar Energy Production Facility, Brookings County
Western Regions of the United States of America
Southwest Region – Arizona, Colorado, Nevada, New Mexico, & Utah
Northwest Region – Idaho and Oregon
Southern Great Plains Region – Texas
Northern Great Plains Region – General Research

REPRESENTATIVE CLIENT LISTING OF MICHAEL S. MAROUS

Law Firms

Alschuler, Simantz & Hem LLC Ancel,
Glink, Diamond, Bush,
DiClanni & Krafthefer
Arnstein & Lehr LLP
Berger, Newmark & Fenchel P.C.
Berger Schatz
Botti Law Firm, P.C.
Carmody MacDonald P.C.
Carr Law Firm
Crane, Heyman, Simon, Welch & Clar
Daley & Georges, Ltd.
Day, Robert & Morrison, P.C. Dentons
US LLP
DiMonte & Lizak LLC
DLA Piper
Dreyer, Foote, Streit, Furgason &
Slocum, P.A.
Drinker, Biddle & Reath LLP Figliulo &
Silverman, P.C.
Foran, O'Toole & Burke LLC Franczek
Radelet P.C.
Fredrikson & Byron, P.A.
Freeborn & Peters LLP

Gould & Ratner LLP
Greenberg Traurig LLP
Helm & Wagner
Robert Hill Law, Ltd.
Hinshaw & Culbertson LLP
Holland & Knight LLP
Ice Miller LLP
Jenner & Block
Katz & Stefani, LLC
Kinnally, Flaherty, Krentz, Loran,
Hodge & Mazur PC
Kirkland & Ellis LLP
Klein, Thorpe & Jenkins, Ltd.
McDermott, Will & Emery
Mayer Brown
Michael Best & Friedrich LLP
Morrison & Morrison, Ltd.
Bryan E. Mraz & Associates
Neal, Gerber & Eisenberg, LLP
Neal & Leroy LLC
O'Donnell Haddad LLC
Prendergast & DelPrincipe
Rathje & Woodward, LLC

Righeimer, Martin & Cinquino, P.C.
Robbins, Salomon & Patt, Ltd.
Rosenfeld Hafron Shapiro & Farmer
Rosenthal, Murphey, Coblentz &
Donahue Rubin & Associates, P.C.
Ryan and Ryan, P.C.
Reed Smith LLP
Sarnoff & Baccash
Scariano, Himes & Petrarca, Chtd.
Schiff Hardin LLP
Schiller, DuCanto & Fleck LLP
Schirott, Luetkehans & Garner, LLC
Schuyler, Roche & Crisham, P.C.
Sidley Austin LLP
Storino, Ramello & Durkin
Thomas M. Tully & Associates
Thompson Coburn, LLP
Tuttle, Vedral & Collins, P.C.
Vedder Price
von Briesen & Roper, SC
Winston & Strawn LLP
Worsek & Vihon LLP

Financial Institutions

AmericaUnited Bank Trust
BMO Harris Bank
Charter One
Citibank
Cole Taylor Bank
First Bank of Highland Park
First Financial Northwest Bank

First Midwest Bank
First State Financial
Glenview State Bank
Itasca Bank & Trust Co.
Lake Forest Bank & Trust Co.
MB Financial Bank

Midwest Bank
Northern Trust
Northview Bank & Trust
The Private Bank
Wintrust

Corporations

Advocate Health Care System
Alliance Property Consultants
American Stores Company
Archdiocese of Chicago
Arthur J. Rogers and Company
Avangrid Renewables, LLC
BHE Renewables
BP Amoco Oil Company
Christopher B. Burke Engineering,
Ltd. Cambridge Homes
Canadian National Railroad
Capital Realty Services, Inc.
Chicago Cubs
Children's Memorial Hospital
Chrysler Realty Corporation

Citgo Petroleum Corporation
CorLands
CVS
Edward R. James Partners, LLC
Enterprise Development Corporation
Enterprise Leasing Company
Exxon Mobil Corporation
Hamilton Partners
Hollister Corporation
Imperial Realty Company
Invenergy LLC
Kimco Realty Corporation
Kinder Morgan, Inc.
Lakewood Homes

Lowe's Companies, Inc.
Loyola University Health System
Marathon Oil Corporation
Meijer, Inc.
Menards
Mesirow Stein Real Estate, Inc.
Paradigm Tax Group
Prime Group Realty Trust
Public Storage Corporation
RREEF Corporation
Shell Oil Company
Union Pacific Railroad Company
United Airlines, Inc.

Public Entities

Illinois Local Governments and Agencies

Village of Arlington Heights
 Village of Barrington
 Village of Bartlett
 Village of Bellwood
 Village of Brookfield
 Village of Burr Ridge
 City of Canton
 Village of Cary
 City of Chicago
 Village of Deer Park
 City of Des Plaines
 Des Plaines Park District
 Downers Grove Park District
 City of Elgin
 Elk Grove Village
 City of Elmhurst
 Village of Elmwood Park
 City of Evanston
 Village of Forest Park
 Village of Franklin Park

Village of Glenview
 Glenview Park District
 Village of Harwood Heights
 City of Highland Park
 Village of Hinsdale
 Village of Inverness
 Village of Kenilworth
 Village of Kildeer
 Village of Lake Zurich
 Leyden Township
 Village of Lincolnshire
 Village of Lincolnwood
 Village of Morton Grove
 Village of Mount Prospect
 Village of North Aurora
 Village of Northbrook
 City of North Chicago
 Village of Northfield
 Northfield Township
 Village of Oak Brook

Village of Orland Park
 City of Palos Hills
 City of Peoria
 City of Prospect Heights
 City of Rolling Meadows
 Village of Rosemont
 City of St. Charles
 Village of Schaumburg
 Village of Schiller Park
 Village of Skokie
 Village of South Barrington
 Village of Streamwood
 Metropolitan Water Reclamation
 District of Greater Chicago
 City of Waukegan
 Village of Wheeling
 Village of Wilmette
 Village of Willowbrook
 Village of Winnetka
 Village of Woodridge

County Governments and Agencies

Boone County State's Attorney's
 Office Forest Preserve of Cook County
 Cook County State's Attorney's Office
 DuPage County Board of Review

Forest Preserve District of DuPage County
 Kane County
 Kendall County Board of Review
 Lake County

Lake County Forest Preserve District
 Lake County State's Attorney's Office
 Morton Township
 Peoria County

State and Federal Government Agencies

Federal Deposit Insurance Corporation
 U.S. General Services Administration

Illinois Housing Development Authority
 Illinois State Toll Highway Authority

Internal Revenue Service
 The U.S. Postal Service

Schools

Argo Community High School
 District No. 217
 Arlington Heights District No. 25
 Township High School District No. 214,
 Arlington Heights
 Barrington Community Unit District
 No. 220
 Chicago Board of Education
 Chicago Ridge District No. 127½
 College of Lake County
 Community Consolidated School
 District No. 15
 Community Consolidated School
 District No. 146
 Community School District No. 200
 Consolidated High School
 District No. 230
 Darien District No. 61
 DePaul University

Elk Grove Community Consolidated
 District No. 59
 Elmhurst Community Unit School
 District No. 205
 Glen Ellyn School District No. 41
 Glenbard High School District No. 87
 Indian Springs School District No. 109
 LaGrange School District No. 105
 Lake Forest Academy
 Leyden Community High School
 District No. 212
 Loyola University
 Lyons Township High School District
 No. 204
 Maine Township High School District
 No. 207
 Niles Elementary District No. 71
 North Shore District No. 112, Highland
 Park

Northwestern University
 Orland Park School District No. 135
 Palatine High School District #211
 Rhodes School District No. 84-1/2
 Riverside-Brookfield High School
 District No. 208
 Rosalind Franklin University
 Roselle School District No. 12
 Schaumburg Community Consolidated
 District No. 54
 Sunset Ridge School District No. 29
 Township High School District No. 211
 Township High School District No. 214
 Triton College
 University of Illinois
 Wheeling Community Consolidated
 District No. 21
 Wilmette District No. 39



SUMMARY

With a Bachelor of Science in Building Construction Management from Purdue University, I have cultivated a career spanning real estate, energy consulting, and project management. Spearheaded over 140 renewable energy projects across the U.S., developed proprietary market analysis tools, performed in-depth site inspections, and represented clients as a property value expert. Expertise includes project coordination, subcontractor supervision, commercial appraisals, and meticulous documentation management.

Joseph MaRous

Energy Consultant

+1 847-384-2039
Park Ridge, IL, US
joemarous@marous.com
[linkedin.com/in/joemarousmarous.com](https://www.linkedin.com/in/joemarousmarous.com)

WORK EXPERIENCE

2017-08 - present

Real Estate/Energy Consultant **MaRous & Company, Park Ridge, IL**

Spearheaded the expansion of renewable energy services within MaRous & Company, conducting value analyses for over 120 wind, solar, and battery energy storage system (BESS) projects across more than fifteen states.

Developed a proprietary Market Impact Analysis Report incorporating modern methodologies and leveraging the company's years of expertise to deliver comprehensive insights.

Conducted detailed desktop research and analyses for each project, utilizing meticulous data reviews, peer-reviewed studies, historical trends, and market knowledge.

Performed thorough in-person inspections of project sites to ensure accurate assessments and verifications.

Represented clients as a property value expert at in-person events and hearings to address their needs and defend analyses.

Contributed to commercial appraisal projects throughout Chicagoland and Wisconsin, providing precise valuations to support diverse real estate requirements.

Previous Experience

Project Engineer **International Contractors, Inc. Oak Brook, IL**

Supervised and coordinated subcontractors on-site to ensure smooth project execution, adhering to timelines and quality standards.

Managed project documentation and correspondence, contributing to efficient operations through detailed paperwork and reporting.

Supported superiors by adapting to project needs, including assisting as an assistant project manager in various capacities.

Acted as the primary on-site representative for the company, ensuring effective communication between office teams and job site personnel.

Oversaw a diverse range of tasks across roles including project management, site supervision, and coordination efforts.

Ensured quick resolution of issues on-site while maintaining compliance with safety standards and company objectives.

Remodeling Consultant **Power Home Remodeling Group, Rosemont, IL**

Sales Rep specializing in exterior home renovations

LIV

Assistant Project Manager

Morgan / Harbour Construction LLC, Woodridge, IL

Coordinated daily activities of subcontractors on-site, ensuring timely completion of tasks and adherence to project schedules.

Managed project documentation and office-related paperwork, supporting the project manager in maintaining accurate records and workflows.

Acted as the on-site representative for the company, monitoring progress and addressing challenges across multiple projects.

Support superiors by adapting to diverse responsibilities across roles, including those of a superintendent and project manager, according to specific project needs.

Facilitated communication between teams and stakeholders to improve collaboration and alignment with project goals.

Ensured compliance with company standards and safety protocols while overseeing site operations.

Field Superintendent/Construction Intern

Northern Builders, Inc, Schiller Park, IL

Temple-Inland: Aurora, IL

Supervised interior and exterior renovation of the corrugated box factory and was the on-site representative and problem solver for any complaints or comments from the client

Firehouse Subs Project: Naperville, IL

Supervised the white-box build out in an existing building for the future tenant, worked very close with the project manager concerning scheduling and contract issues

Thyssen-Krupp Project: Bolingbrook, IL

Supervised the build out of an existing building for an office with a warehouse, and coordinated the sub-contractors and inspections to expedite the project in the efforts to finish as soon as possible

Estimator/Project Manager

Build 12, Rolling Meadows, IL

Managed multiple crews across various job sites, ensuring project timelines and quality standards were consistently met.

Reviewed and interpreted detailed construction plans to efficiently allocate resources and guide project execution.

Maintained strong client relationships by addressing concerns, providing updates, and ensuring satisfaction throughout project lifecycles.

Conducted site inspections to gather critical data for accurate cost estimation, enabling precise budget planning for clients.

Prepared comprehensive project proposals tailored to client needs, effectively securing buy-in and approval for projects.

Oversaw general office operations, including administrative tasks, to ensure smooth day-to-day management of the business.

Construction Internship

Curtis Commercial, Crystal Lake, IL

Assisted in preparing project bids by analyzing documentation, interpreting blueprints, and collaborating with team members to ensure accurate submissions.

Gained experience in reading and interpreting construction plans to support project planning and execution.

Supported sales efforts by coordinating with clients and contributing to communication strategies that enhanced customer relationships.

Facilitated inspections by liaising with building inspectors, ensuring adherence to regulations and project timelines.

Maintained clean and organized job sites, performing landscaping tasks and ditch digging to uphold safety standards and project efficiency.

Collaborated with subcontractors by providing hands-on assistance with various construction tasks, contributing to timely completion of projects.

Laborer

Park Ridge Public Works, Park Ridge, IL

Operated and maintained heavy-duty landscaping tools, including weed whips, leaf blowers, lawn mowers, and woodchippers, ensuring efficient and safe usage.

Planted, watered, and cared for a variety of plants, contributing to the beautification of public spaces during the summer seasons of 2006 and 2007.

Collected garbage from public areas to maintain cleanliness and enhance the environment for city residents.

Performed various landscaping tasks such as mulching, pruning, and seeding to uphold community aesthetic standards.

Collaborated with the City Maintenance Crew on seasonal projects to meet operational deadlines and service goals.

Prioritized safety procedures while handling tools and completing tasks in accordance with city regulations.

Contractor

Private Investors, Park Ridge, IL

Oversaw and executed demolition projects, including the teardown of kitchens, bathrooms, and carpets, ensuring efficient removal while maintaining safety standards.

Installed electrical fixtures such as light fixtures, vent hoods, and dishwashers with precision to meet quality and industry standards.

Conducted plumbing upgrades by replacing sinks, toilets, and dishwashers to enhance functionality in remodeled properties.

Delivered personalized tours of completed condominiums to potential buyers, highlighting key features and benefits to drive interest and sales.

Facilitated real estate transactions by assisting clients in drafting contracts, ensuring clarity and compliance with legal requirements.

Provided comprehensive support in remodeling projects from demolition through final installations, contributing to property enhancements that increased market appeal.

EDUCATION

Bachelor of Science

Purdue University

Purdue University – West Lafayette

Bachelor of Science - BS, Building Construction Management
(2006 - 2011)

CERTIFICATIONS & AFFILIATIONS

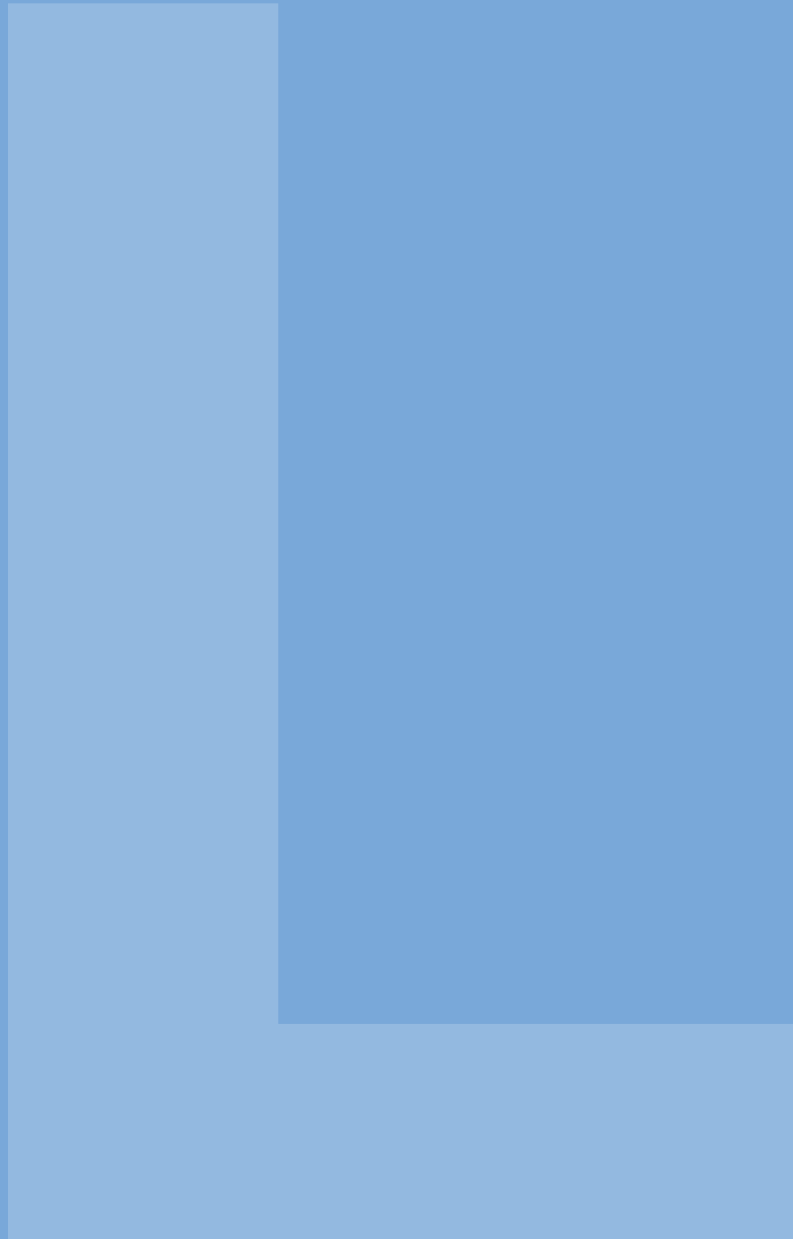
30-Hour Construction Safety and Health Certification Certified

Green Build Professional

USPAP 30-Hour

Appraisal Institute (AI) – Chicago Chapter

American Society of Farm Managers and Rural Appraisers (ASFMRA) – Illinois Chapter



Appendix L:

NRCS Practice Code 327

Native Prairie Establishment

Conservation Cover – NRCS Practice code 327



Many species of warm season grasses (big bluestem, little bluestem, indiagrass, etc.) and cool season grasses (Western wheat grass, blue joint grass, Canada and Virginia wild rye, etc.) are native to the state of Illinois. Most of their growth occurs during summer and germination of the seeds occurs when surface soil temperatures reach over 65 degrees Fahrenheit. They exhibit a very robust growth pattern and will reach height of 3 to 7 feet. Height combined with robust growth creates dense stands suited to winter and escape cover. Many songbirds, pheasant, turkey and rabbits will utilize these grasses as foraging and bedding areas. Native grasses fit virtually any planting situation. Once established these grasses are very persistent and compete well with unwanted vegetation. Native warm season grasses will take three to five years to become fully established.

Native Forbs (Wildflowers) and Legumes are an important component of a Warm Season Grass Planting. Forbs are responsible for the large variety of color within the prairie. Forbs and Legumes support large communities of insects, while returning nutrients back into the soil. They add structure to the stand and attract insects. Upland birds feed entirely on insects in the first part of their lives. Forbs can provide bugging opportunities for these species. Native forbs in the mix may also add to the success of the stand by “taking up space” that might otherwise be filled by noxious broadleaved weeds.

Establishing Native Warm Season Grasses

Establishment of native warm-season grasses can be discouraging especially if you are accustomed to working with cool-season species. The primary difference between the two types is in seedling vigor. Warm-season grasses emerge in late spring and most grow quite slowly the first season. Growth is usually very rapid in the second growing season, but may take three years. Many first-year stands are prematurely judged a failure by inexperienced persons. Under the right conditions, native warm-season grass stands should be obviously successful by the second growing season. These should not be considered a failure until after 3 years.

Buying Seed

When ordering Warm Season Grasses and Forbs it is critical that the seed is expressed in Pure Live Seed (PLS) and that you keep the seed tags. It is recommended that you order a little extra seed so you can calibrate the drill and so you do not run out of seed during planting.

PLS is the viable seed that will grow minus the trash. PLS is calculated by adding the percent germination (G) and the percent hard seed (H) then multiplying the percent purity (P). $PLS = P (G+H) \times 100$. The percent PLS multiplied by the bulk weight gives the pounds of PLS.

It is also worth looking into conservation organizations for cost-share on establishing these practices. Several conservation organizations are available to help landowners.

Fertilizer

For successful establishment, test soil and apply needed phosphorus, potassium, and lime prior to seeding. Soil pH should be at least 6.0. **DO NOT APPLY NITROGEN.** Even small amounts of nitrogen stimulate weed growth and retard establishment of native warm-season grasses.

Site Preparation

It is important to prepare the site before a native grass planting. Areas being converted from crop to prairie habitat should be planted to beans the year prior to planting to native grasses. Corn leaves too much chaff on the ground to thoroughly drill seed. However, burning the corn residue can relieve this problem.

Areas being converted from fescue or brome should be treated a minimum of 2 times in order to change the cover type. These species should be sprayed in the fall before plants reach dormancy. This area should then be burned off in late winter to open up open ground. When spring arrives, wait for the area to green back up again and spray it again. When the entire area is dead, you can burn again (if there is enough fuel to carry a fire) and plant directly into the area at that point.

Native Conversion



2nd treatment conducted in spring after green up



Spray in fall and burn late winter/early spring



Plant into it after the 2nd treatment



ESTABLISHING WARM-SEASON GRASSES AND FORBS

Establishment Methods - It may take multiple applications of chemicals until the appropriate kill has been achieved for the desired seeding area. The seedbed should be devoid of anything prior to planting (crop residues are ok prior to planting).

1. Spring No-till Planting - Early Spring (April 1st – June 15th)

No-Tilling reduces soil disturbance thereby lowering annual weed pressure. It also conserves soil moisture, insures good seed to soil contact, and provides excellent erosion control. Plant native Grasses and Forbs using a special No-Till Drill designed to handle fluffy seeds. They can be directly planted into existing fields with crop residue. If weeds and undesirable grasses have inundated the field apply a 2% glyphosate product per acre to kill existing vegetation. Plateau Herbicide can be added at 4 oz. per acre to act as a pre-emergent. This will depend on the seeds to be planted (e.g. Switchgrass and Plateau do not mix!!). Consult experienced operators for detailed advice.

2. Clean Seedbed Planting – Spring (April 1st – June 15th), fall (November 15th – Freeze Up)

Eliminate prior crop residue or sod by plowing in late fall. Disk shallow to kill each new crop of sprouted weeds until planting time. If using a no-till drill roll or cultipacked just prior to seeding and again just after. If seed is broadcast, increase seeding rates by 25% over no-till drill seeding rates. Broadcast Seeds should be covered with no more than one-fourth inch of soil and some exposed seed is good. Do not harrow after seeding. Avoid planting too deep.

3. Seeding Using Fertilizer Air Spreaders –

Spring (April 1st – June 15th), fall (November 15th – Freeze Up)

Native grass and forb seed can also be spread using an air spreader. Small amounts of fertilizer (approximately 100-150 pounds/acre) are used as a carrier to keep the “sticky” seed flowing down the tubes of the booms. Choose a fertilizer dealer who has air spreader equipment, and explain the procedure you are wishing to use. Advise the fertilizer company of the acreage you are wishing to plant, and that you would like to mix the seed with the fertilizer to apply about 100 lbs of the mixture per acre. Many fertilizer companies have used similar methods to apply cool season grass or clover seed.

4. Dormant or Winter Seeding – Late Winter (January – February) - Broadcast

Dormant seeding should be done over bare or mostly bare ground in January or February. Frozen ground is preferred for ease of operation of the spreader. Freezing and thawing of the ground will incorporate the seed into the soil. Increase seeding rates 25% over no-till drill seeding rates. Make sure the seed/fertilizer mix is being spread evenly across the field. If mixture is left over after the field has been covered, instruct the operator to distribute that remainder on the field in a random fashion.

Native forbs come in a variety of colors that flower at different times of the year. Have colorful flowers on your property spring, summer, and fall!!!!



Native seeds only need to be drilled on ¼"



Post-Seeding Weed Control

Your Warm Season Grass Field will be weedy the first growing year. During this time it is ok to mow a couple times with a rotary mower to keep the broadleaf weeds controlled. Mow just above the height of your warm season grasses to cut the tops of the broadleaf plants before they seed out. This will help cut back on weed competition and allow the warm season grasses to receive sunlight. If your field is still weedy during the second growing season Mow one time during early spring no lower than 10 inches high. By the third year, grasses should be well on their way and will out-compete weeds.

Field Evaluation - Establishment of Warm Season Grasses can be discouraging; warm-season grasses emerge in late spring and most grow quite slowly the first season. Growth is usually very rapid in the second growing season, but may take three years. Many first-year stands are prematurely judged a failure by inexperienced persons. Under the right conditions, native warm-season grass stands should be obviously successful by the second growing season. These should not be considered a failure until after 3 years. Look for native grass seedlings to emerge about two weeks after the soil temperature reaches 65 degrees F. The seedlings look similar to annual grasses such as foxtail. One difference is the native warm season grasses will show a deep red color at the base of the plant where the stalk meets the soil. WSG grows slowly the first year; 40 - 50% of the seed may be hard or dormant. Emergence from the seed may not take place until the following spring. By August, if you have one live WSG plant per square foot, you will have an excellent stand.



4 months after planting

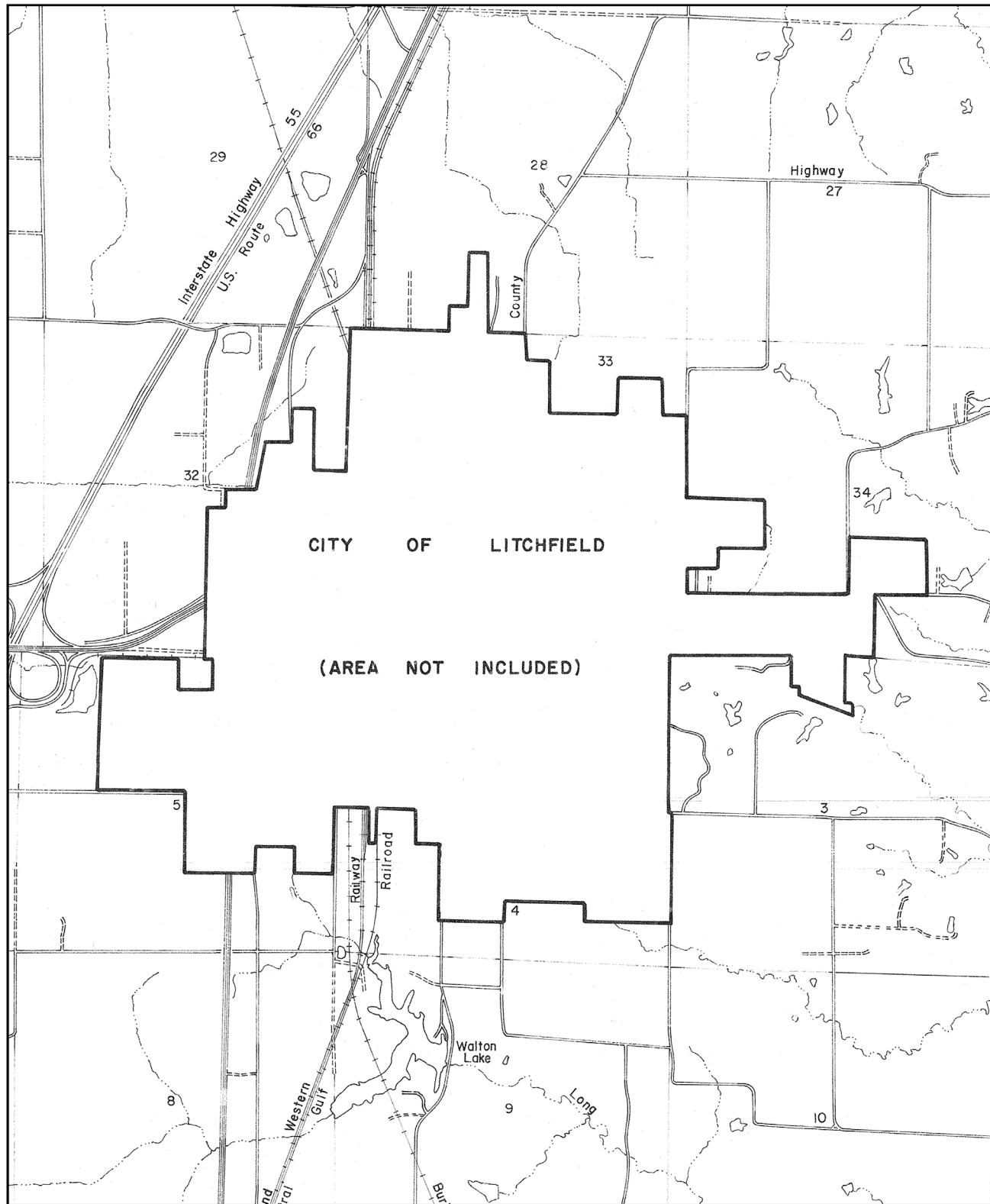


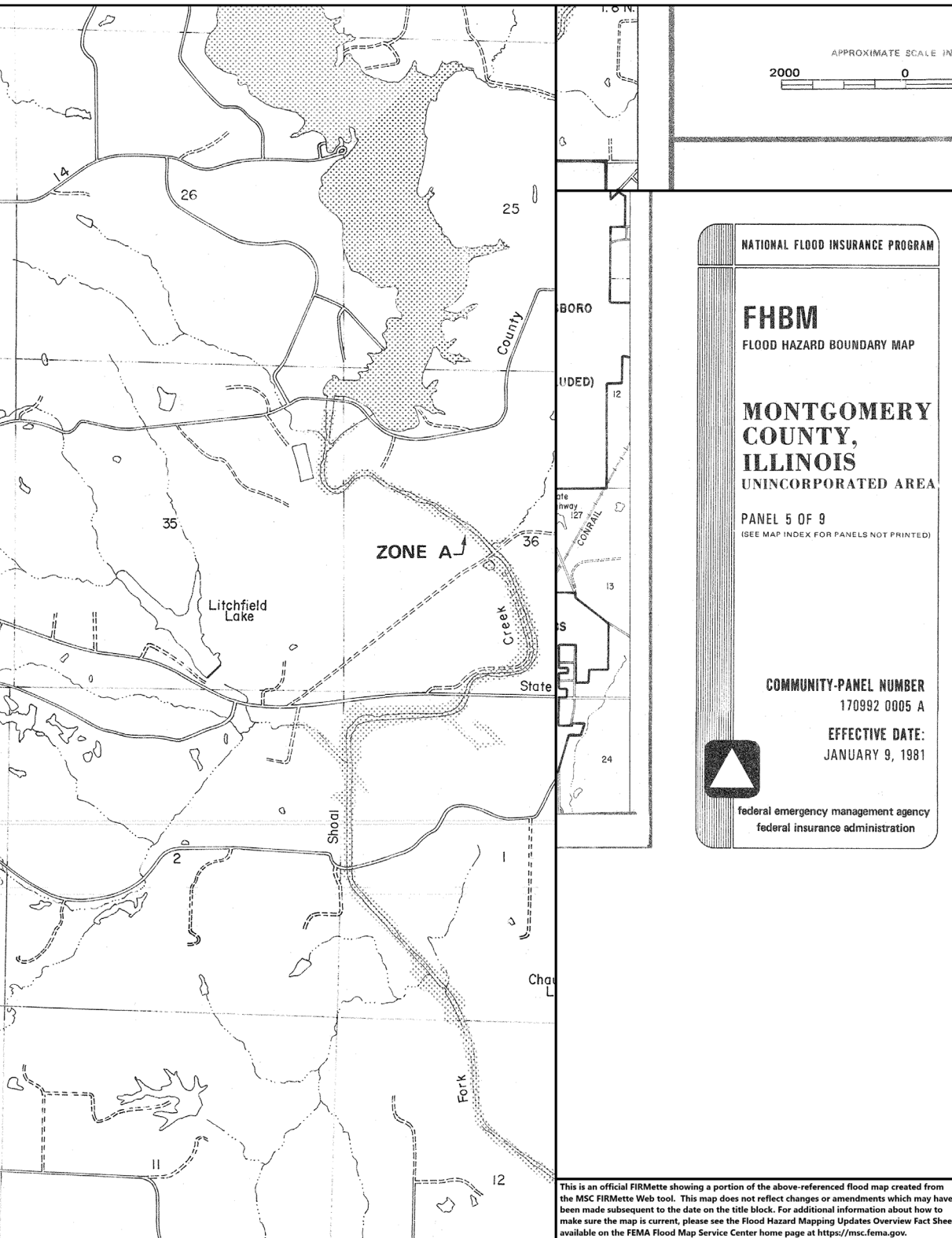
16 months after planting



Appendix M:

FIRMette







Appendix N:

City of Litchfield Compensation and Waiver of Siting Authority Agreement

COMPENSATION AND WAIVER OF SITING AUTHORITY FOR SOLAR PROJECT AGREEMENT

THIS COMPENSATION AND WAIVER OF SITING AUTHORITY FOR SOLAR PROJECT AGREEMENT ("Agreement") is made and entered into as of this 20th day of August, 2026, by and between **SDG IL DG, LLC**, a Delaware limited liability company ("Developer"), and the **City of Litchfield**, an Illinois municipal corporation (the "City") (Developer and the City are sometimes referred to herein individually as a "Party" and collectively as the "Parties").

WHEREAS, City has committed \$3,248,292.00 through Tax Increment Financing ("TIF") incentives to facilitate the development of a residential subdivision within the corporate boundaries of the City named Wildflower Subdivision;

WHEREAS, Developer or its assignee intends to construct, own, and operate a solar energy facility, known as Elm Lawn Solar Park (the "Project") on real property known as Parcel Identification Number 10-34-100-019 ("Subject Property") located in unincorporated Montgomery County, Illinois commonly known as E. Clark Street, North Litchfield Township, IL 62056;

WHEREAS, the Project is to be constructed adjacent to Wildflower Subdivision;

WHEREAS, the Project is anticipated to include approximately 2.0 MW-AC / 3.0 MW-DC of ground-mounted community solar generation located within 1.5 miles of the corporate limits of the City, as such corporate limits exist as of the date of this Agreement, and as are shown on **Exhibit A** attached hereto (the "City Corporate Limits");

WHEREAS, in consideration for Developer providing monetary consideration and additional landscaping buffering, the City is willing to waive any zoning jurisdiction it may have to regulate the zoning of the Subject Property or the siting of the Project and defers all zoning and siting decisions related to the Project to Montgomery County;

WHEREAS, the City recognizes the development, construction, operation and decommissioning of the Project as a pre-existing use of the Subject Property in the event of any future annexation of the Project's property;

WHEREAS, Developer has agreed to provide monetary consideration and a landscaping buffer set forth herein to compensate for and mitigate the potential impacts of the Project upon the City and the adjacent residential subdivision named Wildflower Subdivision, including any perceived impact on property values;

NOW THEREFORE, in consideration of the promises made herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

ARTICLE I — GENERAL

- 1. Recitals.** The foregoing recitals are hereby adopted and incorporated as material terms of this Agreement.
- 2. Limited to the Project.** This Agreement is limited to the Subject Property and the Project and no other solar energy facility project.
- 3. Permits and Approvals.** The Parties agree that Developer is seeking all necessary permits and approvals to install the Project on the Subject Property within 1.5 miles of the City Corporate Limits.

ARTICLE II — CITY'S WAIVER OF SITING AUTHORITY AND ACKNOWLEDGMENTS

- 4. Waiver of Siting Authority.** The City agrees to waive any statutory authority it may or may not have to regulate or zone a solar energy facility or the Subject Property within its extraterritorial jurisdiction (1.5 miles of the City Corporate Limits) in consideration for the monetary consideration and landscaping buffering provided by Developer.
- 5. Property Values; No Adverse Impact.** The City agrees that, to the extent any perceived or potential impact on surrounding property values exists, the monetary consideration provided under Section 8 and the landscaping and screening provided under Section 9 mitigate any such impact.. The City agrees that this acknowledgment may be submitted into the record of any Montgomery County hearing or proceeding concerning the Project.
- 6. Health and Safety; No Adverse Impact.** Based on the monetary consideration provided under Section 8 and the landscaping and screening provided under Section 9, the City acknowledges and agrees that the Project does not have any adverse impact on public health, safety, or the general welfare.
- 7. Covenant Not to Oppose.** The City further agrees that the City will not oppose the Project at any hearing.. The City's official position is that the Project should be approved by Montgomery County.

The City also expressly agrees that it will not oppose the placement by Developer of any Project infrastructure, including, but not limited to, transmission systems, substations, underground electrical collection systems, or access roads located outside of the City Corporate Limits in accordance with the Conceptual Site Plan attached hereto as **Exhibit C**. For the avoidance of doubt, this Agreement does not restrict or prohibit the City from participating in public hearings

or public comment related to the Project consistent with this Agreement or exercising its zoning, siting, and regulatory authority within the boundaries of the City Corporate Limits.

ARTICLE III — DEVELOPER'S OBLIGATIONS

8. Monetary Consideration. Developer shall provide monetary consideration of \$16,500 per eligible lot, for seven (7) eligible lots in the Wildflower Subdivision as identified on **Exhibit B** attached hereto ("Eligible Lots"), in a total amount of \$115,500 (the "Monetary Assistance"). The Monetary Assistance will be paid to the City to allocate upon the sooner of (i) commencement of construction of the Project or (ii) eighteen (18) months after final approval of all permitting requirements by Montgomery County.

9. Landscaping and Screening. Developer shall install, establish, and maintain landscaping and vegetative screening adjacent to the Project in substantial conformance with the plan attached as **Exhibit D**, consisting of the following:

- (a) **Perimeter Buffer (Plan Sheet L101.1).** A vegetated buffer extending approximately 1,150 linear feet along the western property boundary, comprising two staggered rows of Serbian Spruce, or similar plant species, planted approximately sixteen (16) feet apart (approximately 138 trees) and a front row of Serviceberry and Rising Sun Redbud, or similar plant species, planted approximately twenty (20) feet apart (approximately 60 trees), with approximately twenty (20) feet of trunk-to-trunk separation between the back and front rows and a total buffer width of approximately twenty-five (25) feet. Trees shall be planted at a minimum initial height of four to five feet.
- (b) **Fence-Line Shrub Screening (Plan Sheet L101.2).** A single row of shrubs planted approximately five (5) feet apart along approximately 2460 linear feet of the Project fence line (approximately 492 shrubs).
- (c) **Fencing.** A privacy woven wire fence shall be installed on the entire western side of the bottom solar array.

Developer shall be responsible for the commercially reasonable installation, operation, maintenance, and replacement of the foregoing landscaping and screening.

10. Construction, Operation, and Decommissioning. Developer shall build and operate the Project in accordance with any applicable Montgomery County zoning ordinance, any applicable County permit, and any applicable state laws or requirements. The solar panels for the Project located within 1.5 miles of the City Corporate Limits shall be located in compliance with the setback and other requirements of the Montgomery County zoning ordinance. Developer shall provide financial assurance for decommissioning of the Project (including the solar panels located within 1.5 miles of the City Corporate Limits) in accordance with the Montgomery County zoning ordinance, any applicable county permit, and any applicable state laws or requirements, and the

decommissioning plan provided in the Special Use Application, attached as Exhibit E. Developer shall submit to the City, upon request, information demonstrating Developer has provided financial assurance for decommissioning in accordance with this provision.

ARTICLE IV — MISCELLANEOUS

11. Term and Termination. Upon decommissioning of the Project in accordance with the Montgomery County zoning ordinance, any applicable county permit, and any applicable state laws or requirements, and consistent with the term of the lease agreement for any property hosting the Project and located within 1.5 miles of the City Corporate Limits, this Agreement shall terminate.

12. Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon the respective heirs, executors, administrators, assigns, and successors of each Party. At the time of any assignment by Developer, Developer shall provide to the City (a) written notice of the name, address, entity type, state of incorporation or formation of the assignee, and the name and address of the assignee's registered agent in the State of Illinois, and (b) a written sworn statement executed by the assignee stating that the assignee has received and read a complete copy of this Agreement, including the exhibits, and agrees to be bound by the terms and conditions of this Agreement. If this Agreement is assigned, Assignee will be responsible for any outstanding monetary consideration or landscape buffering owed. If Assignee does not provide all agreed monetary consideration and landscape buffering, Developer's obligations to satisfy all consideration and provide all landscape buffering survives any assignment.

13. Counterparts. This Agreement may be executed in one or more counterparts, each of which so executed shall be deemed to be an original, and all of which together shall constitute one and the same instrument. Counterparts transmitted by email or other electronic means, or signed and delivered through an electronic signature program, such as DocuSign, shall have the same force and effect as an original counterpart.

14. Notices. Any written communication will be deemed to have been given or made on the day on which it was delivered if it is received before 5:00 p.m. Central Time on the day in question or, if such day is not a business day or if such written communication is received after 5:00 p.m. Central Time, then delivery will be deemed to have occurred on the next following business day. Either Party may from time to time change its address for service hereunder by notice to the other Party. Any notice, request, demand or other instrument which may be required or permitted to be delivered, given or served upon either Party will be sufficiently delivered, given or served upon the Party in question, if in writing, and if either (a) delivered by hand or (b) sent by certified mail (return receipt requested), courier or nationally recognized overnight delivery service, in each case addressed as referenced below:

If to the City:
City of Litchfield
City Administrator
120 E Ryder Street
Litchfield, IL 62056

If to Developer:
SDG IL DG, LLC
Justin Vandenbroek
2250 Lucien Way, Suite 305,
Maitland, FL 32751

15. Independent Advice; Authority. Each Party acknowledges having obtained its own independent legal advice with respect to this Agreement and the transactions contemplated hereby to the fullest extent deemed necessary by each Party prior to its execution and delivery. There will be no presumption that any ambiguity in this Agreement and any documents contemplated hereby be resolved in favor of either of the Parties. Each Party represents and warrants to the other that the execution, delivery and performance by such Party of this Agreement has been duly authorized by all necessary action and there are no approvals, authorizations, consents, or other action necessary to authorize such Party's execution and delivery of this Agreement.

16. Governing Law and Choice of Venue. This Agreement shall be governed by and be construed in accordance with the laws of the State of Illinois. Any legal cause of action brought by either Party to enforce this Agreement shall be brought in the Circuit Court of Montgomery County, IL.

17. Foreign Corrupt Practices Act. Developer is subject to compliance with anti-corruption legislation, including without limitation the Foreign Corrupt Practices Act, 15 U.S.C. § 78dd-1 et seq., the Illinois Governmental Ethics Act, 5 ILCS 420/1-101 et seq. and the Illinois Lobbyist Registration Act, 25 ILCS 170 et seq. Developer covenants and agrees it is in full compliance with all Illinois and Federal Law. The City covenants and agrees that in no event shall any portion of the Down Payment Assistance be allocated, used, or otherwise made available for the giving or offering of a loan, reward, advantage or direct or indirect personal or financial benefit or gain of any kind to any Government Official as a bribe or incentive to assist in obtaining or retaining business. For the purposes of this Section 6, the term "Government Official" means any director, executive, employee, elected/appointed official (and their agents) of any government department, ministry, agency, legislature, political party, tribunal, regulatory authority, candidate for political office or government-owned company.

./signatures on following page/

IN WITNESS WHEREOF, this Agreement is executed effective as of the day and year first above written.

DEVELOPER:

SDG IL DG, LLC

By: Justin Vandebroek
Name: Justin Vandebroek
Title: Managing Partner

CITY:

City of Litchfield

By: Jacob Fleming
Name: Jacob Fleming
Title: Mayor



ELM LAWN SOLAR PARK

(2.00 MWAC)

MONTGOMERY COUNTY



ENGINEER:



UNECLIPSED ENERGY, PLLC
2250 Lucien Way, Suite 305,
Maitland, FL 32751 USA

DEVELOPER:



ESA SOLAR ENERGY, LLC
2250 Lucien Way, Suite 305,
Maitland, FL 32751 USA

August 14, 2026

DATE	REVISION	DESCRIPTION
2024-08-14	01	INITIAL DESIGN
2024-08-14	02	REVISED TO INCLUDE COMMENTS
2024-08-14	03	REVISED TO INCLUDE COMMENTS
2024-08-14	04	REVISED TO INCLUDE COMMENTS
2024-08-14	05	REVISED TO INCLUDE COMMENTS
2024-08-14	06	REVISED TO INCLUDE COMMENTS
2024-08-14	07	REVISED TO INCLUDE COMMENTS
2024-08-14	08	REVISED TO INCLUDE COMMENTS
2024-08-14	09	REVISED TO INCLUDE COMMENTS
2024-08-14	10	REVISED TO INCLUDE COMMENTS
2024-08-14	11	REVISED TO INCLUDE COMMENTS
2024-08-14	12	REVISED TO INCLUDE COMMENTS
2024-08-14	13	REVISED TO INCLUDE COMMENTS
2024-08-14	14	REVISED TO INCLUDE COMMENTS
2024-08-14	15	REVISED TO INCLUDE COMMENTS
2024-08-14	16	REVISED TO INCLUDE COMMENTS
2024-08-14	17	REVISED TO INCLUDE COMMENTS
2024-08-14	18	REVISED TO INCLUDE COMMENTS
2024-08-14	19	REVISED TO INCLUDE COMMENTS
2024-08-14	20	REVISED TO INCLUDE COMMENTS
2024-08-14	21	REVISED TO INCLUDE COMMENTS
2024-08-14	22	REVISED TO INCLUDE COMMENTS
2024-08-14	23	REVISED TO INCLUDE COMMENTS
2024-08-14	24	REVISED TO INCLUDE COMMENTS
2024-08-14	25	REVISED TO INCLUDE COMMENTS
2024-08-14	26	REVISED TO INCLUDE COMMENTS
2024-08-14	27	REVISED TO INCLUDE COMMENTS
2024-08-14	28	REVISED TO INCLUDE COMMENTS
2024-08-14	29	REVISED TO INCLUDE COMMENTS
2024-08-14	30	REVISED TO INCLUDE COMMENTS
2024-08-14	31	REVISED TO INCLUDE COMMENTS
2024-08-14	32	REVISED TO INCLUDE COMMENTS
2024-08-14	33	REVISED TO INCLUDE COMMENTS
2024-08-14	34	REVISED TO INCLUDE COMMENTS
2024-08-14	35	REVISED TO INCLUDE COMMENTS
2024-08-14	36	REVISED TO INCLUDE COMMENTS
2024-08-14	37	REVISED TO INCLUDE COMMENTS
2024-08-14	38	REVISED TO INCLUDE COMMENTS
2024-08-14	39	REVISED TO INCLUDE COMMENTS
2024-08-14	40	REVISED TO INCLUDE COMMENTS
2024-08-14	41	REVISED TO INCLUDE COMMENTS
2024-08-14	42	REVISED TO INCLUDE COMMENTS
2024-08-14	43	REVISED TO INCLUDE COMMENTS
2024-08-14	44	REVISED TO INCLUDE COMMENTS
2024-08-14	45	REVISED TO INCLUDE COMMENTS
2024-08-14	46	REVISED TO INCLUDE COMMENTS
2024-08-14	47	REVISED TO INCLUDE COMMENTS
2024-08-14	48	REVISED TO INCLUDE COMMENTS
2024-08-14	49	REVISED TO INCLUDE COMMENTS
2024-08-14	50	REVISED TO INCLUDE COMMENTS
2024-08-14	51	REVISED TO INCLUDE COMMENTS
2024-08-14	52	REVISED TO INCLUDE COMMENTS
2024-08-14	53	REVISED TO INCLUDE COMMENTS
2024-08-14	54	REVISED TO INCLUDE COMMENTS
2024-08-14	55	REVISED TO INCLUDE COMMENTS
2024-08-14	56	REVISED TO INCLUDE COMMENTS
2024-08-14	57	REVISED TO INCLUDE COMMENTS
2024-08-14	58	REVISED TO INCLUDE COMMENTS
2024-08-14	59	REVISED TO INCLUDE COMMENTS
2024-08-14	60	REVISED TO INCLUDE COMMENTS
2024-08-14	61	REVISED TO INCLUDE COMMENTS
2024-08-14	62	REVISED TO INCLUDE COMMENTS
2024-08-14	63	REVISED TO INCLUDE COMMENTS
2024-08-14	64	REVISED TO INCLUDE COMMENTS
2024-08-14	65	REVISED TO INCLUDE COMMENTS
2024-08-14	66	REVISED TO INCLUDE COMMENTS
2024-08-14	67	REVISED TO INCLUDE COMMENTS
2024-08-14	68	REVISED TO INCLUDE COMMENTS
2024-08-14	69	REVISED TO INCLUDE COMMENTS
2024-08-14	70	REVISED TO INCLUDE COMMENTS
2024-08-14	71	REVISED TO INCLUDE COMMENTS
2024-08-14	72	REVISED TO INCLUDE COMMENTS
2024-08-14	73	REVISED TO INCLUDE COMMENTS
2024-08-14	74	REVISED TO INCLUDE COMMENTS
2024-08-14	75	REVISED TO INCLUDE COMMENTS
2024-08-14	76	REVISED TO INCLUDE COMMENTS
2024-08-14	77	REVISED TO INCLUDE COMMENTS
2024-08-14	78	REVISED TO INCLUDE COMMENTS
2024-08-14	79	REVISED TO INCLUDE COMMENTS
2024-08-14	80	REVISED TO INCLUDE COMMENTS
2024-08-14	81	REVISED TO INCLUDE COMMENTS
2024-08-14	82	REVISED TO INCLUDE COMMENTS
2024-08-14	83	REVISED TO INCLUDE COMMENTS
2024-08-14	84	REVISED TO INCLUDE COMMENTS
2024-08-14	85	REVISED TO INCLUDE COMMENTS
2024-08-14	86	REVISED TO INCLUDE COMMENTS
2024-08-14	87	REVISED TO INCLUDE COMMENTS
2024-08-14	88	REVISED TO INCLUDE COMMENTS
2024-08-14	89	REVISED TO INCLUDE COMMENTS
2024-08-14	90	REVISED TO INCLUDE COMMENTS
2024-08-14	91	REVISED TO INCLUDE COMMENTS
2024-08-14	92	REVISED TO INCLUDE COMMENTS
2024-08-14	93	REVISED TO INCLUDE COMMENTS
2024-08-14	94	REVISED TO INCLUDE COMMENTS
2024-08-14	95	REVISED TO INCLUDE COMMENTS
2024-08-14	96	REVISED TO INCLUDE COMMENTS
2024-08-14	97	REVISED TO INCLUDE COMMENTS
2024-08-14	98	REVISED TO INCLUDE COMMENTS
2024-08-14	99	REVISED TO INCLUDE COMMENTS
2024-08-14	100	REVISED TO INCLUDE COMMENTS

REVISION	DRAWN	CHECKED	APPROVED
09	SMc	GS	DC

ENGINEER: DAVID K. CLICK, PE

IL LIC #: 062.076524

NABCEP PVDFP: 041704-8

SEAL (PRELIMINARY, UNLESS SEALED)

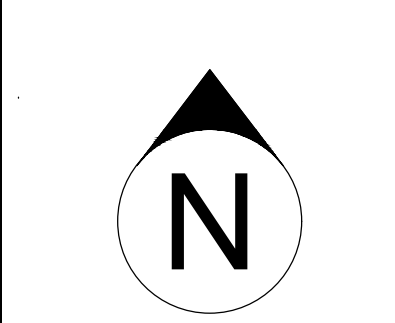


UNECLIPSED ENERGY, PLLC
2250 Lucien Way, Suite 305
Maitland, FL 32751 USA

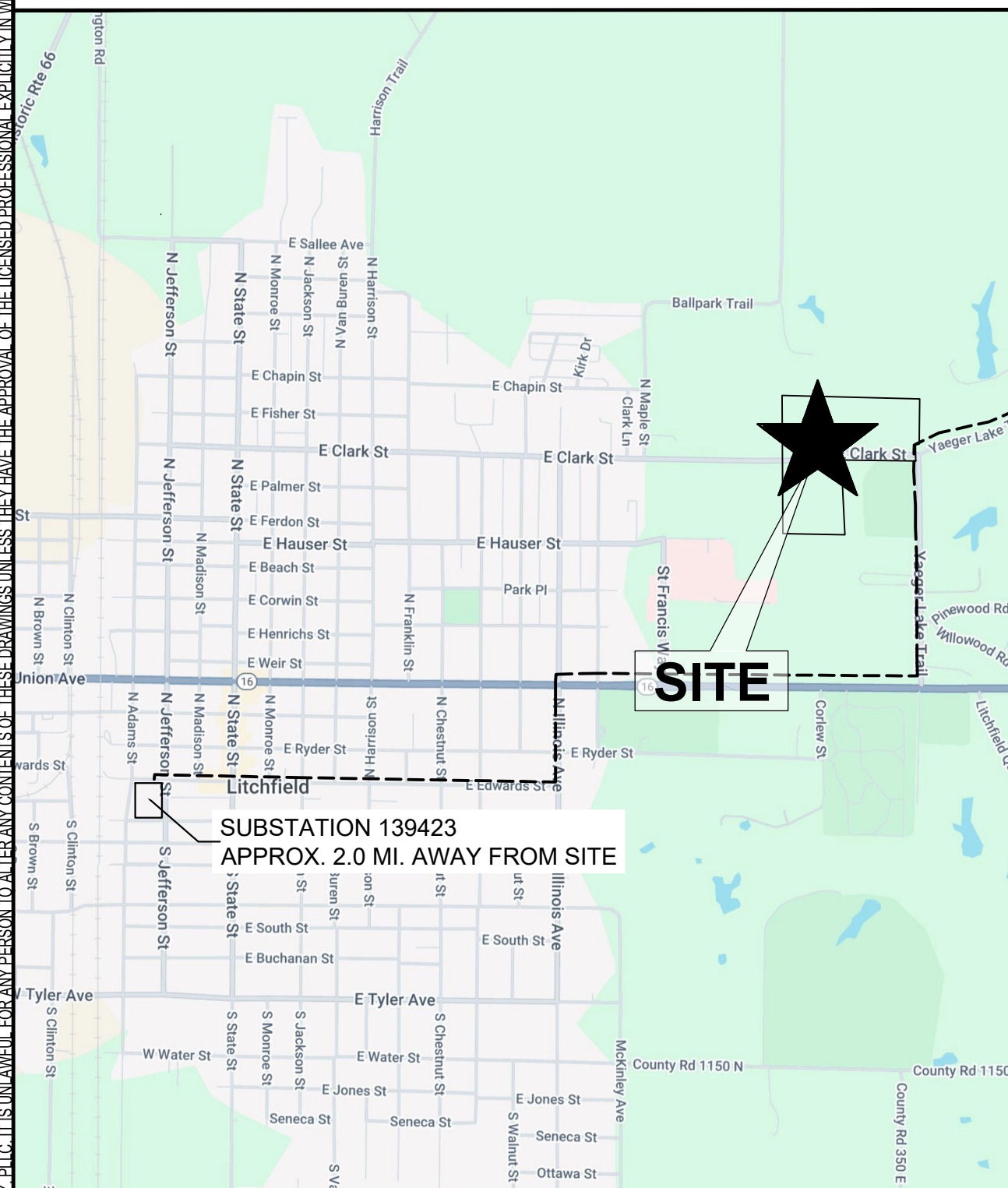


ELM LAWN SOLAR PARK
MONTGOMERY COUNTY

ADDRESS
173 YAEGER LAKE TRAIL, LITCHFIELD, IL 62556
COORDINATES
39.184913, -89.634755
SHEET SIZE
24" x 36"



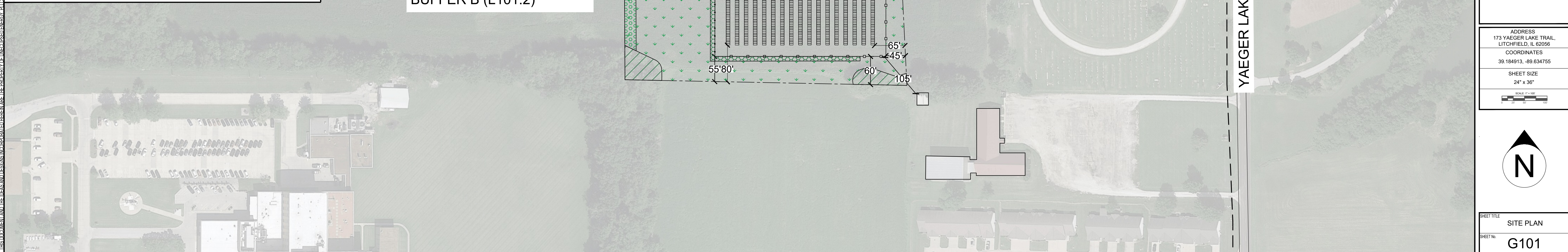
SHEET TITLE
COVER SHEET
SHEET No.
G001



PARCEL DATA	
OWNER NAME	Elm Lawn Memorial Park Inc
PARCELID	10-34-100-019
PARCEL AREA	27.42 ACRES
OPERATIONAL AREA	11.28 ACRES

PV DATA	
MODULE COUNT (APPROX.)	5,112
PEAK POWER	2.0 MWAC / 3.0 MWDC
RACKING SYSTEM	SINGLE AXIS TRACKERS
MODULE TILT	+/-55 DEGREES
MODULE ORIENTATION	EAST/WEST (AZ. 90°/270°)
MODULE HEIGHT (MAX TILT)	~10 FT
BASIS OF DESIGN	QCELLS Q.PEAK DUO XL-G11S.3 / BFG 600

This site plan is preliminary and NOT FOR CONSTRUCTION, awaiting surveys as well as zoning. Layout is based on GIS information, and is subject to survey.



	REV.	DATE	REVISION DESCRIPTION	DRAWN
09	Q2	2020-07-07	SITE EXTENDED TO ALLOW AS POSSIBLE IN THE # 2	MP
SMc	DS	2020-07-21	PROJECT AREA REVISION	MP
GS	DR	2020-08-04	PVI LINE REQUESTED TO BEAC	CS
		2020-08-10	PROJECT AREA REVISION	CS
	CHECKED:	2020-08-06	PROJECT AREA REVISION	MP
		2020-08-17	PROJECT AREA REVISION LABELS REVISION	SM
	APPROVED:	2020-08-27	PROJECT AREA REVISION LABELS REVISION	CS
		2020-08-13	LANDSCAPING A PRIVATE SCREENING ADDED	SMC

ENGINEER:	DAVID K. CLICK, PE
IL LIC #:	062.076524
NABCEP PVIP#:	041704-8

SEAL (DEDICATORY UNLESS SEALED)

PRELIMINARY

UNECLIPSED
ENERGY

UNECLIPSED ENERGY, PLLC
2250 Lucien Way, Suite 305
Maitland, FL 32751 USA



ESA
2250 Lucien Way, Suite 305
Maitland, FL 32751 USA

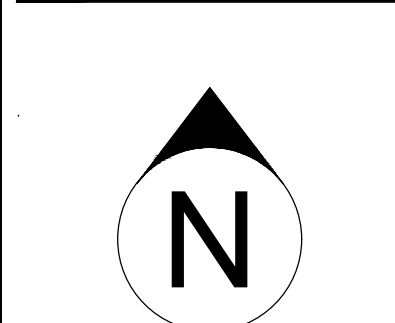
ELM LAWN SOLAR PARK
MONTGOMERY COUNTY

ADDRESS
173 YAEGER LAKE TRAIL,
LITCHFIELD, IL 62056

COORDINATES
39.184913, -89.634755

SHEET SIZE
24" x 36"

SCALE: 1" = 100'

A graphic scale bar with alternating black and white segments. Below the bar are numerical markings for 0, 25, 50, and 100 feet.

SHEET TITLE	SITE PLAN
SHEET No.	G101

SCHMIDT EARL C O
RICHARD HAMPTON
PID: 10-34-100-022

CHANDLER CHRISTOPHER
PID: 10-34-100-014

BISHOP BENJAMIN
PID: 10-34-100-009

KINNEY WILLIAM L
JENNIFER L
PID: 10-34-201-012

DARTE DAVID A
PID: 10-34-251-001

HALL NICHOLAS ANTHONY
PID: 10-34-252-002

WILDFLOWER
LITCHFIELD LLC
PID: 10-34-100-021

ST FRANCIS HOSPITAL
PID: 10-34-301-004

ST FRANCIS HOSPITAL
PID: 10-34-301-005

LAY ROSS R
PID: 10-34-326-020

ELM LAWN CEMETERY
PID: 10-34-100-016
(PARTICIPATING ADJOINING PROPERTY)

WILLIAMS GERALD
R JODI L
PID: 10-34-252-004

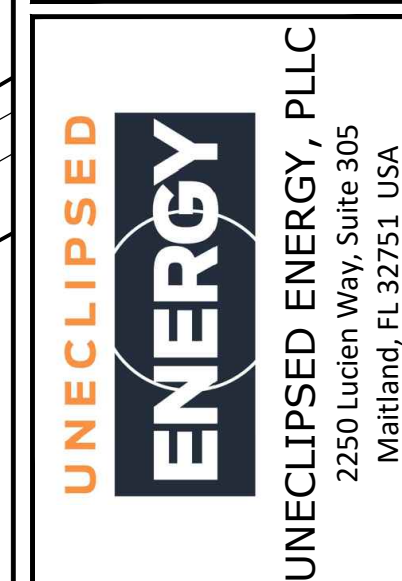
CHRISTIAN CHURCH
PID: 10-34-326-012

UEHLING GARY DIANE JR
PID: 10-34-401-023

REV.	DATE	REVISION DESCRIPTION	CHK	APP	DATE
01	2020-07-07	STATE DEVELOPMENT	MP	CS	
02	2020-09-01	PROJECT EXTENDED AS MUCH AS POSSIBLE IN THE S.E.	MP	CS	
03	2020-09-04	PIV SIZE REDUCED TO 20AC	MP	CS	
04	2020-07-20	PROJECT AREA REVISION	CS	MP	
05	2020-07-20	PROJECT AREA REVISION	CS	MP	
06	2020-07-17	PROJECT AREA PIVOT ELEVATION LABELS REVISION	SM	CS	
07	2020-04-29	PROJECT AREA ELEVATION LABELS REVISION	CS	SM	
08	2020-08-15	LANDSCAPE PRIVACY SCREENING ADDED	SM	CS	

ENGINEER:	DAVID K. CLICK, PE
REG. LIC #:	062.076524
NABCEP PVIP#:	041704-8

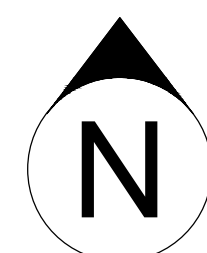
SEAL (PRELIMINARY, UNLESS SEALED)



PROJECT NAME:

ELM LAWN SOLAR PARK
MONTGOMERY COUNTY

ADDRESS
173 YAEGER LAKE TRAIL, LITCHFIELD, IL 62056
COORDINATES
39.184913, -89.634755
SHEET SIZE
24" x 36"

SHEET TITLE	PROJECT AREA PLAN
SHEET No.	G102

[illegible]

THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN ARE THE PROPERTY OF INCLOSED ENERGY. PLASAS OR PARTS OF THE INSTRUMENTS OF PROFESSIONAL SERVICE AND CANNOT BE USED, IN WHOLE OR IN PART, FOR OTHER PROJECTS WITHOUT THE EXPLICIT WRITTEN AUTHORIZATION FROM INCLOSED ENERGY. PLIC IS UNLAWFUL FOR ANY PERSON TO ALTER ANY CONTENTS OF THESE DRAWINGS UNLESS THEY HAVE THE APPROVAL OF THE LICENSED PROFESSIONAL EXPLICITLY IN WRITING.

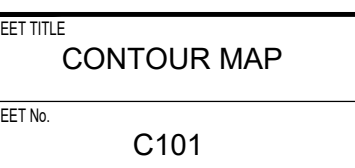
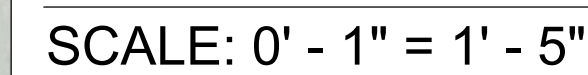
LAST SAVED BY: Rambo

CS_E_1001 - Enr.com/Source/PLIC_20_0000.dwg

CS_IL_0011_Etn Lawn Solar Park_08_26_06023.dwg LAST SAVED BY: Rainb

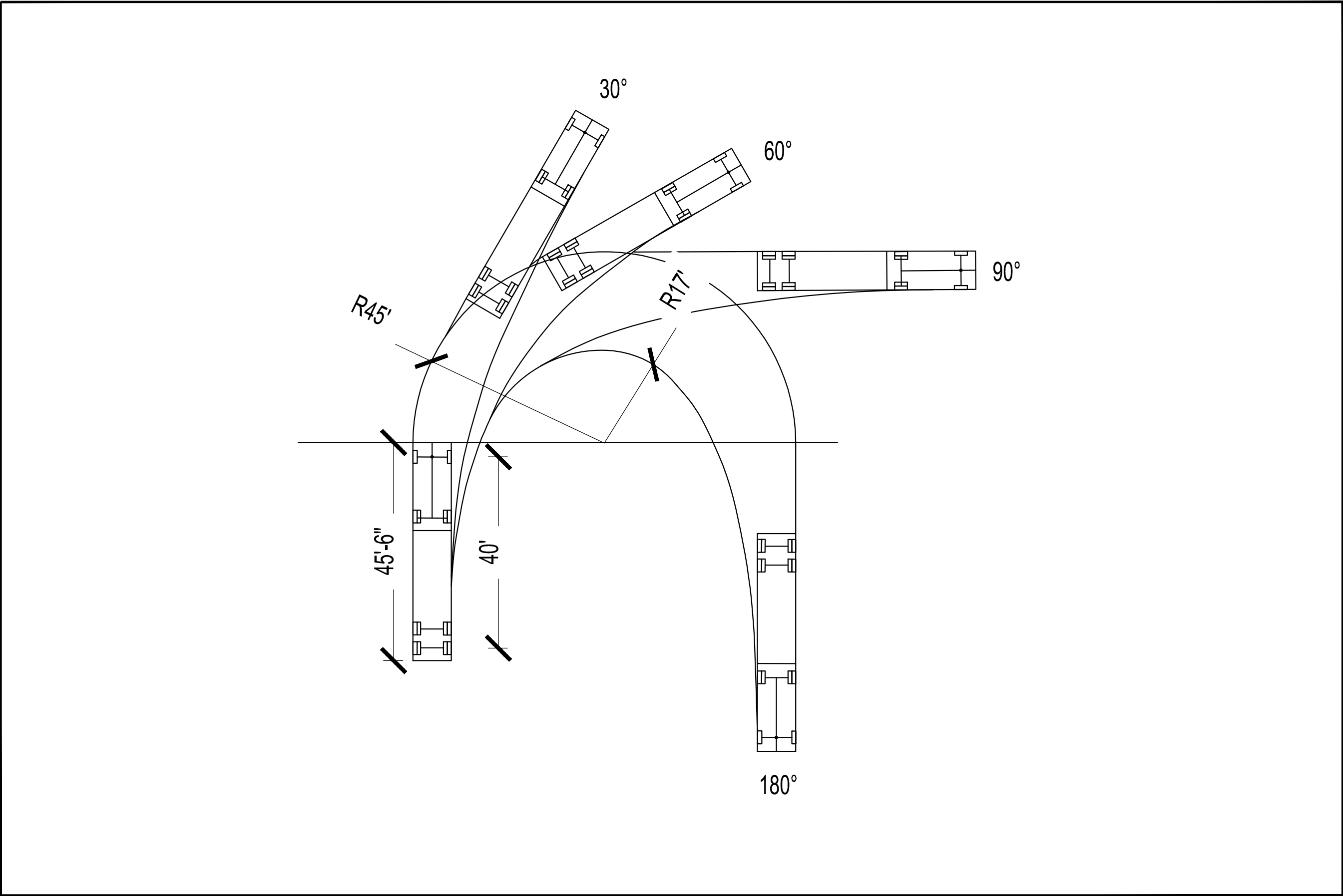


SCALE: 0' - 1" = 1' - 5"



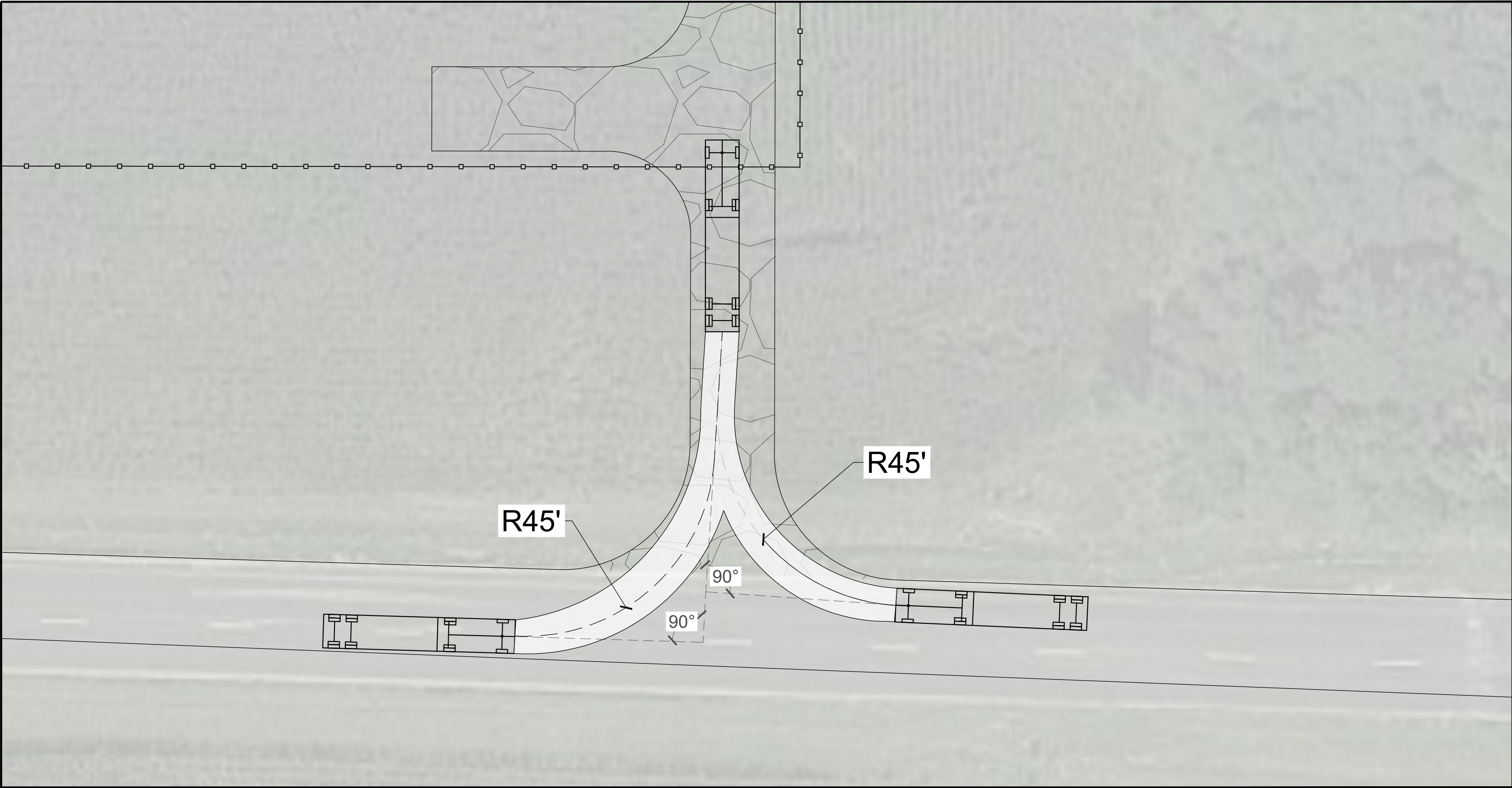
STANDARD SEMI-TRAILER TRUCK TURNING PATH

SCALE: 1"=20'



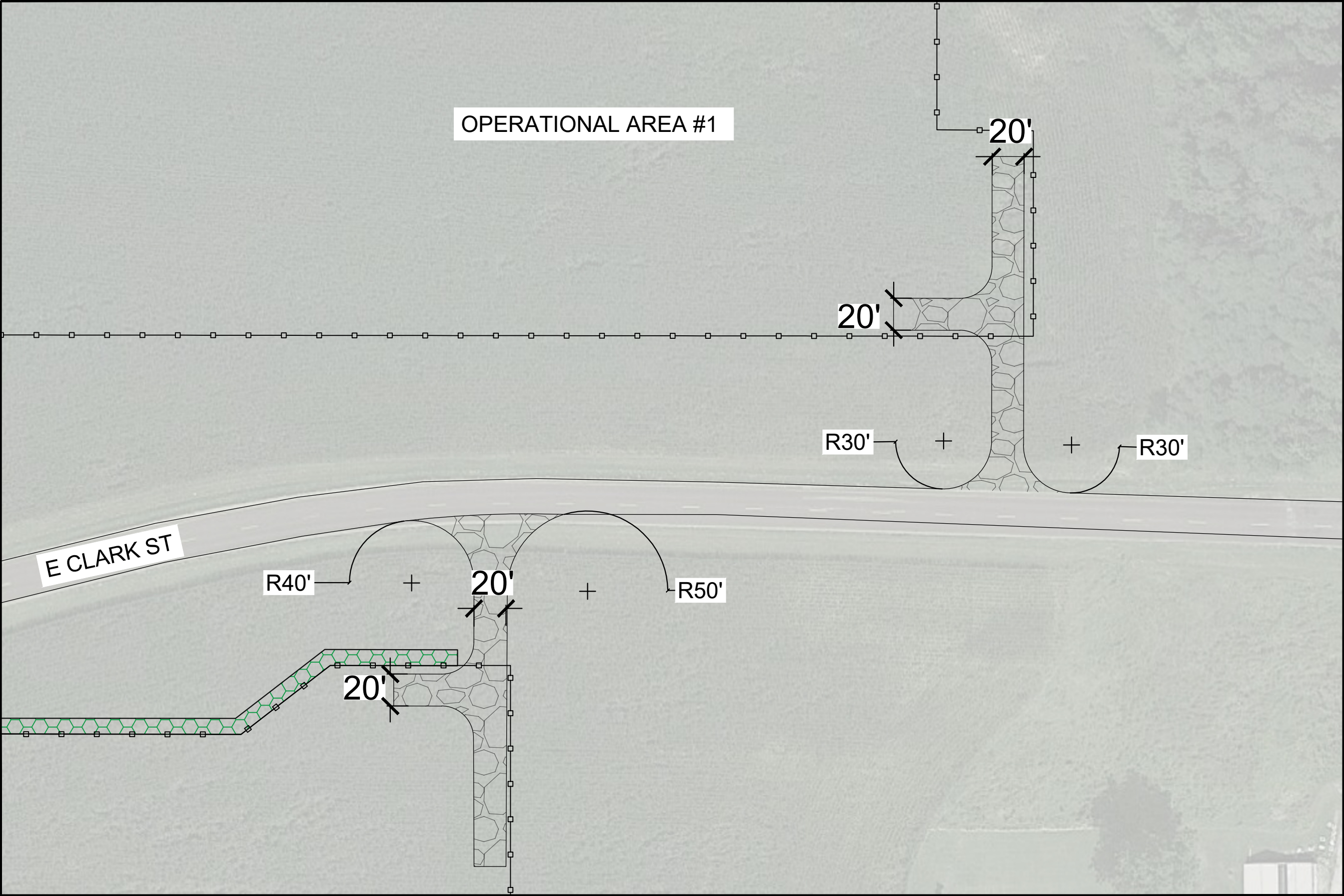
PRELIMINARY "ENTERING" SEMI-TRAILER TRUCK TURNING PATH

SCALE: 1"=20'



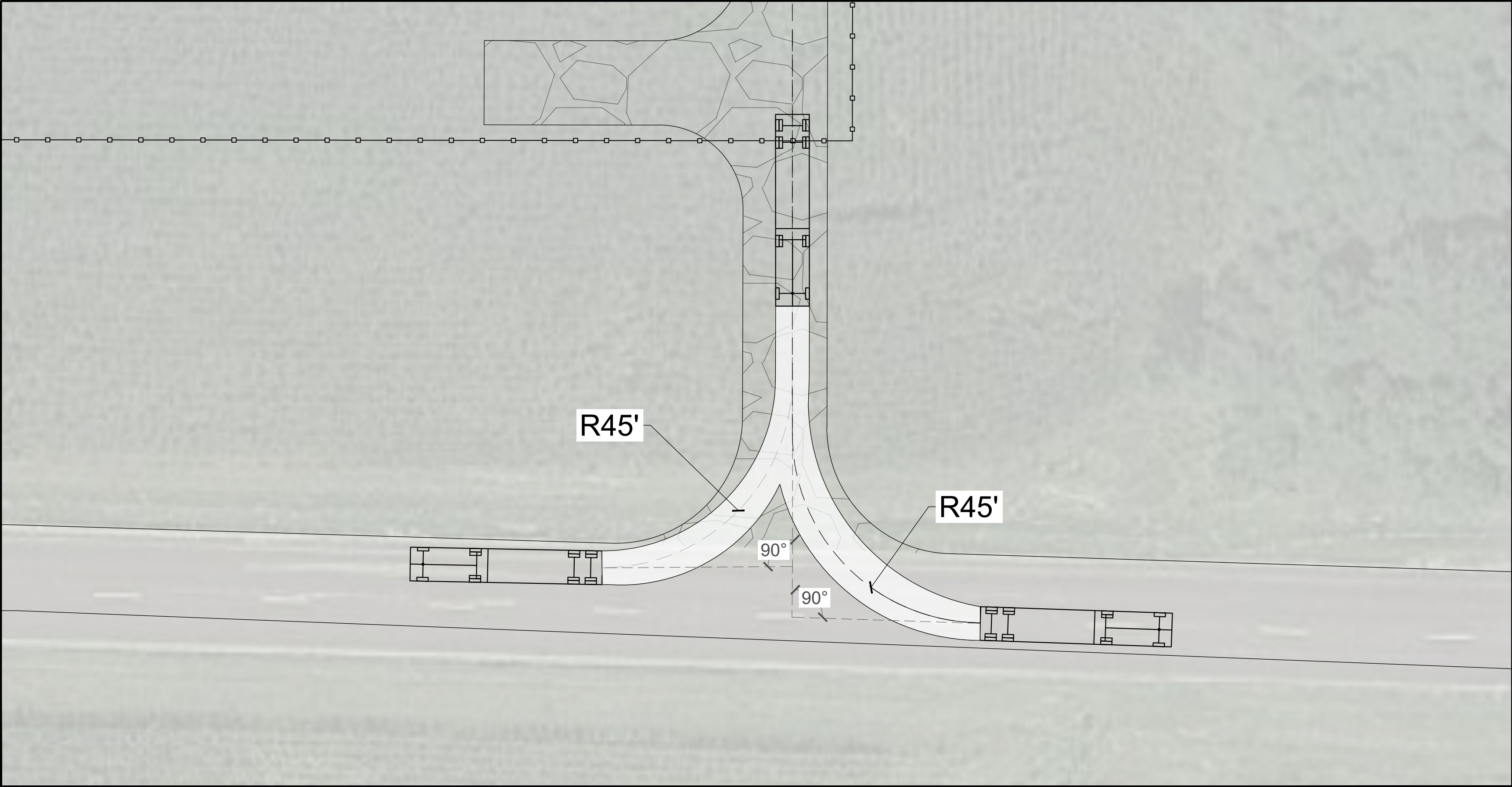
DRIVEWAY DIMENSIONS

SCALE: 1"=60'



PRELIMINARY "EXIT" SEMI-TRAILER TRUCK TURNING PATH

SCALE: 1"=20'



CSL 001: Elm Lawn Solar Park, 28, 300 Acres
LAST SALES BY: Shared
THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN ARE THE PROPERTY OF UNECLIPSED ENERGY, PLLC. IT IS UNLAWFUL FOR ANY PERSON TO ALTER ANY CONTENTS OF THESE DRAWINGS UNLESS THEY HAVE THE APPROVAL OF THE LICENSED PROFESSIONAL ENGINEER IN WRITING.

DATE	REVISION DESCRIPTION
2025-03-07	SITE DEVELOPMENT
2025-03-11	PROJECT EXTENDED AS MUCH AS POSSIBLE IN THE RUE
2025-03-21	PROJECT EXTENDED AS MUCH AS POSSIBLE IN THE RUE & B
2025-04-04	PI SIZE REDUCED TO 24AC
2025-04-30	PROJECT AREA REDUCTION
2025-05-06	PROJECT AREA REDUCTION
2025-05-17	PROJECT AREA REDUCTION LABEL REVISION
2025-05-20	PROJECT AREA REDUCTION LABEL REVISION

REVISION	DRAWN	CHECKED	APPROVED
08	GS	SMc	DC

ENGINEER: DAVID K. CLICK, PE
IL LIC #: 062.076524
NABCEP PV/PE: 041704-8

SEAL (PRELIMINARY, UNLESS SEALED)

UNECLIPSED ENERGY, PLLC

UNECLIPSED ENERGY, PLLC
2250 Lucien Way, Suite 305
Maitland, FL 32751 USA

esa

ESA
2250 Lucien Way, Suite 305
Maitland, FL 32751 USA

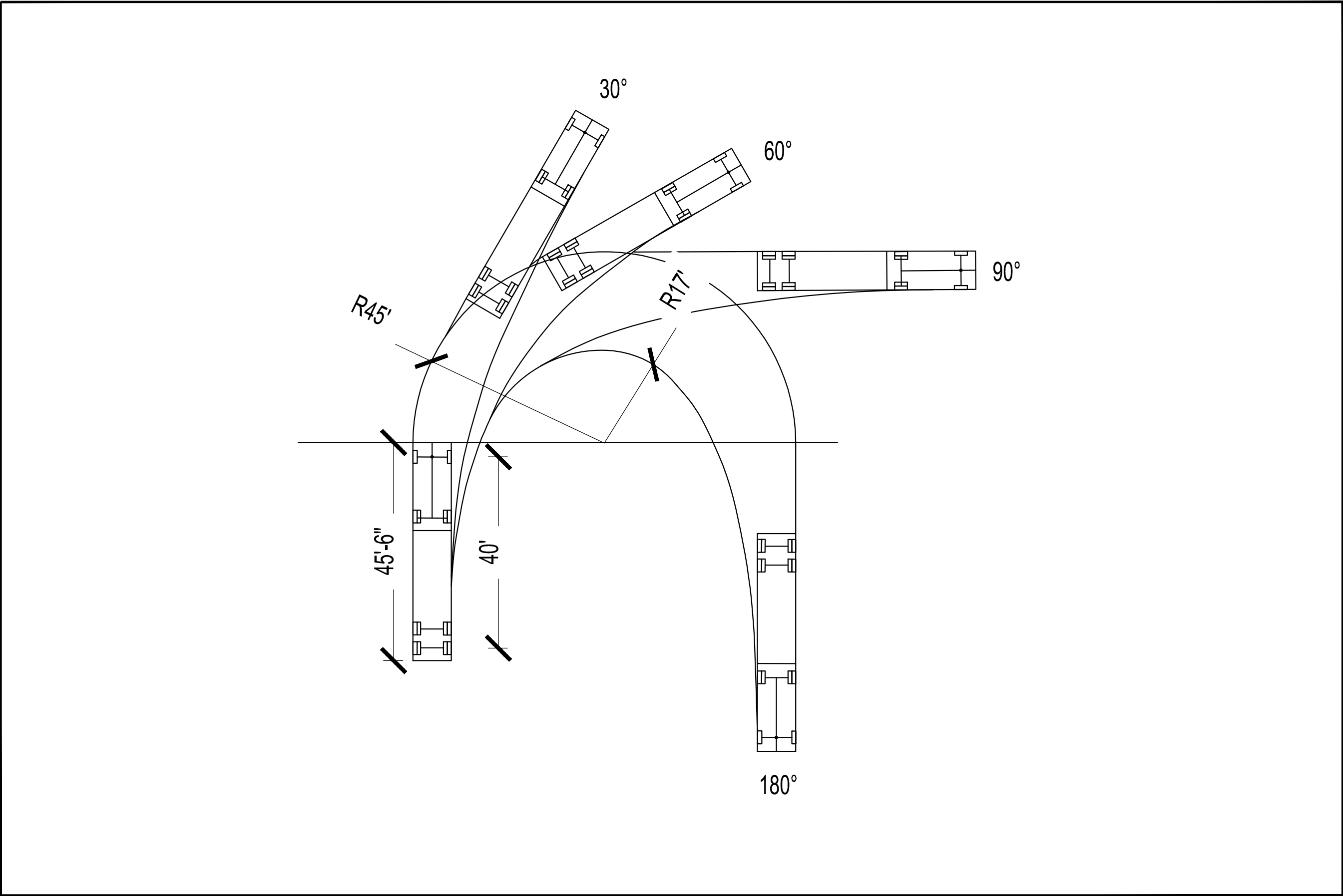
PROJECT NAME:
ELM LAWN SOLAR PARK
MONTGOMERY COUNTY

ADDRESS
173 YAEGER LAKE TRAIL,
LITCHFIELD, IL 62556
COORDINATES
39.184913, -89.634755
SHEET SIZE
24" x 36"
SCALE: 1" = 100'

SHEET TITLE
TRAFFIC TURNING PLAN
SHEET No:
C103

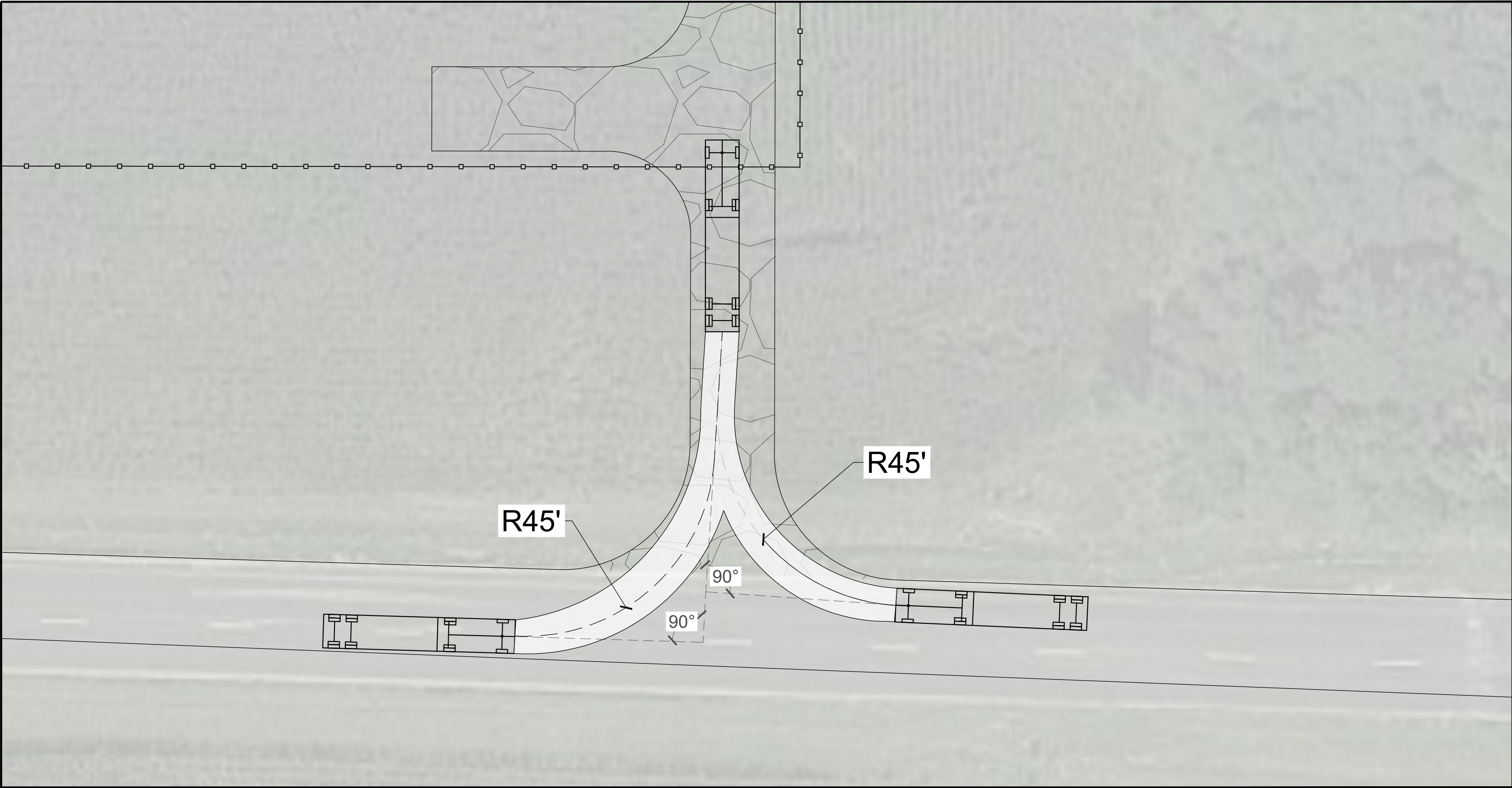
STANDARD SEMI-TRAILER TRUCK TURNING PATH

SCALE: 1"=20'



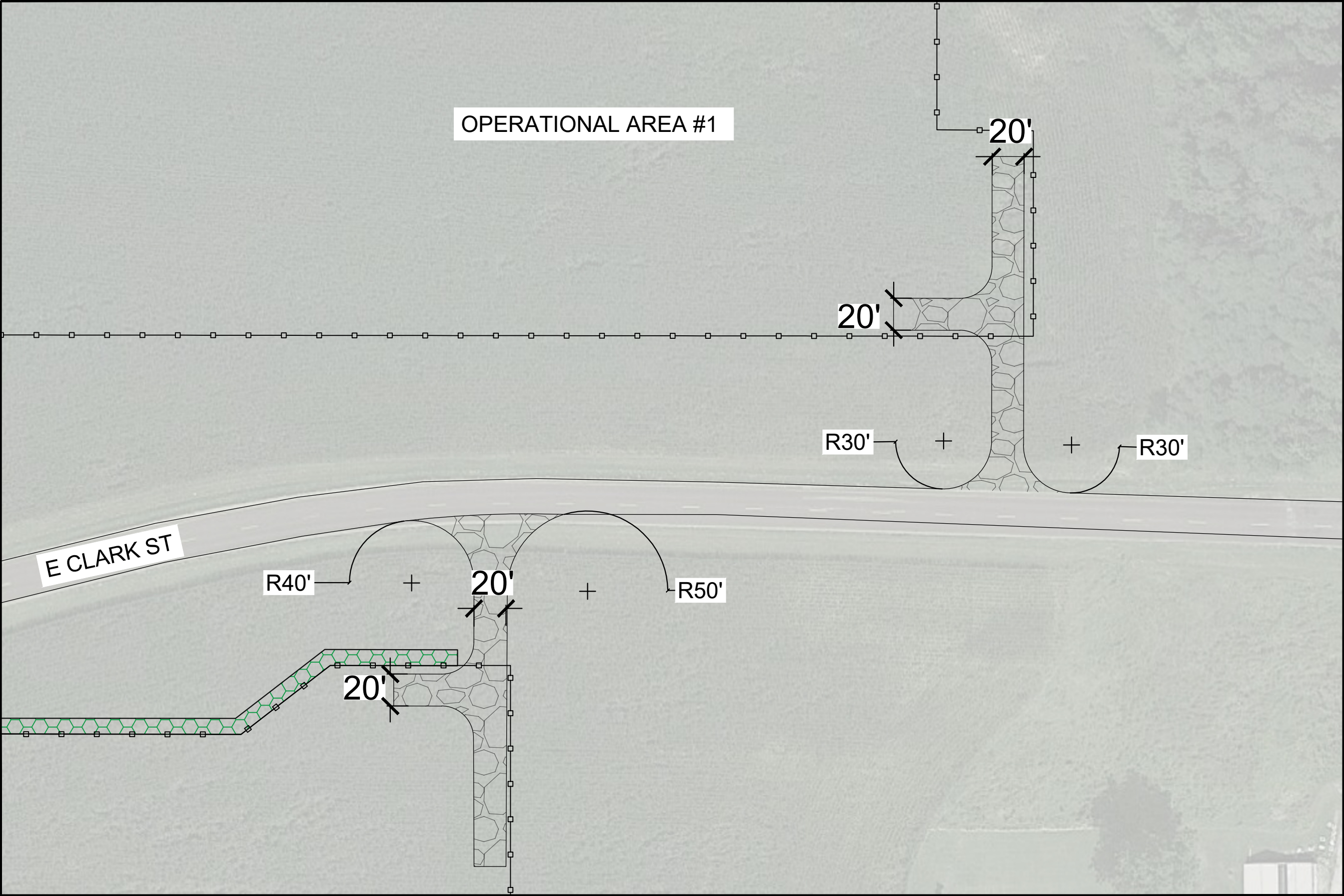
PRELIMINARY "ENTERING" SEMI-TRAILER TRUCK TURNING PATH

SCALE: 1"=20'



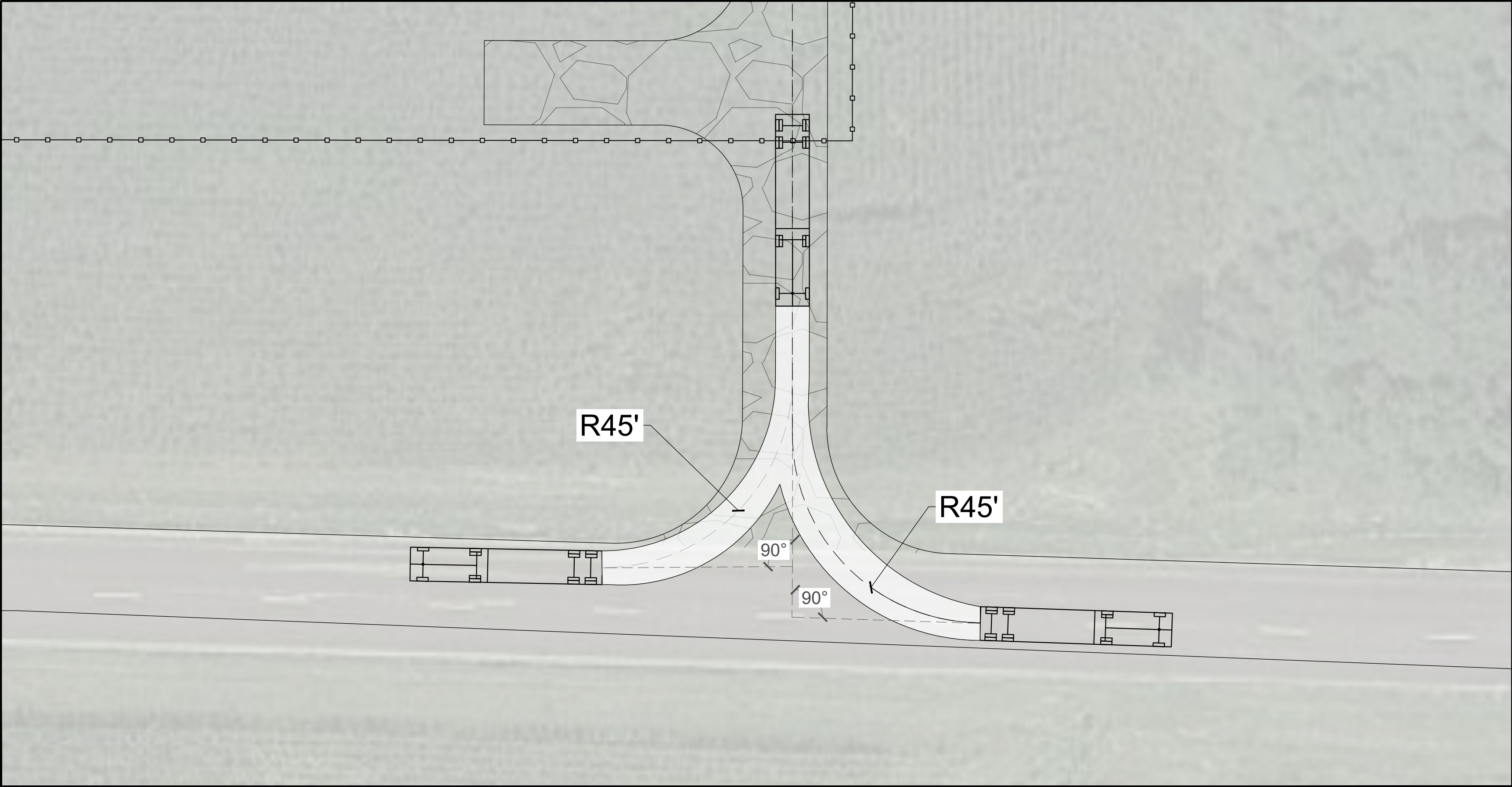
DRIVEWAY DIMENSIONS

SCALE: 1"=60'



PRELIMINARY "EXIT" SEMI-TRAILER TRUCK TURNING PATH

SCALE: 1"=20'



DATE	REVISION DESCRIPTION	BY	CHK
2025-03-07	SITE DEVELOPMENT	SMc	CS
2025-03-11	PROJECT EXTENDED AS MUCH AS POSSIBLE IN THE RUE	SMc	CS
2025-03-21	PROJECT EXTENDED AS MUCH AS POSSIBLE IN THE RUE & B	SMc	CS
2025-04-04	PIV SIZE REDUCED TO 24x36	SMc	CS
2025-04-30	PROJECT AREA REDUCTION	SMc	CS
2025-05-06	PROJECT AREA REDUCTION	SMc	CS
2025-05-17	PROJECT AREA REDUCTION	SMc	CS
2025-05-29	PROJECT AREA REDUCTION	SMc	CS

ENGINEER:	DAVID K. CLICK, PE
IL LIC #:	062.076524
NABCEP PVWP#:	041704-8

SEAL (PRELIMINARY, UNLESS SEALED)

UNECLIPSED

ENERGY

UNECLIPSED ENERGY, PLLC
2250 Lucien Way, Suite 305
Maitland, FL 32751 USA

esa

ESA

2250 Lucien Way, Suite 305
Maitland, FL 32751 USA

PROJECT NAME:

ELM LAWN SOLAR PARK
MONTGOMERY COUNTY

ADDRESS
173 YAEGER LAKE TRAIL,
LITCHFIELD, IL 62556

COORDINATES
39.184913, -89.634755

SHEET SIZE
24" x 36"

SCALE: 1" = 100'

N

SHEET TITLE
TRAFFIC TURNING PLAN

SHEET No.
C103

CS_L_0111_Einzelne Solv Pol_05_08_08f.dwg JAST SATZED BY: Rühb

SCALE: 1"=10'



SCALE: 1"=10'



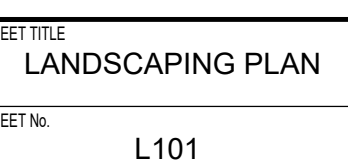
- SCALE: 1"=10'



SCALE: 1"=10'



- SCALE: 1"=105'

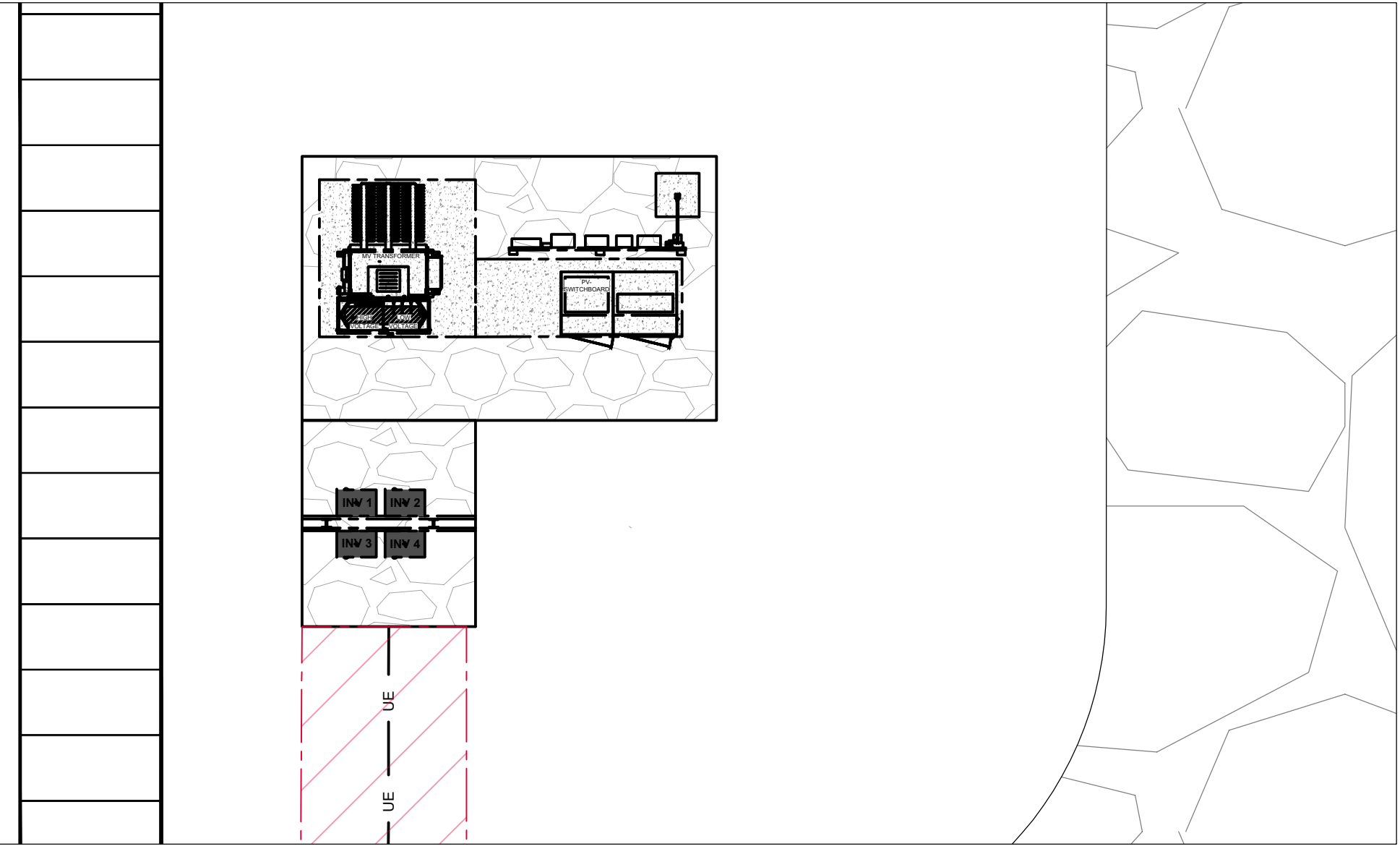


CSL 0011 ElmLawnSolarPark_08_26_2020.dwg LAST SAVE BY: Sheetal

THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN ARE THE PROPERTY OF UNECLIPSED ENERGY, PLLC. IT IS UNLAWFUL FOR ANY PERSON TO ALTER ANY CONTENTS OF THESE DRAWINGS UNLESS THEY HAVE THE APPROVAL OF THE LICENSED PROFESSIONAL ELECTRICITY ENGINEER.

E102.1 INVERTER PAD DETAIL

SCALE: 1"=8'



E102.1

POI [39.184294, -89.632000]

UTILITY METER

UTILITY RECLOSER

PCC GOAB SWITCH

CUSTOMER METER

CUSTOMER RECLOSER

REVISION	DRAWN	CHECKED	APPROVED
08	GS	SMc	DC

DATE	REVISION DESCRIPTION
2020-03-07	SITE DEVELOPMENT
2020-03-11	PROJECT EXTENDED AS MUCH AS POSSIBLE IN THE NE
2020-03-21	PROJECT EXTENDED AS MUCH AS POSSIBLE IN THE NE & S
2020-04-04	PIV SIZE REDUCED TO 240C
2020-03-30	PROJECT AREA REDUCTION
2020-03-08	PROJECT AREA REDUCTION
2020-03-17	PROJECT DECREASED ELEVATION LABELS REVISION
2020-03-20	PROJECT DECREASED ELEVATION LABELS REVISION

ENGINEER: DAVID K. CLICK, PE
IL LIC # 062.076524
NABCEP PVWP 041704-8

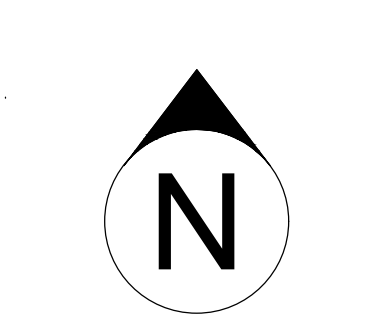
SEAL (PRELIMINARY, UNLESS SEALED)

UNECLIPSED ENERGY
UNECLIPSED ENERGY, PLLC
2250 Lucien Way, Suite 305
Maitland, FL 32751 USA

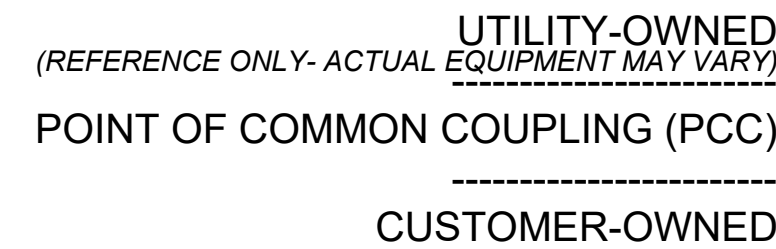
esa
ESA
2250 Lucien Way, Suite 305
Maitland, FL 32751 USA

PROJECT NAME:
ELM LAWN SOLAR PARK
MONTGOMERY COUNTY

ADDRESS
173 YAEGER LAKE TRAIL,
LITCHFIELD, IL 62556
COORDINATES
39.184913, -89.634755
SHEET SIZE
24" x 36"
SCALE 1"=40'



SHEET TITLE
ELECTRICAL PLAN
SHEET No.
E101



PROPOSED SEL-651R RELAY SET SETTINGS (V _{NOM} = 7.200KV L-L)			
ANIS#	PRIMARY PICKUP		CLEARING TIME
27-1	50%	3600 V	0.16 SEC
27-2	88%	6336 V	1.00 SEC
59-1	107%	7704 V	1.00 SEC
59-2	120%	8640 V	0.02 SEC
81U-1	57.0 Hz	-	0.16 SEC
81U-2	59.3 Hz	-	300 SEC
81O-1	60.5 Hz	-	0.16 SEC
81O-2	-	-	-
51P/Q/G	TBD	-	TBD
51C	TBD	-	TBD
51CG	TBD	-	TBD
67	TBD	-	TBD



SHEET TITLE
SINGLE LINE DIAGRAM

SHEET No. E102

CS_1_011_Fri Jan-Sat-Ped_08_26_003.rmg LAST SAILED BY: Standard

CS_IL_0011_Elm Lawn S&S; Park_08_26_0430.dwg LAST SAVED BY: Stenael

