

PLANNING COMMISSION

MAY 10, 2021

6:30 O'CLOCK P.M.

1. Call to Order
2. Minutes of the Previous Meeting – April 12, 2021
3. Ordinance Change to Kennel Language Discussion
4. Ordinance Change to Solar Language Discussion
5. Ordinance Change to Sign Language Discussion
6. Update on Komet Acres
7. County Public Hearings
 - i. Sterling Larson
 - ii. Molitor
 - iii. Quarry Sun
8. Transportation Map/Plan
9. Other – Davidson Variance Update
10. Adjourn

MINUTES OF PLANNING COMMISSION MEETING
April 12, 2021

Pursuant to due call and notice thereof, a regular Planning Commission meeting was held at City Hall on the 12th day of April, 2021 at 6:30 PM

THE FOLLOWING WERE PRESENT: Commissioner Thompson, Commissioner Burton, Commissioner Torkelson, Commissioner Zelinske, Commissioner Tinsley and Commissioner Fitch

THE FOLLOWING WERE ABSENT: Chairman Ferris

THE FOLLOWING WERE ALSO PRESENT: Administrator Tim Ibisch, Clerk Linda Rappe, Laura Chamberlain – HKgi, Patrick Gordon, ZED, Abby Hammes, Rod Jorgenson, Carrie and Mike Heppelman, Dennis Holz, Mike Paradise, Tim O’Morro, and Jesse Preston, WHKS

CALL TO ORDER AT 6:30PM

MINUTES OF THE PREVIOUS MEETING – March 8, 2021 - Motion to Approve the Minutes as Submitted made by Commissioner Zelinske, second by Commissioner Tinsley With All Voting Aye.

Public Hearing - Language change to Section 154.127 Site Dimensional Standards – increase maximum impervious surface for institutional uses in residential districts. – Administrator Ibisch gave background that this is for the Zumbro Education District. Laura Chamberlain, Hkgi Consultant stated that this would make the standard easier to function with. Need to update the language of the ordinance, prior to the update of the zoning code impervious surface limits were raised as part of a conditional use permit and these are no longer cups. This will apply with the city limits.

Commissioner Burton wanted to know if we have an opportunity to review if there is a concern with flooding in the area. Ms. Chamberlain stated that the site plan would be approved administratively. Administrator Ibisch stated that with a larger project this could be brought to planning commission for their opinion.

Public hearing opened

No comments

Public Hearing Closed

Discussion – no discussion

Motion to Recommend Approval of the Ordinance Change To Maximum Impervious Surface for Institutional Uses and the Resolution for Publication made by Commissioner Fitch, second by Commissioner Thompson with All Voting Aye.

Public Hearing – ZED Comprehensive Plan Amendment – Administrator Ibsch stated that the Zumbro Education District would like to annex a 6.12 acre parcel. The property is being transferred from the school district to ZED. This would need a comprehensive plan amendment, when the Comp Plan was set up this was slated for another use.

Public Hearing Opened

Patrick Gordon, Executive Director for ZED, this has been many years in the making.

Public Hearing Closed

Discussion: Commissioner Thompson putting a school next to the school makes sense.

Public Hearing – ZED Rezone Request – Administrator Ibsch stated that this is an institutional use.

Public Hearing Opened

No comments

Public Hearing Closed

No Discussion

Motion to Recommend Approval to the City Council for the Comprehensive Plan Change and the Rezone, made by Commissioner Thompson, second by Commissioner Tinsley with All Voting Aye.

Public Hearing – Komet Acres Comprehensive Plan Amendment – Administrator Ibsch stated that this is a large lot proposed development on the east side of Kasson. Ms. Chamberlain stated that there are two comprehensive plan amendments will be to the language in density to allow for larger residential lots. This is also re-guide the property from long term growth to low density residential as future land use.

Chairman Burton had a question regarding the phrase that the development is on the outer edge of the city's long term growth and if any other large lot developments were to come in where does this language leave us? Ms. Chamberlain will look into other language. Tim suggested using the word pattern instead of boundary.

Tim stated that the language change could be made before Wednesday's city council meeting.

Public Hearing

Mike Paradise – 4057 28th St., Rochester, President of Bigelow Homes - Bigelow has a variety of lot sizes going right now in Kasson and would like to add this size to their portfolio. The only problem they have is connecting the road to the township road and that could change the makeup of the neighborhood.

Rod Jorgenson - 27100 625th St. Kasson - asked if city water and sewer will service this and the answer was affirmative. His mother owns the parcel just south of the parcel. He does not believe this change in the comp plan is warranted and by changing the comp you are changing a newer document, that was researched based solely on this development.

Carrie Heppelman – 25680 625th St. – They had a hard time building when it was in the township because of their density standards. Ms. Heppelman believes that 38 houses on 51 acres does not seem like a lot but it is. Ms. Heppelman has the acreage that abuts this parcel and she has water drainage problems already and hopes that drainage will be addressed with this development. She has animals and will people file complaints regarding smell and noise against her. She is concerned with more traffic and garbage. She believes this will reduce her property value.

Mike Heppelman – 25680 625th St. - all of the houses out there are on 5 acres or more and if you want to maintain what is out there you need to make them bigger. And there is more land closer to the city that can be developed and not hopscotch your way to Byron. If the Comprehensive Plan was put together appropriately that is something you should follow.

Dennis Holz - 25676 625th St. – He moved here in 1966 and was two miles out of town then. He had to go through a lot to build a house on his property from the township board and the County. Most of that water for that 51 acres goes across his property. He doesn't feel the City has been a good neighbor. He feels that these requests should not be approved. He is opposed. Mr. Holz feels that the township road that was closed should be reopened.

Public Hearing Closed

Discussion:

Commissioner Thompson – how is the City when putting a comp plan together to know when property owners are ready to sell their property. Administrator Ibisch stated that this parcel is in the growth area.

Commissioner Zelinske – The Comprehensive Plan is a guide and it changes as the City changes. It is inevitable that City's grow.

Commissioner Torkelson - agrees with Zelinske and with the comp plan we try to predict but it is hard to know exactly where the development will grow.

Commissioner Tinsley – echos the previous comments and with this being on the edge there always has to be an edge, the developer has done his research to know that there is a market for this.

Commissioner Fitch - agrees with what has been said and reiterated what Mr. Paradise said earlier there are a lot of other lot size options and this will add another option.

Chairman Burton – we need to amend the language before presenting it to Council. When we put the comp plan together there was opportunity for 5000 people to have input.

Motion to Recommend Approval to the City Council the language change to the Comprehensive Plan with the understanding that the one clause will be tweaked, made by Chairman Burton, second by Commissioner Fitch with All Voting Aye.

Public Hearing – Komet Acres Rezone Request – Ms. Chamberlain stated the rezoning is because of the annexation process is done through resolution and the zoning map needs to be changed by ordinance. This is within the orderly annexation area. This would be to zone the property R-1.

Public Hearing Opened

No Comments

Public Hearing Closed

Motion to Recommend Approval by the City Council, made by Commissioner Zelinske, second by Commissioner Torkelson with All Voting Aye.

Public Hearing – Komet Acres Preliminary Plat – Ms. Chamberlain stated that the developer is proposing a 38 large lot single family development and the extension of the 16th street trail. The roadways are proposed to be open ditch instead of curb and gutter and there is a road extension to the east. The density is being addressed through the comp plan amendment and possible street connectivity is proposed through the cul de sac to the north. No park is being proposed in this development so they will pay parkland fees. There has been talk by the DNT regarding a trail on the north side of this property but that is not being shown on this plat. Administrator Ibisich stated there was a letter from Tony Bigelow asking not to connect to the township road.

Commissioner Thompson – the City of Kasson has done a good job with their road planning and is not in favor of connecting the subdivision to the township road. They have addressed a lot of the water issues.

Ms. Chamberlain stated that there are retention ponds and the applicant has submitted the grading for the street areas and for the ponding areas and there is an agreement with the adjacent property owner to put a retention pond on his property.

Jesse Preston, WHKS, there are three locations for retention ponds and they are utilizing two different kinds of stormwater management from infiltration on the west property line to north and south ponds would be infiltration. There will be no standing water in any of the three ponds, they are dry ponds. With a ditch design it gives them a chance to slow the water down.

Public Hearing Opened

Rod Jorgenson – 27100 625th St. – years ago when he was on planning commission one of the hated things was cul de sacs but he does know that people like to live on cul de sacs. He believes the connection to the township road would help emergency services. He is also wondering about parkland if there are 38 lots that is a lot of families and the old comp plan showed parkland in that area. Since he owns the property to the north who will shoulder the burden of parkland.

Mike Paradise – people do want to live on cul de sacs and the challenge is for snow storage and with the larger lots and larger setbacks there is more room for snow storage.

Dennis Holz – 25676 625th St. - disagrees with no sidewalks and no curb and gutter.

Carrie Heppelman – 25680 625th St. - she hears that this should be a dry pond but wants to make sure that this does not drain onto her property, there is already water that goes across her property, are they going to build a waterway.

Jesse Preston stated that the pond on the west side will have to have 3 feet of material removed and put in better materials that will help infiltrate that water into the ground the best we can. We are not adding as much impervious surfaces and allowing the water conveyance be a grass swale in lieu of concrete pipes. Chairman Burton asked Mr. Preston about State standards for runoff. A one to two year storm would have to be infiltrated into the ground and for the 50 and 100 year have to have plans that are reduced.

Public Hearing Closed

Discussion

Commissioner Thompson – what is the fire department's view on a road going through. Fire Chief Fitch stated that from a fire response it would be beneficial but the specifications for how this cul de sac will be built and how the township road is built are quite different. The impact on the township road with the increased traffic flow will hinder that road more than help. Question for Mike – how did you decide on one instead of two acre lots. Mr. Paradise stated that people want City water and sewer and when go to bigger lots there are less homes to spread out the cost.

Commissioner Zelinske – his concern is with these developments having only one entrance. We need to push the developers to have more than one access.

Commissioner Torkelson – the water issues have been on his mind and having one access is not a desirable development.

Commissioner Tinsley – echos Zelinske’s comments on access. Understands there are topographic challenges to this site but we need to look at ways for traffic flow.

Commissioner Thompson asked how many houses on one entrance Ms. Chamberlain stated that we go by fire and safety standards. Street connectivity just makes sense in residential areas. There is no specific rule of thumb, doesn’t think this is dangerous but more accesses would be desirable.

Mr. Preston stated that they are planning for a connection to the east and as far as going to the north he does have concerns regarding the state of the road to the north. This has not been brought up to the township.

Chairman Burton – concerns with connections and cul de sacs is the fault of the city by not having transportation plans in place. He would like a transportation map on the next agenda. He agrees with the concerns of one access, this access is at the bottom of a hill. He would like to see the connection to the north but there are concerns of forcing this on the developer at this point and that the neighbors and township have not been notified and would like to see these discussion take place before the final plat.

Motion to Recommend Approval to the City Council with the addition of another condition to look at discussion with township and property owners to the north along the township road about a possible connection along with 5 other conditions made by Commissioner Zelinske, second by Commissioner Torkelson with All Voting Aye.

Discussion regarding Kennels – Clerk Rappe stated that there has been confusion regarding the number of dogs allowed in each home. There could be clearer language in the code instead of just the definition of a kennel. We also need to decide if we want to allow kennels or boarding in the city limits. This is just for the Planning Commissioners information tonight and to think about and will be brought back to a future meeting.

Other – Commissioner Fitch asked if Park and Rec Director Unger has done the annual Wilker inspection.

Adjourn 8:15PM

Respectfully Submitted,

Linda Rappe, City Clerk

STAFF REPORT

TO: Planning and Zoning Commission
FROM: Brad Scheib, Consulting Planner, HKGi
Laura Chamberlain, Consulting Planner, HKGi
DATE: May 10, 2021
SUBJECT: Zoning Code Updates - Kennels
MEETING DATE: May 10, 2021

CURRENT CODE LANGUAGE ON KENNELS

TITLE IX: GENERAL REGULATIONS

Chapter 90: Animal Control

[§ 90.01 DEFINITIONS](#)

KENNEL. Any place, building, tract of land, abode, or vehicle where four or more dogs over the age of six months are kept and maintained. **KENNEL** does not include a veterinarian licensed to practice in the State of Minnesota who keeps, congregates or confines dogs in the normal pursuit of the practice of veterinary medicine. **KENNEL** does not include an animal shelter owned and operated by any political subdivision of the state or providing animal sheltering services under contract with any political subdivision of the state.

[§ 90.03 KEEPING OR HARBORING PROHIBITED](#)

(A)

(1) **No person shall own, care for, have custody or control of more than three dogs within the City limits.**

~~(1)~~(2) No person shall own, care for, have custody or control of, within the city limits, any non-domestic animal as defined in this chapter.

~~(2)~~(3) Exceptions. An exception may be made to this prohibition for the following: non-domestic animals within the City's Agricultural Zoning District as specifically provided within the city's Zoning Ordinance.

(B) Restrictions on food and drink establishments. It is unlawful for the owner or operator of any establishment wherein the selling, handling, processing or preparation of food is done to permit any animal in such establishment except as allowed by Minnesota Statutes.

[§ 90.16 KENNELS; LICENSE REQUIRED.](#)

No person will maintain a kennel within the city except in a location permitted by the zoning and subdivision code as a commercial kennel. The kennel license fee will be fixed from time to time by the Council and will be obtained in the same manner as the dog license. The license will expire annually on last day of December of each year.

TITLE XV: LAND USAGE

Chapter 150: Definitions

[§ 150.02 DEFINITIONS](#)

ANIMAL (PET) SERVICES. Establishments primarily engaged in the sale, grooming, retail of supplies or veterinary care of pets/non-agricultural animals; these uses do not include boarding of animals (see **KENNELS**).

KENNEL (ANIMAL BOARDING). A commercial establishment in which dogs or domesticated animals are housed, bred, boarded, or sold, all for a fee or compensation.

Chapter 154: Zoning

Article 04: Base Districts

Part 2: Uses

[§ 154.112 PRINCIPAL USES TABLE](#)

	R-1	R-1A	R-2	R-3	R-C	C-1	C-2	C-3	I-1	I-2	Use Standards
Animal / Pet Services						PS	PS	PS	PS		§154.206(A)
<u>Kennel / Animal Boarding</u>							<u>CUP</u>	<u>CUP</u>	<u>CUP</u>	<u>CUP</u>	<u>§154.206(B)</u>
Services otherwise allowed with drive-through or drive-in						CUP	CUP	PS	PS		§154.206(B)(C)

Article 06: Use Specific Standards

Part 4: Specific Commercial Uses

[§ 154.206 OTHER SERVICES.](#)

(A) Animal/Pet Services

- (1) Animal hospitals shall be located no closer than 100 feet to any residential district, restaurant, hotel or motel in any district, and shall show that adequate measures and controls will be taken to prevent offensive noise and odor. No incineration of refuse shall be permitted on the premises.
- (2) Animal daycare center:
 - (a) An odor mitigation plan shall be provided to demonstrate how impacts from odors will be minimized.
 - (b) All outdoor areas for animals shall be enclosed with a fence.
 - (c) A facility sharing a common building wall, ceiling, or floor plate with another use or structure must provide engineering detail demonstrating sound attenuation to STC rating of 55 or higher for such common walls and ceilings. Noise testing by a qualified noise professional may be required as a condition of approval prior to issuance of a building certificate of occupancy.
 - (d) All outdoor designated areas for animals shall be located a minimum of 125 feet from a residential property line.
 - (e) An indoor facility must be located at a minimum of 50 feet from a residential property line.
 - (f) Overnight boarding of animals shall not be permitted.

(B) **Kennel / Animal Boarding**

- (1) **All kennels shall hold a valid license with the City of Kasson, reviewed and renewed annually.**
- (2) **No animal shall be boarded or have over-night sleeping facilities outdoors.**
- (3) **An odor mitigation plan shall be provided to demonstrate how impacts from odors will be minimized.**
- (4) **All outdoor areas for animals shall be enclosed with a fence.**
- (5) **A facility sharing a common building wall, ceiling, or floor plate with another use or structure must provide engineering detail demonstrating sound attenuation to STC rating of 55 or higher for such common walls and ceilings. Noise testing by a qualified noise professional may be required as a condition of approval prior to issuance of a building certificate of occupancy.**
- (6) **All outdoor designated areas for animals shall be located a minimum of 125 feet from a residential property line.**
- (7) **All indoor facilities must be located at a minimum of 50 feet from a residential property line.**

(8) **No incineration of refuse shall be permitted on the premises.**

(B)(C) Services otherwise allowed with drive-through or drive-in. See standards established in § 154.205(B).

Current Code Language on Solar Energy Systems

May 2021

§ 150.02 DEFINITIONS

SOLAR ENERGY SYSTEM, ACCESSORY. A solar energy system which is directly connected to or designed to serve the energy needs of the primary use.

SOLAR FARM, COMMUNITY. A solar array composed of multiple solar panels on ground-mounted rack or poles which is not directly connected to or designed to serve the energy needs of the primary use but rather for the primary purpose of wholesale sales of generated electricity or a financial proxy for retail power. Solar farms include but are not limited to community solar gardens. A community solar system may be either an accessory or a principal use.

§ 154.112 PRINCIPAL USES TABLE

	R-1	R-1A	R-2	R-3	R-C	C-1	C-2	C-3	I-1	I-2	Use Standards
Community Solar Farm										CUP	§154.235(A)

§ 154.113 ACCESSORY USES TABLE

	R-1	R-1A	R-2	R-3	R-C	C-1	C-2	C-3	I-1	I-2	Use Standards
Solar Energy System, Accessory	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	§154.255(E)

[Use Specific Standards] § 154.235 NATURAL RESOURCES

(A) Community Solar Farm

Community Solar Farms shall be subject to the requirements set for conditional use permits as established in § 154.067 and the following additional performance standards:

(1) Foundations.

A professional licensed engineer in the state of Minnesota shall certify that the foundation and design of the solar panels is within accepted professional standards, given local soil and climate conditions.

(2) Vegetation requirements and management.

The following provisions shall be met related to the clearing of existing vegetation and establishment of vegetated ground cover. Additional requirements may apply as required by the City Council.

- (a) Large-scale removal of mature trees on the site is discouraged. Restrictions on tree clearing, or mitigation for cleared trees may be required by the City Council.
- (b) The project site design shall include the installation and establishment of vegetative ground cover.
 - (i) The ground cover should provide pollinator habitat or meet the beneficial habitat standards consistent with M.S. § 216B.1642, as may be amended from time to time, as set by the Minnesota Board of Water and Soil Resources.
 - (ii) Accessory uses of ground cover, such as beneficial crop growth, or feeding fields for sheep and goats, may be considered at the time of application and permitted with conditions by the City Council.
 - (iii) The applicant shall submit a financial guarantee in the form of a letter of credit, cash deposit or bond in favor of the City equal to 125 percent of the costs to meet the beneficial habitat standard. The financial guarantee shall remain in effect until vegetation is sufficiently established.

(3) Other standards and codes

All community solar farms shall comply with any applicable local, state and federal regulatory standards, including the State of Minnesota Uniform Building Code, as amended; the National Electric Code, as amended; the National Pollutant Discharge Elimination System (NPDES), as amended; and shall be in compliance with all applicable federal, state and local wetland laws, rules and regulations, as amended.

(4) Power and communication lines

Power and communication lines running between banks of solar panels, to electric substations, among other project elements and providing interconnections with buildings shall be buried underground. Exemptions may be granted by the City Council in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines.

(5) Setbacks

Community solar farms must meet the minimum principal building setback for the zoning district and be located a minimum of 300 feet from a residential dwelling unit not located on the property. Setbacks shall be measured to the nearest solar array or other structure within the community solar farm, excluding security fencing, screening or berm.

(6) Maximum Height

Ground mounted systems shall not exceed 25 feet in height at maximum ground tilt.

(7) Screening

Community solar farms shall be screened from residential dwelling units as follows when there is less than 1,000 feet of separation between the solar array and residential dwelling:

- (a) Screening shall consist of earth mounds or berms; neutral colored fences; or landscaping used in combination or singularly so as to block direct visual access and to mitigate potential glare concerns.
- (b) The use of berming and landscaping shall be 80 percent opaque at the time of maturity. Planting screens shall consist of healthy plant materials at least six feet in height at the time of planting.
- (c) Screening fences that are in disrepair shall be repaired. Planting screens shall be maintained in a neat and healthy condition with plantings that have died being replaced within the current or next growing season.
- (d) Applicant shall provide mitigation of glare issues, failure to mitigate will be a violation of the CUP.

(8) Solar panels must be removed and properly disposed of if they are out of production for more than one year unless the City Council grants an extension of time for their removal.

(9) Application Requirements

The following information shall be provided to the City as part of the CUP permit:

- (a) A site plan of existing conditions showing the following:
 - (i) Existing property lines and property lines extending 300 feet from the exterior boundaries, including the names of the adjacent property owners and current use of those properties.
 - (ii) Existing public and private roads, showing widths of the roads and any associated easements.
 - (iii) Location and size of any existing or abandoned wells, and sewage treatment systems.
 - (iv) Existing buildings and any impervious surface.
 - (v) Topography at two foot intervals and source of contour interval, a contour map of surrounding properties may also be required.
 - (vi) Existing vegetation (list type and percent of coverage; i.e. grassland, pasture, plowed field, wooded areas, etc.).

- (vii) Waterways, watercourses, lakes and public water wetlands.
- (viii) Level 2 wetland delineation required. Other levels may be appropriate if approved by the Zoning Administrator or City Engineer.
- (ix) The 100-year flood elevation and Regulatory Flood Protection Elevation, if applicable.
- (x) Floodway, flood fringe and/or general flood plain district boundary, if applicable.
- (xi) Surface water drainage patterns.
- (xii) Mapped soils according to the Dodge County Soil Survey.
- (b) Site Plan of Proposed Conditions:
 - (i) Location and spacing of solar panels.
 - (ii) Location of access roads.
 - (iii) Planned location of underground or overhead electric lines connecting the solar farm to the building, substation or other electric load.
 - (iv) New electrical equipment other than at the existing building or substation that is the connection point for the solar farm.
 - (v) Sketch elevation of the premises accurately depicting the proposed solar energy conversion system and its relationship to structures on adjacent lots (if any).
- (c) Manufacturer's specifications and recommended installation methods for all major equipment, including solar panels, mounting systems and foundations for poles or racks.
- (d) The number of panels to be installed.
- (e) A description of the method of connecting the array to a building or substation.
- (f) Visual Impact Analysis

An analysis of the potential visual impacts from the project including solar panels, roads and fencing along with measures to avoid, minimize or mitigate the visual effects shall be required. A plan may be required showing vegetative screening or buffering of the system from those items to mitigate for visual impacts.
- (g) A copy of the interconnection agreement with the local electric utility or a written explanation outlining why an interconnection agreement is not necessary.

- (h) A decommissioning plan shall be required to ensure that facilities are properly removed after their useful life.
 - (i) Decommissioning of solar panels must occur in the event they are not in use for 12 consecutive months. The plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation and a plan ensuring financial resources will be available to fully decommission the site. Disposal of structures and/or foundations shall meet all applicable rules and regulations to proper disposal.
 - (ii) To ensure proper decommissioning, the applicant shall provide a financial surety by posting a bond, letter of credit or the establishment of an escrow account at a rate of \$25,000 per MW or fraction thereof for Community Solar Farms and at a rate of \$500 per acre for Private Solar Gardens.
- (i) Any financial surety arrangement shall be approved by the City Attorney's Office as to form and issuing bank.
 - (i) The issuing bank must be an FDIC insured bank.
 - (ii) The issuing bank must be available in its entirety to fulfill the obligations of Developer under the Agreement.
 - (iii) Any letter of credit to the City shall contain language requiring its automatic renewal prior to December 31 of each calendar year, unless cancellation of the letter of credit is specifically approved in writing by the City.

[Use Specific Standards] [§ 154.255 ACCESSORY TO ALL USES](#)

(D) Solar Energy Systems, Accessory

(1) Type

- (a) In residential districts only building or roof-mounted systems shall be permitted
- (b) In non-residential districts ground mounted, building, and roof-mounted systems shall be permitted

(2) Accessory Structure Limit

Ground mounted systems shall count as an accessory structure for the purpose of meeting limits on the number of accessory structures allowed per lot and the coverage limits. Ground mounted systems less than 120 square feet shall not be required to apply for a Site Plan Review, but shall meet the setback requirements of an accessory structure.

(3) Height

Active solar energy systems are subject to the following height requirements:

- (i) Building or roof-mounted solar energy systems shall not exceed the maximum allowed height in any zoning district. For the purposes of height measurement, solar energy systems other than building-integrated systems shall be considered to be mechanical devices and are restricted consistent with other building-mounted mechanical devices for the zoning district.
- (ii) Ground or pole-mounted solar energy systems shall not exceed 25 feet in height when oriented at maximum tilt.

(b) Location within Lot

Solar energy systems must meet the accessory structure setback for the zoning district.

(i) Roof-mounted Solar energy systems

- a. In addition to the building setback, the collector surface and mounting devices for the roof-mounted solar systems that are parallel to the roof surface shall not extend beyond the exterior perimeter of the building on which the system is mounted or built. The collector and racking for roof-mounted systems that have a greater pitch than the roof surface shall be set back from all roof edges by at least two feet.
- b. Exterior piping for solar hot water systems shall be allowed to extend beyond the perimeter of the building on a side yard exposure.

(ii) Ground-mounted Solar Systems

Ground-mounted solar energy systems may not extend into the side-yard or rear yard setback when oriented at minimum design tilt.

(c) Compliance with State Electric Code

All photovoltaic systems shall comply with the Minnesota State Electrical Code.

(d) Compliance with all applicable federal, state and local wetland laws, rules and regulations.

(e) Application Requirements

The following information shall be provided to the Zoning Administrator as part of the site review process:

- (i) A site plan of existing conditions showing the following:

- a. Existing property lines and property lines extending 100 feet from the exterior boundaries, including the names of the adjacent property owners and current use of those properties.
 - b. Existing public and private roads, showing widths of the roads and any associated easements.
 - c. Location and size of any existing or abandoned wells, and sewage treatment systems.
 - d. Existing buildings and any impervious surface.
 - e. Topography at two foot intervals and source of contour interval, a contour map of surrounding properties may also be required.
 - f. Existing vegetation (list type and percent of coverage; i.e. grassland, pasture, plowed field, wooded areas, etc.).
 - g. Waterways, watercourses, lakes and public water wetlands.
 - h. -100-year flood elevation and Regulatory Flood Protection Elevation, if applicable.
 - i. Floodway, flood fringe and/or general flood plain district boundary, if applicable.
 - j. Surface water drainage patterns.
- (ii) Site Plan of Proposed Conditions, showing the following:
- a. Location and spacing of solar panels.
 - b. Planned location of underground or overhead electric lines connecting the solar energy system to the building, substation or other electric load.
 - c. New electrical equipment other than at the existing building or substation that is the connection point for the solar energy system.
- (iii) Manufacturer's specifications and recommended installation methods for all major equipment, including solar panels, mounting systems and foundations for poles or racks.
- (iv) The number of panels to be installed.

Solar Systems Ordinance

Subd. 1. Purpose. This subsection permits, as an accessory use, solar energy systems, while protecting the health, safety and welfare of city residents and the property interests of adjacent and surrounding land uses through appropriate zoning and land use controls.

Subd. 2. Definitions.

A. Building-integrated solar energy system. A solar energy system that is directly incorporated into the building by replacing typical building materials.

B. Ground-mounted solar energy system. A solar energy system that is installed onto the ground directly or by means of brackets or poles.

C. Roof-mounted solar energy system. A solar energy system mounted to a house or other building.

D. Solar energy system. A set of devices whose primary purpose is to provide for the collection, storage and distribution of solar energy for space heating or cooling, electricity generation or water heating.

E. Solar thermal system. A system that includes a solar collector and a heat exchanger that heats or preheats water for building heating systems or other hot water needs of the building.

Subd. 3. Permitted accessory use. Solar energy systems are allowable as an accessory use in all zoning districts, subject to the following requirements:

A. Standards.

1. Height. Roof-mounted solar energy systems shall not project beyond the peak of the roof and shall not be more than 4 feet above the roof surface to which they are attached. Ground-mounted solar energy systems shall not exceed 15 feet in height.

2. Location. Ground-mounted solar energy systems must be located in the rear yard only.

3. Setbacks. Ground mounted solar energy systems shall be set back a minimum of 20 feet from all property lines, a minimum of 20 feet from all buildings located on adjacent lots, a minimum of 20 from all public right-of-way, and a minimum of 20 feet from all utility easements. Roof-mounted solar energy systems shall comply with all building setbacks in the applicable zoning district and shall not extend beyond the exterior perimeter of the building on which the system is mounted.

4. Coverage. Roof-mounted solar energy systems must be of a size and placed in such a location so as to allow the dwelling/building to be insured for fire/casualty and liability coverage by any insurance company licensed to do business in the State of Minnesota. Proof of coverage must be provided by the owner showing that the roof-mounted solar energy system is specifically insured will be required for any permit issued under this subdivision.

5. Feeder Lines. All power exterior electrical or other service lines must be buried below the surface of the ground.

6. Exemption. Building integrated solar energy systems are exempt from the requirements of this section and shall be regulated as any other building element.

7. Weight. Rooftop solar projects must not overload the designed weight limit of the roof.

Subd. 4. Safety.

A. Compliance with building codes. All solar energy systems shall comply with the Minnesota Building Code and any local building code requirements.

B. Compliance with electric code. All solar energy systems shall comply with the National Electrical Code.

C. Compliance with plumbing code. All solar thermal systems shall comply with the Minnesota State Plumbing Code.

D. Certifications. Solar energy system components shall be certified by Underwriters Laboratories Inc. and the Solar Rating and Certification Corporation. The city reserves the right to deny a building permit for proposed solar energy systems deemed to have inadequate certification.

Subd. 5. Approval.

A. City Building Permit. The erection, alteration, improvement, reconstruction, and movement of a solar energy system requires a building permit from the city.

B. KPU Interconnect agreement. The owner of a solar energy system that will physically connect to a house or other building's electrical system and/or the electric utility grid must enter into a signed interconnection agreement with Kasson Public Utilities prior to the issuance of a building permit.

Subd. 6. Abandonment.

A. If the solar energy system remains nonfunctional or inoperative for more than twelve consecutive months, the system shall constitute a public nuisance. The owner shall obtain a demolition permit and remove the abandoned system at their expense. Removal includes the entire structure, including collector, mount, and transmission equipment.

Subd. 7. Aesthetics.

A. All solar energy systems shall use colors that blend with the color of the roof or other structure. Reflection angles from collector surfaces shall be oriented so as not to interfere with the use and enjoyment of other properties. Where necessary, screening may be required to address glare.

Subd. 8. Easements.

A. It shall be the responsibility of the property owner to secure/provide any desired solar easement by Kasson Public Utilities to protect solar access for the system (per Minnesota Statutes Section 500.30).

Subd. 9. Installation.

A. Solar energy systems shall be installed only by licensed contractors



CITY OF KASSON

401 FIFTH STREET SE
KASSON, MINNESOTA 55944-2204
PHONE: (507) 634-7071
FAX: (507) 634-4737

April 26, 2021

RE: Political Signage/Free Speech signage

Currently the Ordinance reads in this way:

§ 154.344 PERMITTED SIGNS, ALL DISTRICTS.

The following shall be allowed without a permit in all zoning districts:

- (A) Political signs, for a period from August 1 until ten days after an election (M.S. § 211B.045, as may be amended from time to time);
 - (B) Finder signs and real estate signs, not exceeding eight square feet in area;
 - (C) Official signs, such as traffic-control, parking restrictions, information and notices;
 - (D) Bulletin boards for public, charitable or places of worship not exceeding eight square feet in area;
 - (E) Historic markers, memorial signs, names of buildings and date of erection when cut into any masonry surface or when constructed of metal and affixed flat against a structure; and
 - (F) Warning and name signs not exceeding two square feet located on the premises.
- (Ord. 879, passed 10-28-2020)

Based on the review by the City Attorney, timeline restrictions of this nature are no longer valid. Staff advises that line (A) be revised to read: "Temporary Political signs, not exceeding eight square feet in area, meaning any sign the display surface of which is primarily constructed of cloth, canvas, fabric, paper board or other light material intended or suitable for only a temporary period of display, and advertising a candidacy for political office or a proposition to be voted upon."



ENVIRONMENTAL SERVICES

721 MAIN ST N • DEPT 123

MANTORVILLE MN 55955-2214

507-635-6272

DATE: April 22, 2021

TO: All Townships, All Cities, Soil and Water Conservation District, County Highway Department, County Assessor, MN DNR, and MnDot

FROM: County Staff of Environmental Services

RE: Request for Comment on Land Use Proposal

A Dodge County Public Hearing is planned for June 2, 2021 to consider a request to rezone an Urban Expansion District to a Closed Landfill Zoned District located in Section 29 of Mantorville Township.

*Please submit written comments prior to **May 17, 2021** to the Environmental Services Office. You may also relay comments at the Public Hearing. If we do not receive comments, we will assume you have no objections.*

Description of Land Use Proposal

- 1. Applicant's Name:** Sterling Garden LLC
- 2. Land Owner's Name:** Sterling Larson
- 3. Land Use Request, Intended Use:** A zone change from Rural Residential to Closed Landfill Zoned District.
- 4. Location:** A total of 8.8 acres to be split from a 73.93 acres parcel located the N ½ of NE ¼ in Section 29, Mantorville Township
- 5. Proposal information:** The applicant is proposing to split approximately 8.8 acres of land that is currently zoned Urban Expansion and rezone it to Closed Landfill Restricted for the purpose of applying for a Conditional Use Permit to construct a 1 MW solar energy farm. Solar Farms are currently prohibited on land that is zoned Urban Expansion.
- 6. Zoning District:** Urban Expansion
- 7. Existing Conditions** (based on staff review of in-office data):
 - A. Current Land Use:** Cultivated cropland

B. Neighboring Land Use: The surrounding area of this proposal is cultivated row crops. Directly east is buffer land located within the Closed Landfill Restricted District. Within a ½ mile radius are approximately 5 homes. Directly to the northeast is Stussy's Quarry. Adjacent to the east is an accessory solar system for the Dodge County Transfer Station which is also located east and across County Road 21. The City of Mantorville is a ½ mile north of this proposal. The City of Kasson is approximately 1/3 mile east of this proposal. To the south is land that is also zoned Urban Expansion.

C. Soil, Slope, and Hydric Soils: Soil, slope and climate conditions are considered "prime farmland" according to USDA definition. Parent soil type is Clyde-Floyd complex, 1 to 4 percent slopes. Hydric soils exist over the entire 8.8 acres portion that is proposed for rezoning.

D. Bedrock Depth, Type, and Karst Features: Limestone bedrock (Galena Group Cummingsville/Prosser Formation) is approximately 28 feet below grade. No karst features appear to exist on, or near, the site.

E. Water Quality Sensitivity: The east portion of the proposed parcel is mapped as being in the Highly Sensitive Groundwater Area, which is due to the shallow depth to bedrock. Shallow depth-to-bedrock can promote rapid movement of surface contaminants to the bedrock, and it is highly recommended that additional precautions be taken in this area to prevent surface contamination.

8. Zoning Ordinance Standards that Apply:

- A.** Chapter 9: Closed Landfill District
- B.** Chapter 10: Urban Expansion District
- C.** Chapter 18.18.9: Amendments

9. Attachments:

- A.** Aerial Photo showing proposed site and surrounding land use.
- B.** Request for Public Hearing and site plan prepared by Applicant

Cc. Applicant



Zoning Amendment Application
Request for a Public Hearing

Dodge County Environmental Services
721 Main St N, Dept. 123
Mantorville MN 55955

Phone 507-635-6272
www.co.dodge.mn.us

Application Fee \$ 2000.00
ATF Fee \$6000.00
Recorder Fee \$ 46.00

Date Received 4/5/2021
Received By LC

Applicant: Sterling Garden LLC

Phone: 612-470-3223

Address: 2639 Nicollet Ave Suite 200

City, State, Zip: Minneapolis, MN 55408

[Signature]
Applicant's Signature

03/08/21
Date

Property Owner: Sterling Larson

Phone: 507-884-8507

Address: 61907 State Hwy 57

City, State, Zip: Kasson, MN 55944

[Signature]
Property Owner's Signature

2/11/21
Date

Signature of this application authorizes Environmental Services Staff to enter the property to perform needed inspections.

Property Address: TBD

City, State, Zip: Kasson, MN 55944

Parcel I.D. Number 13.029.0100

Township 107 Section 29

Legal Description See Attached

of acres _____

☒ A change in a district's boundaries (rezoning): From Urban Expansion to Closed Landfill

☒ A change in a district's regulations: CLR - see attached

☐ A change in any other provision of this ordinance _____

The County Board may adopt amendments to the Zoning Ordinance and Zoning Map in relation both to land uses within a particular district or to the location of the district lines. Such amendments shall not be issued indiscriminately, but shall only be used as a means to reflect changes in the goals and policies or changes in conditions of the County.

Additional information requirements for a Zoning Amendment:

- 1. A detailed description and/or reason for request.**
See attached narrative

- 2. A detailed map or aerial photo indicating property lines, location of all dwellings, accessory structures and dimensions, feedlots within one thousand (1000) feet, driveway access, septic system location, well locations, rivers, wetlands, stormwater detention and/or treatment, drainage of site and any required improvements and methods of prevention erosion potential;**

Boundary Amendment requires the following information:

- I. The name, address and signature the property owner/owners.**
- II. A survey of the property and legal description of the area proposed to be rezoned.**
- III. The present zoning district and the proposed zoning district.**
- IV. The proposed use and potential site map of the land to be rezoned.**
- V. The zoning district(s) of surrounding properties within one-half (1/2) mile of the area proposed for rezoning.**
- VI. The existing uses of adjacent properties with one-half (1/2) mile of the area proposed for rezoning.**
- VII. A statement describing how the proposed changes in district boundary will be compatible with the Dodge County Comprehensive Plan.**
- VIII. A recommendation of the appropriate Township Board of Supervisors, provided:**
 - 1. The township has planning and zoning authority**
 - 2. The zoning ordinance is compliant with Minnesota Statutes, Chapter 394.33, or successor and**
 - 3. The zoning ordinance has been legally recorded in the Dodge County Recorder's Office.**
- IX. Additional information when requested by Environmental Services Department, Planning Commission and /or County Board of Commissioners.**

Text Amendment requires the following information:

- I. Stated reason for change requested.
- II. Statement regarding compatibility to the County Land Use Policy Plan.
- III. Text of portion of the existing ordinance to be amended.
- IV. Proposed amended text and statements outlining any other effects that the amendment may have on other areas of this Ordinance.
- V. Additional information when requested by Environmental Services Department, Planning Commission and/or County Board of Commissioners.

For Office Use Only

Date Rcvd 4/5/21 15 business day 4/26/21 60 day 6/4/21 120 day 8/3/21

**Zoning Amendment Application
Sterling Garden LLC
Dodge County
Section 29 TWN 107 Range 16**

Sterling Garden LLC on behalf of Sterling Larson is requesting for a boundary amendment on a portion of PID# 13.029.0100 to have its guided use and zoning district be changed from Urban Expansion (X) to Closed Landfill District (CLR) and a text amendment to have its legal description added to the CLR Chapter of the Dodge County Zoning Ordinance. The reason for this request is to, if approved, apply for a conditional use permit and build a 1MW Solar Energy Farm (Community Solar Garden, "CSG").

The guided use will remain visually and functionally consistent with the surrounding area - which is a mix of commercial, industrial, rural residential, and agricultural uses as shown in the attached maps. Including Zumbro Garden which is located directly south, a 1MW CSG which was permitted and constructed in 2019. After discussing with Dodge County Staff, we feel the most appropriate route to allow for a solar electric system on this property is to rezone the site as proposed, which will also provide further buffer of the Closed Landfill. To confirm, if approved the property & project will submit for Conditional Use Permit ("CUP") and have to adhere to all Dodge County standards and setbacks. We will also be requesting an access easement on the southeast corner through the County buffer area at this time. We have engaged the Minnesota Pollution Control Agency regarding this access request and understand they will also need to approve this zoning text amendment, along with Dodge County.

Please find the survey of the area requested to be rezoned, along with the site design of the CSG attached.



1MW CSG in Dodge County – Zumbro Garden, south of proposed Sterling Garden project

Zoning Amendment Application
Sterling Garden LLC

Project Overview

1. The CSG consists of steel driven posts embedded in the ground, with solar modules attached to the top of the posts, tracking the sun east to west throughout the day, sitting approximately 9.5-ft off the ground at the highest point. This project utilizes silicon based solar panels which have an anti-glare coating. There are no hazardous materials in the system, and no noise other than typical transformer humming would be present within the fence. We will propose to enclose the system with a 7-foot-tall agricultural fence (Sterling Garden is amenable to any reasonable fence height and material Dodge County deems necessary) to not only minimize the visual impact but also restrict access to the system from unqualified personnel. The cover crop inside the footprint of the system will be a combination of low growth native crops and a seed mix that promotes pollinator friendly habitats consistent with MN Stat. 216B.1642 as required.

The topography of the site slopes gently to the north. There is little natural vegetation; with some trees located along the south of the property and soils are suited to support the solar arrays. Soils mapped at the project site include the Clyde-Floyd complex (100%). There are no NWI-mapped wetlands within the site boundary and the site is not in a floodplain. A field survey in 2020 verified the extent of wetlands at the site, as confirmed by NOD by Dodge County and US Army Corps of Engineers. See Exhibit D – Wetland NOD. A Phase 1 Environmental Survey has been completed in 2021, which noted potential groundwater concerns due to the vicinity of the Dodge County Landfill. Solar will make an appropriate neighbor and extend the buffer zone outside the landfill, minimizing any potential hazards if the property were developed for residential or commercial use.

2. The boundary to be amended has a survey completed and legal language attached. The area requested for amendment is 8.8 acres in size, which would encompass all of the CSG, access road and setbacks. See Exhibit A – Boundary Survey and Legal Description.
3. The property is classified as Urban Expansion (X) and has been used for row crop agriculture dedicated to corn and soybean production.
4. A site plan is attached that includes the solar garden design that would be applied for as a conditional use if rezoned. See Exhibit B - Site Plan
5. The abutting parcels are zoned Urban Expansion, Agricultural, Closed Landfill. The City of Kasson city limits is just over ½ mile to the south of the proposed boundary amendment, and just under ½ mile to the east of the proposed boundary amendment at this time. Exhibit C - zoning map for ½ mile.
6. The existing uses within ½ mile include tilled agriculture, rural homesteads, County Landfill, solar gardens, and mining operations. There are no conflicts with land use and the request will have no impact to previously permitted activities in the surrounding area.
7. The proposed zoning change to request for renewable energy within the district boundary will be compatible and supported within the Dodge County Comprehensive Plan, Land Use and Growth

Zoning Amendment Application
Sterling Garden LLC

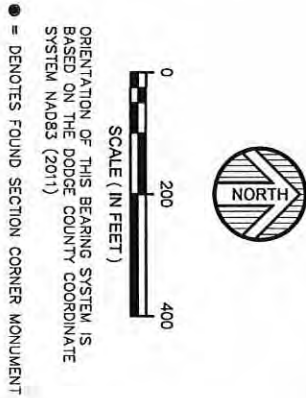
Management Policy. The request will maintain long term agricultural potential, after the conditional use permit for solar use is completed. Utilizing existing infrastructure, while maintaining buffer to a sensitive environmental area.

8. Sterling Garden LLC will be attending the Mantorville Township Meeting prior to the Dodge County public hearing. Sterling Garden LLC also attended a City of Kasson Planning Commission meeting on March 8th 2021, to present the project and take questions.
9. The text to be amended in the Dodge County Zoning Ordinance Chapter 9 has been included, inserting the portion of the parcel's legal description into the Chapter's language. We do not for see any additional text portions of the Ordinance needing to be updated outside of this request. Zoning map updates will be needed after the fact. See Exhibit E – Zoning Ordinance and Exhibit F – Language to be added.



1MW CSG in Dodge County – Zumbro Garden, proposed Sterling Garden to the north, with the Dodge County Landfill visible to the east.


Thank you for your consideration!



That part of the North Half of the Northeast Quarter of Section 29, Township 107 North, Range 16 West, Dodge County, Minnesota, described as follows:

Commencing the northeast corner of said North Half of the Northeast Quarter; thence South 0 degrees 04 minutes 44 seconds West along the east line of said North Half of the Northeast Quarter, a distance of 1333.37 feet to the southeast corner of said North Half of the Northeast Quarter; thence North 89 degrees 35 minutes 30 seconds West along the south line of said North Half of the Northeast Quarter, a distance of 250.00 feet to the west line of the East 250.00 feet of said North Half of the Northeast Quarter; thence North 0 degrees 04 minutes 44 seconds East along said west line of the East 250.00 feet, a distance of 684.18 feet; thence South 90 degrees 00 minutes 00 seconds West, a distance of 562.51 feet; thence South 0 degrees 00 minutes 00 seconds West, a distance of 680.18 feet to said south line of the North Half of the Northeast Quarter; thence South 89 degrees 35 minutes 30 seconds East, along said south line, a distance of 561.58 feet to the Point of Beginning.

DATE	FEBRUARY 23, 2021	DATE		AMOUNTS		BY		PREPARED FOR: NOKING PARTNERS
PC#	433904							HIGHEST CERTIFY THAT THE BUREAU, PLAN, OR RECORD WAS PREPARED BY
CRASH#	240							THE PERSONS WHOSE NAMES ARE LISTED HEREIN AND WHOSE NAMES ARE
CRASHED BY	40							AND SIGNATURES UNDER THE LAWS OF THE STATE OF MARYLAND,
FILE NUMBER	2020-01178							DRAFT 2/23/21
								JACOBUS BLOKHOFF, LG DATE: 2/23/21 LC: NO. 4009


WIDSETH
 ARCHITECTS • ENGINEERS • SCIENTISTS • SURVEYORS

Sterling Garden (2020-11176)

Proposed Description:

That part of the North Half of the Northeast Quarter of Section 29, Township 107 North, Range 16 West, Dodge County, Minnesota, described as follows:

Commencing at the northeast corner of said North Half of the Northeast Quarter; thence South 0 degrees 04 minutes 44 seconds West along the east line of said North Half of the Northeast Quarter, a distance of 1323.37 feet to the southeast corner of said North Half of the Northeast Quarter; thence North 89 degrees 35 minutes 30 seconds West along the south line of said North Half of the Northeast Quarter, a distance of 250.00 feet to the west line of the East 250.00 feet of said North Half of the Northeast Quarter; thence North 0 degrees 04 minutes 44 seconds East along said west line of the East 250.00 feet, a distance of 684.18 feet; thence South 90 degrees 00 minutes 00 seconds West, a distance of 562.51 feet; thence South 0 degrees 00 minutes 00 seconds West, a distance of 680.18 feet to said south line of the North Half of the Northeast Quarter; thence South 89 degrees 35 minutes 30 seconds East, along said south line, a distance of 561.58 feet to the Point of Beginning.

PID: 130290100

MARCH, 2021
REVISION 0



PROJECT DESCRIPTION: STRUTTING GARDEN LLC IS AN APPROXIMATE 2 ACRE, 1500 COMMUNITY SOLAR GARDEN. THE PROJECT WILL BE CONTRACTED WITH ACH ENERGY THROUGH THEIR SOLAR REVENUE-BASED COMMUNITY PROGRAM WHICH IS SUPPORTED BY THE STATE OF MINNESOTA. ONCE OPERATING, THE PROJECT WILL DIVIDE ACH'S OWN, LOCAL ENERGY TO THE SURROUNDING COMMUNITY FOR 25 YEARS. ACH WILL PURCHASE ALL OF THE ENERGY PRODUCED AND COMPENSATE THE SYSTEM OWNER AND ALL OF THE ENERGY SUBSCRIBERS IN THE FORM OF ACH'S CREDIT. OPERATED BY NOKOUS ENERGY, THIS GARDEN WILL ABIDE BY ALL TOWNSHIP, CITY, COUNTY AND STATE REQUIREMENTS.

PROJECT CONTACTS	
DAVID LOPES	NORCON ENERGY LLC 1000 N. 17TH STREET, 200, WINNEBAGO, IL 60093 612-611-2000 JALAN@NORCONENERGY.COM
CRAIG BENDER	AMEREN ENERGY LLC 10000 WILSON DRIVE, SUITE 100, EL PASO, TX 79906 972-466-1000 CRAIG.BENDER@AMEREN.COM

LEGEND

	PROJECT BOUNDARY
	PARCEL LINE
	EXISTING EDGE OF GRAVEL ROAD
	EXISTING FENCE
	EXISTING OVERHEAD POWER
	EXISTING UTILITY POLE
	EXISTING SIDEWALK
	EXISTING INTERMEDIATE CONTIGUOUS
	EXISTING WETLANDS
	EXISTING UTILITY POLE
	EXISTING TELEPHONE/INTERSTRA
	EXISTING CONCRETTE
	EXISTING ROAD
	PROPOSED FENCE
	PROPOSED OVERHEAD
	PROPOSED SIDEWALK
	PROPOSED INTERMEDIATE CONTIGUOUS
	PROPOSED DATE
	PROPOSED UTILITY POLE
	PROPOSED EQUIPMENT PAD
	PROPOSED OVERHEAD POLE
	PROPOSED WETLANDS

ENGINEER:



SARAH EMEDELEY, MINNESOTA LIC# 1000000000
DATE OF SIGNATURE MARCH 1, 2022

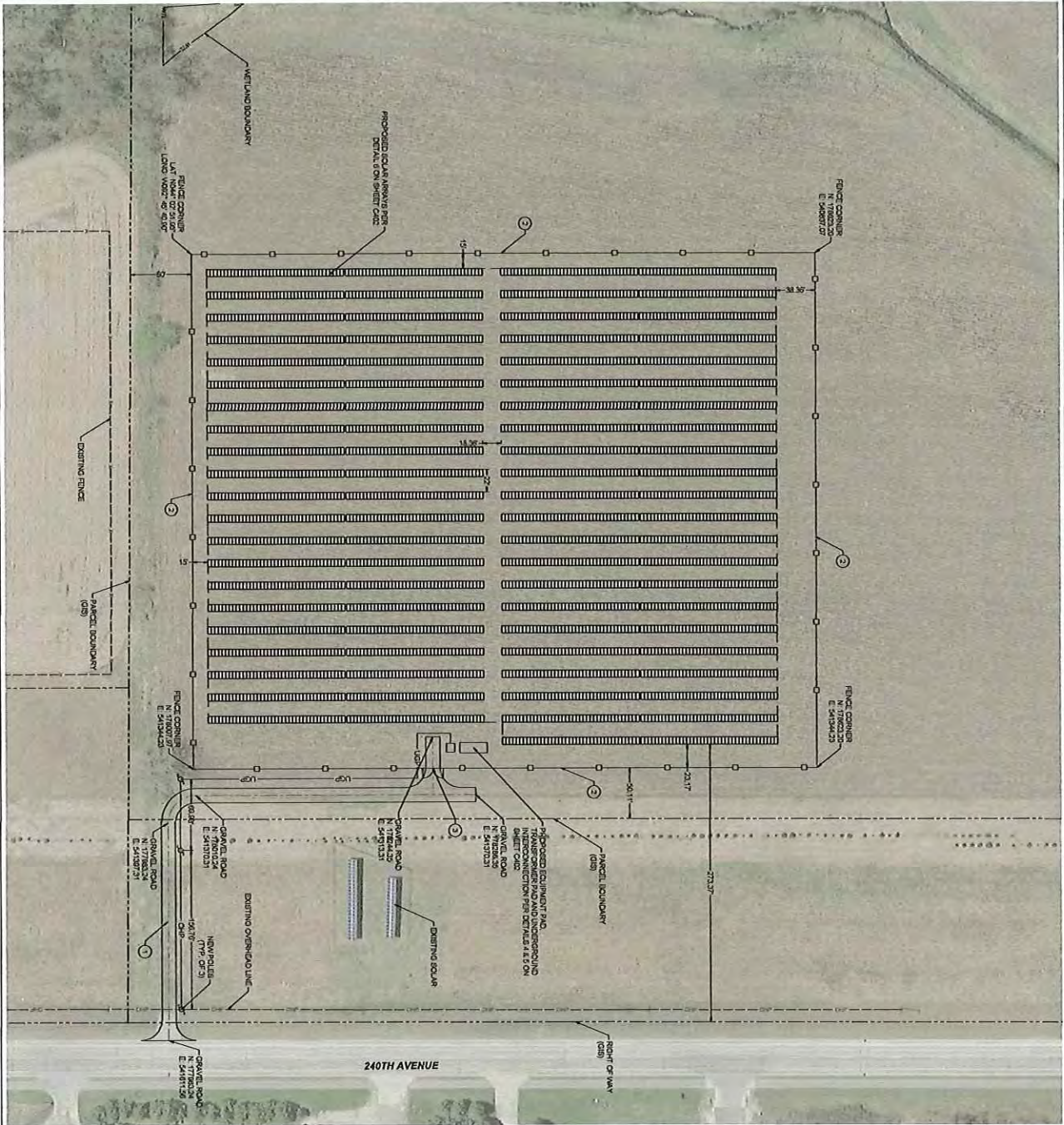
FILE NO. 52704



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MINNESOTA.

Sarah Smedley
 SARAH SMEDLEY, MINNESOTA LICENSE NO. 2004
 DATE OF SIGNATURE: MARCH 1, 2021

 MERIDIAN ENGINEERING LLC	 Xcel Energy	 Nokomis ENERGY	PRELIMINARY NOT FOR CONSTRUCTION	SHEET NO. C101	DATE 2/20/20
				PROJECT STERLING GARDEN LLC (03579822) 240TH AVENUE DODGE COUNTY, MN	SCALE 1" = 100'



- CONSTRUCTION NOTES**
1. CONSTRUCT 4" WIDE GRAVEL ACCESS ROAD PER DETAIL A.2.6
 2. CONSTRUCT 2" TALL GOLF FENCE PER DETAIL A.2.6
 3. ON SHEET C-01 TO WIDE DRIVE GATE PER DETAIL A.2.6

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Sarah Smedley

SARAH SMEDLEY, MINNESOTA LICENSE NO. 20084
DATE OF SIGNATURE: MARCH 1, 2021

STERLING GARDEN LLC (03579822) 240TH AVENUE DODGE COUNTY, MN

SITE PLAN

C201

22'x34'

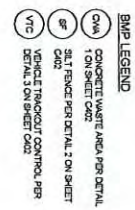
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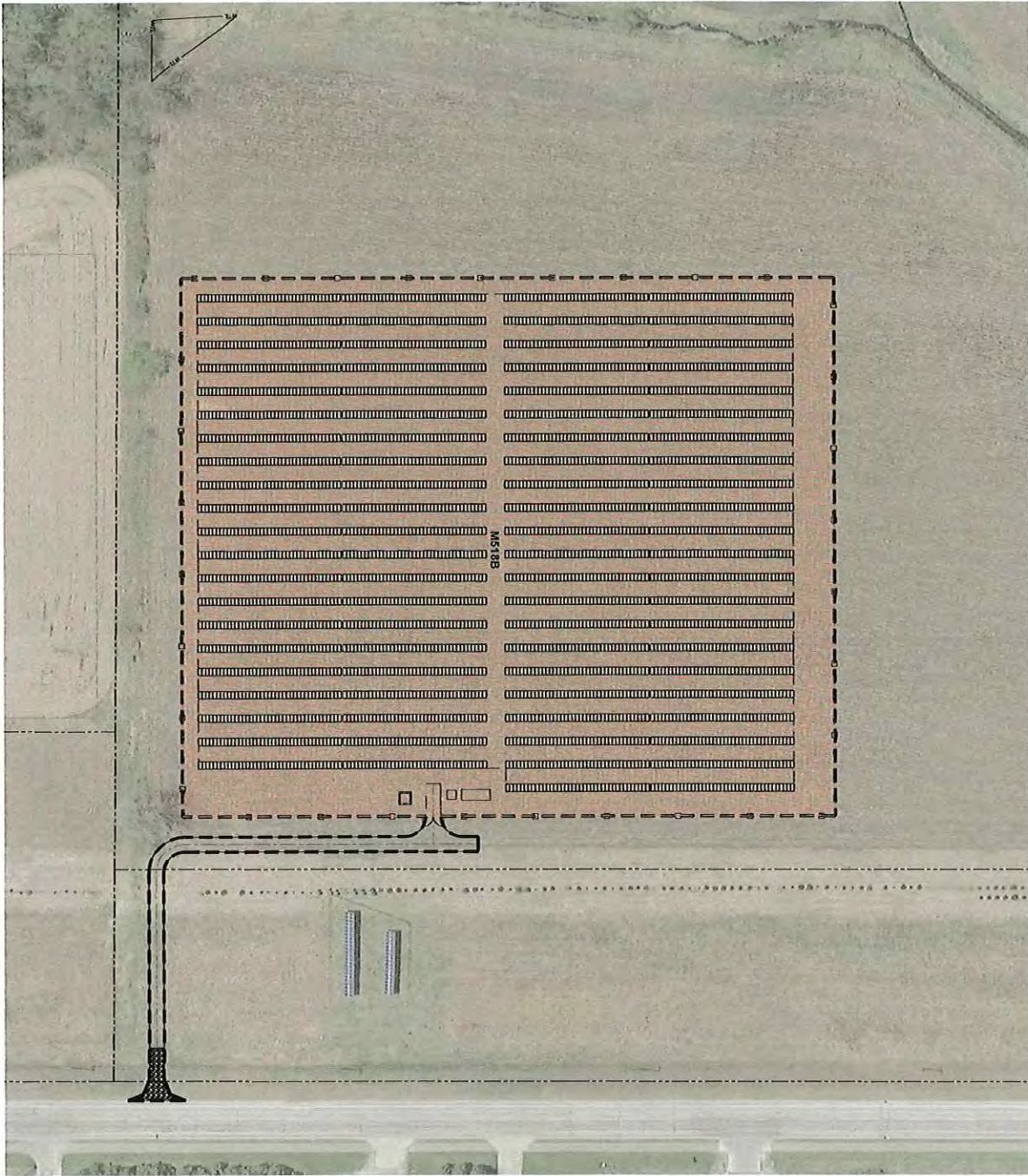
PRELIMINARY
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	DESCRIPTION



David Swales
SARAH SWEDLEY, MINNESOTA LICENSE NO. 52904
DATE OF SIGNATURE: MARCH 1, 2021



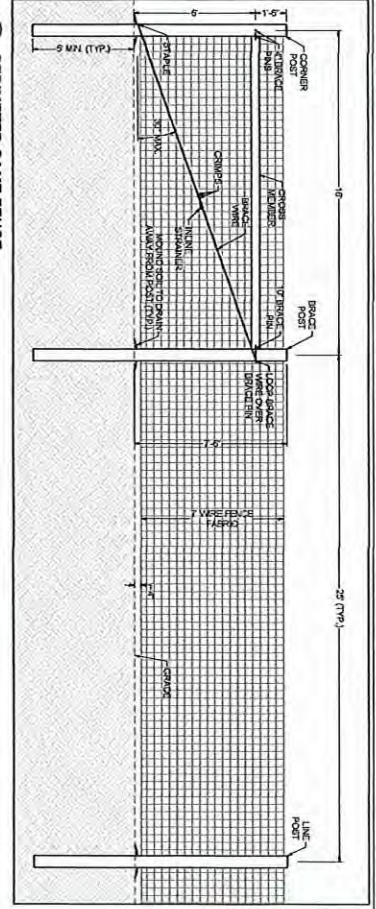
SOIL GROUP			
MAP UNIT SYMBOL	MAP UNIT NAME	SOIL RATING	
M519B	GLYSSA LOSS COMPLEX, 1 TO 4 PERCENT SLOPES	B/D	

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Sarah Smedley
SARAH SMEDLEY, MINNESOTA LICENSE NO. 23004
DATE OF SIGNATURE: MARCH 1, 2021

STERLING GARDEN LLC (03579822) 240TH AVENUE DODGE COUNTY, MN	C302	22'x34'	0	SOIL MAP	

AGGREGATE GRADATION TABLE	
SIEVE SIZE	PERCENT PASSING
7.5 (NO. 20) (MM)	100
30 (NO. 60) (MM)	100
37.5 (NO. 40) (MM)	100
47.5 (NO. 30) (MM)	100
60 (NO. 25) (MM)	100
75 (NO. 20) (MM)	100
100 (NO. 15) (MM)	100
150 (NO. 10) (MM)	100
200 (NO. 75) (MM)	100

- ACCESS ROAD NOTES**
1. SOIL PREPARATION SHALL INCLUDE THE REMOVAL OF ALL EXISTING VEGETATION, TOPSOIL, AND OTHER DEBRIS. THE AREA SHALL BE PREPARED FOR THE CONSTRUCTION OF THE ACCESS ROAD. THE ACCESS ROAD SHALL BE 10' WIDE AND 12" DEEP. THE ACCESS ROAD SHALL BE CONSTRUCTED WITH 12" OF 3/4" GRADE CRUSHED GRAVEL. THE ACCESS ROAD SHALL BE CONSTRUCTED WITH 12" OF 3/4" GRADE CRUSHED GRAVEL. THE ACCESS ROAD SHALL BE CONSTRUCTED WITH 12" OF 3/4" GRADE CRUSHED GRAVEL.
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PRELIMINARY
NOT FOR CONSTRUCTION

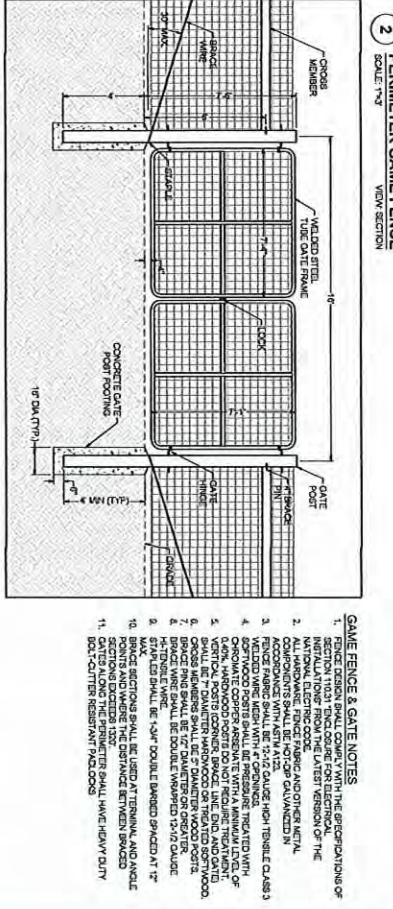
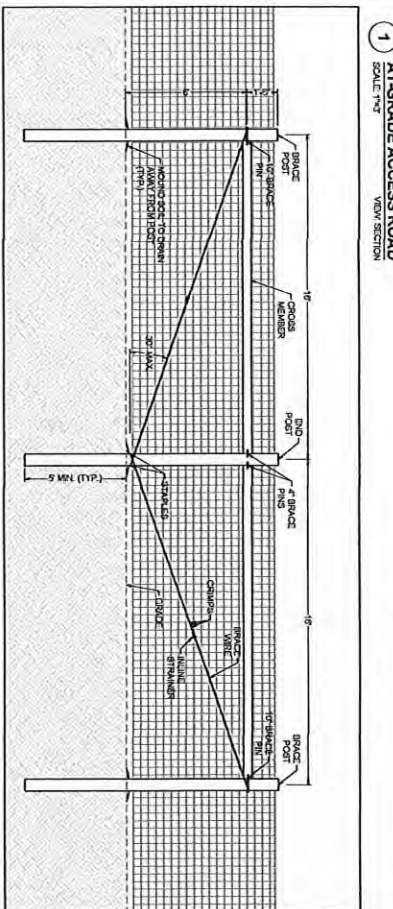
STERLING GARDEN LLC (03579822)
240TH AVENUE
DODGE COUNTY, MN

DETAILS 1

401

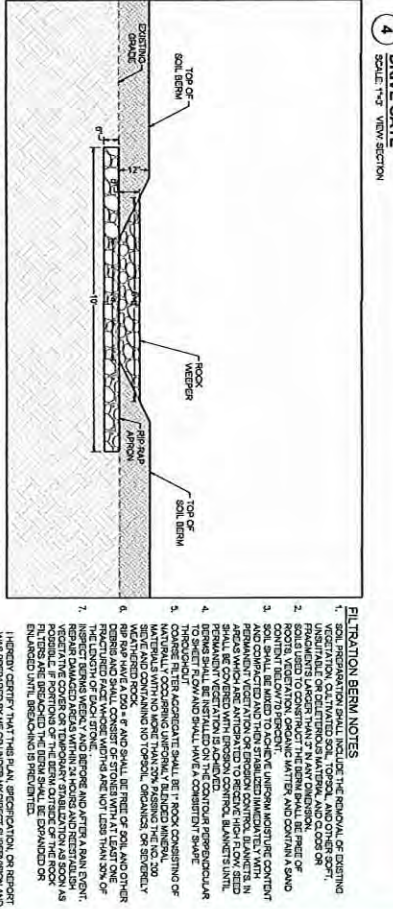
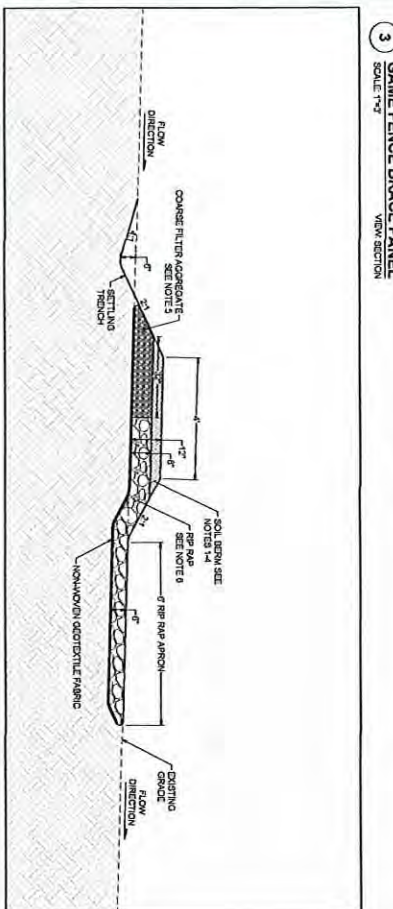
22' x 34'

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GAME FENCE & GATE NOTES

1. FENCE DESIGN SHALL COMPLY WITH THE SPECIFICATIONS OF SECTION 110.31 FENCE FOR ELECTRICAL MATERIAL, ELECTRIC CODE.
2. ALL MATERIALS, FENCE FABRIC AND OTHER MATERIALS SHALL BE APPROVED BY THE ARCHITECT.
3. FENCE FABRIC SHALL BE 1/2" GAUGE WOOD TRIMBLE CLASS 3.
4. GATE FABRIC SHALL BE 1/2" GAUGE WOOD TRIMBLE CLASS 3.
5. GATE FABRIC SHALL BE 1/2" GAUGE WOOD TRIMBLE CLASS 3.
6. GATE FABRIC SHALL BE 1/2" GAUGE WOOD TRIMBLE CLASS 3.
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10. GATE FABRIC SHALL BE 1/2" GAUGE WOOD TRIMBLE CLASS 3.
11. GATE FABRIC SHALL BE 1/2" GAUGE WOOD TRIMBLE CLASS 3.



FILTRATION BERM NOTES

1. SOIL PREPARATION SHALL INCLUDE THE REMOVAL OF ALL EXISTING VEGETATION, TOPSOIL, AND OTHER DEBRIS. THE AREA SHALL BE PREPARED FOR THE CONSTRUCTION OF THE FILTRATION BERM. THE FILTRATION BERM SHALL BE 10' WIDE AND 12" DEEP. THE FILTRATION BERM SHALL BE CONSTRUCTED WITH 12" OF 3/4" GRADE CRUSHED GRAVEL. THE FILTRATION BERM SHALL BE CONSTRUCTED WITH 12" OF 3/4" GRADE CRUSHED GRAVEL.
2. THE FILTRATION BERM SHALL BE CONSTRUCTED WITH 12" OF 3/4" GRADE CRUSHED GRAVEL. THE FILTRATION BERM SHALL BE CONSTRUCTED WITH 12" OF 3/4" GRADE CRUSHED GRAVEL. THE FILTRATION BERM SHALL BE CONSTRUCTED WITH 12" OF 3/4" GRADE CRUSHED GRAVEL.
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STERLING GARDEN LLC (03579822)
240TH AVENUE
DODGE COUNTY, MN

DETAILS 1

401

22' x 34'

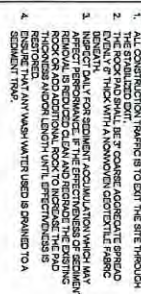
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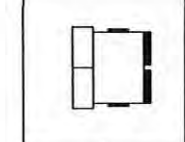
SILT FENCE
SCALE: 1"=1' VIEW: SECTION



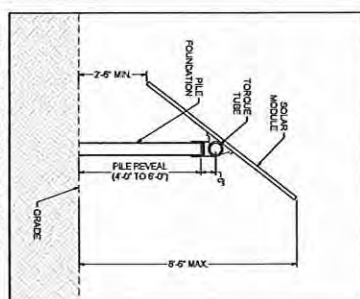
SILT FENCE
SCALE: 1"=4' VIEW: S



4
EQUIPMENT PADS
SCALE: 1"=3' VIEW: PLAN



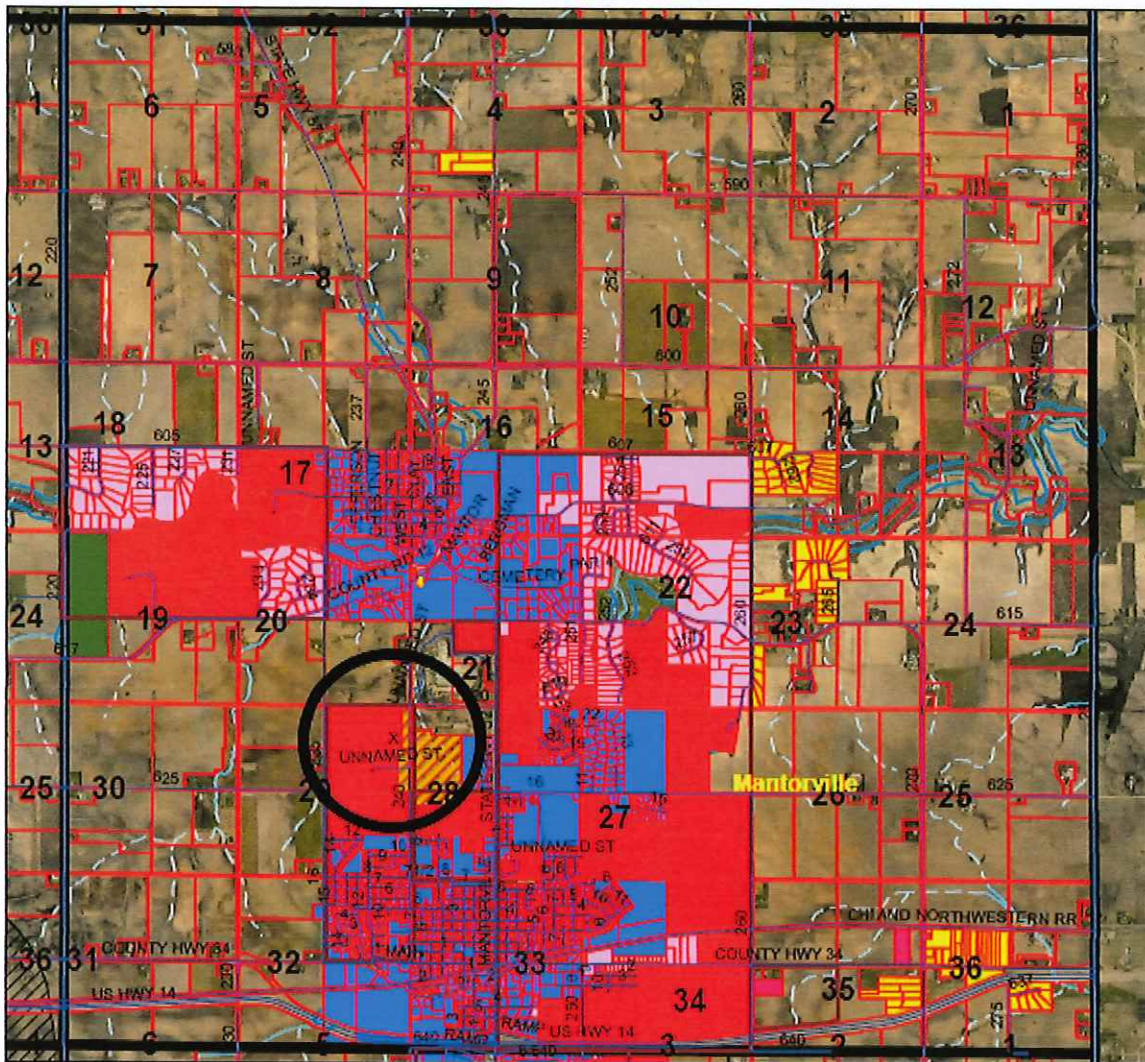
5
SCALE: 1"=2' VIEW: ELEVATION



SWIFT NUMBER	C402
SWIFT DATE	22/03/04
SWIFT TIME	0

Exhibit - C

County Zoning Maps by Township- Mantorville



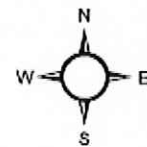
Legend

	Roads		Agricultural
	Urban Expansion Boundary		City
	PLSS Townships		Closed Landfill
	Section Lines		Commercial
	Parcel Lines		Hamlet
	Dodge Center Airport Zoning		Industrial
	<all other values>		Rural Residential
ZONEDESC			Split
	<Null>		Urban Expansion
			Urban Expansion Res
			Shoreland Buffer 300ft

Stream Centerlines

Description

	Various Intermittent Segments
	Various Perennial Segments



0 0.25 0.5 1 1.5 2 Miles 133

Minnesota Wetland Conservation Act

Notice of Decision

Local Government Unit (LGU) Dodge County	Address 721 Main Street North, Department 391 Mantorville, MN 55955
--	--

1. PROJECT INFORMATION

Applicant Name Sterling Garden LLC c/o Dan Rogers 2639 Nicollet Ave., Suite 200 Minneapolis, MN 55408	Project Name Sterling Solar Garden	Date of Application 09-10-20	Application Number 2020-4
<input type="checkbox"/> Attach site locator map.			

Type of Decision:

<input checked="" type="checkbox"/> Wetland Boundary or Type	<input checked="" type="checkbox"/> No-Loss	<input type="checkbox"/> Exemption	<input type="checkbox"/> Sequencing
<input type="checkbox"/> Replacement Plan	<input type="checkbox"/> Banking Plan		

Technical Evaluation Panel Findings and Recommendation (if any):

<input checked="" type="checkbox"/> Approve	<input type="checkbox"/> Approve with conditions	<input type="checkbox"/> Deny
Summary (or attach): Dodge TEP reviewed the application and additional information including supplemental information provided by applicant and by LGU representative. TEP finds that the applicant has accurately delineated wetland in the project areas and that, based on proposed construction plans, the project will not impact delineated wetland. Therefore, TEP recommends approval of the delineation and project "no-loss" as described in the Joint Application by Nokomis Energy and the Delineation Survey prepared by Tetra Tech.		

2. LOCAL GOVERNMENT UNIT DECISION

Date of Decision: 11-12-20		
<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Approved with conditions (include below)	<input type="checkbox"/> Denied

LGU Findings and Conclusions (attach additional sheets as necessary):

Dodge County (LGU) representative has reviewed all information provided by the applicant, has reviewed site conditions, and has consulted with the TEP. Dodge County accepts TEP's recommendation and approves the delineation and project "no-loss" as described in the attached Joint Application by Nokomis Energy, dated September 8, 2020, and the Delineation Survey report prepared by Tetra Tech dated July 16, 2020.

For Replacement Plans using credits from the State Wetland Bank:


Bank Account #	Bank Service Area	County	Credits Approved for Withdrawal (sq. ft. or nearest .01 acre)

Replacement Plan Approval Conditions. In addition to any conditions specified by the LGU, the approval of a Wetland Replacement Plan is conditional upon the following:

- ☐ **Financial Assurance:** For project-specific replacement that is not in-advance, a financial assurance specified by the LGU must be submitted to the LGU in accordance with MN Rule 8420.0522, Subp. 9 (List amount and type in LGU Findings).
- ☐ **Deed Recording:** For project-specific replacement, evidence must be provided to the LGU that the BWSR "Declaration of Restrictions and Covenants" and "Consent to Replacement Wetland" forms have been filed with the county recorder's office in which the replacement wetland is located.
- ☐ **Credit Withdrawal:** For replacement consisting of wetland bank credits, confirmation that BWSR has withdrawn the credits from the state wetland bank as specified in the approved replacement plan.

Wetlands may not be impacted until all applicable conditions have been met!

LGU Authorized Signature:

Signing and mailing of this completed form to the appropriate recipients in accordance with 8420.0255, Subp. 5 provides notice that a decision was made by the LGU under the Wetland Conservation Act as specified above. If additional details on the decision exist, they have been provided to the landowner and are available from the LGU upon request.		
Name Mark Gamn	Title Environmental Services Director	
Signature 	Date 11-12-20	Phone Number and E-mail 507-635-6273

THIS DECISION ONLY APPLIES TO THE MINNESOTA WETLAND CONSERVATION ACT. Additional approvals or permits from local, state, and federal agencies may be required. Check with all appropriate authorities before commencing work in or near wetlands.

Applicants proceed at their own risk if work authorized by this decision is started before the time period for appeal (30 days) has expired. If this decision is reversed or revised under appeal, the applicant may be responsible for restoring or replacing all wetland impacts.

This decision is valid for three years from the date of decision unless a longer period is advised by the TEP and specified in this notice of decision.

3. APPEAL OF THIS DECISION

Pursuant to MN Rule 8420.0905, any appeal of this decision can only be commenced by mailing a petition for appeal, including applicable fee, within thirty (30) calendar days of the date of the mailing of this Notice to the following as indicated:

Check one:

<input type="checkbox"/> Appeal of an LGU staff decision. Send petition and \$_____ fee (if applicable) to:	<input checked="" type="checkbox"/> Appeal of LGU governing body decision. Send petition and \$500 filing fee to: Executive Director Minnesota Board of Water and Soil Resources 520 Lafayette Road North St. Paul, MN 55155
---	--

4. LIST OF ADDRESSEES

<input checked="" type="checkbox"/> SWCD TEP member: Adam King, adam.king@dodgeswcd.org
<input checked="" type="checkbox"/> BWSR TEP member: Alyssa Core, alyssa.core@state.mn.us
<input checked="" type="checkbox"/> LGU TEP member (if different than LGU Contact): guy.kohlhofer@co.dodge.mn.us
<input checked="" type="checkbox"/> DNR TEP member: Todd Piepho, Todd.Piepho@state.mn.us
<input type="checkbox"/> DNR Regional Office (if different than DNR TEP member)
<input type="checkbox"/> WD or WMO (if applicable):
<input checked="" type="checkbox"/> Applicant and Landowner (if different)
<input checked="" type="checkbox"/> Members of the public who requested notice: Dan Rogers, dan@nokomis.partners Kathy Bellrichard, kathy.bellrichard@tetrattech.com David Studenski, david.studenski@usace.army.mil Bill Thompson, MPCA: bill.thompson@pca.state.mn.us.
<input checked="" type="checkbox"/> Corps of Engineers Project Manager
<input type="checkbox"/> BWSR Wetland Bank Coordinator (wetland bank plan decisions only)

5. MAILING INFORMATION

➤ For a list of BWSR TEP representatives: www.bwsr.state.mn.us/aboutbwsr/vorkareas/WCA_areas.pdf

➤ For a list of DNR TEP representatives: www.bwsr.state.mn.us/wetlands/wca/DNR_TEP_contacts.pdf

➤ Department of Natural Resources Regional Offices:

NW Region:	NE Region:	Central Region:	Southern Region:
Reg. Env. Assess. Ecol. Div. Ecol. Resources 2115 Birchmont Beach Rd. NE Bemidji, MN 56601	Reg. Env. Assess. Ecol. Div. Ecol. Resources 1201 E. Hwy. 2 Grand Rapids, MN 55744	Reg. Env. Assess. Ecol. Div. Ecol. Resources 1200 Warner Road St. Paul, MN 55106	Reg. Env. Assess. Ecol. Div. Ecol. Resources 261 Hwy. 15 South New Ulm, MN 56073

For a map of DNR Administrative Regions, see: http://files.dnr.state.mn.us/aboutdnr/dnr_regions.pdf

➤ For a list of Corps of Project Managers: www.mvp.usace.army.mil/regulatory/default.asp?pageid=687
or send to:

US Army Corps of Engineers
St. Paul District, ATTN: OP-R
180 Fifth St. East, Suite 700

St. Paul, MN 55101-1678

➤ For Wetland Bank Plan applications, also send a copy of the application to:
Minnesota Board of Water and Soil Resources
Wetland Bank Coordinator
520 Lafayette Road North
St. Paul, MN 55155

6. ATTACHMENTS

In addition to the site locator map, list any other attachments:

☒ Joint Application for Wetland Delineation and No-Loss submitted by Nokomis Energy dated September 8, 2020

☒ Wetland Delineation Survey by Tetra Tech dated July 16, 2020.

☐
☐
☐
☐



**DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678**

September 17, 2020

Regulatory File No. MVP-2020-01702-DCR

Sterling Garden LLC
c/o Dan Rogers
2639 Nicollet Avenue, Suite 200
Minneapolis, MN 55408

Dear Mr. Rogers:

We are responding to your request, submitted by Tetra Tech on your behalf, for Corps of Engineers (Corps) concurrence with the delineation of aquatic resources completed on the Sterling Garden site. The project site is in Section 29, Township 107 North, Range 16 West, Dodge County, Minnesota.

We have reviewed the delineation report dated July 16, 2020 and concur that the attached drawings labeled MVP-2020-01702-DCR pages 1 of 2 and 2 of 2 depicts a reasonable approximation of the location and boundaries of aquatic resources on the property. This delineation can be used for planning, and will generally be sufficient for permitting purposes. It may be necessary to review this determination in response to changing site conditions or new information. If a state or local agency conducts a site visit and requires revisions to the delineation, submit the updated delineation report.

Additional Information regarding Jurisdiction and Permitting:

No jurisdictional determination was prepared for this project, nor is one required to support a permit application. If you submit a permit application, we will assist you in identifying aquatic resources that are not subject to Corps regulation to exclude those resources from the permit evaluation. A permit application should include this delineation, any subsequent revisions, and any state or local delineation approvals. You are advised that a permit or exemption from a state or local agency does not satisfy the requirement to obtain a Corps permit where one is needed.

Please note that the Corps has issued Nationwide General Permits and Regional General Permits that provide authorization for many minor activities. Many of those general permits require a pre-construction notification and Corps verification prior to starting work. However, several general permits also have "self-certifying" provisions that eliminate the need to provide notice to the Corps, provided the permittee complies with the terms and conditions of the general permit. Current general permit terms and conditions can be found at: <https://www.mvp.usace.army.mil/Missions/Regulatory/Permitting-Process-Procedures/>.

Regulatory Branch (File No. MVP-2020-01702-DCR)

If you have any questions, please contact me in our La Crescent office at (651) 290-5900 or daniel.c.reburn@usace.army.mil. In any correspondence or inquiries, please refer to the Regulatory file number shown above.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Reburn", with a stylized flourish extending from the end.

Dan Reburn
Project Manager

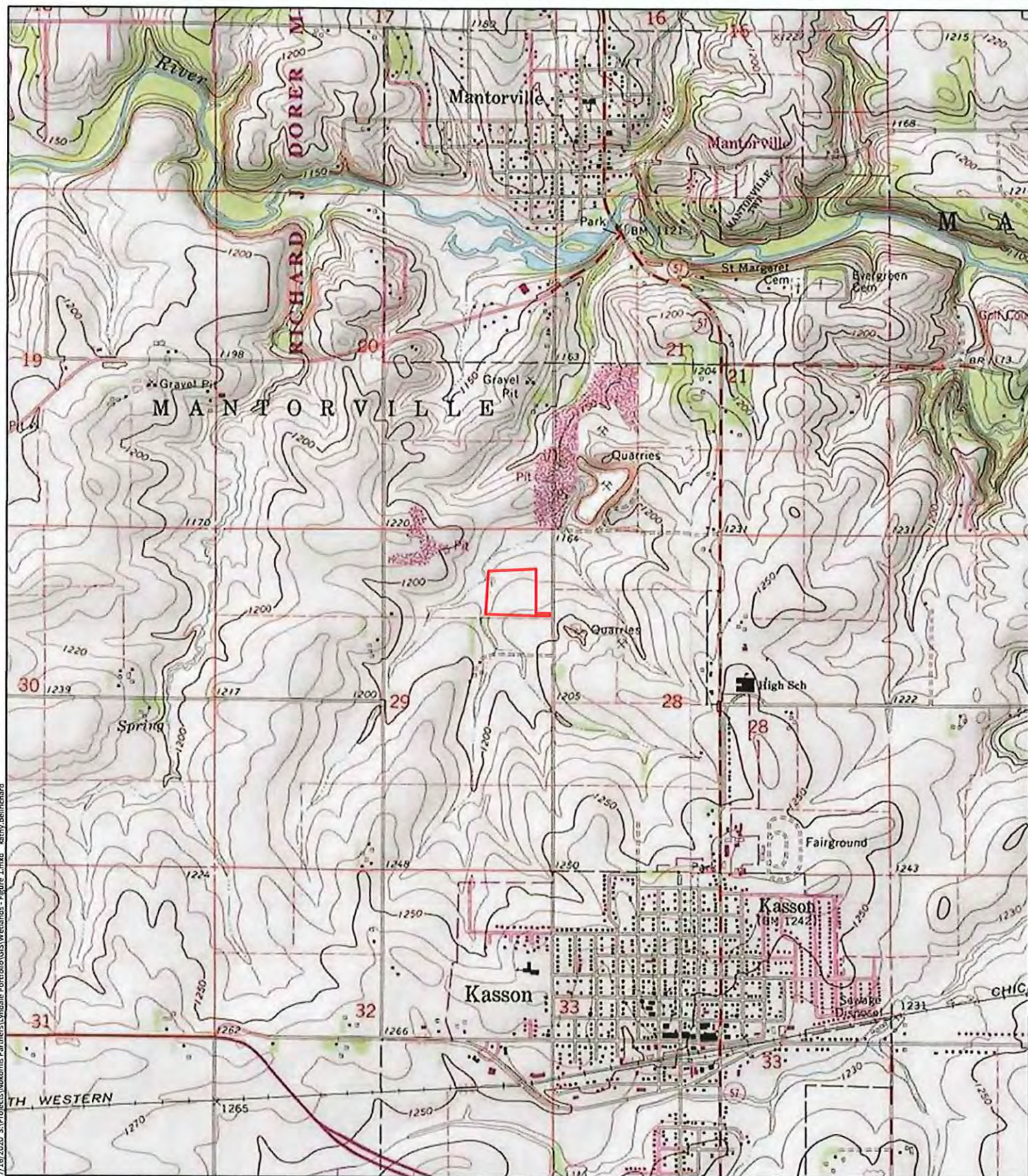
cc:

Kathy Bellrichard (Tetra Tech)

Mark Gamm (LGU)

Alyssa Core (BWSR)

7/16/2020 S:\Projects\Nokomis Partners\Lyndale Portfolio\GIS\Wetlands - Figure 1.mxd kathy.bellrichard



Source: Map adapted from ArcGIS Map Server USA Topos - 24K Dodge Center [1982], and Byron [1982]; NE 1/4 of Section 29, Township 107N, Range 16W of Dodge County.



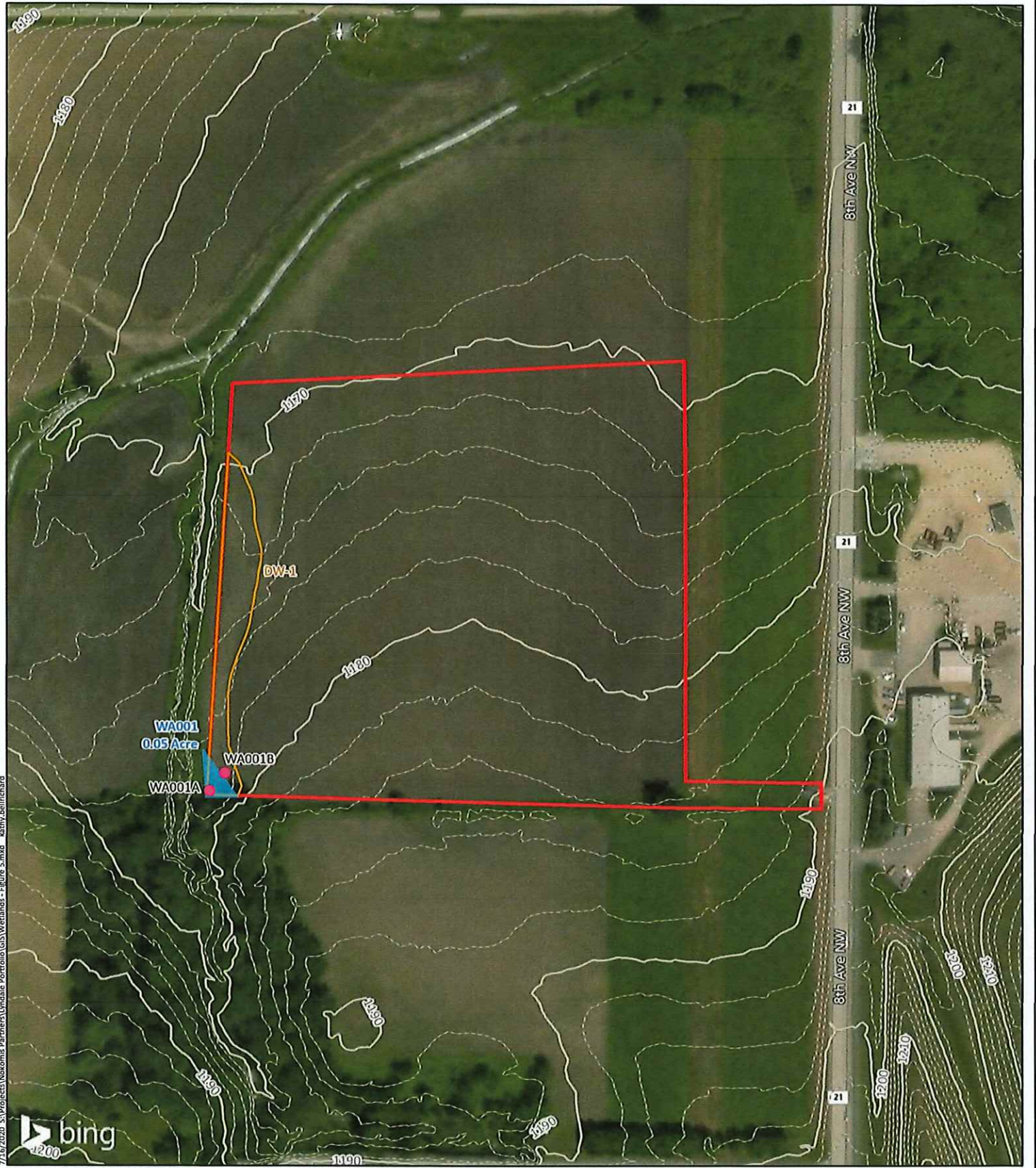
 Project Area

0 0.25 0.5 0.75 1 Miles



Figure 1 - Site Location
Sterling Garden
CSAH-21
Kasson, Dodge County, MN





Source: Map adapted from Bing Map Server Minnesota Department of Natural Resources 2-foot elevation contours, field data by Tetra Tech. Scale 1:4,000



- Sample Point
 - Delineated Wetland
 - Desktop Wetland
 - 2-foot Elevation Contour
 - Index Contour
 - Intermediate Contour
 - Project Area
- 0 250 500 Feet



Figure 5 - Delineated Wetlands and Elevation
 Sterling Garden
 CSAH-21
 Kasson, Dodge County, MN



CHAPTER 9: CLOSED LANDFILL RESTRICTED DISTRICT (CLR)

SECTION 9.1 PURPOSE

The Closed Landfill Restricted (CLR) Zoning District is intended to apply to former landfills that are qualified to be under the Closed Landfill Program of the Minnesota Pollution Control Agency (MPCA). The purpose of the district is to limit uses of land within the closed landfill, both actively filled and related lands, to minimal uses in order to protect the land from human activity where response action systems are in place and, at the same time, are protective of human health and safety. This district shall apply whether the landfill is in public or private ownership.

The Closed Landfill Use Plan — Dodge County Landfill report dated February 8th, 2013 (revised April 8th, 2013) or as amended by the Minnesota Pollution Control Agency is adopted by reference as a part of the CLR District and is included as Appendix N of the Dodge County Zoning Ordinance. In addition, where the boundary of the MPCA's proposed land management district divides an existing parcel, the entire parcel will be included as part of the CLR Zoning District.

For purposes of this ordinance, the Closed Landfill Restricted District is described as:

PARCEL A DESCRIPTION

That part of the West Half of Section 28, Township 107 North, Range 16 West, Dodge County, Minnesota, described as follows:

Beginning at the southwest corner of the Northwest Quarter of said Section 28, thence South 00 degrees 00 minutes 03 seconds West along the west line of the Southwest Quarter of said Section 28, 400.00 feet; thence South 89 degrees 54 minutes 48 seconds East 1591.17 feet; thence North 00 degrees 05 minutes 12 seconds East 400.00 feet to the south line of said Northwest Quarter; thence North 00 degrees 04 minutes 18 seconds East 1756.87 feet to the north line of the South Two-Thirds of said Northwest Quarter; thence North 89 degrees 57 minutes 33 seconds West along said north line 941.71 feet; thence North 00 degrees 06 minutes 07 seconds East 149.74 feet; thence North 89 degrees 44 minutes 05 seconds West 350.00 feet; thence North 00 degrees 08 minutes 31 seconds East 50.00 feet; thence North 89 degrees 55 minutes 28 seconds West 300.00 feet to the west line of said Northwest Quarter; thence South 00 degrees 04 minutes 40 seconds West along said west line 1956.87 feet to the point of beginning.

Said parcel contains 81.38 acres, more or less. Subject to County Road right of way easement over the westerly 50 feet thereof.

PARCEL B DESCRIPTION

That part of the Northeast Quarter of Section 29, Township 107 North, Range 16 West, Dodge County, Minnesota, described as follows:

Beginning at the northeast corner of said Northeast Quarter, thence North 89 degrees 40

minutes 04 seconds West along the north line of said Northeast Quarter 250.00 feet; thence South 00 degrees 04 minutes 40 seconds West, parallel with the east line of said Northeast Quarter, 1323.04 feet; thence North 89 degrees 35 minutes 09 seconds West 130.00 feet; thence South 00 degrees 04 minutes 40 seconds West 1322.88 feet to the south line of said Northeast Quarter; thence South 89 degrees 30 minutes 46 seconds East along said south line 380.00 feet to the east line of said Northeast Quarter; thence North 00 degrees 04 minutes 40 seconds East along said east line 2646.76 feet to the point of beginning.

Said parcel contains 19.14 acres, more or less. Subject to County Road right of way easement over the easterly 50 feet thereof.

PARCEL A1 LANDFILL DESCRIPTION (PART OF PARCEL A)

That part of the Northwest Quarter of Section 28, Township 107 North, Range 16 West, Dodge County, Minnesota, described as follows:

Commencing at the southwest corner said Northwest Quarter, thence North 00 degrees 04 minutes 40 seconds East along the west line of said Northwest Quarter 450.00 feet to the point of beginning of the parcel to be described; thence South 89 degrees 55 minutes 20 seconds East 1223.00 feet; thence North 00 degrees 04 minutes 40 seconds East 700.00 feet; thence North 89 degrees 55 minutes 20 seconds West 265.00 feet; thence North 65 degrees 40 minutes 08 seconds West 631.05 feet; thence North 89 degrees 48 minutes 19 seconds West 382.65 feet to the west line of said Northwest Quarter; thence South 00 degrees 04 minutes 40 seconds West along said west line 960.00 feet to point of beginning.

Said parcel contains 23.65 acres, more or less. Subject to County Road right of way easement over the westerly 50 feet thereof.

PARCEL A2 BUFFERLAND DESCRIPTION (PART OF PARCEL A)

That part of the Northwest Quarter of Section 28, Township 107 North, Range 16 West, Dodge County, Minnesota described as follows:

Commencing at the southwest corner said Northwest Quarter, thence North 00 degrees 04 minutes 40 seconds East along the west line of said Northwest Quarter 450.00 feet; thence South 89 degrees 55 minutes 20 seconds East 1223.00 feet; thence North 00 degrees 04 minutes 40 seconds East 700.00 feet to the point of beginning of the parcel to be described; thence North 89 degrees 55 minutes 20 seconds West 265.00 feet; thence North 65 degrees 40 minutes 08 seconds West 631.05 feet; thence North 89 degrees 48 minutes 19 seconds West 382.65 feet to the west line of said Northwest Quarter; thence North 00 degrees 04 minutes 40 seconds East along said west line 546.87 feet; thence South 89 degrees 55 minutes 28 seconds East 300.00 feet; thence South 00 degrees 08 minutes 31 seconds West 50.00 feet; thence South 89 degrees 44 minutes 05 seconds East 350.00 feet; thence South 00 degrees 06 minutes 07 seconds West 149.74 feet; thence South 89 degrees 57 minutes 33 seconds East along the north line of the South Two-Thirds of the Northwest Quarter 573.12 feet; thence South 00 degrees 04 minutes 40 seconds West 606.50 feet to the point of beginning.

Parcel contains 15.61 acres, more or less. Subject to County Road right of way easement over the westerly 50 feet thereof.

PARCEL B1 BUFFERLAND DESCRIPTION (PART OF PARCEL B)

That part of the Northeast Quarter of Section 29, Township 107 North, Range 16 West, Dodge County, Minnesota described as follows:

Commencing at the southeast corner of the Northeast Quarter of said Section 29, thence North 00°04'40" East along the east line of said Northeast Quarter 450.00 feet to the point of beginning of

the parcel to be described; thence continue north along said east line 1306.87 feet; thence North 89°55'20" West 200.00 feet; thence South 00°04'40" West, parallel with said east line 1306.87 feet; thence South 89°55'20" East 200.00 feet to the point of beginning.

Said parcel contains 6.00 acres, more or less. Subject to County Road right of way easement over the easterly 50 feet thereof.

SECTION 9.2 PERMITTED USES

The following uses are permitted within the CLR District

- A. Closed Landfill Management
- B. Waste Recycling and Transfer Station,
- C. ATV Training Course
- D. Compost Site
- E. Wood storage and wood chipping
- F. General farming including the raising of crops and horticulture. These uses may be located only outside of the Methane Area of Concern as identified in the Closed Landfill Use Plan.
- G. Natural area management and establishment of prairie, woodland or other native vegetation and habitat.

SECTION 9.3 ACCESSORY USES

Accessory uses allowed in this district include outdoor equipment or small buildings used in concert with gas extraction systems, other response action systems, monitoring wells or any other equipment designed to protect, monitor or otherwise ensure the integrity of the landfill monitoring or improvement systems. Fences and gates shall apply under these provisions. Accessory solar energy systems for the purpose of providing electricity to the facility are also included.

SECTION 9.4 CONDITIONAL USES

Conditional uses shall be limited to uses that do not damage the integrity of the *Land Management Area (LMA)* as identified in the Minnesota Pollution Control Agency's "Closed Landfill Use Plan for the Dodge County Landfill" dated February 8th, 2013 and revised April 8th, 2013 and that continue to protect any person from hazards associated

with the landfill.

Any application for a conditional use must be approved by the Commissioner of the MPCA and the Dodge County Board of Commissioners if proposed within the MPCA's LMA. Such approved use shall not disturb or threaten to disturb, the integrity of the landfill cover, liners, any other components of any containment system, the function of any monitoring system that exists upon the described property, or other areas of the Land Management Area that the Commissioner of the MPCA deems necessary for future response actions.

The following conditional uses are permitted within the CLR District:

- A. Solar Energy Farm

SECTION 9.5 PROHIBITED USES AND STRUCTURES

All other uses and structures not specifically allowed, or that cannot be considered as accessory uses, shall be prohibited in the CLR District.

SECTION 9.6 GENERAL REGULATIONS

All uses shall meet the Performance Standard of Chapter 16 and the Development Standards of Chapter 17 of this Ordinance.

SECTION 9.7 AMENDMENTS

Any amendment to this Chapter within the LMA identified in the Closed Landfill Use Plan must be approved by the Commissioner of the Minnesota Pollution Control Agency and the Dodge County Board of Commissioners in accordance with the administrative process for amendments defined in Chapter 18 of this Ordinance.

CHAPTER 9: CLOSED LANDFILL RESTRICTED DISTRICT (CLR)

SECTION 9.1 PURPOSE

The Closed Landfill Restricted (CLR) Zoning District is intended to apply to former landfills that are qualified to be under the Closed Landfill Program of the Minnesota Pollution Control Agency (MPCA). The purpose of the district is to limit uses of land within the closed landfill, both actively filled and related lands, to minimal uses in order to protect the land from human activity where response action systems are in place and, at the same time, are protective of human health and safety. This district shall apply whether the landfill is in public or private ownership.

The Closed Landfill Use Plan — Dodge County Landfill report dated February 8th, 2013 (revised April 8th, 2013) or as amended by the Minnesota Pollution Control Agency is adopted by reference as a part of the CLR District and is included as Appendix N of the Dodge County Zoning Ordinance. In addition, where the boundary of the MPCA's proposed land management district divides an existing parcel, the entire parcel will be included as part of the CLR Zoning District.

For purposes of this ordinance, the Closed Landfill Restricted District is described as:

PARCEL A DESCRIPTION

That part of the West Half of Section 28, Township 107 North, Range 16 West, Dodge County, Minnesota, described as follows:

Beginning at the southwest corner of the Northwest Quarter of said Section 28, thence South 00 degrees 00 minutes 03 seconds West along the west line of the Southwest Quarter of said Section 28, 400.00 feet; thence South 89 degrees 54 minutes 48 seconds East 1591.17 feet; thence North 00 degrees 05 minutes 12 seconds East 400.00 feet to the south line of said Northwest Quarter; thence North 00 degrees 04 minutes 18 seconds East 1756.87 feet to the north line of the South Two-Thirds of said Northwest Quarter; thence North 89 degrees 57 minutes 33 seconds West along said north line 941.71 feet; thence North 00 degrees 06 minutes 07 seconds East 149.74 feet; thence North 89 degrees 44 minutes 05 seconds West 350.00 feet; thence North 00 degrees 08 minutes 31 seconds East 50.00 feet; thence North 89 degrees 55 minutes 28 seconds West 300.00 feet to the west line of said Northwest Quarter; thence South 00 degrees 04 minutes 40 seconds West along said west line 1956.87 feet to the point of beginning.

Said parcel contains 81.38 acres, more or less. Subject to County Road right of way easement over the westerly 50 feet thereof.

PARCEL B DESCRIPTION

That part of the Northeast Quarter of Section 29, Township 107 North, Range 16 West, Dodge County, Minnesota, described as follows:

Beginning at the northeast corner of said Northeast Quarter, thence North 89 degrees 40

minutes 04 seconds West along the north line of said Northeast Quarter 250.00 feet; thence South 00 degrees 04 minutes 40 seconds West, parallel with the east line of said Northeast Quarter, 1323.04 feet; thence North 89 degrees 35 minutes 09 seconds West 130.00 feet; thence South 00 degrees 04 minutes 40 seconds West 1322.88 feet to the south line of said Northeast Quarter; thence South 89 degrees 30 minutes 46 seconds East along said south line 380.00 feet to the east line of said Northeast Quarter; thence North 00 degrees 04 minutes 40 seconds East along said east line 2646.76 feet to the point of beginning.

Said parcel contains 19.14 acres, more or less. Subject to County Road right of way easement over the easterly 50 feet thereof.

PARCEL C DESCRIPTION

A That part of the North Half of the Northeast Quarter of Section 29, Township 107 North, Range 16 West, Dodge County, Minnesota, described as follows:

Commencing at the northeast corner of said North Half of the Northeast Quarter; thence South 0 degrees 04 minutes 44 seconds West along the east line of said North Half of the Northeast Quarter, a distance of 1323.37 feet to the southeast corner of said North Half of the Northeast Quarter; thence North 89 degrees 35 minutes 30 seconds West along the south line of said North Half of the Northeast Quarter, a distance of 250.00 feet to the west line of the East 250.00 feet of said North Half of the Northeast Quarter; thence North 0 degrees 04 minutes 44 seconds East along said west line of the East 250.00 feet, a distance of 684.18 feet; thence South 90 degrees 00 minutes 00 seconds West, a distance of 562.51 feet; thence South 0 degrees 00 minutes 00 seconds West, a distance of 680.18 feet to said south line of the North Half of the Northeast Quarter; thence South 89 degrees 35 minutes 30 seconds East, along said south line, a distance of 561.58 feet to the Point of Beginning.

PARCEL A1 LANDFILL DESCRIPTION (PART OF PARCEL A)

That part of the Northwest Quarter of Section 28, Township 107 North, Range 16 West, Dodge County, Minnesota, described as follows:

Commencing at the southwest corner said Northwest Quarter, thence North 00 degrees 04 minutes 40 seconds East along the west line of said Northwest Quarter 450.00 feet to the point of beginning of the parcel to be described; thence South 89 degrees 55 minutes 20 seconds East 1223.00 feet; thence North 00 degrees 04 minutes 40 seconds East 700.00 feet; thence North 89 degrees 55 minutes 20 seconds West 265.00 feet; thence North 65 degrees 40 minutes 08 seconds West 631.05 feet; thence North 89 degrees 48 minutes 19 seconds West 382.65 feet to the west line of said Northwest Quarter; thence South 00 degrees 04 minutes 40 seconds West along said west line 960.00 feet to point of beginning.

Said parcel contains 23.65 acres, more or less. Subject to County Road right of way easement over the westerly 50 feet thereof.

PARCEL A2 BUFFERLAND DESCRIPTION (PART OF PARCEL A)

That part of the Northwest Quarter of Section 28, Township 107 North, Range 16 West, Dodge County, Minnesota described as follows:

Commencing at the southwest corner said Northwest Quarter, thence North 00 degrees 04 minutes 40 seconds East along the west line of said Northwest Quarter 450.00 feet; thence South 89 degrees 55 minutes 20 seconds East 1223.00 feet; thence North 00 degrees 04 minutes 40 seconds East 700.00 feet to the point of beginning of the parcel to be described; thence North 89 degrees 55 minutes 20 seconds West 265.00 feet; thence North 65 degrees 40 minutes 08 seconds West 631.05 feet; thence North 89 degrees 48 minutes 19 seconds West 382.65 feet to the west line of said Northwest Quarter; thence North 00 degrees 04 minutes 40 seconds East along said west line 546.87 feet; thence South 89 degrees 55 minutes 28 seconds East 300.00 feet; thence South 00 degrees 08 minutes 31 seconds West 50.00 feet; thence South 89 degrees 44 minutes 05 seconds East 350.00

feet; thence South 00 degrees 06 minutes 07 seconds West 149.74 feet; thence South 89 degrees 57 minutes 33 seconds East along the north line of the South Two-Thirds of the Northwest Quarter 573.12 feet; thence South 00 degrees 04 minutes 40 seconds West 606.50 feet to the point of beginning.

Parcel contains 15.61 acres, more or less. Subject to County Road right of way easement over the westerly 50 feet thereof.

PARCEL B1 BUFFERLAND DESCRIPTION (PART OF PARCEL B)

That part of the Northeast Quarter of Section 29, Township 107 North, Range 16 West, Dodge County, Minnesota described as follows:

Commencing at the southeast corner of the Northeast Quarter of said Section 29, thence North 00°04'40" East along the east line of said Northeast Quarter 450.00 feet to the point of beginning of the parcel to be described; thence continue north along said east line 1306.87 feet; thence North 89°55'20" West 200.00 feet; thence South 00°04'40" West, parallel with said east line 1306.87 feet; thence South 89°55'20" East 200.00 feet to the point of beginning.

Said parcel contains 6.00 acres, more or less. Subject to County Road right of way easement over the easterly 50 feet thereof.

SECTION 9.2 PERMITTED USES

The following uses are permitted within the CLR District

- A. Closed Landfill Management
- B. Waste Recycling and Transfer Station,
- C. ATV Training Course
- D. Compost Site
- E. Wood storage and wood chipping
- F. General farming including the raising of crops and horticulture. These uses may be located only outside of the Methane Area of Concern as identified in the Closed Landfill Use Plan.
- G. Natural area management and establishment of prairie, woodland or other native vegetation and habitat.

SECTION 9.3 ACCESSORY USES

Accessory uses allowed in this district include outdoor equipment or small buildings used in concert with gas extraction systems, other response action systems, monitoring wells or any other equipment designed to protect, monitor or otherwise ensure the integrity of the landfill monitoring or improvement systems. Fences and gates shall apply under these provisions. Accessory solar energy systems for the purpose of providing electricity to the facility are also included.

SECTION 9.4 CONDITIONAL USES

Conditional uses shall be limited to uses that do not damage the integrity of the *Land Management Area (LMA)* as identified in the Minnesota Pollution Control Agency's "Closed Landfill Use Plan for the Dodge County Landfill" dated February 8th, 2013 and revised April 8th, 2013 and that continue to protect any person from hazards associated with the landfill.

Any application for a conditional use must be approved by the Commissioner of the MPCA and the Dodge County Board of Commissioners if proposed within the MPCA's LMA. Such approved use shall not disturb or threaten to disturb, the integrity of the landfill cover, liners, any other components of any containment system, the function of any monitoring system that exists upon the described property, or other areas of the Land Management Area that the Commissioner of the MPCA deems necessary for future response actions.

The following conditional uses are permitted within the CLR District:

- A. Solar Energy Farm

SECTION 9.5 PROHIBITED USES AND STRUCTURES

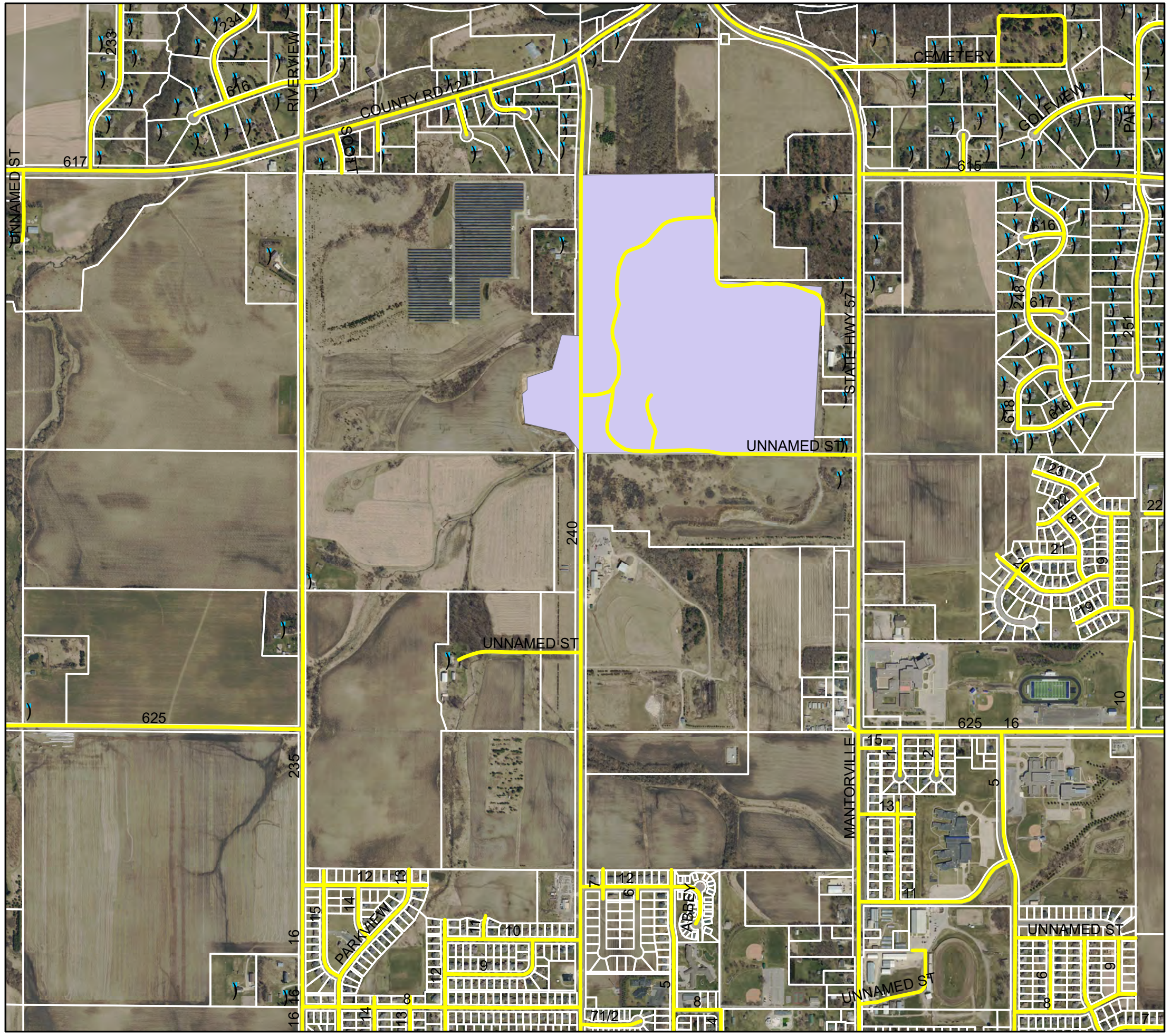
All other uses and structures not specifically allowed, or that cannot be considered as accessory uses, shall be prohibited in the CLR District.

SECTION 9.6 GENERAL REGULATIONS

All uses shall meet the Performance Standard of Chapter 16 and the Development Standards of Chapter 17 of this Ordinance.

SECTION 9.7 AMENDMENTS

Any amendment to this Chapter within the LMA identified in the Closed Landfill Use Plan must be approved by the Commissioner of the Minnesota Pollution Control Agency and the Dodge County Board of Commissioners in accordance with the administrative process for amendments defined in Chapter 18 of this Ordinance.



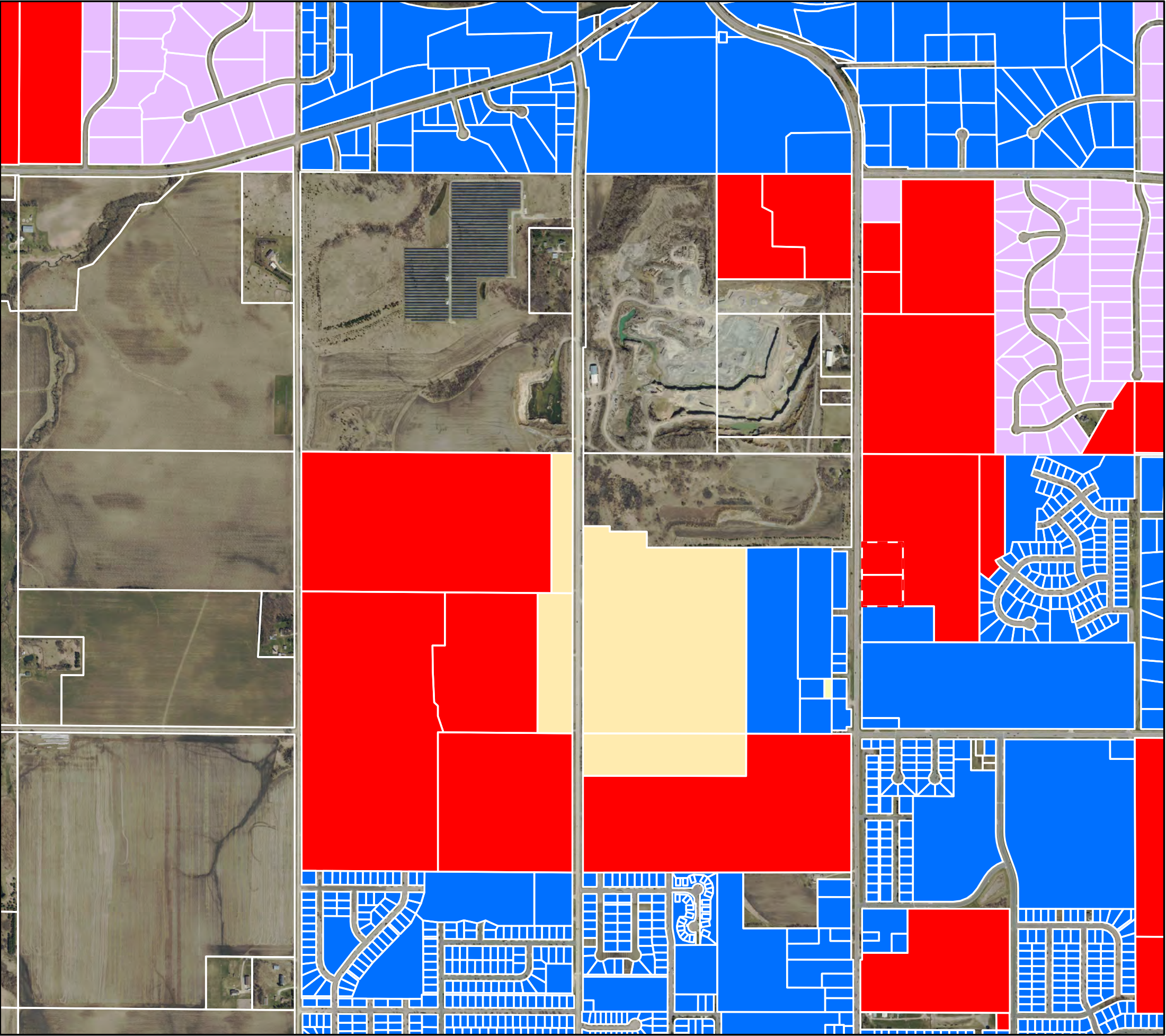
ZA 21-08 Landfill Rezone

- Roads
- Mines & Quarries
- Parcels
- Houses



57287.50 575 Feet

This map is neither a legally recorded map nor a survey and is not intended to be used as one. This map is a compilation of records, information and data located in various city, county, state and federal offices and other sources regarding the area shown, and is to be used for reference purposes only. Created From Goodhue Online Mapping Site. Sources: Dodge County, MN



**ZA 21-08 Landfill
Rezone**

Zoning Districts

- Agricultural
- City
- Closed Landfill
- Commercial
- Hamlet
- Industrial
- Rural Residential
- Split
- Urban Expansion
- Urban Expansion Res



57287.50 575 Feet

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Created From Goodhue Online Mapping
Site. Sources: Dodge County, MN



ENVIRONMENTAL SERVICES

721 MAIN ST N • DEPT 123

MANTORVILLE MN 55955-2214

507-635-6272

DATE: April 22, 2021

TO: Canisteo Township, Soil and Water Conservation District, County Highway Department, County Assessor, MN DNR, and MnDot

FROM: County Staff of Environmental Services

RE: Request for Comment on Land Use Proposal

A Dodge County Public Hearing is planned for June 2nd, 2021 to consider a request to establish a Migrant and/or Seasonal Worker Camp in Ag District on approximately 39.67 acres located in Section 2, Canisteo Township.

Please submit written comments prior to May 17th, 2021 to the Environmental Services Office. See information at top of this letter. You may also relay comments at the Public Hearing. If we do not receive comments we will assume you have no objections.

Description of Land Use Proposal

1. **Applicant's Name:** Molitor Brothers Farm
2. **Land Owner's Name:** Molitor Brothers Farm
3. **Land Use Request, Intended Use:** To establish a Migrant and/or Seasonal Worker Camp
4. **Location:** SE ¼ of the SE ¼ Section 2, Canisteo Township
5. **Zoning District:** Agricultural
6. **Existing Conditions** (based on staff review of in-office data):
 - A. **Current Land Use:** Cropland
 - B. **Neighboring Land Use:** The area is best characterized as cropland with scattered residences. There are four dwellings within a quarter mile radius of the parcel. The closest feedlot, located approximately 1,994 feet north west of the parcel is registered for 990 AU.
 - C. **Soil, Slope, and Wetlands:** Soils are primarily silt loam deposits. The majority of the property has slopes between 1 and 3 percent. No steep slopes are mapped. There are no wetlands mapped on site and hydric soil on the south east corner.
 - D. **River Shoreland and Floodplain:** Shoreland and Floodplain Overlay Districts do not exist on the parcel.

- E. Bedrock Depth, Type, and Karst Features:** Limestone bedrock is located approximately 25 to 50 feet below grade. There are no mapped karst features on the parcel.
- F. Water Quality Sensitivity:** Bedrock is listed as the Galena Group of the Stewartville Formation, Dolostone and Dolomitic limestone. The site is located within a Highly Sensitive Groundwater Area. Shallow depth-to-bedrock can promote rapid movement of surface contaminants to the bedrock, and it is highly recommended that precautions be taken in this area to prevent surface contamination.

7. Typical Impacts from Similar Land Uses: See application.

8. Zoning Ordinance Standards that Apply:

- A. Section 8.4.3: Conditional Uses, Migrant camps
- B. Section 8.6: Performance Standards
- C. Section 16.37 Migrant and/or Seasonal Worker Camps
- D. Section 17.19 Nuisances and General Health, Safety and Welfare Standards
- E. Section 17.21 Parking
- F. Section 17.23 Sewage Treatment
- G. Section 17.28 Trash/Recycling Enclosures
- H. Section 17.30 Wells

9. Permits Required:

- A. Conditional Use Permit
- B. Zoning Permit for any structure
- C. Sewage Treatment Permit from Dodge County prior to construction.
- D. Driveway and Access Permit from County Highway Dept.

10. Attachments:

- A. Aerial Photo showing proposed site and surrounding land use.
- B. Request for Public Hearing and site plan prepared by Applicant

Cc. Applicant



General Conditional Use Permit / Interim Use Permit Application

Dodge County Environmental Services
721 Main St N, Dept. 123
Mantorville MN 55955

Application Fee \$ 500.00

Recorder Fee \$ 46.00

****Separate payments needed**

Phone 507-635-6272
www.co.dodge.mn.us

Date Received _____
Received By _____

Applicant: Molitor Brothers Farm Phone: 651-983-8264

Email address: Brian.Molitor@molitorbrothersfarm.com

Address: 26810 650th ST City, State, Zip: Kasson MN 55944

[Signature]
Applicant's Signature

4/5/21
Date

Property Owner: Molitor Brothers Farm Phone: 651-983-8264

Address: 13187 240th ST E City, State, Zip: Cannon Falls MN 55609

[Signature]
Property Owner's Signature

4/5/21
Date

Signature of this application authorizes Environmental Services Staff to enter the property to perform needed inspections.

Property Address: 26810 650th ST City, State, Zip: Kasson MN 55944

Parcel I.D. Number R 08.002.0600 Township Cannon Section 02

Legal Description 02-106N-16W # of acres 39.67

REQUEST INFORMATION

☒ CUP/IUP request under Chapter 8, Section 4.3

☒ Chapter 16 Performance Standards for Use: Section(s) 37

☐ Chapter 17 Development Standards: Sections (s) _____

☐ Subject to Shoreland (Ch 14) ☐ Subject to Floodplain (Ch 15) ☐ Subject to SSTS (Ch 21)

☐ Are there currently any unresolved zoning or public nuisance violations on site?

OTHER LOCAL, STATE, OR FEDERAL PERMITS/APPROVALS/LICENSES REQUIRED

Local _____ State _____ Federal _____

GENERAL INFORMATION FOR A CONDITIONAL USE PERMIT/INTERIM USE PERMIT:

- ☐ A detailed written description and reason for the request.
- ☐ A general location map and description of land uses within 1000 feet of the property line. The use of structures shall be identified on the map.
- ☐ Detailed Site Map Showing Property Lines with Location of:
 - ☐ Existing dwellings and other onsite accessory buildings or structures
 - ☐ Septic System and Support area
 - ☐ Well(s)
 - ☐ Access drives
 - ☐ Rivers, wetlands, streams or other similar features
 - ☐ Any proposed dwellings, accessory buildings or other structures or features proposed for the use.
- ☐ Other information when requested by the Department to determine if CUP/IUP criteria can be met

REQUIRED ATTACHMENTS (WHEN APPLICABLE)

- ☐ Specific application for the proposed use and all supporting documentation
- ☐ Business Plan including a plan to address nuisance complaints (See Template for assistance)
- ☐ Transportation Plan (parking, on-site circulation, loading, access, volume and type of traffic generated, local traffic routes utilized, etc...)
- ☐ Agricultural Covenant
- ☐ Any required easement agreements (access, well, septic, etc...)

CRITERIA FOR GRANTING A CONDITIONAL USE PERMIT/INTERIM USE PERMIT REQUEST:

Listed below are the criteria for granting a Conditional Use Permit or Interim Use Permit request under the Dodge County Ordinance. CUPs and IUPs may be approved by the County Board, upon a showing by the applicant that the use or development conforms to the comprehensive land use plan of the County and is compatible with the existing neighborhood.

DODGE COUNTY ZONING ORDINANCE SECTION 18.13.8:

- I. The establishment, maintenance or operation will not be detrimental to or endanger the public health, safety, or general welfare;
- II. The proposed use will be able to meet the standards of this Ordinance or any other applicable County Ordinance and is not contrary to established standards, regulations or ordinances of other governmental agencies;
- III. Each structure or improvement is so designed and constructed that it is not unsightly, undesirable or obnoxious in appearance to the extent that it will hinder the orderly and harmonious development of the County and the use district wherein proposed;
- IV. The proposed use is compatible with adjacent uses of land. The use shall not be substantially injurious to the permitted uses nor unduly restrict the enjoyment of other property in the

Immediate vicinity. This includes whether the applicant has ensured adequate measures have been or will be taken to prevent or control offensive odor, fumes, dust, noise, and vibration, so that none of these will constitute a nuisance, and to control signs and other lights in such a manner that no disturbance to neighboring properties will result.

- V. The proposed use shall not substantially diminish and impair property values within the area;
- VI. The establishment of the use will not impede the orderly and normal development and improvement of the surrounding properties for uses permitted in the Zoning District;
- VII. The proposed use will not have a detrimental effect on existing parks, schools, roads and other public facilities;
- VIII. Adequate water supply and sewage disposal facilities are provided and in accordance with the Minnesota Department of Health and Chapter 21 of the Dodge County Zoning Ordinance, or successor;
- IX. That existing groundwater, surface water, air quality, aggregate resources, rare features, native plant communities, and designated Wildlife Action Network areas are, or will be adequately protected from the use and/or future onsite structures;
- X. Adequate utilities, access roads, on-site parking, on-site loading and unloading berths and drainage have been or will be provided;
- XI. Adequate measures have been taken to provide ingress and egress so designed as to minimize traffic congestion on public roads;

For Office Use Only

Date Rcvd 4/6/21 15 business 4/27/21 60 days 6/5/21 120 days 8/4/21

Conditional Use Permit for Migrant Camp

General Information

Molitor Brothers Farm has been participating in the H2A program for 25 years. This is a federal program that allows famers to bring seasonal workers to the US for agriculture work. The workers come from South Africa. Their job duties include operating tractors, trucks, shop work, maintenance, and other farm activities. Molitor Brothers farm is required to supply housing which is inspected annually to meet all OSHA regulations. Vehicles are also supplied for personal use to get groceries and to attend social and religious activities. The workers either have or will get a MN driver's license.

Molitor Brothers Farm would like to set up 4 mobile homes onto the property to house the seasonal workers. Having our seasonal workers on site has benefits. Driving time to and from work would be eliminated reducing the potential for car accidents. Being on site also allows us to more easily manage any personal issues if any arise. The foundations for the mobile homes would follow county rules and regulations. Septic work and plan will be done and prepared by Bustad Dozing and Excavating.

See attached map of property.

Migrant Camp Management Plan

Site

The temporary labor camp will be located on the farm site at 26810 650th St, Kasson MN 55944. The site is adequately drained. It is not in a floodplain or wetland. There are not swamps, pools, or sink holes on or near the site. The site is large enough where there will not be overcrowding of structures and all local setback and distance guidelines will be met. There are no livestock on the site. The grounds will be kept up by the farm manager, mowing once a week in the summer, plowing snow in the winter, and maintaining clean and sanitary conditions free from rubbish, debris, waste paper, garbage or other refuse. See site map for more details.

Shelter (See floor plan for details)

There will be 4 shelters, each 16 feet by 76 feet. Each shelter will have 3 bedrooms and 2 bathrooms. Each shelter will house 3 workers. The shelters will each house only one sex. The bedrooms will be 76, 103, and 148 square feet with 8-foot ceilings. There will be a full size bed with bed frame and bedding in each room. There will be closets in the bedrooms.

- The floors will be constructed of wood 40 inches above ground level.
- There will be windows in all living quarters totaling 130 square feet of which are able to be opened. These windows will also be screened with 16-mesh material.
- The workers will cook, live, and sleep in the shelters. There will be 300 square feet per person available.
- Shelter will have air conditioning, and heat.
- Heating, cooking, and water heating equipment will be installed according to code.
- There will be smoke detectors in all bedrooms and main rooms.
- There will be a fire extinguisher in each shelter
- There will be a first aid kit in each shelter

Water Supply

The water will be supplied by the well on the property site which is a permitted well clean for drinking purposes. There will be 3 faucets, 2 toilets, 3 showers/tubs, and wash machine supplied with water in each shelter. Water volume will be 6 gallons per minute per shelter. The pressure will be 40 psi with 2 X 1" hydrants open.

Toilet Facilities

Each shelter will have a toilet room accessible without having to pass through a bedroom. There is an exhaust fan on the ceiling of the toilet room which provides ventilation. Each shelter will house only one sex. The toilet rooms will be adequately lighted, kept in sanitary condition, and cleaned daily. The structures will be connected to septic tanks and drain field according to regulations.

Laundry, handwashing, bathing facilities

There will be 3 faucets, 2 toilets, 3 shower/tubs, and wash machine and clothes dryer in each shelter. Each shelter will have a 40 gallon gas water heater. The shelters will have air conditioner and heater which will be able to supply temperature of 70 degrees during cold weather.

Lighting

Electric service will be in each shelter. Each room will have a ceiling fixture and wall outlets. All rooms will have at least 50-foot candles 30 inches from the floor.

Refuse Disposal

There will be garbage containers in the kitchen and bathrooms lined with plastic garbage bags. These will be emptied and cleaned when full, but not less than twice a week. These bags will be transported to the dumpster on site. Hometown haulers will pick up the garbage from the dumpsters on Mondays.

Kitchen/dining

Each structure will have its own kitchen and dining area. This area is 240 square feet. There is a refrigerator, stove, oven, microwave, and sink in each kitchen. Pots, pans, utensils and other cooking supplies will be provided. The workers will prepare their own food. They will have access to vehicles to go to the grocery store as needed for food.

Pest Control

Pest control is provided by Molitor Brothers Farm and the farm manager. Bait stations are monitored as needed, but a minimum of once a month.

First Aid

First aid kits are provided in each shelter as well as around the working area. Workers compensation insurance is also provided to each employee. If there are any health concerns or issues, the employees are required to see a physician in Kasson or Rochester immediately. Ben Klaehn lives on site and has been trained to administer first aid.

Reporting communicable disease

The farm manager will report immediately to local health officers if there is a communicable disease.

Weather Conditions

If there is inclement weather or a tornado warning, the siren in Kasson, MN will go off. If this siren goes off the employees should immediately go to the basement of the farm house on the property.

Emergency Contacts

Ben Klaehn 507-438-3510

Brian Molitor 651-983-8264

Eric Thorkelson 651-983-8267

Office 651-437-5371

Feb 23, 2021

Property line →

Dry Feed
Shed



Trailer house



Trailer house



Mound Septic

Well in House

Building site access

House & garage

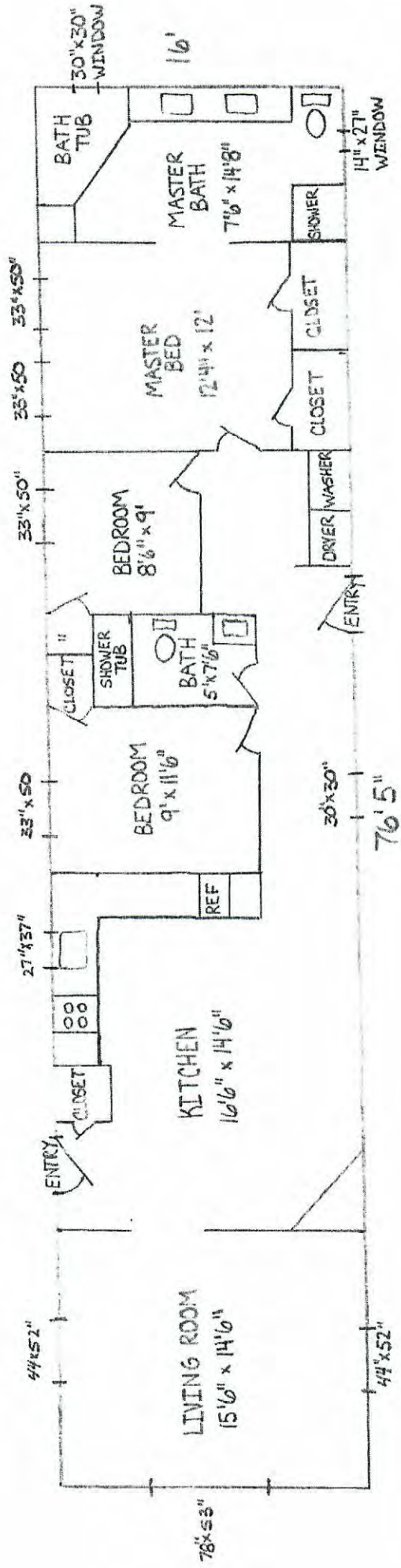
Grain setup

Cold Storage

Liquid Storage

Shop

Floor Plan



Untitled Map

Write a description for your map.

Legend

Canisteo Twp
Section 2
SE 1/4

15

265th Ave

270th Ave

Google Earth

650th St



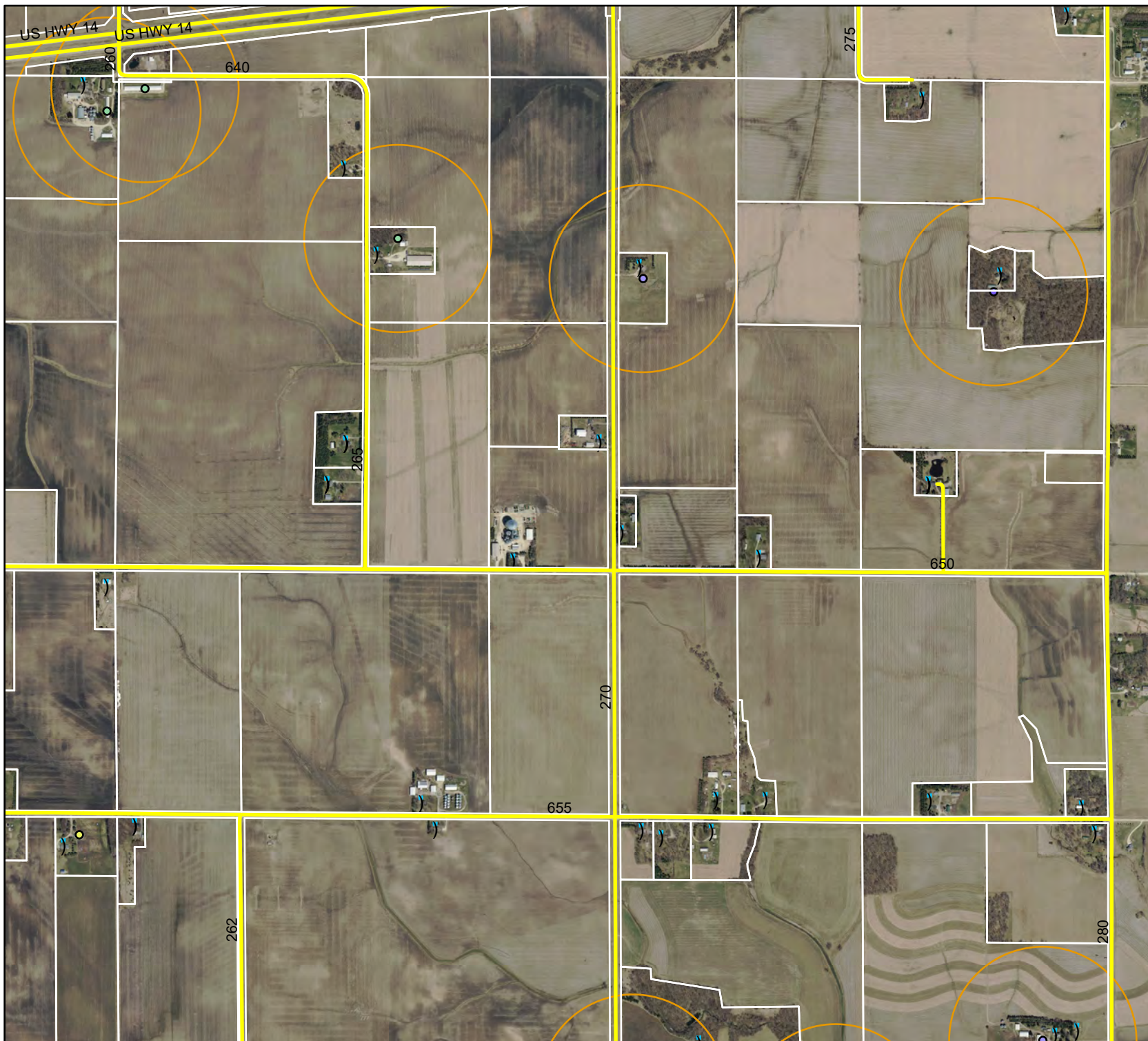
© 2021 Google

1000 ft

Canisteo Township Regulatory Floodplain Boundary (100-yr or Base Flood)



0 2,450 4,000 5,900 Feet



CUP # 21-02

- Roads
 - Parcels
 - Houses
 - Feedlot 1000' Buffer
- Feedlots
- Null
 - Beef Cattle
 - Chickens
 - Dairy Cattle
 - Elk
 - Goats
 - Horses
 - Mix
 - None
 - Sheep
 - Swine
 - Turkeys
 - Other



650325 0 650 Feet

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Created From Goodhue Online Mapping
Site Sources: Dodge County, MN

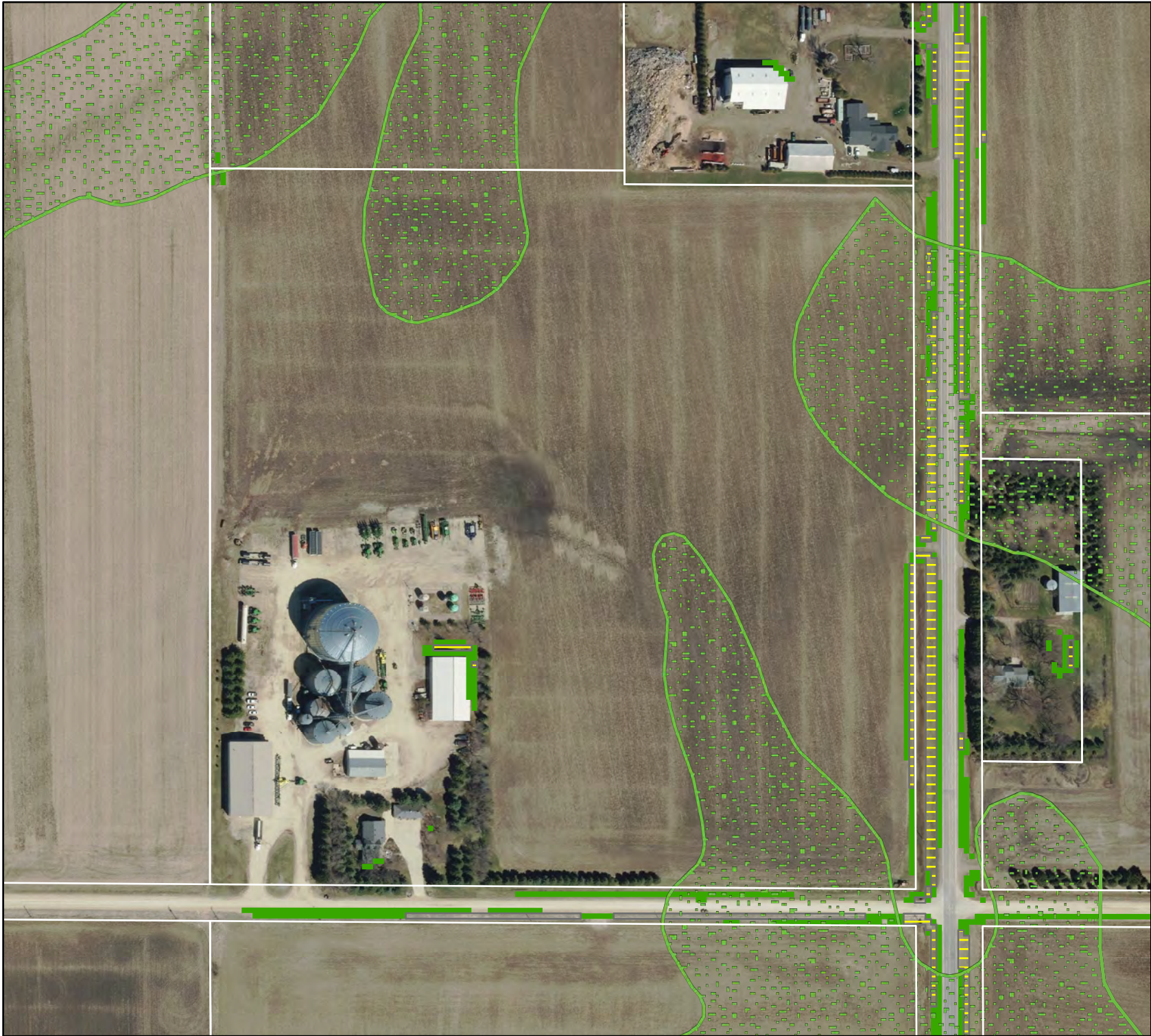
High Sensitivity GW



110 55 0 110 Feet

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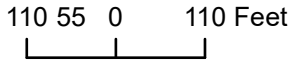
CUP # 21-02



Hydric Soil

Slope

- 12 %~18%
- 18%~30%
- 30 % and greater
- other



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Site Sources: Dodge County, MN



ENVIRONMENTAL SERVICES

721 MAIN ST N • DEPT 123
MANTORVILLE MN 55955-2214
507-635-6272

DATE: April 29, 2021

TO: Mantorville Township, City of Kasson, Soil and Water Conservation District, County Highway Department, County Assessor, MN DNR, and MnDot

FROM: County Staff of Environmental Services

RE: Request for Comment on Land Use Proposal

A Dodge County Public Hearing is planned for June 2nd, 2021 to consider a request of CUP 21-05 for the purpose of a permitted 1 MW Community Solar Farm located in the Agricultural District in Section 25, Mantorville Township.

*Please submit written comments prior to **May 17, 2021** to the Environmental Services Office. You may also relay comments at the Public Hearing. If we do not receive comments, we will assume you have no objections.*

Description of Land Use Proposal

1. **Applicant's Name:** QuarrySun, LLC
2. **Land Owner's Name:** Michael Sullivan
3. **Land Use Request, Intended Use:** A permitted 1 MW Community Solar Farm located in the Agricultural District in Section 25, Mantorville Township
4. **Location:** W ½ of SW ¼, Section 25, Mantorville Township.
5. **Zoning District:** Agricultural
6. **Existing Conditions** (based on staff review of in-office data):
 - A. **Current Land Use:** Cultivated cropland and existing solar farm (CUP 16-01).
 - B. **Neighboring Land Use:** The area is best characterized as an agricultural area with scattered farmsteads. The Dodge/Olmsted county line is one mile to the east. To the south approximately 1428' is the Chicago/Northwestern Railroad which runs east to Byron and west to Kasson. There are approximately 8 homes within a ½ mile radius of the project. The closest feedlot that is registered for 30 animal units or more is owned by Patrick L Obrien Farm. This feedlot is located over 3,000 FT to the north. Directly to the west across Co Rd

15 are two dwellings. One is owned by David Holey and the other is owned by Milton Holey.

- C. Soil, Slope, and Hydric Soils:** Soil, slope and climate conditions are considered “prime farmland” according to USDA definition. Parent soil type is glacial till. No wetlands exist on the site.
- D. River Shoreland and Floodplain:** The Shoreland Zoning District does not exist on the site, but a narrow Floodplain Zoning District does exist near the site.
- E. Bedrock Depth, Type, and Karst Features:** Nearby well records show that limestone bedrock exists between 42-63 ft feet below the surface in locations around the site.
- F. Water Quality Sensitivity:** Due to the existence of limestone bedrock which exists at, or less than, 50 ft. below the surface, the site has a high sensitivity to leach surface contaminants into the drinking water.
- G. Natural Resources and Wildlife.** The area is currently listed as having medium natural Resource Value.

7. Zoning Ordinance Standards that Apply:

- A.** Chapter 8: Section 8.4.18: Solar Energy Farms
- B.** Chapter 8: Section 8.6: District Performance Standards
- C.** Chapter 16: Section 16.46 Solar Energy Farms
- D.** Chapter 17: Section 17.2 Access and Driveways

8. Permits Required:

- A.** Conditional Use Permit
- B.** Zoning Permit from Dodge County prior to construction.

9. Attachments:

- A.** Request for Public Hearing and site plan prepared by Applicant
- B.** Aerial Photo showing surrounding land use.



Solar Farm Application

Dodge County Environmental Services
721 Main St N, Dept. 123
Mantorville MN 55955

Phone 507-635-6272
www.co.dodge.mn.us

Application Fee \$ 1500.00

Recorder Fee \$ 46.00

Date Received 4/9/21
Received By JE

Applicant Name: QuarrySun LLC

Address 1724 Gilpin Street City Denver

State & Zip Code Colorado 80218 Phone 612-968-5127

E-mail Address (if available) dbergh@mysunshare.com

David G. Bergh 4/7/21
Signature of Applicant Date

Name of Authorized Agent/ Project Manager David Bergh

Address 1724 Gilpin Street City Denver

State & Zip Code Colorado 80218 Phone 612-968-5127

E-mail Address (if available) dbergh@mysunshare.com

David G. Bergh 4/7/21
Signature of Authorized Agent/ Project Manager Date

Project Name: QuarrySun LLC

Site location: Township 107 Section 25 1/4: SW of 1/4

Parcel ID Number 130250300 # of acres: 160

Number of leased acres 20

Output of Solar Energy Farm 1 Megawatt

1. EXISTING CONDITIONS MAP:

- ☐ Existing property lines and property lines extending 100 feet from the parcel boundary, including the names of the adjacent property owners and current use of those properties.
- ☐ Public and private roads, showing widths of the roads and associated easements.
- ☐ Buildings, structures, wells, septic systems, support areas, access drives and impervious surface coverage:
- ☐ Topography at 2' contour intervals and surface water drainage patterns
- ☐ Waterways, watercourses, or and/or karst features
- ☐ Delineated wetland boundaries
- ☐ FEMA 100-yr Floodplain Boundary or ☒ NA
- ☐ Shoreland District Boundary or ☒ NA
 - ☐ Ordinary High Water Level (OHWL) and Highest Known Water Level
 - ☐ Toe and top of any bluffs
 - ☐ Post-construction phase practices/BMPs
- ☐ Mapped soils according to the Dodge County Soil Survey

2. PROPOSED SITE CONDITIONS MAP

- ☐ Boundary of easement location and number of acres impacted for solar farm
- ☐ Layout and location and spacing of solar panels, equipment buildings and/or substations
- ☐ Location and size of underground and/or overhead electric lines installed for the project and identify the Point of Interconnection
- ☐ Proposed access drives and interior maintenance roads
- ☐ Post construction drainage patterns and elevations
- ☐ Location, type, depth, volume and size of stormwater basins

DESCRIPTION OF PROJECT

Please provide a complete description of the project. Include size of project in MW, number and type of panels, angle of tilt and any anti-glare coatings/technology. Describe type and number of posts and type of foundations and racking systems (fixed or tracking). Provide copies of manufacturer's specs for panels and other equipment. Include an estimate of production taxes the county and township will receive or why no production taxes will be paid. Also, a copy of the interconnection agreement with the local electric utility or a written explanation outlining way an interconnection agreement is not necessary should be provided.

CONSTRUCTION PHASE:

Describe the construction phase of the project. Include the estimated start and conclusion of construction activities. Provide information on the method of post installation, the equipment used and how long this process will take. Provide information on the construction schedule, including days per week, start time and end time. Describe the equipment used for construction, the estimated volume and type of traffic to visit the site, and how the property will be accessed. List the number of employees that will be on site during the construction phase. Also include information on the type and placement of temporary erosion and sediment control practices/BMPs and who will be responsible for installation, inspection and repair during construction phase.

MAINTENANCE PHASE:

Describe the type of on-going maintenance activities, including, but not limited to vegetation removal, snow removal, equipment repair, and maintenance of stormwater basins. Include information on the frequency of these maintenance activities and the number of employees on site. Provide information on how on-going activities will be financed and provide contact information for maintenance complaints.

REQUIRED ATTACHMENTS

- ☐ Stormwater Management and Erosion and Sediment Control compliant with Section 16.46.2.B (Do NOT attach a copy of the MPCA's Construction Stormwater Permit)
 - ☐ Field Soil Evaluation (soil logs) and web soil survey data
 - ☐ MPCA Solar Impervious Surface Calculation Spreadsheet
 - ☐ Stormwater basin design (type, volume, depth,
 - ☐ Erosion and Sediment Control Plans
 - ☐ Pre-construction phase practices/BMPs
 - ☐ Construction phase practices/BMPs
 - ☐ Post-construction phase practices/BMPs
 - ☐ Post construction drainage on the property
- ☐ Visual Impact Analysis compliant with Section 16.46.2.I
- ☐ Glare Study compliant with Section 16.46.2.F
- ☐ Wetland Delineation Report
- ☐ Decommissioning & Restoration Plan compliant with Section 16.46.3.D in accordance with the requirements of Section 16.46.3.C.
- ☐ Other information when required by the Department

For Office Use Only

Date Rcvd 4/9/21 15 business days 4/30/21 60 days 6/8/21 120 days 8/7/21



DODGE COUNTY
Historic. Vibrant. Rural.

General Conditional Use Permit / Interim Use Permit Application

Dodge County Environmental Services
721 Main St N, Dept. 123
Mantorville MN 55955

Phone 507-635-6272
www.co.dodge.mn.us

Application Fee \$ 500.00

Recorder Fee \$ 46.00

****Separate payments needed**

Date Received _____
Received By _____

Applicant: QuarrySun LLC Phone: 612-968-5127

Email address: dbergha@mysunshare.com

Address: 1724 Gilpin Street City, State, Zip: Denver, CO 80218

Neil A. B.
Applicant's Signature

4/7/21
Date

Property Owner: Michael Sullivan Phone: _____

Address: 27235 625th St City, State, Zip: Kasson, MN 55944

Michael Sullivan
Property Owner's Signature

3-30-2021
Date

Signature of this application authorizes Environmental Services Staff to enter the property to perform needed inspections.

Property Address: 27235 625th St City, State, Zip: Kasson, MN 55944

Parcel I.D. Number 130250300 Township 107 Section 25

Legal Description Sect - 25 Twp - 107 Range - 016 SW 1/4 # of acres 160

REQUEST INFORMATION

☐ CUP/IUP request under Chapter _____, Section _____

☐ Chapter 16 Performance Standards for Use: Section(s) _____

☐ Chapter 17 Development Standards: Sections (s) _____

☐ Subject to Shoreland (Ch 14) ☐ Subject to Floodplain (Ch 15) ☐ Subject to SSTS (Ch 21)

☐ Are there currently any unresolved zoning or public nuisance violations on site?

OTHER LOCAL, STATE, OR FEDERAL PERMITS/APPROVALS/LICENSES REQUIRED

Local _____ State _____ Federal _____

GENERAL INFORMATION FOR A CONDITIONAL USE PERMIT/INTERIM USE PERMIT:

- ☐ A detailed written description and reason for the request.
- ☐ A general location map and description of land uses within 1000 feet of the property line. The use of structures shall be identified on the map.
- ☐ Detailed Site Map Showing Property Lines with Location of:
 - ☐ Existing dwellings and other onsite accessory buildings or structures
 - ☐ Septic System and Support area
 - ☐ Well(s)
 - ☐ Access drives
 - ☐ Rivers, wetlands, streams or other similar features
 - ☐ Any proposed dwellings, accessory buildings or other structures or features proposed for the use.
- ☐ Other information when requested by the Department to determine if CUP/IUP criteria can be met

REQUIRED ATTACHMENTS (WHEN APPLICABLE)

- ☐ Specific application for the proposed use and all supporting documentation
- ☐ Business Plan including a plan to address nuisance complaints (See Template for assistance)
- ☐ Transportation Plan (parking, on-site circulation, loading, access, volume and type of traffic generated, local traffic routes utilized, etc...)
- ☐ Agricultural Covenant
- ☐ Any required easement agreements (access, well, septic, etc...)

CRITERIA FOR GRANTING A CONDITIONAL USE PERMIT/INTERIM USE PERMIT REQUEST:

Listed below are the criteria for granting a Conditional Use Permit or Interim Use Permit request under the Dodge County Ordinance. CUPs and IUPs may be approved by the County Board, upon a showing by the applicant that the use or development conforms to the comprehensive land use plan of the County and is compatible with the existing neighborhood.

DODGE COUNTY ZONING ORDINANCE SECTION 18.13.8:

- I. The establishment, maintenance or operation will not be detrimental to or endanger the public health, safety, or general welfare;
- II. The proposed use will be able to meet the standards of this Ordinance or any other applicable County Ordinance and is not contrary to established standards, regulations or ordinances of other governmental agencies;
- III. Each structure or improvement is so designed and constructed that it is not unsightly, undesirable or obnoxious in appearance to the extent that it will hinder the orderly and harmonious development of the County and the use district wherein proposed;
- IV. The proposed use is compatible with adjacent uses of land. The use shall not be substantially injurious to the permitted uses nor unduly restrict the enjoyment of other property in the

Immediate vicinity. This includes whether the applicant has ensured adequate measures have been or will be taken to prevent or control offensive odor, fumes, dust, noise, and vibration, so that none of these will constitute a nuisance, and to control signs and other lights in such a manner that no disturbance to neighboring properties will result.

- V. The proposed use shall not substantially diminish and impair property values within the area;
- VI. The establishment of the use will not impede the orderly and normal development and improvement of the surrounding properties for uses permitted in the Zoning District;
- VII. The proposed use will not have a detrimental effect on existing parks, schools, roads and other public facilities;
- VIII. Adequate water supply and sewage disposal facilities are provided and in accordance with the Minnesota Department of Health and Chapter 21 of the Dodge County Zoning Ordinance, or successor;
- IX. That existing groundwater, surface water, air quality, aggregate resources, rare features, native plant communities, and designated Wildlife Action Network areas are, or will be adequately protected from the use and/or future onsite structures;
- X. Adequate utilities, access roads, on-site parking, on-site loading and unloading berths and drainage have been or will be provided;
- XI. Adequate measures have been taken to provide ingress and egress so designed as to minimize traffic congestion on public roads;

For Office Use Only

Date Rcvd 4/10/21 15 business _____ 60 days _____ 120 days _____

Submitted to Dodge County

**Conditional Use Permit Application for
QuarrySun LLC
A One MW Community Solar Garden**

QuarrySun, LLC

April 9, 2021

Dodge County
Attention: Lauren Cornelius
721 Main Street North, Dept. 123
Mantorville, MN 55955

Re: Application for a Conditional Use Permit to Develop a 1 MW Community Solar Garden

Dear Lauren,

QuarrySun LLC, is excited to present this Conditional Use Permit Application to Dodge County to develop and operate a community solar garden. The one-megawatt single axis tracker photovoltaic system will generate electricity that will be purchased by Xcel Energy under a 25-year contract. The solar garden will be a source of clean energy and will help Xcel Energy meet the state's mandate for use of renewable energy. In addition, Xcel customers may subscribe to a share of the electrical output from the project, thus supporting this clean source of energy.

The Dodge County conditions and performance requirements in your solar energy ordinance have been addressed in this application. The proposed Solar Garden meets all setbacks and requirements of the zoning code. The property will be fenced for security purposes using an agriculture fence or chain link per Dodge Counties recommendation. QuarrySun, LLC has also been deemed complete by Xcel and received the Interconnection Agreement (shown as an exhibit in the body of this document). We will also be submitting permit applications to the other required regulatory bodies.

The Dodge County Conditional Use Application, fees, and required submittal materials are attached along with several exhibits. They describe in detail the Conditional Use Permit proposal.

It is important to us to be a good neighbor and work cooperatively with each local community. Recently, near several of our sites, we have entered into conversations with local beekeepers and a local greenhouse to see if there is ways we can work together!

We are excited about the partnership possibilities and look forward to continuing these discussions in Dodge County.

Sincerely,
David Bergh
SunShare Development Manager
612-968-5127

Index

EXISTING CONDITIONS MAP (Figure 1)	Page 5
<input type="checkbox"/> Existing property lines and property lines extending 100 feet from the parcel boundary, including the names of the adjacent property owners and current use of those properties.	
EXISTING CONDITIONS MAP (Figure 2)	Page 6
<input type="checkbox"/> Public and private roads, showing widths of the roads and associated easements.	
<input type="checkbox"/> Buildings, structures, wells, septic systems, support areas, access drives and impervious surface coverage:	
<input type="checkbox"/> Topography at 2' contour intervals and surface water drainage patterns	
<input type="checkbox"/> Waterways, watercourses, or and/or karst features	
<input type="checkbox"/> Delineated wetland boundaries	
<input type="checkbox"/> FEMA 100-yr Floodplain Boundary - NA	
<input type="checkbox"/> Shoreland District Boundary - NA	
<input type="checkbox"/> Ordinary High Water Level (OHWL) and Highest Known Water Level	
<input type="checkbox"/> Toe and top of any bluffs	
<input type="checkbox"/> Post-construction phase practices/BMPs – see Preliminary Stormwater Report Exhibit	
Mapped soils according to the Dodge County Soil Survey (Figure 3) . . .	Page 7
PROPOSED SITE CONDITIONS MAP	(Figure 2, page 5)
<input type="checkbox"/> Boundary of easement location and number of acres impacted for solar farm	
PROPOSED SITE CONDITIONS MAP (Figure 4 and 4.1)	Page 8,9
<input type="checkbox"/> Layout and location and spacing of solar panels, equipment buildings and/or substations	
<input type="checkbox"/> Location and size of underground and/or overhead electric lines installed for the project and identify the Point of Interconnection	
<input type="checkbox"/> Proposed access drives and interior maintenance roads	
<input type="checkbox"/> Post construction drainage patterns and elevations – see Preliminary Stormwater Report	
<input type="checkbox"/> Location, type, depth, volume, and size of stormwater basins (Figure 2, p.5)	
Project Description	Page 10
Construction Phase	Page 11
Maintenance Phase	Page 12
Proposed Conditions for Approval	Page 13

REQUIRED ATTACHMENTS

Exhibit A

- Stormwater Management and Erosion and Sediment Control compliant with Section 16.46.2.B (**Do NOT attach a copy of the MPCA's Construction Stormwater Permit**)
- ☐ Field Soil Evaluation (soil logs) and web soil survey data
 - ☐ MPCA Solar Impervious Surface Calculation Spreadsheet
 - ☐ Stormwater basin design (type, volume, depth,
 - ☐ Erosion and Sediment Control Plans
 - ☐ Pre-construction phase practices/BMPs

QuarrySun, LLC

- ☐ Construction phase practices/BMPs
- ☐ Post-construction phase practices/BMPs
- ☐ Post construction drainage on the property

Exhibit B

- ☐ Visual Impact Analysis compliant with Section 16.46.2.I

Exhibit C

Glare Study compliant with Section 16.46.2.F

Exhibit D

- ☐ Wetland Delineation Report

Exhibit E

- ☐ Decommissioning & Restoration Plan compliant with Section 16.46.3.D in accordance with the requirements of Section 16.46.3.C.

Exhibit F

- ☐ Panel and Inverter Spec Sheet

Exhibit G

- ☐ Interconnect Agreement

QuarrySun, LLC

Site Location

The proposed QuarrySun solar garden site is located in the southeast corner of the intersection 625th Street and 270th Avenue located on the Sullivan property. It is approximately 3.9 miles east of Kasson on 625th Street and $\frac{3}{4}$ of a mile north of I-90 on 270th Avenue.

Figure 1: Existing Conditions Map

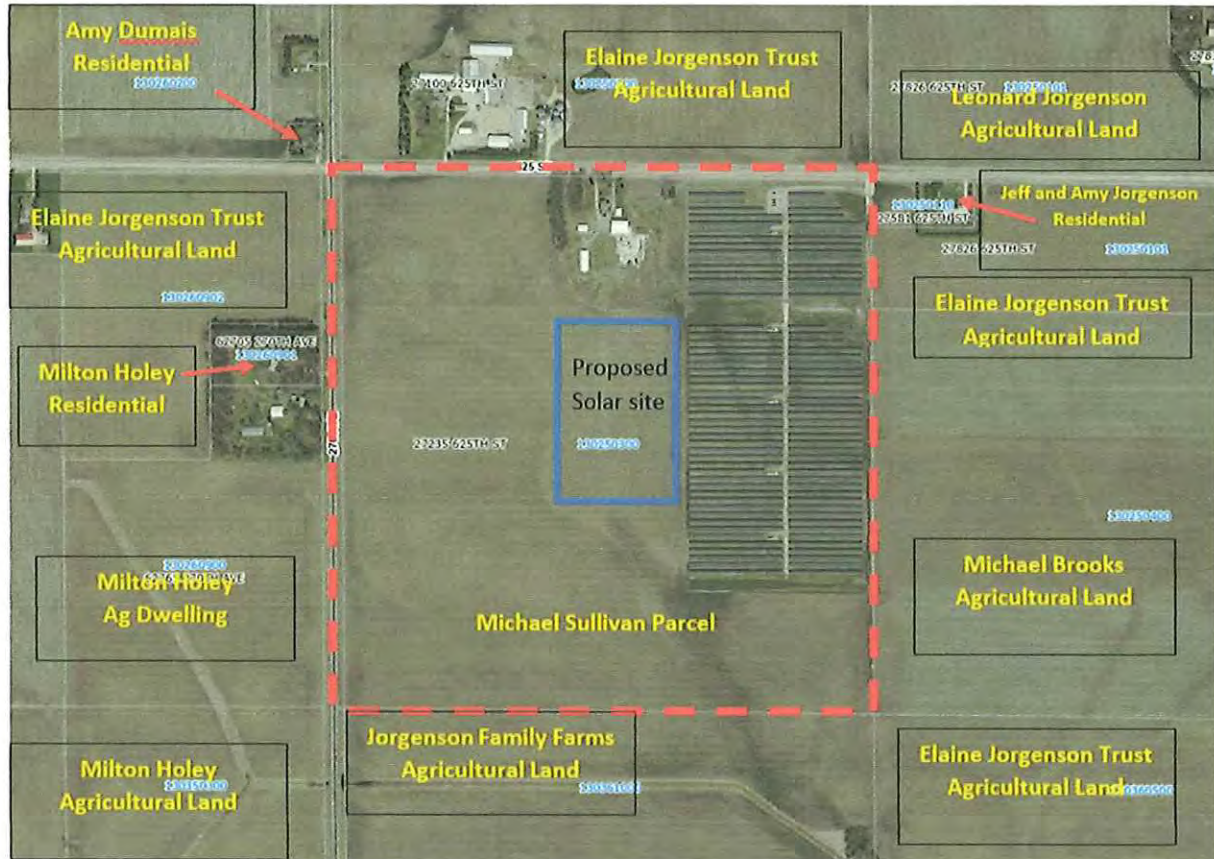
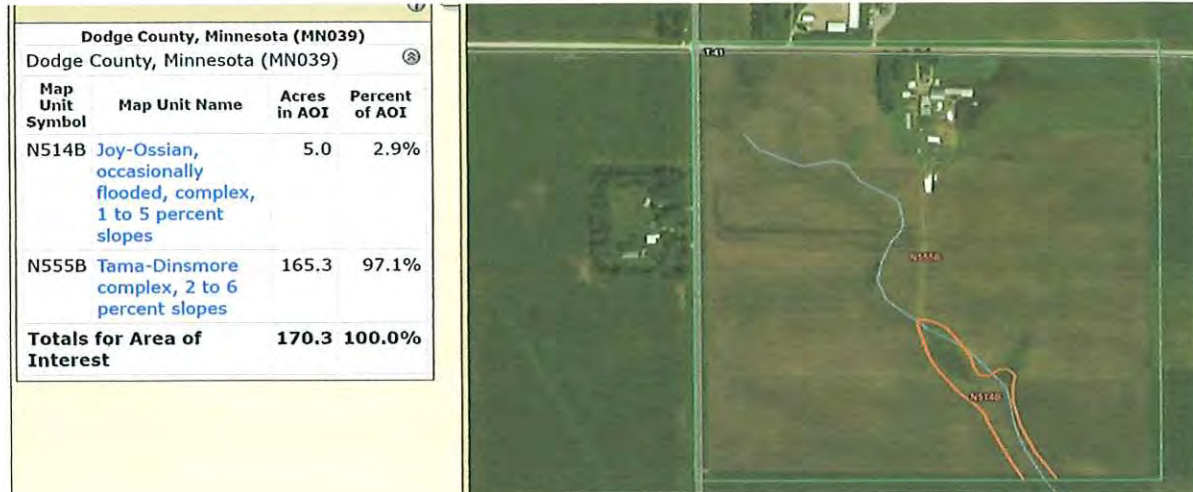


Figure 3: Mapped Soils According to the Dodge County Soil Survey



Source: USDA National Resource Conservation Service

Figure 4: Proposed Site Conditions Map

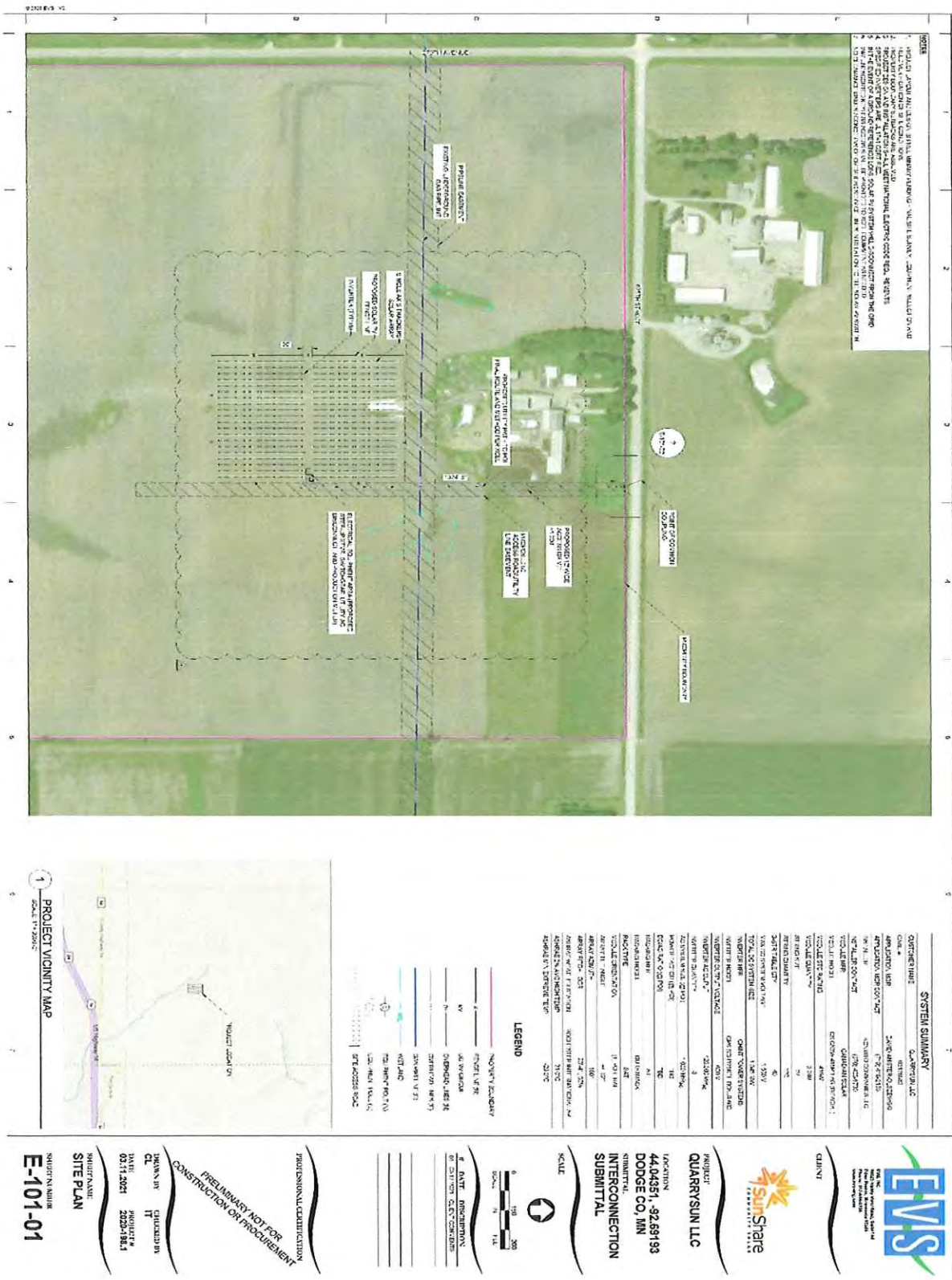
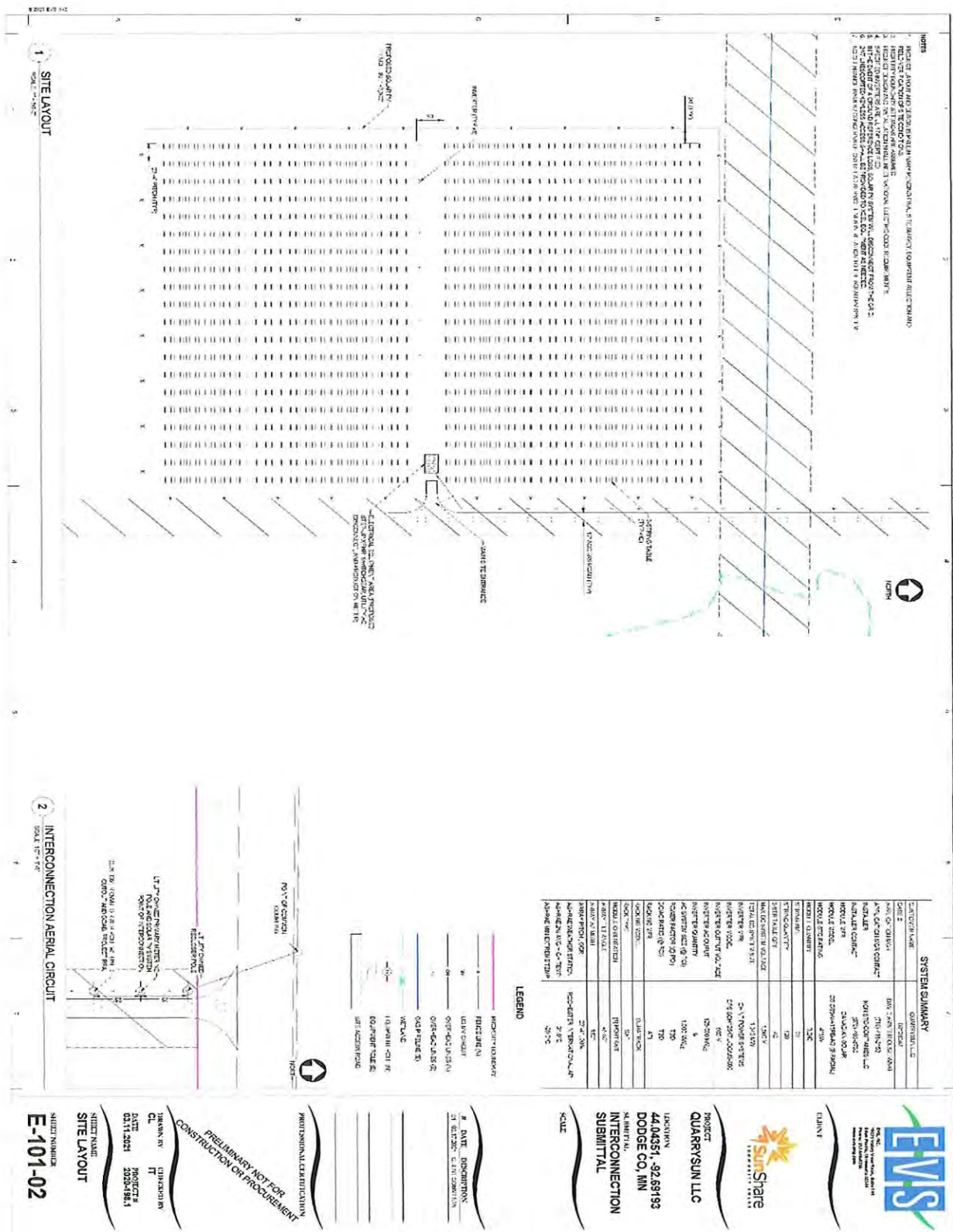


Figure 4.1: Proposed Site Conditions Map



Description of Project



The QuarrySun solar gardens will utilize a single axis photovoltaic technology. As depicted in the image above, panels follow the sun from east to west. The modules are UL listed, CEC listed, and approved for use by the National Electrical Code (NEC). They are dark blue, absorbing sunlight light converting it into electrical energy, and are coated with an anti-reflective technology to enhance their ability to capture sunlight and prevent glare – see glare study in the Required Attachments Exhibit C. The glare technology has been perfected over the course of the years that we are seeing more and more solar panels being installed at airports, like on the roof of the parking ramp at the Lindbergh Terminal at the Minneapolis-St, Paul International Airport.

Each solar panel is approximately 7' by 3.5' in dimension and arranged in a row as illustrated below. There will be approximately 3240 solar panels on this site.



QuarrySun, LLC

The panels are mounted on a steel and aluminum racking and tracking system which stand roughly 7-8 feet above ground when the panels are in their most upright position. Vertical posts embedded approximately 8-11 feet into the ground secure the racking system. The depth is determined by soil conditions. There will be approximately 500 H pile posts used on the QuarrySun project.

Through these measures, and by planting a low-growth vegetative ground cover underneath the panels, our systems often reduce surface water runoff relative to the previous land use. By hosting a community solar garden, your community can not only benefit from locally generated power but can take a step toward improving local water quality, something all Minnesotans appreciate.

Construction Phase

The total duration of the construction process is approximately 10-12 weeks. This timeline can be affected by material delays which is not unusually this past year due to covid 19. It is estimated that there will be between 10 and 15 large trucks used during the delivery phase of the construction process. Light duty trucks will also be used for transportation of construction materials and workers throughout the site. There will be anywhere from 8-12 workers on site depending on the work being completed. Construction equipment such as scrapers, bulldozers, dump trucks, watering trucks, motor graders, vibratory compactors, backhoes and the following will be used during construction. Due to the relatively flat topography of the QuarrySun site it is anticipated that very little grading work will be required. This will be determined as we move further along in our civil engineering work required for the building permit.

Construction Timeline for the project

Days Elapsed	Construction Activities
+8 days	Mobilization: Civil Work <ul style="list-style-type: none">▪ Erosion Control measures dictated by SWPPP▪ Layout and survey work▪ Grading and vegetation clear where necessary▪ Construction of access road and staging area▪ Installation of fencing
+17 days	Mechanical Installation <ul style="list-style-type: none">▪ Includes piles – approximately 500 H piles,▪ ATI racking▪ module installation: Canadian Solar CS3W-415PB-AG
+70.5 days	Electrical Installation <ul style="list-style-type: none">▪ Trenching▪ AC and DC wiring

QuarrySun, LLC

	<ul style="list-style-type: none">▪ One equipment pad▪ 8 Inverters installed: Chint CPS SCH125KTL -DO\US600▪ 3240 Modules installed▪ DAS installation
+75 days	Mechanical Completion; and Commissioning and Testing <ul style="list-style-type: none">▪ Meters installed by Utility▪ Energization by EPC▪ Commission and Testing
+80 days	Vegetation Installation <ul style="list-style-type: none">▪ Includes native grasses and trees per screening requirements

Maintenance Phase

A third-party Operation and Maintenance Company is hired to assist with the monitoring efforts. Currently we are working with Duke Energy who monitors the system 24 hours a day 365 days a year. If we have immediate maintenance needs, i.e., the system is down, we contract with several local licensed electrical outfits who send technicians to make the repairs.

- 1) Mowing: Prairie Restoration will mow twice a year, requiring one or two operators on site for one full day
- 2) Snow Removal: MN Native Landscape (MNL) performs snow removal as needed. Typically requires one person and a medium duty truck with a plow completing the plowing within an hour or two. If a truck is not able to handle the snow MNL use a skid loader or a tractor with a front mounted snowplow.
- 3) Stormwater basins – Our yearly PM work checks on the overall status of the site and how it is functioning. If the stormwater basin will be checked during the PM site visit and if maintenance is needed that will be identified in their report. The PM work requires two workers on site for one to two days.
- 4) 24/7 Monitoring - Duke Energy and SunShare. Duke Energy contact
- 5) Comprehensive Yearly Preventative Maintenance Plan
General Inspections:
 - Visual inspection for signs of damage, overall wear and tear, module breakage, loose conduit, broken straps, etc.
 - Sample check torque marks and tighten loose connections1x/yr

Electrical Inspections and Maintenance:
 - Perform manufacturer's preventative maintenance on electrical equipment
 - Check integrity of weather resistance (seals, hubs and weather stripping)
 - Check electrical equipment housing for signs of corrosion
 - Perform Infrared scans, as needed (modules not included)1x/yr

QuarrySun, LLC

Inverter Inspections and Maintenance:

- Perform manufacturer's preventative maintenance
- Check integrity of weather resistance (seals, hubs and weather stripping)
- Check inverter housing for signs of corrosion
- Clean inverter air vents and heat sinks clean filters
- Perform Infrared scans, as needed

1x/y

Monitoring Equipment Inspection:

- Clean and verify readings of pyranometer(s)
- Check integrity of cell temperature sensor and verify DAS readings
- Check other weather station components
- Check that the System meter is reading accurately

1x/yr

Array Washing:

- Includes normally expected soiling conditions. Heavy cleaning, such as excessive soiling, debris removal, bird droppings and soot, not to exceed 10% of total array
- Upon request

Vegetation Control:

- Remove or mow weeds and grasses located in accessible areas under the array

Proposed Conditions for Approval

- 1) Submit Proof of Insurance of the solar garden contractor
- 2) Decommissioning Bond will be submitted as well as \$20,000 performance bond per Section 16.46.2V
- 3) A placard card posted at the entry listing REC and their phone number in case of emergencies, site grounds repair and maintenance, noxious weed control and snow removal of private driveways
- 4) Any grading or filling must be done in accordance with Dodge County Guidelines including a submittal and approval of a Grading and SWPPP plan
- 5) In the even that tile lines are damaged, all private and public drainage tile shall be replaced or relocated around the site and be reconnected to a permitted outlet by a professional tile company
- 6) A wetland delineation will be obtained if necessary. All Federal, State, and Dodge County wetland requirements will be followed. According to the National Wetland Inventory.
- 7) Obtain all other potential State, Federal and local permits where applicable. This includes:

QuarrySun, LLC

- a. NDPES Permit
- b. F.A.A. and local Municipal Airport Commissions
- c. Road Authority when working within the Road Right of Way.
- d. State Electrical Permits and Code Inspections
- e. Upon CUP approval obtain a Dodge County Land Use Permit

QuarrySun, LLC

EXHIBIT A
Preliminary Stormwater Report

QuarrySun CSG

Preliminary Stormwater Report (FOR PERMITTING ONLY)

Prepared for:

QuarrySun, LLC

1724 Gilpin Street
Denver, CO 80218

Location: Dodge County, MN
Date: April 9, 2021

EVS Project No.: 2020-176.1





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2.0 Calculations and Data 3

3.0 Basin Location 4

4.0 Conclusion..... 4

List of Appendices

- Appendix A – Solar Module Water Quality Volume
- Appendix B – Soil Report

1.0 Stormwater Design Approach

The proposed project will replace existing crop land with an impervious aggregate road and concrete pad. Ground cover below the solar modules will be a short/medium height natural prairie type grass throughout the site. In addition, impervious solar modules will be constructed but will not replace the proposed vegetation since they are elevated on driven steel piles. These additional impervious surfaces will generate an increase in stormwater runoff rate and volume, which will be mitigated to mimic undeveloped conditions.

The project will be required to comply with the Minnesota Pollution Control Agency's NPDES Construction General Permit which has the following requirements:

- Implement BMP's to control sedimentation during construction, i.e. silt fence, sediment basins, temporary stabilization, etc.
- Submittal of a Notice of Intent
- Develop a Storm Water Pollution Prevention Plan (SWPPP).
- Post Construction volume reduction – retain the water quality volume onsite. The water quality volume is defined as 1 inch of runoff from new impervious surfaces that replace vegetation. Per direction from the MPCA, elevated solar modules are considered disconnected impervious and may be given a credit when calculating impervious surface.

Design Assumptions

- The MPCA has determined that a credit be given for disconnected impervious based on an impervious to pervious ratio. This credit is to be used when calculating post construction volume reduction. See Appendix A for solar module imperviousness calculations.
- Data from the USDA Web Soil Survey identifies existing soils as silt loam, which are HSG Type B. An infiltration rate of 0.3 in/hr is assumed, according to the MPCA design infiltration rate table.

Volume Reduction

To achieve the required post construction volume reduction, an infiltration basin will be used. The infiltration basin is proposed along the southwest fence line at a depth of 12 inches. The basin will empty slowly by infiltrating into the ground. The basin will be sized to draw down the required volume within 48 hours. See Appendix A for the volume calculations.

Rate Control

To achieve the required post construction rate control, the approach will be to take advantage of a change in land use from annually rotated cropland to permanently vegetated grass ground cover over a majority of the site. The existing site condition of straight row crops in Hydric Soil Group B has a NRCS Curve Number (CN) of 78. When converted to a fully vegetated meadow condition, the same soil has a CN of 58. A reduction in overall CN is anticipated due to the minimal proposed impervious, which will cause a reduction in the rate of stormwater runoff for all storm events.

2.0 Calculations and Data

Volume Reduction Calculations

Per MPCA guidance, volume reduction calculations are done separately for impervious surfaces that replace vegetation i.e. aggregate roads and concrete pads, versus the solar modules which are considered disconnected impervious.

Non-Solar Module Impervious Area:

Table 1 – Non-Solar Impervious Area Tabulation

CONCRETE SURFACE		
# of concrete pads	1	ea
area per pad	370	sf
Total Concrete Area	370	sf
AGGREGATE SURFACE		
area of aggregate road*	700	sf
area of aggregate around pads	600	sf
Total Aggregate Area	1,300	sf

Non-Module Impervious Area	1,670	sf	0.04	acres
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Non-Solar Module Water Quality Volume (Vn):

$$V_n = (1,670 \text{ sf} \times 1 \text{ in} \times (1 \text{ ft}/12 \text{ in})) = 140 \text{ cf}$$

Solar Module Water Quality Volume (Vm):

$$V_m = 6,605 \text{ cf (see appendix A)}$$

Total Water Quality Volume (Vt):

$$V_t = V_n + V_m$$

$$V_t = 6,745 \text{ cf}$$

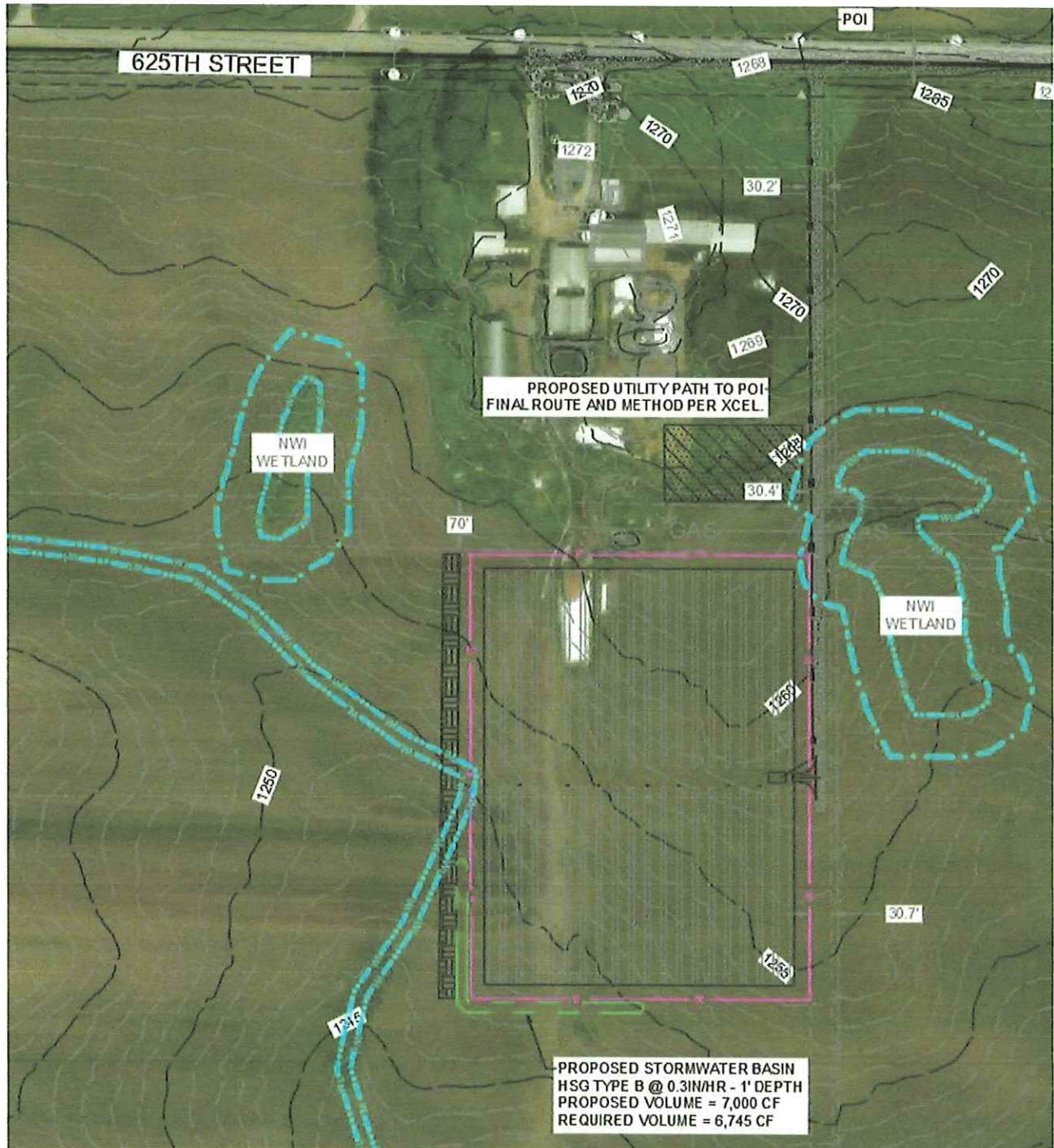
Table 2 – Proposed Basin Volume (Vb)

Basin No.	Volume (cf)
Basin 1 (1P)	7,000 cf

The total basin volume is greater than the required volume reduction as dictated by the MPCA (7,000 cf > 6,745 cf).

3.0 Basin Location

Preliminary location of sufficient basin shown below:



4.0 Conclusion

Construction phase stormwater requirements of this project will be met by obtaining the NPDES permit required by the MPCA, which includes generating a SWPPP and implementing erosion control BMP's sufficient to satisfy the permit requirements. Post construction phase stormwater requirements of volume storage will be met by installing an infiltration basin.

Stormwater Report

Appendix A

Solar Module Water Quality Volume

User Defined Calculation Results Legend

	Overall	Table cross-section		Units	User notes
		Fig. 1 Runoff over pervious	Fig. 2 Runoff over impervious		
Runoff Analysis Per Solar Table					
Site Specific Variables					
Length of table	286.4			ft	Dimensions measured from site plan
Width of road	0			ft	
Y distance		6.99	0.00	ft	
Z distance	16.32			ft	
Soil Type	B				From geotech report
Impervious area		4,675	4,675	ft2	
Pervious area		6,677	4,675	ft2	
Impervious to Pervious (I/P) ratio		0.700	1.000	ft2/ft2	Ratio for Table 1 lookup
Total area (per table profile)		11,351	9,349	ft2	
Pre-disconnection Runoff					
Runoff depth from solar table	22.50			inches	Connected Impervious
Runoff depth from pervious area	5.70			inches	Table 1 runoff depth for "No Pervious"
Runoff from impervious		8,765	8,765	ft3	Table 1 runoff depth from pervious
Runoff from pervious		3,171	2,220	ft3	
Total runoff		11,936	10,985	ft3	
Post-disconnection Runoff					
Runoff depth from solar table		7.28	8.00	inches	Disconnected Impervious
Total runoff		6,887	6,233	ft3	Effective runoff depth from disconnection
Runoff from pervious		3,171	2,220	ft3	Pre- to post- constant
Runoff reduced from BMP		5,049	4,752	ft3	
Runoff from impervious		3,715	4,012	ft3	
Impervious area		1,981	2,140	ft2	Reduced impervious area from disconnection
Impervious area reduced by		42%	46%	%	
Performance Goal Summary					
Runoff depth performance goal	1.00			inch(es)	Desired treatment goal
Runoff volume performance goal		389.54	389.54	ft3	Volume from connected imperviousness
BMP volume credit		224.42	211.22	ft3	Volume reduced by disconnecting impervious
Remaining water quality volume to be treated		165.12	178.32	ft3	Design volume per table
% of performance goal achieved by BMP		58%	54%	%	
Runoff Analysis For Solar Array					
Performance Goal Summary					
Number of solar tables in array	40	40	0	tables	
Impervious area (pre-disconnection)	186,982	186,982	0	ft2	Area in Stormwater Report
Impervious area (post-disconnection)	79,259	79,259	0	ft2	Area in HydroCAD
Remaining water quality volume to be treated	6,605	6,605	0	ft3	Design volume in Stormwater Report

Notes:

Solar table: a continuous rack of solar panels where two panels are typically stacked in portrait with a set string length

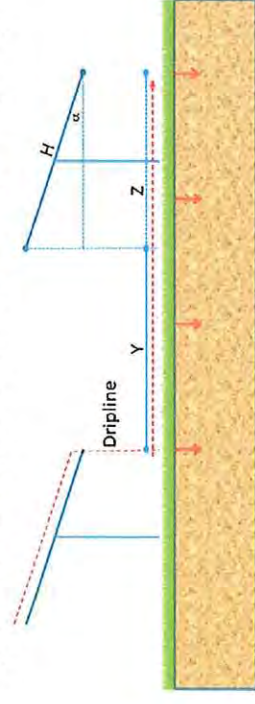
When row spacing varies, an average distance is used

Pervious area = $(Y+Z)*L$; where L is the length of the solar table and Z is the horizontal distance below the table

Impervious area = $Z*L$; where L is the length of the solar table and Z is the horizontal distance below the table

Y distance = spacing or distance between rows of tables

Figure 1: Solar table cross-section - runoff flows over adjacent pervious



Water flow path

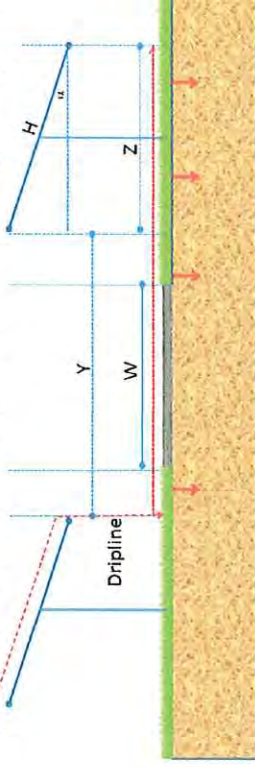
Y = Pervious length between panels in adjacent rows

Z = Average horizontal distance below panel

H = Length of panel

α = angle of solar panel from horizontal

Figure 2: Solar table cross-section - runoff flows over adjacent impervious



Flow direction

W = Width of the gravel road

H = Length of panel

Y = Distance between adjacent panels

Figure 3: Average Annual Runoff Depth

Average Annual Runoff Depth 1972-2006 (35 years)

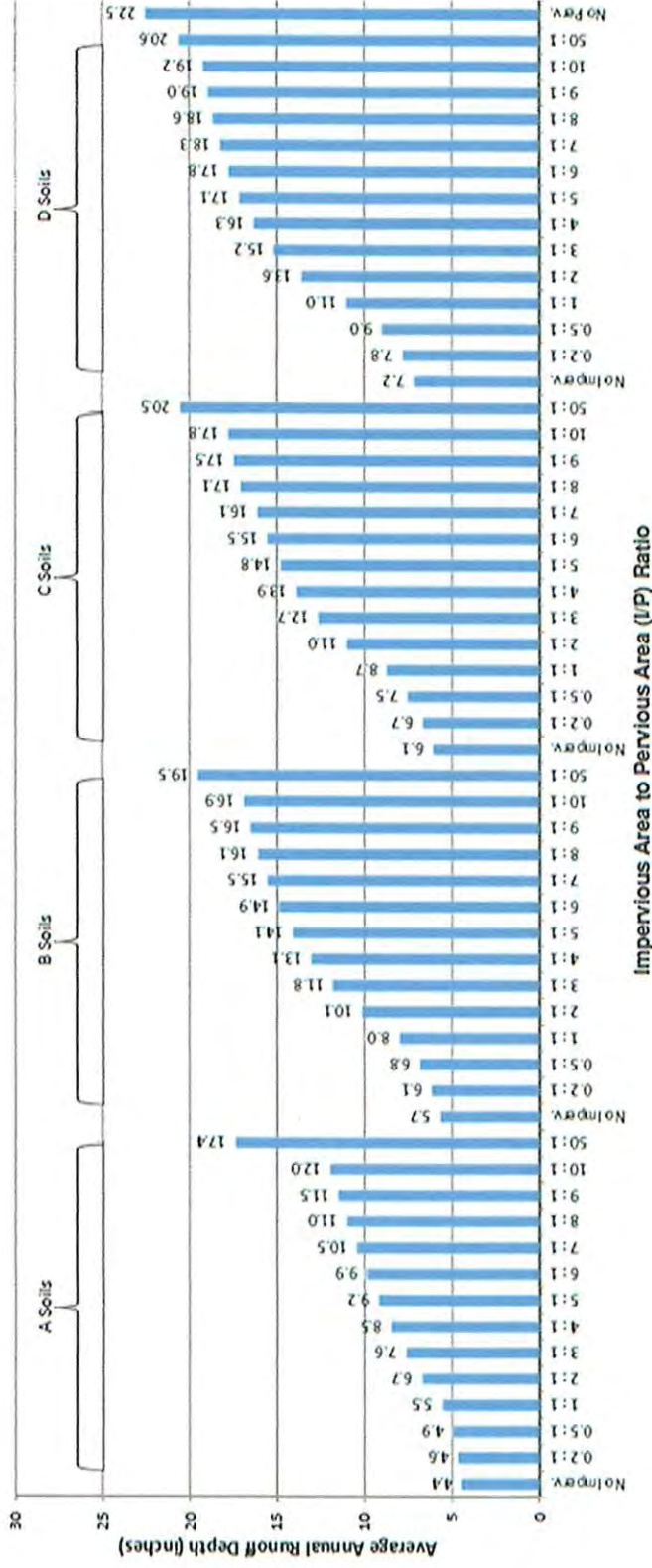


Table 1: Impervious Area to Pervious Area (I/P) Ratio

Soil	I/P Ratio														
	0	0.2	0.5	1	2	3	4	5	6	7	8	9	10	50	No Perv.
A	4.4	4.6	4.9	5.5	6.7	7.6	8.5	9.2	9.9	10.5	11	11.5	12	17.4	
B	5.7	6.1	6.8	8	10.1	11.8	13.1	14.1	14.9	15.5	16.1	16.5	16.9	19.5	
C	6.1	6.7	7.5	8.7	11	12.7	13.9	14.8	15.5	16.1	17.1	17.5	17.8	20.5	
D	7.2	7.8	9	11	13.6	15.2	16.3	17.1	17.8	18.3	18.6	19	19.2	20.6	22.5

Stormwater Report

Appendix B

Soil Report



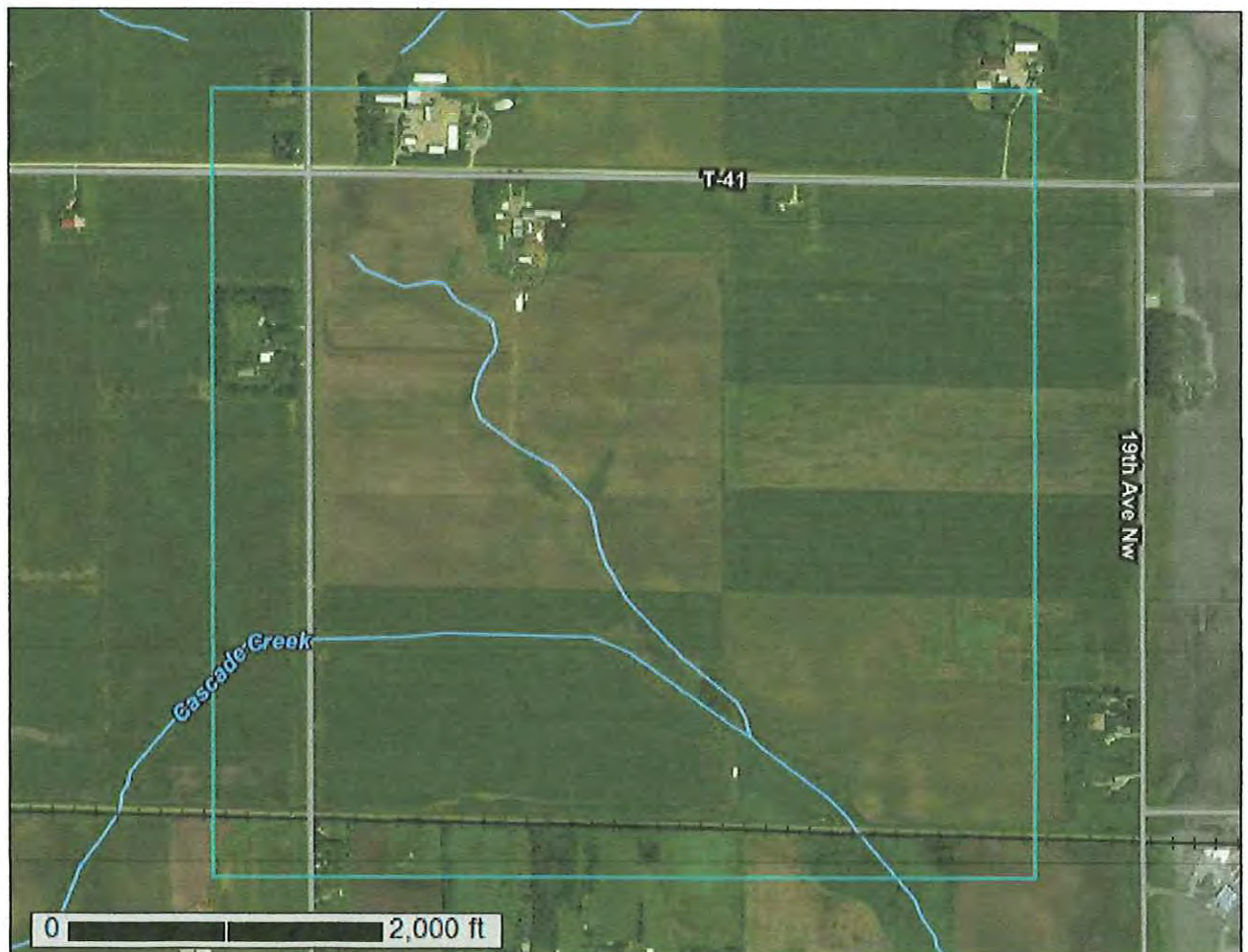
United States
Department of
Agriculture

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 **Dodge County, Minnesota**



September 22, 2020

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.

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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

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

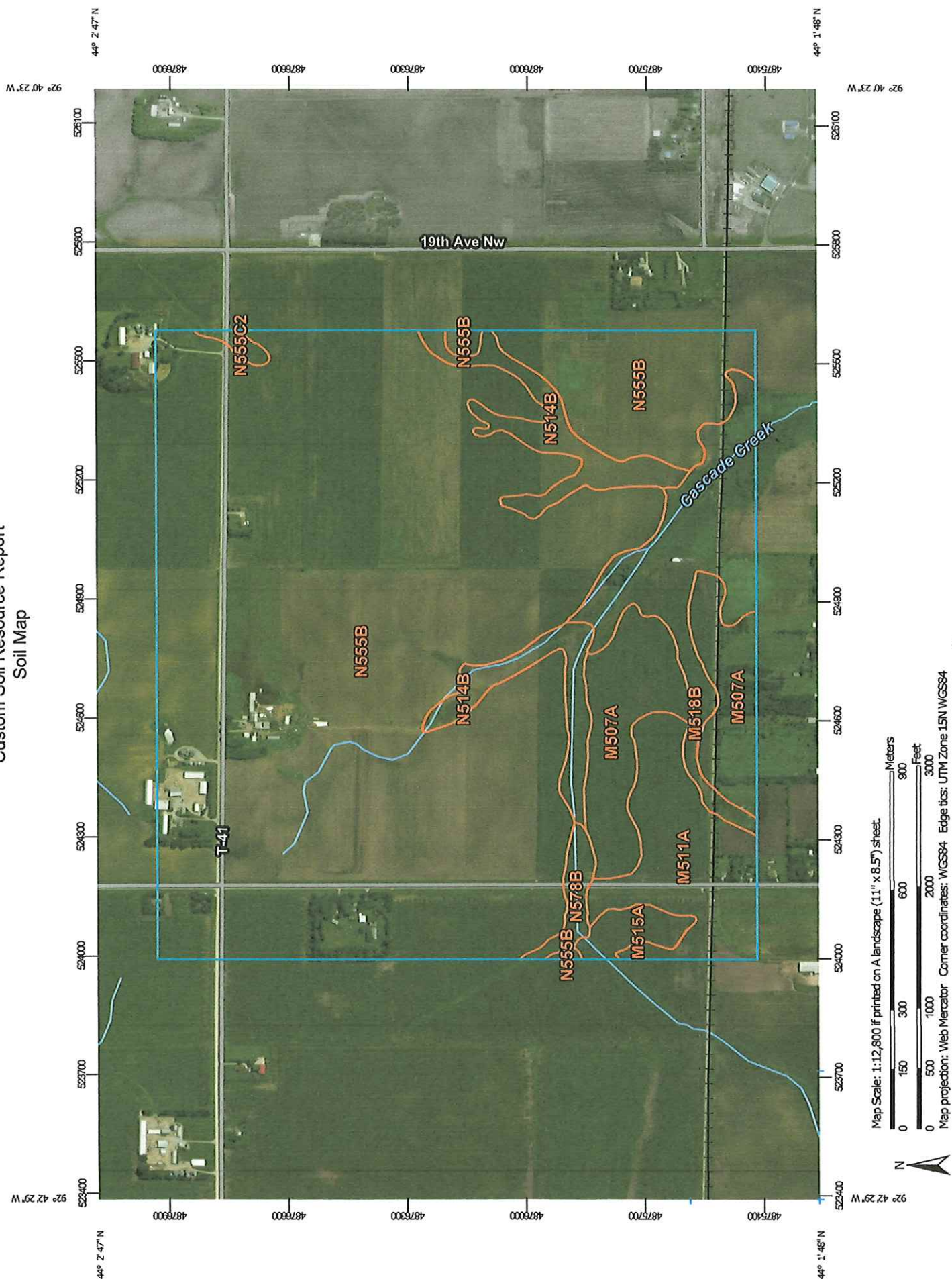
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

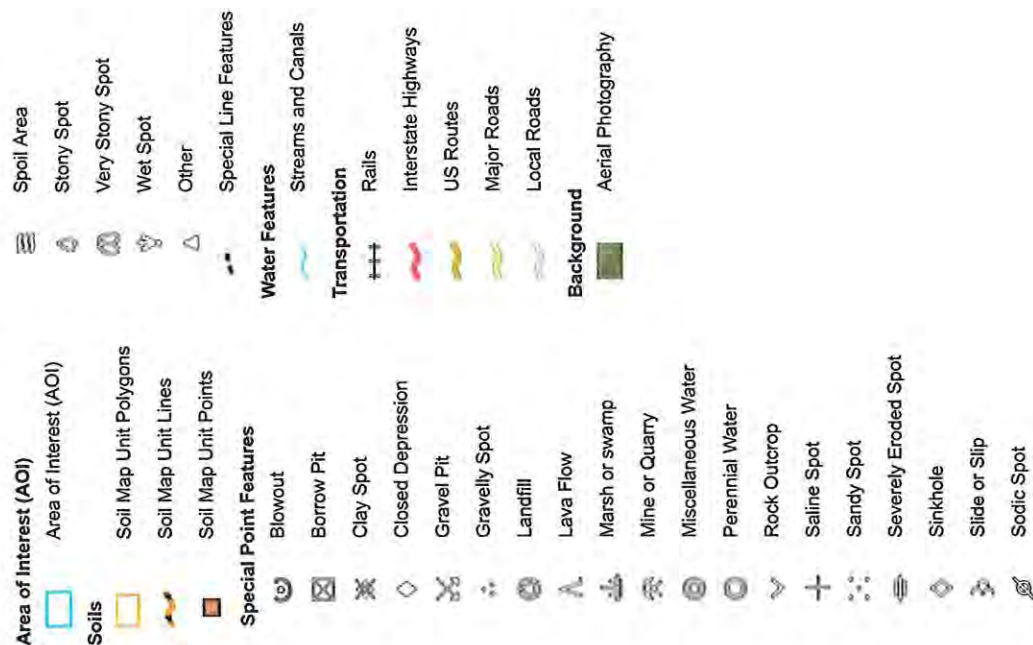
Soil Map

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.

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MAP LEGEND



MAP INFORMATION

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

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: Dodge County, Minnesota
Survey Area Data: Version 17, Jun 5, 2020

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

Date(s) aerial images were photographed: Oct 4, 2010—Nov 20, 2016

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
M507A	Marquis silt loam, 1 to 3 percent slopes	43.1	7.2%
M511A	Readlyn silt loam, 1 to 3 percent slopes	36.2	6.1%
M515A	Tripoli clay loam, 0 to 2 percent slopes	6.4	1.1%
M518B	Clyde-Floyd complex, 1 to 4 percent slopes	40.5	6.8%
N514B	Joy-Ossian, occasionally flooded, complex, 1 to 5 percent slopes	29.0	4.9%
N555B	Tama-Dinsmore complex, 2 to 6 percent slopes	433.3	72.8%
N555C2	Tama-Dinsmore complex, 6 to 12 percent slopes, moderately eroded	1.7	0.3%
N578B	Barremills silt loam, drainageway, 1 to 5 percent slopes, occasionally flooded	5.3	0.9%
Totals for Area of Interest		595.4	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

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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.

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.

Dodge County, Minnesota

M507A—Marquis silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tgsg
Elevation: 950 to 1,370 feet
Mean annual precipitation: 31 to 35 inches
Mean annual air temperature: 44 to 45 degrees F
Frost-free period: 167 to 171 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Marquis and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marquis

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Erosional sediments from fine-loamy till over loamy till

Typical profile

Ap - 0 to 9 inches: silt loam
A - 9 to 19 inches: silt loam
Bw1 - 19 to 24 inches: silt loam
2Bw2 - 24 to 32 inches: loam
2Bw3 - 32 to 42 inches: loam
2Bw4 - 42 to 54 inches: loam
2BC - 54 to 79 inches: loam

Properties and qualities

Slope: 1 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 24 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C

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Ecological site: R104XY0051A - Loamy Upland Prairie *Amorpha canescens*/
Andropogon gerardii-*Sorghastrum nutans* (Leadplant/Big Bluestem-
Indiangrass)
Hydric soil rating: No

Minor Components

Readlyn

Percent of map unit: 15 percent
Landform: Interfluves
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R104XY0051A - Loamy Upland Prairie *Amorpha canescens*/
Andropogon gerardii-*Sorghastrum nutans* (Leadplant/Big Bluestem-
Indiangrass)
Hydric soil rating: No

M511A—Readlyn silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y8pb
Elevation: 520 to 1,310 feet
Mean annual precipitation: 23 to 41 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 155 to 210 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Readlyn and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Readlyn

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Erosional sediments fine-loamy over loamy till

Typical profile

Ap - 0 to 9 inches: silt loam
A - 9 to 15 inches: silt loam
BA - 15 to 19 inches: loam
Bw - 19 to 24 inches: loam
2Bg1 - 24 to 35 inches: clay loam

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2Bg2 - 35 to 46 inches: clay loam

2BCg - 46 to 60 inches: loam

2BC - 60 to 79 inches: loam

Properties and qualities

Slope: 1 to 3 percent

Surface area covered with cobbles, stones or boulders: 0.0 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 12 to 42 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 25 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 1

Hydrologic Soil Group: C/D

Ecological site: R104XY0051A - Loamy Upland Prairie *Amorpha canescens*/
Andropogon gerardii-*Sorghastrum nutans* (Leadplant/Big Bluestem-
Indiangrass)

Forage suitability group: Sloping Upland, Acid (G104XS006MN)

Other vegetative classification: Sloping Upland, Acid (G104XS006MN)

Hydric soil rating: No

Minor Components

Tripoli

Percent of map unit: 5 percent

Landform: Interfluves

Landform position (two-dimensional): Summit

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

Down-slope shape: Linear

Across-slope shape: Concave

Ecological site: R104XY0061A - Wet Loamy Upland Prairie *Calamagrostis*
canadensis-*Pycnanthemum virginianum* (Bluejoint-Virginia Mountainmint)

Hydric soil rating: Yes

M515A—Tripoli clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t3c3

Elevation: 520 to 1,310 feet

Mean annual precipitation: 23 to 41 inches

Mean annual air temperature: 43 to 54 degrees F

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Frost-free period: 155 to 210 days

Farmland classification: Prime farmland if drained

Map Unit Composition

Tripoli and similar soils: 90 percent

Minor components: 10 percent

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

Description of Tripoli

Setting

Landform: Interfluves

Landform position (two-dimensional): Summit

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

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Erosional sediments fine-loamy over loamy till

Typical profile

Ap - 0 to 9 inches: clay loam

A - 9 to 18 inches: clay loam

Bg - 18 to 23 inches: clay loam

2Bw - 23 to 38 inches: loam

2BC - 38 to 79 inches: loam

Properties and qualities

Slope: 0 to 2 percent

Surface area covered with cobbles, stones or boulders: 0.0 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 25 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C/D

Ecological site: R104XY006IA - Wet Loamy Upland Prairie Calamagrostis canadensis-Pycnanthemum virginianum (Bluejoint-Virginia Mountainmint)

Hydric soil rating: Yes

Minor Components

Readlyn

Percent of map unit: 10 percent

Landform: Interfluves

Landform position (two-dimensional): Summit

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

Down-slope shape: Convex

Across-slope shape: Linear

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Ecological site: R104XY005IA - Loamy Upland Prairie *Amorpha canescens*/
Andropogon gerardii-*Sorghastrum nutans* (Leadplant/Big Bluestem-
Indiangrass)
Other vegetative classification: Sloping Upland, Acid (G104XS006MN)
Hydric soil rating: No

M518B—Clyde-Floyd complex, 1 to 4 percent slopes

Map Unit Setting

National map unit symbol: 1hh5d
Elevation: 980 to 1,310 feet
Mean annual precipitation: 28 to 33 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 140 to 160 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Clyde and similar soils: 55 percent
Floyd and similar soils: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Clyde

Setting

Landform: Drainageways on till plains
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy sediments over loamy till

Typical profile

A,AB - 0 to 23 inches: silty clay loam
Bg1 - 23 to 41 inches: silty clay loam
Bg2 - 41 to 44 inches: sandy loam
BCg - 44 to 60 inches: loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.13 to 0.60 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: High (about 11.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

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Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: R104XY012IA - Wet Upland Drainageway Sedge Meadow Carex
buxbaumii-Calamagrostis canadensis (Buxbaum's Sedge-Bluejoint)
Forage suitability group: Level Swale, Neutral (G104XS001MN)
Other vegetative classification: Level Swale, Neutral (G104XS001MN)
Hydric soil rating: Yes

Description of Floyd

Setting

Landform: Till plains
Landform position (two-dimensional): Footslope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Silty sediments over loamy till

Typical profile

Ap,A - 0 to 17 inches: silt loam
Bw - 17 to 39 inches: sandy clay loam
2Bw - 39 to 49 inches: loam
2BC - 49 to 60 inches: loam

Properties and qualities

Slope: 1 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.13 to 0.60 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B/D
Ecological site: R104XY005IA - Loamy Upland Prairie Amorpha canescens/
Andropogon gerardii-Sorghastrum nutans (Leadplant/Big Bluestem-
Indiangrass)
Forage suitability group: Sloping Upland, Acid (G104XS006MN)
Other vegetative classification: Sloping Upland, Acid (G104XS006MN)
Hydric soil rating: No

Minor Components

Clyde, swales

Percent of map unit: 5 percent
Landform: Drainageways on till plains
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R104XY012IA - Wet Upland Drainageway Sedge Meadow Carex
buxbaumii-Calamagrostis canadensis (Buxbaum's Sedge-Bluejoint)
Other vegetative classification: Level Swale, Neutral (G104XS001MN)

Hydric soil rating: Yes

N514B—Joy-Ossian, occasionally flooded, complex, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1kgbs

Elevation: 590 to 1,310 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 140 to 160 days

Farmland classification: Prime farmland if protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Joy and similar soils: 60 percent

Ossian, occasionally flooded, and similar soils: 20 percent

Minor components: 20 percent

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

Description of Joy

Setting

Landform: Drainageways

Landform position (two-dimensional): Backslope, footslope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loess

Typical profile

Ap,A - 0 to 17 inches: silt loam

Bt,Btg - 17 to 49 inches: silt loam

Cg - 49 to 60 inches: silt loam

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: Low

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: About 18 to 24 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent

Available water capacity: Very high (about 12.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B/D
Forage suitability group: Sloping Upland, Neutral (G105XS002MN)
Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)
Hydric soil rating: No

Description of Ossian, Occasionally Flooded

Setting

Landform: Drainageways
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

Ap,A - 0 to 15 inches: silt loam
AB - 15 to 23 inches: silt loam
Bg - 23 to 66 inches: silt loam
BCg - 66 to 80 inches: silt loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
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: About 0 inches
Frequency of flooding: NoneOccasionalRare
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Very high (about 12.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Forage suitability group: Level Swale, Neutral (G105XS001MN)
Other vegetative classification: Level Swale, Neutral (G105XS001MN)
Hydric soil rating: Yes

Minor Components

Buckhart

Percent of map unit: 10 percent
Landform: Loess hills
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)
Hydric soil rating: No

Otter, drainageway, frequently flooded

Percent of map unit: 5 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope

Custom Soil Resource Report

Down-slope shape: Concave
Across-slope shape: Linear
Other vegetative classification: Frequently Flooded (G105XS016MN)
Hydric soil rating: Yes

Barremills, drainageway

Percent of map unit: 5 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope
Down-slope shape: Concave
Across-slope shape: Linear
Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)
Hydric soil rating: No

N555B—Tama-Dinsmore complex, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 1hh68
Elevation: 590 to 1,310 feet
Mean annual precipitation: 30 to 35 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 140 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Tama and similar soils: 50 percent
Dinsmore and similar soils: 45 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tama

Setting

Landform: Loess hills
Landform position (two-dimensional): Backslope, summit
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess

Typical profile

Ap,A - 0 to 13 inches: silt loam
Bt - 13 to 44 inches: silt loam
BC - 44 to 76 inches: silt loam
C - 76 to 80 inches: silt loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low

Custom Soil Resource Report

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

Available water capacity: Very high (about 12.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B

Ecological site: R104XY005IA - Loamy Upland Prairie *Amorpha canescens*/
Andropogon gerardii-*Sorghastrum nutans* (Leadplant/Big Bluestem-
Indiangrass)

Forage suitability group: Sloping Upland, Neutral (G105XS002MN)

Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)

Hydric soil rating: No

Description of Dinsmore

Setting

Landform: Loess hills

Landform position (two-dimensional): Summit, backslope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Loess over loamy till

Typical profile

Ap,A - 0 to 16 inches: silt loam

Bt - 16 to 48 inches: silty clay loam

2BC - 48 to 80 inches: loam

Properties and qualities

Slope: 2 to 6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.13 to 0.60 in/hr)

Depth to water table: About 42 to 48 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Available water capacity: Very high (about 12.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B

Ecological site: R104XY005IA - Loamy Upland Prairie *Amorpha canescens*/
Andropogon gerardii-*Sorghastrum nutans* (Leadplant/Big Bluestem-
Indiangrass)

Forage suitability group: Sloping Upland, Neutral (G105XS002MN)

Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)

Hydric soil rating: No

Minor Components

Klingmore

Percent of map unit: 5 percent

Landform: Loess hills

Landform position (two-dimensional): Toeslope, footslope

Down-slope shape: Concave

Across-slope shape: Linear

Ecological site: R104XY005IA - Loamy Upland Prairie *Amorpha canescens*/
Andropogon gerardii-*Sorghastrum nutans* (Leadplant/Big Bluestem-
Indiangrass)

Other vegetative classification: Level Swale, Neutral (G105XS001MN)

Hydric soil rating: No

N555C2—Tama-Dinsmore complex, 6 to 12 percent slopes, moderately eroded

Map Unit Setting

National map unit symbol: 1hh6c

Elevation: 590 to 1,310 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 140 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Tama, moderately eroded, and similar soils: 55 percent

Dinsmore, moderately eroded, and similar soils: 35 percent

Minor components: 10 percent

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

Description of Tama, Moderately Eroded

Setting

Landform: Loess hills

Landform position (two-dimensional): Summit, backslope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Loess

Typical profile

Ap,A - 0 to 13 inches: silt loam

Bt - 13 to 44 inches: silt loam

BC - 44 to 76 inches: silt loam

C - 76 to 80 inches: silt loam

Properties and qualities

Slope: 6 to 12 percent

Custom Soil Resource Report

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
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
Available water capacity: Very high (about 12.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R104XY0051A - Loamy Upland Prairie *Amorpha canescens*/
Andropogon gerardii-*Sorghastrum nutans* (Leadplant/Big Bluestem-
Indiangrass)
Forage suitability group: Sloping Upland, Neutral (G105XS002MN)
Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)
Hydric soil rating: No

Description of Dinsmore, Moderately Eroded

Setting

Landform: Loess hills
Landform position (two-dimensional): Shoulder, backslope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess over loamy till

Typical profile

Ap,A - 0 to 16 inches: silt loam
Bt - 16 to 48 inches: silty clay loam
2BC - 48 to 80 inches: loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.13 to 0.60 in/hr)
Depth to water table: About 42 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: Very high (about 12.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R104XY0051A - Loamy Upland Prairie *Amorpha canescens*/
Andropogon gerardii-*Sorghastrum nutans* (Leadplant/Big Bluestem-
Indiangrass)
Forage suitability group: Sloping Upland, Neutral (G105XS002MN)

Custom Soil Resource Report

Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)
Hydric soil rating: No

Minor Components

Klingmore

Percent of map unit: 5 percent
Landform: Loess hills
Landform position (two-dimensional): Footslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R104XY005IA - Loamy Upland Prairie *Amorpha canescens*/
Andropogon gerardii-*Sorghastrum nutans* (Leadplant/Big Bluestem-
Indiangrass)
Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)
Hydric soil rating: No

Barremills, drainageway

Percent of map unit: 5 percent
Landform: Drainageways on loess hills
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)
Hydric soil rating: No

N578B—Barremills silt loam, drainageway, 1 to 5 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 1hh71
Elevation: 590 to 1,310 feet
Mean annual precipitation: 30 to 35 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 140 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Barremills, drainageway, occasionally flooded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Barremills, Drainageway, Occasionally Flooded

Setting

Landform: Drainageways
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Concave
Across-slope shape: Linear

Custom Soil Resource Report

Parent material: Silty slope alluvium over loess

Typical profile

Ap,AB - 0 to 27 inches: silt loam

Bt - 27 to 65 inches: silt loam

BC - 65 to 80 inches: silt loam

Properties and qualities

Slope: 1 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

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: About 42 to 48 inches

Frequency of flooding: OccasionalNone

Frequency of ponding: None

Available water capacity: Very high (about 13.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B

Forage suitability group: Sloping Upland, Neutral (G105XS002MN)

Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)

Hydric soil rating: No

Minor Components

Osc

Percent of map unit: 10 percent

Landform: Drainageways

Landform position (two-dimensional): Backslope

Down-slope shape: Linear

Across-slope shape: Linear

Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)

Hydric soil rating: No

Huntsville, drainageway, frequently flooded

Percent of map unit: 5 percent

Landform: Drainageways

Landform position (two-dimensional): Toeslope

Down-slope shape: Concave

Across-slope shape: Linear

Ecological site: F104XY020IA - Loamy Floodplain Forest *Ulmus americana-*

Quercus macrocarpa/Vitis riparia/Elymus virginicus-Rudbeckia laciniata

American Elm-Bur Oak/Riverbank Grape/Virginia Wildrye-Cutleaf Coneflower)

Other vegetative classification: Sloping Upland, Neutral (G105XS002MN)

Hydric soil rating: No

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Custom Soil Resource Report

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QuarrySun, LLC

EXHIBIT B
Visual Impact Analysis

QuarrySun, LLC

Visual Impact Analysis

Existing Conditions: The Sullivan parcel currently has two solar projects each independently fenced with a chain link and bard wire on the top. There appears to be no screening installed.

Photos were taken at three locations identified below.

Visual Impact Photo Locations



Visual Impact Study: View from Location #1

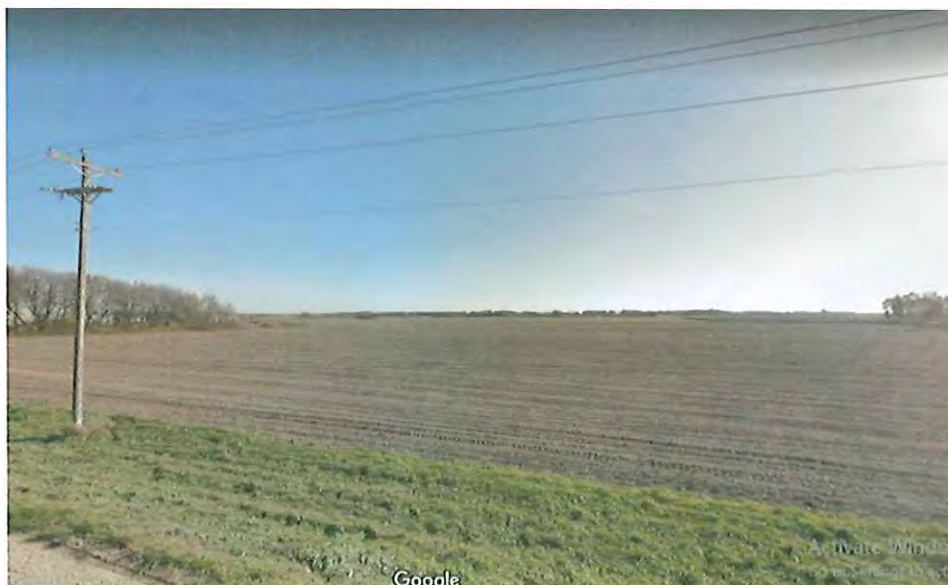


Photo taken from Google Maps street view

QuarrySun, LLC

Visual Impact Study: View from Location #2



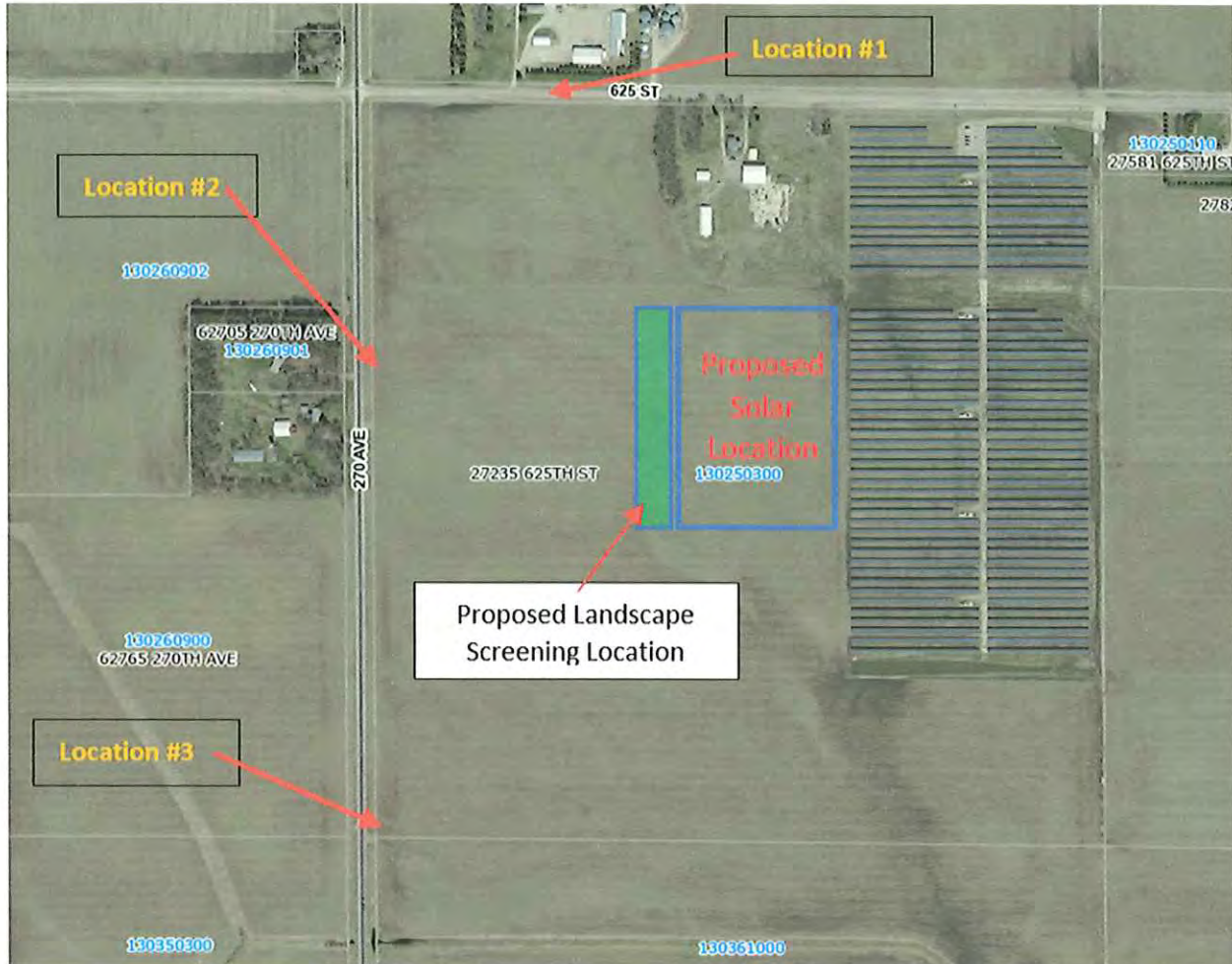
Visual Impact Study: View from location #3



QuarrySun, LLC

Proposed Vegetation Screening Location

We propose installing evergreens or a low growing shrub which will not grow too tall as to create shading on the panels but will act as a sufficient screening barrier.



QuarrySun, LLC

Exhibit C
Glare Study

QUARRY SUN 1 SOLAR - KASSON

Solar Glare Hazard Analysis

Prepared for:

SunShare Community Solar

Location: Kasson, MN

EVS Project No.: 2019-177.1



ADMINISTRATION PAGE

1	Job Reference	2019-177.1
2	Date	04/27/2021
3	Prepared for	SunShare Community Solar
4	Prepared by	Sandeep Tripuraneni
5	Telephone	952.646.0236
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1.0 Introduction

EVS Inc. has prepared a glare assessment report for the QuarrySun 1 LLC project. This report has been made by using ForgeSolar PV planning and glare analysis tool co-invented by Sandia. The motive of the assessment is to determine the following:

- If there is any glare visible to the offsite viewers
- Time window of the glare observed
- Intensity and risk assessment of the glare

Forgesolar is based on SGHAT technology and is limited to certain considerations following the procedure for assessment as listed:

- PV array is defined without considering any contours.
- Module Row spacing is not considered.
- Objects like trees, buildings, fence slats etc. are not considered.

Albedo is the unit of measure of reflectivity. It is the ratio of solar radiation across visible light to invisible light spectrum reflected by a surface. Albedo ranges from zero (surface that reflect no light) to one (mirror like surface which reflect all incoming light). The mono-crystalline silicon wafers in the PV module absorb up to 70% of the sun's solar radiation in the visible light spectrum.

Today most of the solar panels in market comes with Anti-reflective coating (ARC) and will reflect as little as 2% of the incoming sunlight depending on the angle of the sun. (Source: FAA Solar guide). For this project Jinko Solar modules have been proposed which is composed of thermally pre-stressed glass with anti-reflection technology.

2.0 Definitions

Photovoltaic panels: Photovoltaic (PV) panels are designed to absorb the solar energy and converts the light energy into electricity.

Glint: A momentary flash of bright light due to reflection of sun on the surface of the PV panels.

Glare: A continuous source of reflected radiance.

In context, glint will be witnessed by moderate to fast moving receptors whilst glare would be encountered by static or slow-moving receptors with respect to the solar farm. The term 'solar reflection' is used in this report to refer to both reflection types i.e. glint and glare.

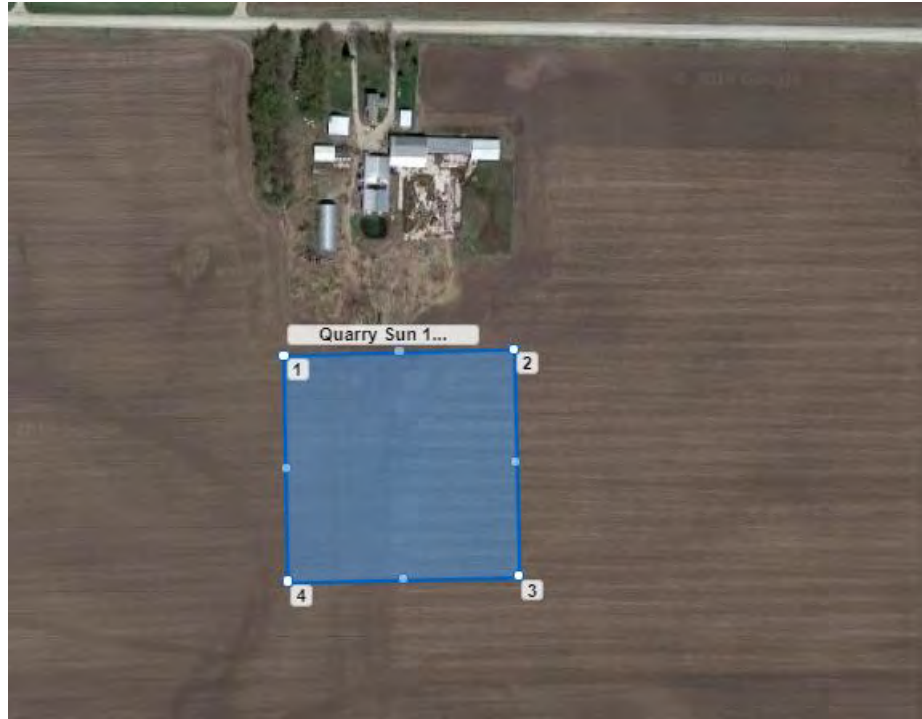
Observation Point (OP): OPs are the observation points used in the glare analysis and are considered from offsite viewer's point of view.

Route Receptor: The Route receptor is a generic multi-line representation which can simulate observers traveling along continuous paths such as roads, railways, helicopter paths, and multi-segment flight tracks.

3.0 Project Description

The QuarrySun 1 LLC project is a 1 MW AC/ 1.5 MW DC photovoltaic solar project located in Kasson, MN. The geographical specifications of the project location are latitude 44.04 and -92.69 longitude with ground elevation of 1253 ft. This study is assessing the glare potential from the QuarrySun 1 LLC project.

4.0 Project Site Location



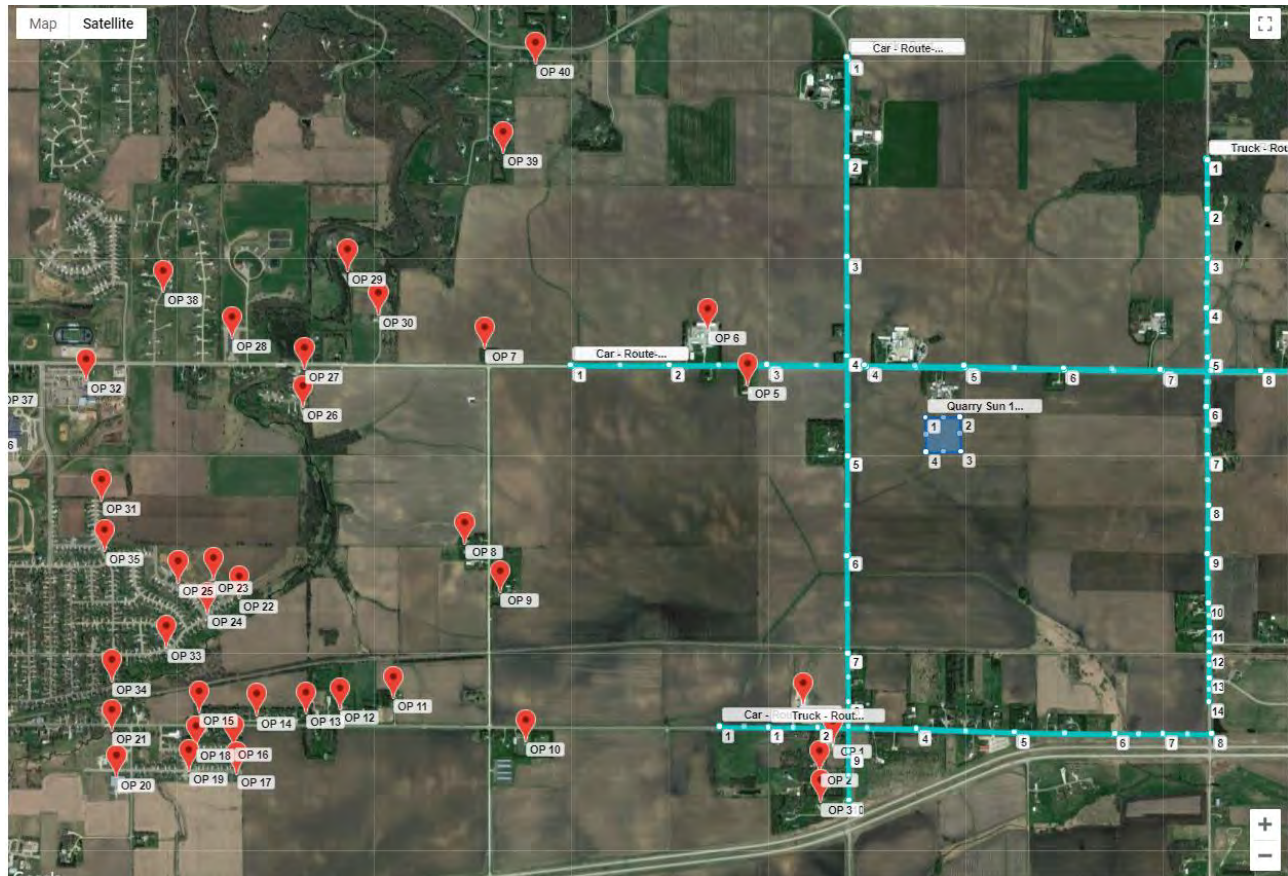
4.1 Project Details

Analysis name	QuarrySun 1 LLC Solar Glare Study
PV array axis tracking	Single Axis Tracker
Orientation of array (deg)	180.0
Tilt of solar panels (deg)	+/- 60
Rated power (MW)	1 MW AC
Vary reflectivity	Yes
PV surface material	Smooth glass with ARC
Time zone offset	-6.0
Subtended angle of sun (mrad)	9.3
Peak DNI (W/m ²)	1000.0
Ocular transmission coefficient	0.5
Pupil diameter (m)	0.002
Eye focal length (m)	0.017
Time interval (min)	1
Correlate slope error with material	Yes
Slope error (mrad)	6.55

4.2 Observation Points

Structures within a two-mile radius of the proposed site have been considered for this analysis. The Analysis has been divided into east and west regions to cover many structures. This report considers 80 structures in total, all around the proposed site. Please refer to the pictures below to identify the locations of the observation points considered.

Observation points considered on the West side of the proposed site can be seen in the below picture. A total of 40 observation points were considered on the West side of the proposed site.

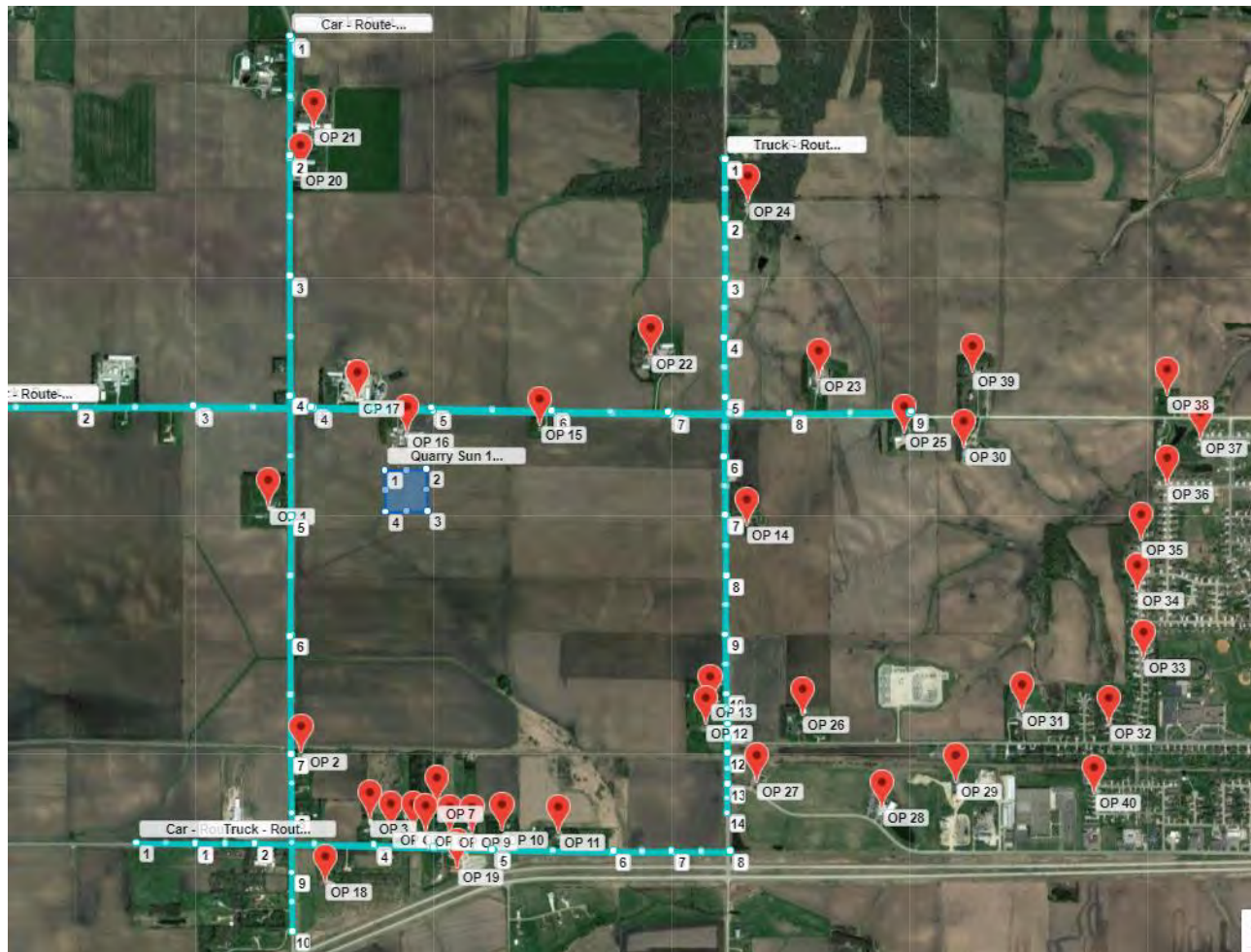


The locations and heights of the considered observation points on the west side of the proposed site can be found in the next page.

Discrete Observation Receptors

Number	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total Elevation ft
OP 1	44.028681	-92.699091	1269.36	15.00	1284.36
OP 2	44.027505	-92.699799	1272.30	15.00	1287.30
OP 3	44.026321	-92.699761	1263.06	15.00	1278.07
OP 4	44.030222	-92.700769	1260.77	15.00	1275.77
OP 5	44.042995	-92.703859	1285.32	15.00	1300.32
OP 6	44.045185	-92.706091	1278.02	15.00	1293.02
OP 7	44.044445	-92.718493	1278.86	15.00	1293.87
OP 8	44.036640	-92.719609	1267.93	15.00	1282.93
OP 9	44.034696	-92.717635	1270.46	15.00	1285.46
OP 10	44.028741	-92.716219	1276.15	15.00	1291.15
OP 11	44.030477	-92.723579	1262.08	15.00	1277.08
OP 12	44.030006	-92.726561	1258.51	15.00	1273.51
OP 13	44.029852	-92.728449	1263.11	15.00	1278.11
OP 14	44.029790	-92.731196	1247.85	15.00	1262.85
OP 15	44.029883	-92.734415	1235.08	15.00	1250.08
OP 16	44.028525	-92.732483	1248.71	15.00	1263.71
OP 17	44.027445	-92.732312	1251.71	15.00	1266.71
OP 18	44.028494	-92.734586	1235.95	15.00	1250.95
OP 19	44.027538	-92.734973	1235.66	15.00	1250.66
OP 20	44.027322	-92.739007	1232.33	15.00	1247.33
OP 21	44.029142	-92.739264	1225.85	15.00	1240.85
OP 22	44.034480	-92.732183	1227.79	15.00	1242.80
OP 23	44.035221	-92.733599	1236.71	15.00	1251.71
OP 24	44.033832	-92.733943	1226.59	15.00	1241.60
OP 25	44.035097	-92.735573	1236.68	15.00	1251.68
OP 26	44.042100	-92.728621	1230.26	15.00	1245.26
OP 27	44.043658	-92.728514	1236.87	15.00	1251.87
OP 28	44.044880	-92.732532	1223.73	15.00	1238.73
OP 29	44.047560	-92.726111	1233.74	15.00	1248.74
OP 30	44.045833	-92.724415	1259.98	15.00	1274.98
OP 31	44.038383	-92.739822	1255.64	15.00	1270.64
OP 32	44.043195	-92.740680	1234.21	15.00	1249.21
OP 33	44.032521	-92.736217	1225.65	15.00	1240.65
OP 34	44.031163	-92.739264	1232.78	15.00	1247.78
OP 35	44.036377	-92.739650	1247.64	15.00	1262.65
OP 36	44.040943	-92.746688	1251.70	15.00	1266.71
OP 37	44.042733	-92.745551	1249.62	15.00	1264.62
OP 38	44.046743	-92.736389	1204.78	15.00	1219.78
OP 39	44.052279	-92.717426	1247.86	15.00	1262.86
OP 40	44.055849	-92.715624	1241.29	15.00	1256.29

Observation points considered on the East side of the proposed site can be seen in the below picture. A total of 40 observation points were considered on the East side of the proposed site



The locations and heights of the considered observation points on the west side of the proposed site can be found in the next page.

Discrete Observation Receptors

Number	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total Elevation ft
OP 1	44.040482	-92.699270	1273.11	15.00	1288.11
OP 2	44.032330	-92.697779	1252.52	15.00	1267.52
OP 3	44.030139	-92.694603	1269.31	15.00	1284.31
OP 4	44.029771	-92.693616	1263.75	15.00	1278.75
OP 5	44.029748	-92.692602	1259.30	15.00	1274.30
OP 6	44.029704	-92.692028	1261.28	15.00	1276.28
OP 7	44.030622	-92.691529	1261.96	15.00	1276.96
OP 8	44.029677	-92.690934	1257.03	15.00	1272.03
OP 9	44.029670	-92.689882	1258.27	15.00	1273.27
OP 10	44.029728	-92.688537	1250.46	15.00	1265.46
OP 11	44.029666	-92.685919	1239.46	15.00	1254.46
OP 12	44.033268	-92.679127	1233.54	15.00	1248.54
OP 13	44.033980	-92.678921	1242.10	15.00	1257.10
OP 14	44.039842	-92.677215	1269.63	15.00	1284.63
OP 15	44.043178	-92.666747	1268.95	15.00	1283.95
OP 16	44.042943	-92.662900	1270.72	15.00	1285.72
OP 17	44.044085	-92.665148	1279.57	15.00	1294.57
OP 18	44.028002	-92.666688	1268.50	15.00	1283.50
OP 19	44.028535	-92.660583	1254.54	15.00	1269.54
OP 20	44.051633	-92.667815	1254.07	15.00	1269.07
OP 21	44.053059	-92.667203	1235.19	15.00	1250.19
OP 22	44.045547	-92.661666	1251.20	15.00	1266.20
OP 23	44.044799	-92.673899	1248.56	15.00	1263.56
OP 24	44.050582	-92.677148	1224.14	15.00	1239.14
OP 25	44.042933	-92.669949	1243.29	15.00	1258.29
OP 26	44.033554	-92.674670	1248.68	15.00	1263.68
OP 27	44.031356	-92.676773	1238.52	15.00	1253.52
OP 28	44.030458	-92.670968	1228.94	15.00	1243.94
OP 29	44.031368	-92.667556	1231.73	15.00	1246.73
OP 30	44.042440	-92.667197	1244.84	15.00	1259.84
OP 31	44.033695	-92.664539	1245.28	15.00	1260.28
OP 32	44.033263	-92.660505	1245.52	15.00	1260.52
OP 33	44.035465	-92.658927	1234.48	15.00	1249.48
OP 34	44.037688	-92.659227	1208.75	15.00	1223.75
OP 35	44.039352	-92.659055	1187.63	15.00	1202.63
OP 36	44.041234	-92.657854	1160.63	15.00	1175.63
OP 37	44.042745	-92.656309	1155.33	15.00	1170.33
OP 38	44.044164	-92.657854	1164.85	15.00	1179.85
OP 39	44.044966	-92.666823	1219.13	15.00	1234.13
OP 40	44.030960	-92.661201	1244.61	15.00	1259.61

The amount of glare and ocular hazard depends upon the intensity of light (retinal irradiance) (W/cm^2) and the viewing angle (subtended angle). Retinal irradiance (W/cm^2) is the solar flux entering the eye and reaching the retina which is a function of irradiance at the cornea (front of eyes).

$$\text{Subtended angle in case of PV} = \frac{\text{Distance between observer and PV array}}{\text{Glare size (size of the glare from PV frame)}}$$

This tool is designed to determine whether a person approaching the system from one or more Observation Points would experience glare. If, depending on the location, the time of day and the time of year, glare was possible, then that glare would start small, reach a peak and finally recede as the person approaches and passes the system. The potential impact on a person's retina is a function of "subtended angle" which is dependent on the person's distance from the solar array as well as the intensity of the sun at certain times of the day and year.

The potential glare impacts are grouped into three categories:

- Green glare - Low potential for temporary after-image.
- Yellow Glare - Potential for temporary after-image.
- Red Glare - Potential for permanent eye damage.

After-image definition: After-image refers to an image continuing to appear in one's vision after the exposure to the original image has ceased. An afterimage can also be physiological. Best common example would be camera flash (after flash usually the vision is ceased) and everything looks blur for some time (micro-seconds). This effect is after-image.

4.3 Route Receptors

Total of 8 route receptors were considered for this analysis. Each considered route is within a one-mile radius of the proposed site. Please refer to Appendix for point locations. Two-way traffic is assumed on all the routes.

Assumed heights for the car and trucks can be seen in the table below.

Route Receptors	Vehicle height above ground (ft)
Car	3.5
Truck	7.5

Details regarding the considered car route receptors can be seen in the pictures below.

Route Receptor(s)

Name: Car - Route-1
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	44.043798	-92.713628	1256.77	3.50	1260.27
2	44.043782	-92.708178	1267.53	3.50	1271.03
3	44.043796	-92.702685	1275.74	3.50	1279.24
4	44.043767	-92.697192	1273.62	3.50	1277.12
5	44.043705	-92.691698	1265.47	3.50	1268.97
6	44.043644	-92.686162	1264.32	3.50	1267.82
7	44.043582	-92.680691	1240.75	3.50	1244.25
8	44.043567	-92.675240	1245.55	3.50	1249.05
9	44.043597	-92.669661	1239.15	3.50	1242.65

Name: Car - Route-2
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	44.056043	-92.698200	1225.83	3.50	1229.33
2	44.052095	-92.698286	1250.51	3.50	1254.01
3	44.048101	-92.698286	1267.69	3.50	1271.19
4	44.044184	-92.698243	1281.54	3.50	1285.04
5	44.040188	-92.698244	1267.04	3.50	1270.54
6	44.036239	-92.698244	1241.63	3.50	1245.13
7	44.032289	-92.698244	1254.35	3.50	1257.85
8	44.030361	-92.698212	1266.98	3.50	1270.48
9	44.028371	-92.698201	1266.48	3.50	1269.98
10	44.026402	-92.698158	1255.52	3.50	1259.02

Name: Car - Route-3
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	44.029354	-92.705374	1255.14	3.50	1258.64
2	44.029334	-92.702643	1257.56	3.50	1261.06
3	44.029327	-92.699892	1264.60	3.50	1268.10
4	44.029249	-92.694414	1259.19	3.50	1262.69
5	44.029111	-92.688921	1252.35	3.50	1255.85
6	44.029064	-92.683428	1224.41	3.50	1227.91
7	44.029041	-92.680671	1221.46	3.50	1224.96
8	44.029041	-92.677946	1220.24	3.50	1223.74

Name: Car - Route-4
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	44.052055	-92.678243	1192.99	3.50	1196.49
2	44.050081	-92.678221	1228.37	3.50	1231.87
3	44.048115	-92.678189	1238.30	3.50	1241.80
4	44.046133	-92.678232	1217.97	3.50	1221.47
5	44.044157	-92.678176	1242.86	3.50	1246.36
6	44.042152	-92.678209	1250.65	3.50	1254.15
7	44.040216	-92.678176	1269.42	3.53	1272.95
8	44.038215	-92.678187	1264.75	3.50	1268.25
9	44.036271	-92.678187	1258.30	3.50	1261.80
10	44.034312	-92.678145	1243.70	3.50	1247.20
11	44.033305	-92.678118	1236.03	3.50	1239.53
12	44.032310	-92.678118	1235.15	3.50	1238.65
13	44.031323	-92.678112	1230.06	3.50	1233.57
14	44.030370	-92.678118	1225.93	3.50	1229.43

Details regarding the considered truck route receptors can be seen in the pictures below.

Name: Truck - Route-1
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	44.043813	-92.713693	1256.50	7.50	1264.00
2	44.043813	-92.708199	1266.93	7.50	1274.43
3	44.043844	-92.702749	1273.82	7.50	1281.32
4	44.043813	-92.697299	1272.69	7.50	1280.19
5	44.043782	-92.691763	1262.42	7.50	1269.92
6	44.043690	-92.686227	1263.25	7.50	1270.76
7	44.043628	-92.680819	1237.04	7.50	1244.54
8	44.043597	-92.675240	1245.38	7.50	1252.88
9	44.043659	-92.669618	1238.84	7.50	1246.34

Name: Truck - Route-2
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	44.056125	-92.698319	1221.76	7.50	1229.26
2	44.052146	-92.698319	1249.52	7.50	1257.02
3	44.048167	-92.698319	1266.54	7.50	1274.04
4	44.044188	-92.698319	1280.21	7.50	1287.71
5	44.040193	-92.698255	1267.01	7.50	1274.52
6	44.036222	-92.698318	1239.19	7.50	1246.69
7	44.032294	-92.698254	1254.18	7.50	1261.68
8	44.030346	-92.698214	1267.03	7.50	1274.53
9	44.028385	-92.698232	1266.14	7.50	1273.64
10	44.026426	-92.698164	1255.53	7.50	1263.03

Name: Truck - Route-3
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	44.029332	-92.702665	1257.52	7.50	1265.03
2	44.029332	-92.699940	1264.36	7.50	1271.86
3	44.029302	-92.694446	1257.35	7.50	1264.86
4	44.029132	-92.688975	1252.54	7.50	1260.04
5	44.029070	-92.683353	1223.95	7.50	1231.45
6	44.029070	-92.680714	1221.41	7.50	1228.91
7	44.029070	-92.677988	1220.00	7.50	1227.50

Name: Truck - Route-4
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
1	44.052042	-92.678236	1192.18	7.50	1199.68
2	44.050068	-92.678236	1228.34	7.50	1235.84
3	44.048094	-92.678214	1238.07	7.50	1245.57
4	44.046120	-92.678279	1216.71	7.50	1224.22
5	44.044145	-92.678214	1243.05	7.50	1250.55
6	44.042156	-92.678279	1249.18	7.50	1256.68
7	44.040243	-92.678214	1269.15	7.50	1276.65
8	44.038222	-92.678193	1264.77	7.50	1272.27
9	44.036279	-92.678218	1257.43	7.50	1264.93
10	44.034304	-92.678196	1241.67	7.50	1249.17
11	44.033317	-92.678111	1236.07	7.50	1243.57
12	44.032345	-92.678089	1234.98	7.50	1242.48
13	44.031296	-92.678111	1229.99	7.50	1237.49
14	44.030355	-92.678132	1225.84	7.50	1233.34

4.4 Results

Glare because of the proposed single axis tracker site has not been observed on any of the considered observation points or the route receptors. Please refer to the pictures below which show the results of the performed analysis.

Below picture shows the result of the glare hazard analysis study for the West side of the proposed site are as follows

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Car - Route-1	0	0
Route: Car - Route-2	0	0
Route: Car - Route-3	0	0
Route: Car - Route-4	0	0
Route: Truck - Route-1	0	0
Route: Truck - Route-2	0	0
Route: Truck - Route-3	0	0
Route: Truck - Route-4	0	0

No glare found

Below picture shows the result of the glare hazard analysis study for the East side of the proposed site are as follows

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Car - Route-1	0	0
Route: Car - Route-2	0	0
Route: Car - Route-3	0	0
Route: Car - Route-4	0	0
Route: Truck - Route-1	0	0
Route: Truck - Route-2	0	0
Route: Truck - Route-3	0	0
Route: Truck - Route-4	0	0

No glare found

Please refer to the appendix to find additional assumptions considered by the glare hazard analysis tool in performing this analysis.

5.0 Risk Probability Analysis

The frequency of harmful incidents is expressed as probability of occurrence. Probability of occurrence is determined based on the possibility of incidents happening due to glare in the 25 years of the useful life of the PV Array.

$$\text{Probability of glare risk occurrence} = \frac{\text{Total Number of incident hours}}{\text{Total project life (hours)}} \times 10$$

Probability of occurrence is determined in a range of 1-10. We need to use our best professional judgment when data is scarce. It is essentially the probability that a given event may occur within a given timeframe. Professional judgment should be used when evaluating the probability of incident occurrence. The overall project life of the solar project is assumed as 25 years.

The overall project life of the solar project is assumed as 25 years.

In this analysis, no glare has been observed to provide a Risk probability Analysis.

6.0 Conclusion

After conducting various glare scenarios and probability equations, the resulting probability of glare occurrence from the QuarrySun 1 LLC project would be close to zero. Professional judgement should be used while evaluating the risk.

7.0 Appendix

This is the Glare Analysis study used for creating this report.

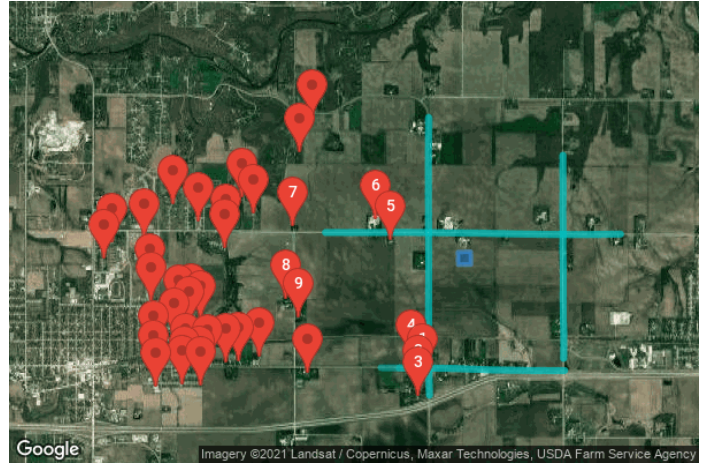


QuarrySun 1 LLC

QUARRY SUN - ANALYSIS 2 - WEST

Created April 27, 2021
Updated April 27, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 52965.6187

Project type V1
Project status: active



Misc. Analysis Settings

DNI: varies (1,000.0 W/m² peak)
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad

Analysis Methodologies:

- Observation point: **Version 1**
- 2-Mile Flight Path: **Version 1**
- Route: **Version 1**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
Quarry Sun 1 LLC	SA tracking	SA tracking	0	0	2,997,000.0

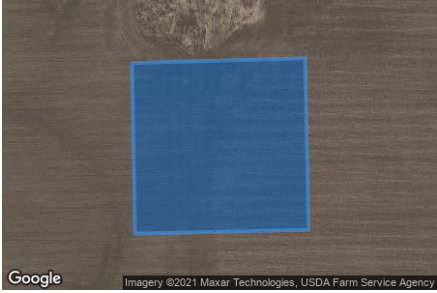
Component Data

PV Array(s)

Total PV footprint area: 5.8 acres

Name: Quarry Sun 1 LLC
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Footprint area: 5.8 acres
Rated power: 1000.0 kW
Panel material: Smooth glass without AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 6.55 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.041717	-92.693912	1258.21	5.00	1263.21
2	44.041756	-92.691992	1261.43	5.00	1266.43
3	44.040387	-92.691954	1255.70	5.00	1260.70
4	44.040356	-92.693880	1247.34	5.00	1252.34



Google Imagery ©2021 Maxar Technologies, USDA Farm Service Agency

Route Receptor(s)

Name: Car - Route-1**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.043798	-92.713628	1256.77	3.50	1260.27
2	44.043782	-92.708178	1267.53	3.50	1271.03
3	44.043798	-92.702685	1275.74	3.50	1279.24
4	44.043767	-92.697192	1273.62	3.50	1277.12
5	44.043705	-92.691698	1265.47	3.50	1268.97
6	44.043644	-92.686162	1264.32	3.50	1267.82
7	44.043582	-92.680691	1240.75	3.50	1244.25
8	44.043567	-92.675240	1245.55	3.50	1249.05
9	44.043597	-92.669661	1239.15	3.50	1242.65

Name: Car - Route-2**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.056043	-92.698200	1225.83	3.50	1229.33
2	44.052095	-92.698286	1250.51	3.50	1254.01
3	44.048101	-92.698286	1267.69	3.50	1271.19
4	44.044184	-92.698243	1281.54	3.50	1285.04
5	44.040188	-92.698244	1267.04	3.50	1270.54
6	44.036239	-92.698244	1241.63	3.50	1245.13
7	44.032289	-92.698244	1254.35	3.50	1257.85
8	44.030361	-92.698212	1266.98	3.50	1270.48
9	44.028371	-92.698201	1266.48	3.50	1269.98
10	44.026402	-92.698158	1255.52	3.50	1259.02

Name: Car - Route-3**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.029354	-92.705374	1255.14	3.50	1258.64
2	44.029334	-92.702643	1257.56	3.50	1261.06
3	44.029327	-92.699892	1264.60	3.50	1268.10
4	44.029249	-92.694414	1259.19	3.50	1262.69
5	44.029111	-92.688921	1252.35	3.50	1255.85
6	44.029064	-92.683428	1224.41	3.50	1227.91
7	44.029041	-92.680671	1221.46	3.50	1224.96
8	44.029041	-92.677946	1220.24	3.50	1223.74

Name: Car - Route-4
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.052055	-92.678243	1192.99	3.50	1196.49
2	44.050081	-92.678221	1228.37	3.50	1231.87
3	44.048115	-92.678189	1238.30	3.50	1241.80
4	44.046133	-92.678232	1217.97	3.50	1221.47
5	44.044157	-92.678176	1242.86	3.50	1246.36
6	44.042152	-92.678209	1250.65	3.50	1254.15
7	44.040216	-92.678176	1269.42	3.53	1272.95
8	44.038215	-92.678187	1264.75	3.50	1268.25
9	44.036271	-92.678187	1258.30	3.50	1261.80
10	44.034312	-92.678145	1243.70	3.50	1247.20
11	44.033305	-92.678118	1236.03	3.50	1239.53
12	44.032310	-92.678118	1235.15	3.50	1238.65
13	44.031323	-92.678112	1230.06	3.50	1233.57
14	44.030370	-92.678118	1225.93	3.50	1229.43

Name: Truck - Route-1
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.043813	-92.713693	1256.50	7.50	1264.00
2	44.043813	-92.708199	1266.93	7.50	1274.43
3	44.043844	-92.702749	1273.82	7.50	1281.32
4	44.043813	-92.697299	1272.69	7.50	1280.19
5	44.043782	-92.691763	1262.42	7.50	1269.92
6	44.043690	-92.686227	1263.25	7.50	1270.76
7	44.043628	-92.680819	1237.04	7.50	1244.54
8	44.043597	-92.675240	1245.38	7.50	1252.88
9	44.043659	-92.669618	1238.84	7.50	1246.34

Name: Truck - Route-2
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.056125	-92.698319	1221.76	7.50	1229.26
2	44.052146	-92.698319	1249.52	7.50	1257.02
3	44.048167	-92.698319	1266.54	7.50	1274.04
4	44.044188	-92.698319	1280.21	7.50	1287.71
5	44.040193	-92.698255	1267.01	7.50	1274.52
6	44.036222	-92.698318	1239.19	7.50	1246.69
7	44.032294	-92.698254	1254.18	7.50	1261.68
8	44.030346	-92.698214	1267.03	7.50	1274.53
9	44.028385	-92.698232	1266.14	7.50	1273.64
10	44.026426	-92.698164	1255.53	7.50	1263.03

Name: Truck - Route-3
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.029332	-92.702665	1257.52	7.50	1265.03
2	44.029332	-92.699940	1264.36	7.50	1271.86
3	44.029302	-92.694446	1257.35	7.50	1264.86
4	44.029132	-92.688975	1252.54	7.50	1260.04
5	44.029070	-92.683353	1223.95	7.50	1231.45
6	44.029070	-92.680714	1221.41	7.50	1228.91
7	44.029070	-92.677988	1220.00	7.50	1227.50

Name: Truck - Route-4
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.052042	-92.678236	1192.18	7.50	1199.68
2	44.050068	-92.678236	1228.34	7.50	1235.84
3	44.048094	-92.678214	1238.07	7.50	1245.57
4	44.046120	-92.678279	1216.71	7.50	1224.22
5	44.044145	-92.678214	1243.05	7.50	1250.55
6	44.042156	-92.678279	1249.18	7.50	1256.68
7	44.040243	-92.678214	1269.15	7.50	1276.65
8	44.038222	-92.678193	1264.77	7.50	1272.27
9	44.036279	-92.678218	1257.43	7.50	1264.93
10	44.034304	-92.678196	1241.67	7.50	1249.17
11	44.033317	-92.678111	1236.07	7.50	1243.57
12	44.032345	-92.678089	1234.98	7.50	1242.48
13	44.031296	-92.678111	1229.99	7.50	1237.49
14	44.030355	-92.678132	1225.84	7.50	1233.34

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	44.028681	-92.699091	1269.36	15.00	1284.36
OP 2	44.027505	-92.699799	1272.30	15.00	1287.30
OP 3	44.026321	-92.699761	1263.06	15.00	1278.07
OP 4	44.030222	-92.700769	1260.77	15.00	1275.77
OP 5	44.042995	-92.703859	1285.32	15.00	1300.32
OP 6	44.045185	-92.706091	1278.02	15.00	1293.02
OP 7	44.044445	-92.718493	1278.66	15.00	1293.67
OP 8	44.036640	-92.719609	1267.93	15.00	1282.93
OP 9	44.034696	-92.717635	1270.46	15.00	1285.46
OP 10	44.028741	-92.716219	1276.15	15.00	1291.15
OP 11	44.030477	-92.723579	1262.08	15.00	1277.08
OP 12	44.030006	-92.726561	1258.51	15.00	1273.51
OP 13	44.029852	-92.728449	1263.11	15.00	1278.11
OP 14	44.029790	-92.731196	1247.85	15.00	1262.85
OP 15	44.029883	-92.734415	1235.08	15.00	1250.08
OP 16	44.028525	-92.732483	1248.71	15.00	1263.71
OP 17	44.027445	-92.732312	1251.71	15.00	1266.71
OP 18	44.028494	-92.734586	1235.95	15.00	1250.95
OP 19	44.027538	-92.734973	1235.66	15.00	1250.66
OP 20	44.027322	-92.739007	1232.33	15.00	1247.33
OP 21	44.029142	-92.739264	1225.85	15.00	1240.85
OP 22	44.034480	-92.732183	1227.79	15.00	1242.80
OP 23	44.035221	-92.733599	1236.71	15.00	1251.71
OP 24	44.033832	-92.733943	1226.59	15.00	1241.60
OP 25	44.035097	-92.735573	1236.68	15.00	1251.68
OP 26	44.042100	-92.728621	1230.26	15.00	1245.26
OP 27	44.043658	-92.728514	1236.87	15.00	1251.87
OP 28	44.044880	-92.732532	1223.73	15.00	1238.73
OP 29	44.047560	-92.726111	1233.74	15.00	1248.74
OP 30	44.045833	-92.724415	1259.98	15.00	1274.98
OP 31	44.038383	-92.739822	1255.64	15.00	1270.64
OP 32	44.043195	-92.740680	1234.21	15.00	1249.21
OP 33	44.032521	-92.736217	1225.65	15.00	1240.65
OP 34	44.031163	-92.739264	1232.78	15.00	1247.78
OP 35	44.036377	-92.739650	1247.64	15.00	1262.65
OP 36	44.040943	-92.746688	1251.70	15.00	1266.71
OP 37	44.042733	-92.745551	1249.62	15.00	1264.62
OP 38	44.046743	-92.736389	1204.78	15.00	1219.78
OP 39	44.052279	-92.717426	1247.86	15.00	1262.86
OP 40	44.055849	-92.715624	1241.29	15.00	1256.29

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
Quarry Sun 1 LLC	SA tracking	SA tracking	0	0	2,997,000.0	-

PV & Receptor Analysis Results

Results for each PV array and receptor

Quarry Sun 1 LLC no glare found

Predicted energy output: 2,997,000.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Car - Route-1	0	0
Route: Car - Route-2	0	0
Route: Car - Route-3	0	0
Route: Car - Route-4	0	0
Route: Truck - Route-1	0	0
Route: Truck - Route-2	0	0
Route: Truck - Route-3	0	0
Route: Truck - Route-4	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- 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.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- 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.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

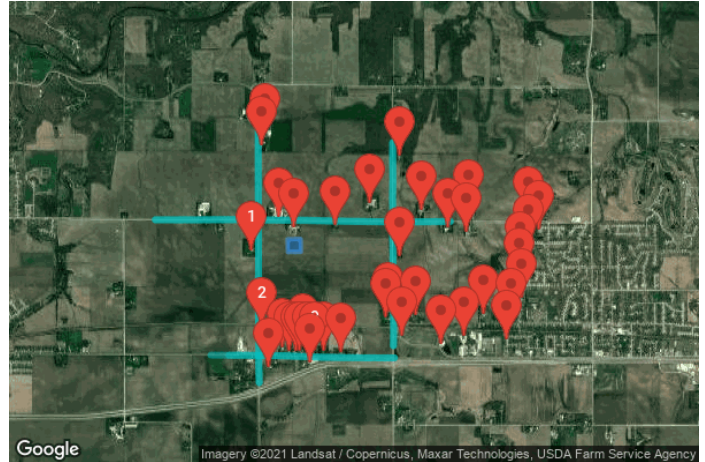


QuarrySun 1 LLC

QUARRY SUN - ANALYSIS 2 - EAST

Created April 26, 2021
 Updated April 27, 2021
 Time-step 1 minute
 Timezone offset UTC-6
 Site ID 52929.6187

Project type V1
 Project status: active



Misc. Analysis Settings

DNI: **varies (1,000.0 W/m² peak)**
 Ocular transmission coefficient: **0.5**
 Pupil diameter: **0.002 m**
 Eye focal length: **0.017 m**
 Sun subtended angle: **9.3 mrad**

Analysis Methodologies:

- Observation point: **Version 1**
- 2-Mile Flight Path: **Version 1**
- Route: **Version 1**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
Quarry Sun 1 LLC	SA tracking	SA tracking	0	0	2,997,000.0

Component Data

PV Array(s)

Total PV footprint area: 5.8 acres

Name: Quarry Sun 1 LLC

Axis tracking: Single-axis rotation

Tracking axis orientation: 180.0 deg

Tracking axis tilt: 0.0 deg

Tracking axis panel offset: 0.0 deg

Maximum tracking angle: 60.0 deg

Resting angle: 60.0 deg

Footprint area: 5.8 acres

Rated power: 1000.0 kW

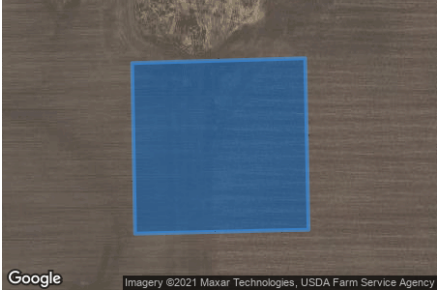
Panel material: Smooth glass without AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 6.55 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.041717	-92.693912	1258.21	5.00	1263.21
2	44.041756	-92.691992	1261.43	5.00	1266.43
3	44.040387	-92.691954	1255.70	5.00	1260.70
4	44.040356	-92.693880	1247.34	5.00	1252.34




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Route Receptor(s)

Name: Car - Route-1

Route type Two-way

View angle: 50.0 deg




Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.043798	-92.713628	1256.77	3.50	1260.27
2	44.043782	-92.708178	1267.53	3.50	1271.03
3	44.043798	-92.702685	1275.74	3.50	1279.24
4	44.043767	-92.697192	1273.62	3.50	1277.12
5	44.043705	-92.691698	1265.47	3.50	1268.97
6	44.043644	-92.686162	1264.32	3.50	1267.82
7	44.043582	-92.680691	1240.75	3.50	1244.25
8	44.043567	-92.675240	1245.55	3.50	1249.05
9	44.043597	-92.669661	1239.15	3.50	1242.65

Name: Car - Route-2

Route type Two-way

View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.056043	-92.698200	1225.83	3.50	1229.33
2	44.052095	-92.698286	1250.51	3.50	1254.01
3	44.048101	-92.698286	1267.69	3.50	1271.19
4	44.044184	-92.698243	1281.54	3.50	1285.04
5	44.040188	-92.698244	1267.04	3.50	1270.54
6	44.036239	-92.698244	1241.63	3.50	1245.13
7	44.032289	-92.698244	1254.35	3.50	1257.85
8	44.030361	-92.698212	1266.98	3.50	1270.48
9	44.028371	-92.698201	1266.48	3.50	1269.98
10	44.026402	-92.698158	1255.52	3.50	1259.02

Name: Car - Route-3

Route type Two-way

View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.029354	-92.705374	1255.14	3.50	1258.64
2	44.029334	-92.702643	1257.56	3.50	1261.06
3	44.029327	-92.699892	1264.60	3.50	1268.10
4	44.029249	-92.694414	1259.19	3.50	1262.69
5	44.029111	-92.688921	1252.35	3.50	1255.85
6	44.029064	-92.683428	1224.41	3.50	1227.91
7	44.029041	-92.680671	1221.46	3.50	1224.96
8	44.029041	-92.677946	1220.24	3.50	1223.74

Name: Car - Route-4
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.052055	-92.678243	1192.99	3.50	1196.49
2	44.050081	-92.678221	1228.37	3.50	1231.87
3	44.048115	-92.678189	1238.30	3.50	1241.80
4	44.046133	-92.678232	1217.97	3.50	1221.47
5	44.044157	-92.678176	1242.86	3.50	1246.36
6	44.042152	-92.678209	1250.65	3.50	1254.15
7	44.040216	-92.678176	1269.42	3.53	1272.95
8	44.038215	-92.678187	1264.75	3.50	1268.25
9	44.036271	-92.678187	1258.30	3.50	1261.80
10	44.034312	-92.678145	1243.70	3.50	1247.20
11	44.033305	-92.678118	1236.03	3.50	1239.53
12	44.032310	-92.678118	1235.15	3.50	1238.65
13	44.031323	-92.678112	1230.06	3.50	1233.57
14	44.030370	-92.678118	1225.93	3.50	1229.43

Name: Truck - Route-1
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.043813	-92.713693	1256.50	7.50	1264.00
2	44.043813	-92.708199	1266.93	7.50	1274.43
3	44.043844	-92.702749	1273.82	7.50	1281.32
4	44.043813	-92.697299	1272.69	7.50	1280.19
5	44.043782	-92.691763	1262.42	7.50	1269.92
6	44.043690	-92.686227	1263.25	7.50	1270.76
7	44.043628	-92.680819	1237.04	7.50	1244.54
8	44.043597	-92.675240	1245.38	7.50	1252.88
9	44.043659	-92.669618	1238.84	7.50	1246.34

Name: Truck - Route-2
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.056125	-92.698319	1221.76	7.50	1229.26
2	44.052146	-92.698319	1249.52	7.50	1257.02
3	44.048167	-92.698319	1266.54	7.50	1274.04
4	44.044188	-92.698319	1280.21	7.50	1287.71
5	44.040193	-92.698255	1267.01	7.50	1274.52
6	44.036222	-92.698318	1239.19	7.50	1246.69
7	44.032294	-92.698254	1254.18	7.50	1261.68
8	44.030346	-92.698214	1267.03	7.50	1274.53
9	44.028385	-92.698232	1266.14	7.50	1273.64
10	44.026426	-92.698164	1255.53	7.50	1263.03

Name: Truck - Route-3
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.029332	-92.702665	1257.52	7.50	1265.03
2	44.029332	-92.699940	1264.36	7.50	1271.86
3	44.029302	-92.694446	1257.35	7.50	1264.86
4	44.029132	-92.688975	1252.54	7.50	1260.04
5	44.029070	-92.683353	1223.95	7.50	1231.45
6	44.029070	-92.680714	1221.41	7.50	1228.91
7	44.029070	-92.677988	1220.00	7.50	1227.50

Name: Truck - Route-4
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	44.052042	-92.678236	1192.18	7.50	1199.68
2	44.050068	-92.678236	1228.34	7.50	1235.84
3	44.048094	-92.678214	1238.07	7.50	1245.57
4	44.046120	-92.678279	1216.71	7.50	1224.22
5	44.044145	-92.678214	1243.05	7.50	1250.55
6	44.042156	-92.678279	1249.18	7.50	1256.68
7	44.040243	-92.678214	1269.15	7.50	1276.65
8	44.038222	-92.678193	1264.77	7.50	1272.27
9	44.036279	-92.678218	1257.43	7.50	1264.93
10	44.034304	-92.678196	1241.67	7.50	1249.17
11	44.033317	-92.678111	1236.07	7.50	1243.57
12	44.032345	-92.678089	1234.98	7.50	1242.48
13	44.031296	-92.678111	1229.99	7.50	1237.49
14	44.030355	-92.678132	1225.84	7.50	1233.34

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	44.040482	-92.699270	1273.11	15.00	1288.11
OP 2	44.032330	-92.697779	1252.52	15.00	1267.52
OP 3	44.030139	-92.694603	1269.31	15.00	1284.31
OP 4	44.029771	-92.693616	1263.75	15.00	1278.75
OP 5	44.029748	-92.692602	1259.30	15.00	1274.30
OP 6	44.029704	-92.692028	1261.28	15.00	1276.28
OP 7	44.030622	-92.691529	1261.96	15.00	1276.96
OP 8	44.029677	-92.690934	1257.03	15.00	1272.03
OP 9	44.029670	-92.689882	1258.27	15.00	1273.27
OP 10	44.029728	-92.688537	1250.46	15.00	1265.46
OP 11	44.029666	-92.685919	1239.46	15.00	1254.46
OP 12	44.033268	-92.679127	1233.54	15.00	1248.54
OP 13	44.033980	-92.678921	1242.10	15.00	1257.10
OP 14	44.039842	-92.677215	1269.63	15.00	1284.63
OP 15	44.043178	-92.686747	1268.95	15.00	1283.95
OP 16	44.042943	-92.692900	1270.72	15.00	1285.72
OP 17	44.044085	-92.695148	1279.57	15.00	1294.57
OP 18	44.028002	-92.696688	1268.50	15.00	1283.50
OP 19	44.028535	-92.690583	1254.54	15.00	1269.54
OP 20	44.051633	-92.697815	1254.07	15.00	1269.07
OP 21	44.053059	-92.697203	1235.19	15.00	1250.19
OP 22	44.045547	-92.681666	1251.20	15.00	1266.20
OP 23	44.044799	-92.673899	1248.56	15.00	1263.56
OP 24	44.050582	-92.677148	1224.14	15.00	1239.14
OP 25	44.042933	-92.669949	1243.29	15.00	1258.29
OP 26	44.033554	-92.674670	1248.68	15.00	1263.68
OP 27	44.031356	-92.676773	1238.52	15.00	1253.52
OP 28	44.030458	-92.670968	1228.94	15.00	1243.94
OP 29	44.031368	-92.667556	1231.73	15.00	1246.73
OP 30	44.042440	-92.667197	1244.84	15.00	1259.84
OP 31	44.033695	-92.664539	1245.28	15.00	1260.28
OP 32	44.033263	-92.660505	1245.52	15.00	1260.52
OP 33	44.035465	-92.658927	1234.48	15.00	1249.48
OP 34	44.037686	-92.659227	1208.75	15.00	1223.75
OP 35	44.039352	-92.659055	1187.63	15.00	1202.63
OP 36	44.041234	-92.657854	1160.63	15.00	1175.63
OP 37	44.042745	-92.656309	1155.33	15.00	1170.33
OP 38	44.044164	-92.657854	1164.85	15.00	1179.85
OP 39	44.044966	-92.666823	1219.13	15.00	1234.13
OP 40	44.030960	-92.661201	1244.61	15.00	1259.61

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
Quarry Sun 1 LLC	SA tracking	SA tracking	0	0	2,997,000.0	-

PV & Receptor Analysis Results

Results for each PV array and receptor

Quarry Sun 1 LLC no glare found

Predicted energy output: 2,997,000.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Car - Route-1	0	0
Route: Car - Route-2	0	0
Route: Car - Route-3	0	0
Route: Car - Route-4	0	0
Route: Truck - Route-1	0	0
Route: Truck - Route-2	0	0
Route: Truck - Route-3	0	0
Route: Truck - Route-4	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- 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.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- 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.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

QuarrySun, LLC

Exhibit D
Wetland Delineation

Wetland Delineation

The project site sits on the outside edge of a what is identified as a wetland in the National Wetland Inventory. If a wetland delineation is deemed necessary by the county the Applicant will hire a company to perform that task. Currently delineations are not taking place as it is too early in the spring. See below.

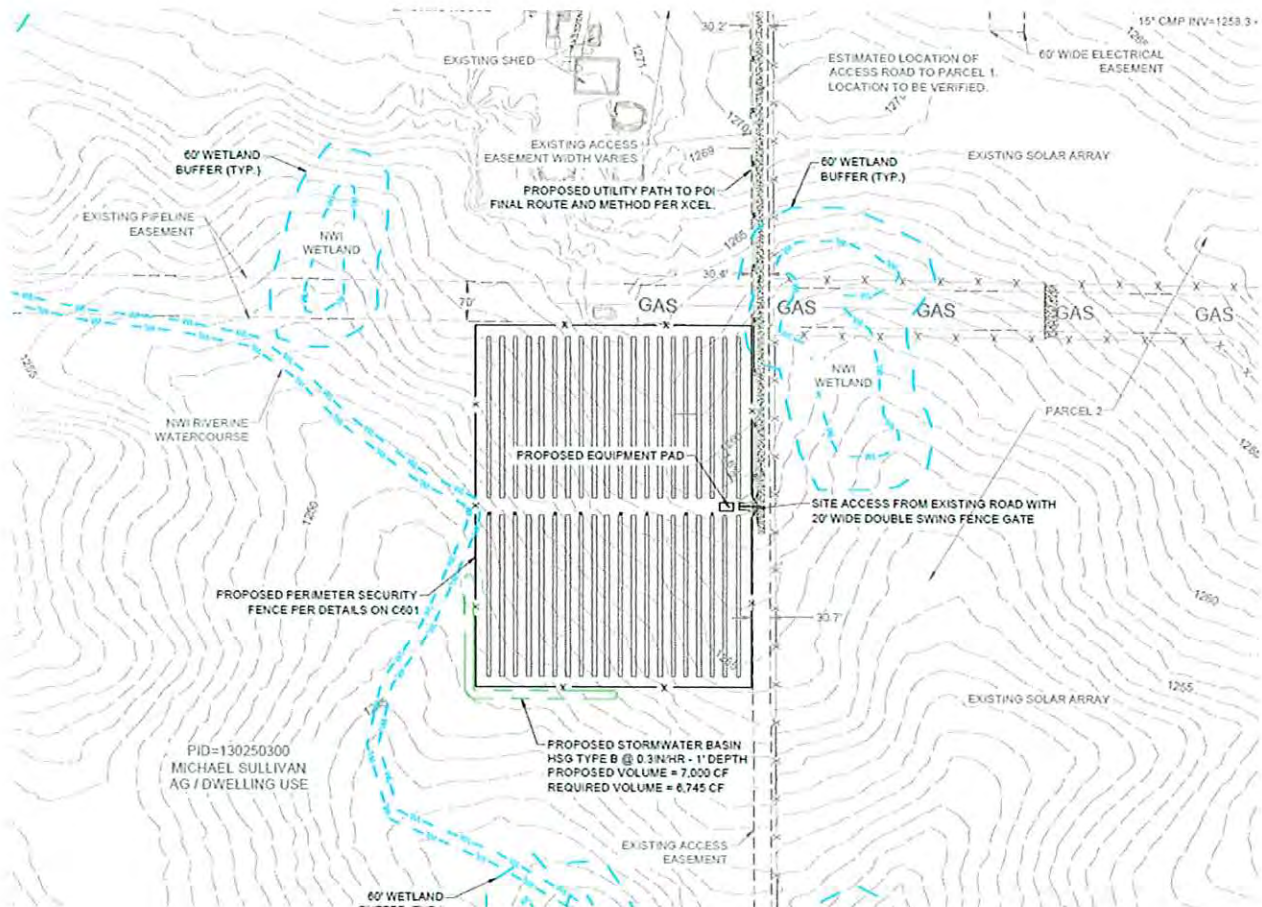


Exhibit E
Decommissioning and Restoration Plan

QuarrySun, LLC

1) The anticipated manner in which the solar farm project will be decommissioned and the site restored:

A solar farm/garden that ceases to produce energy on a continuous basis for 12 months shall be considered abandoned. At that point, the garden operator/owner or other responsible party shall be required to decommission the facility and substantially restore the site to its prior condition. This work shall be completed within 6 months from the time that the facility is deemed to be abandoned unless substantial evidence is presented to the Dodge County Environmental Service Director of the intent to maintain and reinstate the operation of the facility.

When decommissioning begins, the facility will first be disconnected from the grid. The PV modules will then be disconnected and removed. The above and below ground electrical interconnection, distribution cables, transformers and inverters will be removed, including the pad. The racking and support posts will then be removed. The fencing will then be removed. Lastly, the site will then be harrowed and seeded to return it to substantially its condition prior to the installation as an agricultural field.

2) Anticipated life of the project:

The lease term is 26 years beginning from COD.

3) Solar Garden Decommissioning Cost Estimate

Remove modules	\$20,000.00
Package & ship modules	\$5000.00
Disassemble rack	\$5000.00
Pull posts	\$12,000.00
Package & ship rack & posts	\$3000.00
Remove & ship inverters	\$3000.00
Remove electrical equipment & wiring	\$15,000.00
Remove DC conduit & inverter foundation	\$8000.00
Dispose of material with no salvage value	\$5000.00
Ag soil restoration - harrow & seed	\$13,000.00
Total Decommissioning Cost	\$89,000.00

4) The Decommissioning and Restoration Plan

QuarrySun, LLC

The applicant or its assignee shall be responsible for the decommissioning in the form of a performance bond or letter of credit.

a. Financial Assurance:

After issuance of the CUP and prior to construction, the permittee shall submit a Performance Bond or cash escrow in the amount of 110% of the estimated cost of decommissioning or \$200,000 per MW, whichever is greater, to finance the Decommissioning and Restoration plan of the solar energy farm. The cost of decommissioning and the required escrow fund shall be updated to reflect the current cost of decommissioning in years 10, 20, & 30 (if applicable) from the date the permit is issued. The performance bond shall be set up as "continuous until cancelled" and automatically renewed on an annual basis for the life of the project. Dodge County shall receive annual notification upon renewal.

Exhibit F
Panel and Inverter Spec Sheet



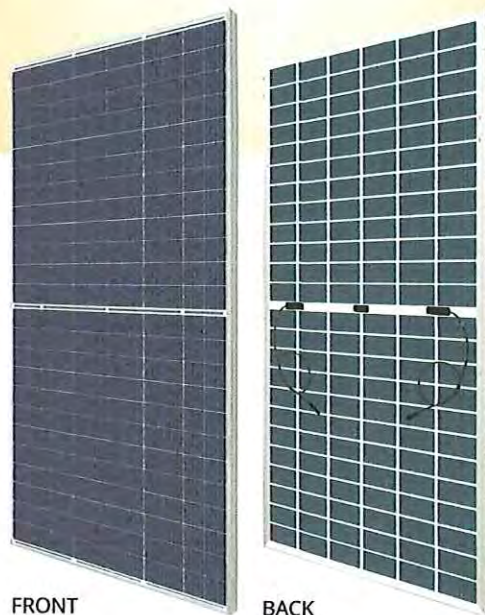
BiHiKu

SUPER HIGH POWER BIFACIAL POLY PERC MODULE





390 W ~ 415 W

UP TO 30% MORE POWER FROM THE BACK SIDE




CS3W-390 | 395 | 400 | 405 | 410 | 415PB-AG



MORE POWER

-  Up to 30% more power from the back side
-  24 % higher front side power than conventional modules
-  Low NMOT: $41 \pm 3^\circ\text{C}$
Low temperature coefficient (Pmax): $-0.37\% / ^\circ\text{C}$
-  Better shading tolerance

MORE RELIABLE

-  Lower internal current, lower hot spot temperature
-  Minimizes micro-crack impacts
-  Heavy snow load up to 5400 Pa, wind load up to 2400 Pa *

-  **30 years** linear power output warranty*
-  **12 years** enhanced product warranty on materials and workmanship*

*According to the applicable Canadian Solar Limited Warranty Statement.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2015 / Quality management system
ISO 14001:2015 / Standards for environmental management system
OHSAS 18001:2007 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730: VDE / CE / MCS / INMETRO / KS
UL 1703 / IEC 61215 performance: CEC listed (US) / FSEC (US Florida)
UL 1703: CSA / IEC 61701 ED2: VDE / IEC 62716: VDE / IEC 60068-2-68: SGS Take-e-way



* As there are different certification requirements in different markets, please contact your local Canadian Solar sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

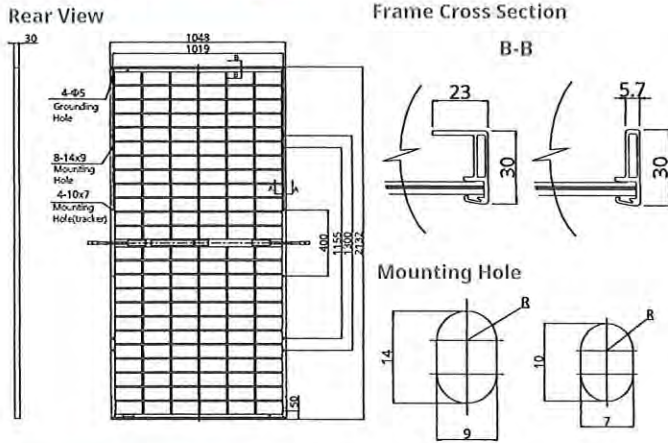
CANADIAN SOLAR (USA), INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. No. 1 module supplier for quality and performance/price ratio in IHS Module Customer Insight Survey. As a leading PV project developer and manufacturer of solar modules with over 38 GW deployed around the world since 2001.

* For detail information, please refer to Installation Manual.

CANADIAN SOLAR (USA), INC.

3000 Oak Road, Suite 400, Walnut Creek, CA 94597, USA | www.canadiansolar.com/na | sales.us@canadiansolar.com

ENGINEERING DRAWING (mm)



ELECTRICAL DATA | STC*

	Nominal Max. Power (P _{max})	Opt. Operating Voltage (V _{mp})	Opt. Operating Current (I _{mp})	Open Circuit Voltage (V _{oc})	Short Circuit Current (I _{sc})	Module Efficiency
CS3W-390PB-AG	390 W	38.3 V	10.19 A	46.8 V	10.74 A	17.45%
Bifacial Gain**	5% 410 W	38.3 V	10.71 A	46.8 V	11.28 A	18.35%
	10% 429 W	38.3 V	11.21 A	46.8 V	11.81 A	19.20%
	20% 468 W	38.3 V	12.23 A	46.8 V	12.89 A	20.95%
	30% 507 W	38.3 V	13.25 A	46.8 V	13.96 A	22.69%
CS3W-395PB-AG	395 W	38.5 V	10.26 A	47 V	10.82 A	17.68%
Bifacial Gain**	5% 415 W	38.5 V	10.78 A	47 V	11.36 A	18.57%
	10% 435 W	38.5 V	11.3 A	47 V	11.9 A	19.47%
	20% 474 W	38.5 V	12.31 A	47 V	12.98 A	21.21%
	30% 513 W	38.5 V	13.34 A	47 V	14.07 A	22.96%
CS3W-400PB-AG	400 W	38.7 V	10.34 A	47.2 V	10.9 A	17.90%
Bifacial Gain**	5% 420 W	38.7 V	10.86 A	47.2 V	11.45 A	18.80%
	10% 440 W	38.7 V	11.37 A	47.2 V	11.99 A	19.69%
	20% 480 W	38.7 V	12.41 A	47.2 V	13.08 A	21.48%
	30% 520 W	38.7 V	13.44 A	47.2 V	14.17 A	23.27%
CS3W-405PB-AG	405 W	38.9 V	10.42 A	47.4 V	10.98 A	18.13%
Bifacial Gain**	5% 425 W	38.9 V	10.94 A	47.4 V	11.53 A	19.02%
	10% 445 W	38.9 V	11.46 A	47.4 V	12.08 A	19.92%
	20% 486 W	38.9 V	12.5 A	47.4 V	13.18 A	21.75%
	30% 527 W	38.9 V	13.56 A	47.4 V	14.27 A	23.59%
CS3W-410PB-AG	410 W	39.1 V	10.49 A	47.6 V	11.06 A	18.35%
Bifacial Gain**	5% 431 W	39.1 V	11.03 A	47.6 V	11.61 A	19.29%
	10% 451 W	39.1 V	11.54 A	47.6 V	12.17 A	20.18%
	20% 492 W	39.1 V	12.59 A	47.6 V	13.27 A	22.02%
	30% 533 W	39.1 V	13.64 A	47.6 V	14.38 A	23.85%
CS3W-415PB-AG	415 W	39.3 V	10.56 A	47.8 V	11.14 A	18.57%
Bifacial Gain**	5% 436 W	39.3 V	11.10 A	47.8 V	11.70 A	19.51%
	10% 457 W	39.3 V	11.63 A	47.8 V	12.25 A	20.45%
	20% 498 W	39.3 V	12.67 A	47.8 V	13.37 A	22.29%
	30% 540 W	39.3 V	13.75 A	47.8 V	14.48 A	24.17%

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

** Bifacial Gain: The additional gain from the back side compared to the power of the front side at the standard test condition. It depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.

ELECTRICAL DATA

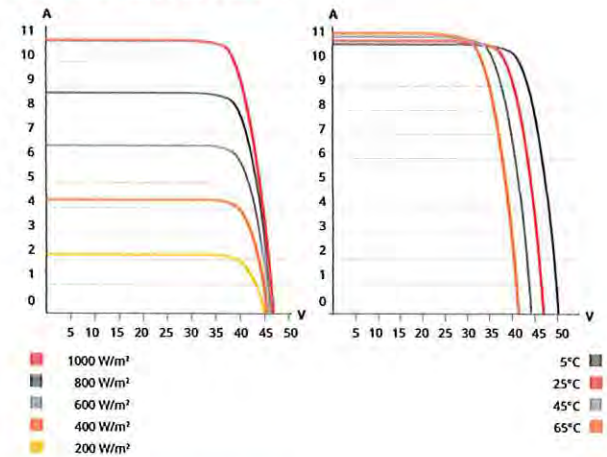
Operating Temperature	-40°C ~ +85°C
Max. System Voltage	1500 V (IEC/UL) or 1000 V (IEC/UL)
Module Fire Performance	TYPE 3 (UL 61730) or CLASS C (IEC61730)
Max. Series Fuse Rating	25 A
Application Classification	Class A
Power Tolerance	0 ~ +5 W
Power Bifaciality*	70 %

* Power Bifaciality = $\frac{P_{max, rear}}{P_{max, front}}$ / $\frac{P_{max, rear}}{P_{max, front}}$ both $P_{max, rear}$ and $P_{max, front}$ are tested under STC, Bifaciality Tolerance: ± 5 %

* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. Canadian Solar Inc. reserves the right to make necessary adjustment to the information described herein at any time without further notice.

Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

CS3W-400PB-AG / I-V CURVES



ELECTRICAL DATA | NMOT*

	Nominal Max. Power (P _{max})	Opt. Operating Voltage (V _{mp})	Opt. Operating Current (I _{mp})	Open Circuit Voltage (V _{oc})	Short Circuit Current (I _{sc})
CS3W-390PB-AG	291 W	35.7 V	8.15 A	44.0 V	8.66 A
CS3W-395PB-AG	295 W	35.9 V	8.21 A	44.2 V	8.72 A
CS3W-400PB-AG	299 W	36.1 V	8.27 A	44.4 V	8.79 A
CS3W-405PB-AG	302 W	36.3 V	8.33 A	44.6 V	8.85 A
CS3W-410PB-AG	306 W	36.5 V	8.39 A	44.8 V	8.92 A
CS3W-415PB-AG	310 W	36.7 V	8.45 A	45.0 V	8.98 A

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m² spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

MECHANICAL DATA

Specification	Data
Cell Type	Poly-crystalline
Cell Arrangement	144 [2x (12 x 6)]
Dimensions	2132 x 1048 x 30 mm (83.9 x 41.3 x 1.2 in)
Weight	28.2 kg (62.2 lbs)
Front / Back Glass	2.0 mm heat strengthened glass
Frame	Anodized aluminium alloy
J-Box	IP68, 3 diodes
Cable	4.0 mm ² (IEC), 12 AWG (UL)
Cable Length (Including Connector)	Portrait: 400 mm (15.7 in) (+) / 280 mm (11.0 in) (-); landscape: 1400 mm (55.1 in); leap-frog connection: 1850 mm (72.8 in)*
Connector	T4 series or MC4
Per Pallet	33 or 35 pieces

Per Container (40' HQ) 660 pieces / 561 or 560 pieces (only for US)

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (P _{max})	-0.37 % / °C
Temperature Coefficient (V _{oc})	-0.29 % / °C
Temperature Coefficient (I _{sc})	0.05 % / °C
Nominal Module Operating Temperature	41 ± 3°C

PARTNER SECTION

100/125kW, 1500Vdc String Inverters for North America

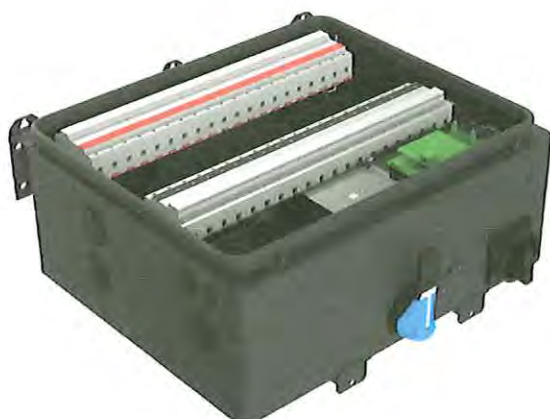


CPS SCH100/125KTL-DO/US-600

The 100 & 125kW high power CPS three phase string inverters are designed for ground mount applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiency at 99.1% peak and 98.5% CEC, wide operating voltages, broad temperature ranges and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 100/125kW products ship with the Standard or Centralized Wire-box, each fully integrated and separable with AC and DC disconnect switches. The Standard Wire-box includes touch safe fusing for up to 20 strings. The CPS Flex Gateway enables communication, controls and remote product upgrades.

Key Features

- NFPA 70, NEC 2014 and 2017 compliant
- Touch safe DC Fuse holders adds convenience and safety
- CPS Flex Gateway enables remote FW upgrades
- Integrated AC & DC disconnect switches
- 1 MPPT with 20 fused inputs for maximum flexibility
- Copper and Aluminum compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- Advanced Smart-Grid features (CA Rule 21 certified)
- kVA Headroom yields 100kW @ 0.9PF and 125kW @ 0.95PF
- Generous 1.87 and 1.5 DC/AC Inverter Load Ratios
- Separable wire-box design for fast service
- Standard 5 year warranty with extensions to 20 years



100/125KTL Standard Wire-box



100/125KTL Centralized Wire-box





Model Name	CPS SCH100KTL-DO/US-600	CPS SCH125KTL-DO/US-600
DC Input		
Max. PV Power	187.5kW	
Max. DC Input Voltage	1500V	
Operating DC Input Voltage Range	860-1450Vdc	
Start-up DC Input Voltage / Power	900V / 250W	
Number of MPP Trackers	1	
MPPT Voltage Range ¹	870-1300Vdc	
Max. PV Input Current (Isc x1.25)	275A	
Number of DC Inputs	20 PV source circuits, pos. & neg. fused (Standard Wire-box) 1 PV output circuit, 1-2 terminations per pole, non-fused (Centralized Wire-box)	
DC Disconnection Type	Load-rated DC switch	
DC Surge Protection	Type II MOV (with indicator/remote signaling), Up=2.5kV, In=20kA (8/20uS)	
AC Output		
Rated AC Output Power	100kW	125kW
Max. AC Output Power ²	100kVA (111KVA @ PF>0.9)	125kVA (132KVA @ PF>0.95)
Rated Output Voltage	600Vac	
Output Voltage Range ³	528-660Vac	
Grid Connection Type ⁴	3Φ / PE / N (Neutral optional)	
Max. AC Output Current @600Vac	96.2/106.8A	120.3/127.2A
Rated Output Frequency	60Hz	
Output Frequency Range ³	57-63Hz	
Power Factor	>0.99 (±0.8 adjustable)	>0.99 (±0.8 adjustable)
Current THD	<3%	
Max. Fault Current Contribution (1-cycle RMS)	41.47A	
Max. OCPD Rating	150A	175A
AC Disconnection Type	Load-rated AC switch	
AC Surge Protection	Type II MOV (with indicator/remote signaling), Up=2.5kV, In=20kA (8/20uS)	
System		
Topology	Transformerless	
Max. Efficiency	99.1%	
CEC Efficiency	98.5%	
Stand-by / Night Consumption	<4W	
Environment		
Enclosure Protection Degree	NEMA Type 4X	
Cooling Method	Variable speed cooling fans	
Operating Temperature Range	-22°F to +140°F / -30°C to +60°C (derating from +113°F / +45°C)	
Non-Operating Temperature Range ⁵	-40°F to +158°F / -40°C to +70°C maximum	
Operating Humidity	0-100%	
Operating Altitude	8202ft / 2500m (no derating)	
Audible Noise	<65dBA@1m and 25°C	
Display and Communication		
User Interface and Display	LED Indicators, WiFi + APP	
Inverter Monitoring	Modbus RS485	
Site Level Monitoring	CPS Flex Gateway (1 per 32 inverters)	
Modbus Data Mapping	SunSpec/CPS	
Remote Diagnostics / FW Upgrade Functions	Standard / (with Flex Gateway)	
Mechanical		
Dimensions (WxHxD)	45.28x24.25x9.84in (1150x616x250mm) with Standard Wire-box 39.37x24.25x9.84in (1000x616x250mm) with Centralized Wire-box	
Weight	Inverter: 121lbs / 55kg; Wire-box: 55lbs / 25kg (Standard Wire-box); 33lbs / 15kg (Centralized Wire-box)	
Mounting / Installation Angle	15 - 90 degrees from horizontal (vertical or angled)	
AC Termination	M10 Stud Type Terminal Block [3Φ] (Wire range: 1/0AWG - 500kcmil CU/AL, Lugs not supplied) Screw Clamp Terminal Block [N] (#12 - 1/0AWG CU/AL)	
DC Termination	Screw Clamp Fuse Holder (Wire range: #12 - #6AWG CU) - Standard Wire-box Busbar, M8 PEMserts (Wire range: #1AWG - 250kcmil CU/AL, Lugs not supplied) - Centralized Wire-box	
Fused String Inputs	15A or 20A fuses provided (Determined by product SKU)	
Safety		
Safety and EMC Standard	UL1741-SA-2016, CSA-C22.2 NO.107.1-01, IEEE1547a-2014; FCC PART15	
Selectable Grid Standard	IEEE 1547a-2014, CA Rule 21, ISO-NE	
Smart-Grid Features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Volt-Watt	
Warranty		
Standard ⁶	5 years	
Extended Terms	10, 15 and 20 years	

1) See user manual for further information regarding MPPT Voltage Range when operating at non-unity PF

2) "Max. AC Apparent Power" rating valid within MPPT voltage range and temperature range of -30°C to +40°C (-22°F to +104°F) for 100KW PF ≥0.9 and 125KW PF ≥0.95

3) The "Output Voltage Range" and "Output Frequency Range" may differ according to the specific grid standard.

4) Wye neutral-grounded, Delta may not be corner-grounded.

5) See user manual for further requirements regarding non-operating conditions.

6) 5 year warranty effective for units purchased after October 1st, 2019.

Exhibit G
Interconnection Agreement

QuarrySun, LLC

Xcel Interconnection Agreement

Due to confidentiality with XCEL we are not able to show the entire Interconnect Agreement. Exhibit G includes the first page of Solar Rewards Community Study Results for QuarrySun as well as the receipt for our deposit for the project.

414 Nicollet Mall
Minneapolis, MN 55401

1-800-895-4999
xcelenergy.com



October 11, 2019

Solar*Rewards Community Study Results

Customer Legal Name: QuarrySun LLC
Service Address: 27235 625th Ave, Kasson, MN 55944
Project Description: 1 MW SRC Project

Xcel Energy is pleased to deliver the engineering indicative cost estimate for the Solar*Rewards Community solar garden application(s) for the above-referenced site:

Site	SRC #	Garden Name	Legal Name (if different than the legal name noted above)	Capacity (MW)
1	072359	QuarrySun		1

The engineering indicative cost estimate has identified scope and costs to accommodate 1.0 MW at 0.95 leading power factor, which is the largest size generation up to the applied for amount allowed at this location.

Our indicative estimated cost for proceeding with maximum MW allowed for this proposed project at the above site is [REDACTED]. This estimate is based on the content of the application as of the date it became Expedited Ready and we began our review for purposes of determining the indicative estimated cost within the 40 day – 50 business day time frame as set forth in our tariff.

There are a total of 6.0 MWs ahead of the above in the applicable Interconnection Substation Queue and 6.0 MW of that on the same Feeder. The indicative estimated cost is contingent upon all projects ahead in the Interconnection Queue moving forward as proposed. Projects may include other Solar Rewards Community projects as well as all other types of generation interconnection projects such as wind, hydro, or non-program PV. Any changes, cancellations, or modifications to the previous projects in the Interconnection Queue may require significant changes in scope and cost of your projects. Xcel Energy shall communicate any changes to those affected projects as they are identified.

You have the option of further proceeding with this project at the capacity allowed based on the indicative estimate if you pay to us either the full amount or one-third of this amount within 30 days along with a Letter of Credit. You agree to pay the actual costs consistent with the Section 10 Interconnection Agreement and comply with all provisions of the Section 10 Tariff. Pursuant to Minn. R. 7835.4750, please note that the Commission's interconnection standards are set forth in our Section 10 Tariff which as of the date of this letter is available at this link: http://www.xcelenergy.com/staticfiles/xcel/PDF/Regulatory/Me_Section_10.pdf

Please note that you need to provide certain contact information or signatures on the following:

- 1.) Provide contact information on Sheet 124 of the Interconnection Agreement,
- 2.) Sign the Interconnection Agreement on Sheet 127,
- 3.) Sign the attached Statement of Work associated with Exhibit B to the Interconnection Agreement,
- 4.) Provide the 24/7 contact information on Exhibit D, par. 9.3 to the Interconnection Agreement,
- 5.) Sign Exhibits D and E to the Interconnection Agreement.

Solar*Rewards Community MN Deposit Form

Garden Operator Name: QuarrySun LLC

Garden Operator Address: 1151 Bannock Street, Denver, CO 80204

Garden ID #: SRC072359

Deposit Amount: \$100 multiplied by 1000.00

System Size AC: 1000.00

Date: 3/26/2019

The undersigned Garden Operator states that it is making a deposit (the Deposit) in the above amount with Xcel Energy in association with its application under the Solar*Rewards Community program in the manner described below:

- ☒ Escrow with US Bank (attach a copy of the confirmation email from US Bank and Schedule E)
☐ Amount wired to Xcel Energy (wire transfer only- attach a copy of the wire transfer receipt)
☐ Check written to Xcel Energy (attach a copy of the check)

Within thirty (30) days after either the project is completed or the date when the garden operator informs the Company that it will no longer continue pursuing completion of the garden project, or if the project is not completed within the twenty four (24) month timeline (including day-for-day extension described in the Solar*Rewards Community contract), the Company shall return to the garden operator of record in the SRC Application System the deposit. When the deposit qualifies to be returned to the garden operator, it shall also include interest. Consistent with Minn. Stat. § 325E.02, the rate of interest will be set annually and will be equal to the weekly average yield of one-year United States Treasury securities adjusted for constant maturity for the last full week in November. The interest rate will be rounded to the nearest tenth of one percent. The rate of interest announced by the Commissioner of Commerce on or about December 15 of each year will be the rate of interest that will be paid on deposits returned during the subsequent calendar year.

Applicant:

Garden Operator Name Printed David Amster-Olszweski

Garden Operator Signature  Date 3/22/19

This form (with required attachment) must be uploaded to the Solar*Rewards Community online application system. If remitting by check, payment must be sent via U.S. Mail, first class, postage prepaid. The deposit is one of the items which must be completed in order to properly submit a garden application. The Garden Operator must sign this form whether or not it is the system owner.

The Solar Garden ID (SRCXXXXXX) and word "Deposit" must be included on wire transfer slip (RFB or OBI line) or check.

To be accepted, the Deposit shall be remitted to the following:

If by wire transfer to Xcel Cash Management Dept.:

Bank: Wells Fargo Bank, N.A.
City/State: San Francisco, CA
Routing/ABA: 121-000-248
Acct No: 31966
Acct Name: NSPM

If by mail:

Xcel Energy
Customer Receivables Solar*Rewards Community MN
P.O. Box 59
Minneapolis, MN 554400059



1000 N. Highway 100
Suite 100
Dodge Center, MN 55320
Phone: 612.441.1000
www.evs.com

CLIENT



PROJECT
QUARRYSUN LLC

LOCATION
44.04351, -92.69193
DODGE CO, MN

INTERCONNECTION
SUBMITTAL

SCALE
0 100 200
FEET



#	DATE	DESCRIPTION
01	03.11.2021	CLIENT COMMENTS
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PROFESSIONAL CERTIFICATION

PRELIMINARY NOT FOR CONSTRUCTION OR PROCUREMENT

DRAWN BY
CL

CHECKED BY
IT

DATE
03.11.2021

PROJECT #
2020-158.1

SHEET NAME
SITE PLAN

SHEET NUMBER
E-101-01

SYSTEM SUMMARY	
CUSTOMER NAME	QUARRYSUN LLC
CASE #	03126502
APPLICATION MGR	DAVID AMSTER-CLEVER
INSTALLER	KONITO COMPANIES LLC
MODULE MFR	CANADIAN SOLAR
MODULE MODEL	CS125M-415P-B42 (BIFACIAL)
MODULE RATING	415W
MODULE QUANTITY	3240
STRING SIZE	27
STRING QUANTITY	120
3-PTT TABLE QTY	40
MAX DC SYSTEM VOLTAGE	1500V
TOTAL DC SYSTEM SIZE	1,342 MW
INVERTER MFR	CHPT POWER SYSTEMS
INVERTER MODEL	CP8-ECH-1501-UD004P000
INVERTER OUTPUT VOLTAGE	120/208V 3PH
INVERTER QUANTITY	120/208V 3PH
AC SYSTEM SIZE (B POI)	1,000 MWac
DC/AC RATIO (B POI)	1.342
RACKING MFR	ATI
RACKING MODEL	DUSTRACK
RACK TYPE	BAT
MODULE ORIENTATION	[1] PORTRAIT
ARRAY TILT ANGLE	44.32°
ARRAY AZIMUTH	180°
ARRAY PITCH, OR	22.4° - 30°
ADHESIVE WEATHER STATION	ROCKEFETER INTERNATIONAL AP
ADHESIVE 2% AVG HIGH TEMP	31.0°C
ADHESIVE MIN EXTREME TEMP	-20.0°C

LEGEND

PROPERTY BOUNDARY	PROPERTY LINE (N)
FENCE LINE (N)	LG WY CIRCUIT
OVERHEAD LINES (N)	OVERHEAD LINES (C)
OVERHEAD LINES (C)	GAS PIPELINE (C)
GAS PIPELINE (C)	WETLAND
EQUIPMENT POLE (N)	EQUIPMENT POLE (C)
SITE ACCESS ROAD	



1 PROJECT VICINITY MAP
SCALE 1" = 2000'-0"



- NOTES:
1. PROJECT LAYOUT AND DESIGN IS PRELIMINARY PENDING FINAL SITE SURVEY, EQUIPMENT SELECTION AND FIELD VERIFICATION OF SITE CONDITIONS.
 2. PROJECT DESIGN AND INSTALLATION SHALL MEET NATIONAL ELECTRIC CODE REQUIREMENTS.
 3. IN PROPOSED SYSTEMS ARE ALL 120V CIRCUITS SHALL BE PROVIDED WITH GFCI PROTECTION.
 4. 240V UNDISCONNECTED AC/DC ACCESS SHALL BE PROVIDED TO XCEL EQUIPMENT AS NEEDED.
 5. NO CLEARANCE BARRIERS / CONCERN OF OVERHEAD SERVICE LINES IN RELATION TO THE SOLAR PV SYSTEM.



CLIENT



PROJECT

QUARRY SUN LLC
27235 625th STREET
KASSON, MN
SUBMITTAL
CUP APPLICATION

SCALE



0 100 200
SCALE IN FEET

DATE DESCRIPTION

PROFESSIONAL CERTIFICATION

NOT FOR CONSTRUCTION

DRAWN BY

CHECKED BY

DATE

PROJECT #

SHEET NAME

C200

LEGEND

EXISTING FEATURES

- PROPERTY LINE
- ROAD RIGHT OF WAY
- AGGREGATE ROAD
- PMMA FLOOD ZONE
- NW1 WETLAND
- UNDERGROUND GAS
- CHL
- MAJOR CONTOUR
- MINOR CONTOUR
- TREES
- STRUCTURES
- CAULVERT

PROPOSED FEATURES

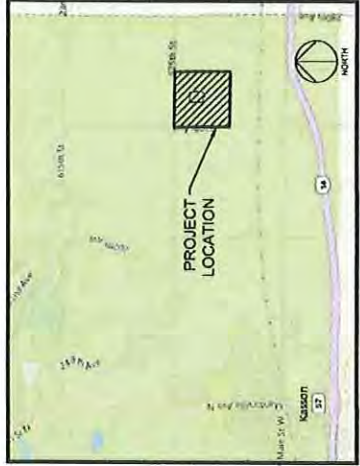
- AGGREGATE ROAD
- TEMPORARY AGGREGATE SURFACE
- CHAIN LINK FENCE
- VEGETATIVE SCREENING
- SETBACK LINE
- GRADING EDGE
- MAJOR CONTOUR
- MINOR CONTOUR
- STORMWATER BASIN OUTLINE

NOTES

1. PROPERTY IS LOCATED IN ZONE 2 ZONE OF ANNUAL FLOOD HAZARD AS DETERMINED ON WSP FROM COMMUNITY MAP NO. 2764601000, EFFECTIVE DATE SEPTEMBER 24, 1982. FLOOD HAZARD ZONE 2 IS A SPECIAL FLOOD HAZARD AFFECTED BY ZONE 2 OF SPECIAL FLOOD HAZARD (SFH) AND WITHOUT BASE FLOOD ELEVATIONS DETERMINED. BACKGROUND INFORMATION SHOWN IS FROM AN ALTA SURVEY FILE NAMED "WASCO GROUP LLC - ALTA (6604003) WSP" ON MAY 24, 2015.
2. WETLAND BOUNDARIES AND WATERCOURSES ARE BASED ON DATA FROM THE NATIONAL WETLAND INVENTORY (NWI).
3. TOTAL ARRA AREA WITHIN FENCE = 7.25 AC

SETBACKS

PROPERTY LINES	50'
COUNTY ROADS	50'
DWELLINGS	200'
WETLANDS	60'



VICINITY MAP





EVS, INC.
10000 Highway 100, Suite 100
Minnetonka, MN 55345
www.evsinc.com

CLIENT



PROJECT
QUARRYSUN LLC

LOCATION
44.04351, -92.89193
DODGE CO, MN

SUBMITTAL
INTERCONNECTION
SUBMITTAL

SCALE

DATE: 03/17/2021
CLIENT COMMENTS

PROFESSIONAL CERTIFICATION

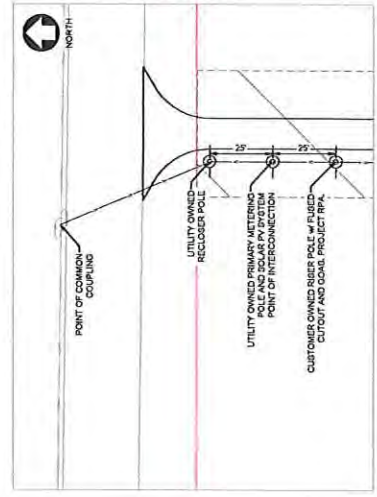
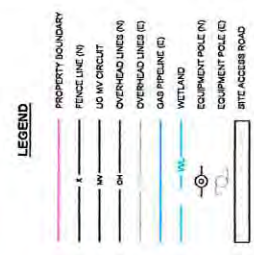
PRELIMINARY NOT FOR
CONSTRUCTION OR PROCUREMENT

DRAWN BY
CHECKED BY
DATE: 03/11/2021
PROJECT # 2020-198.1

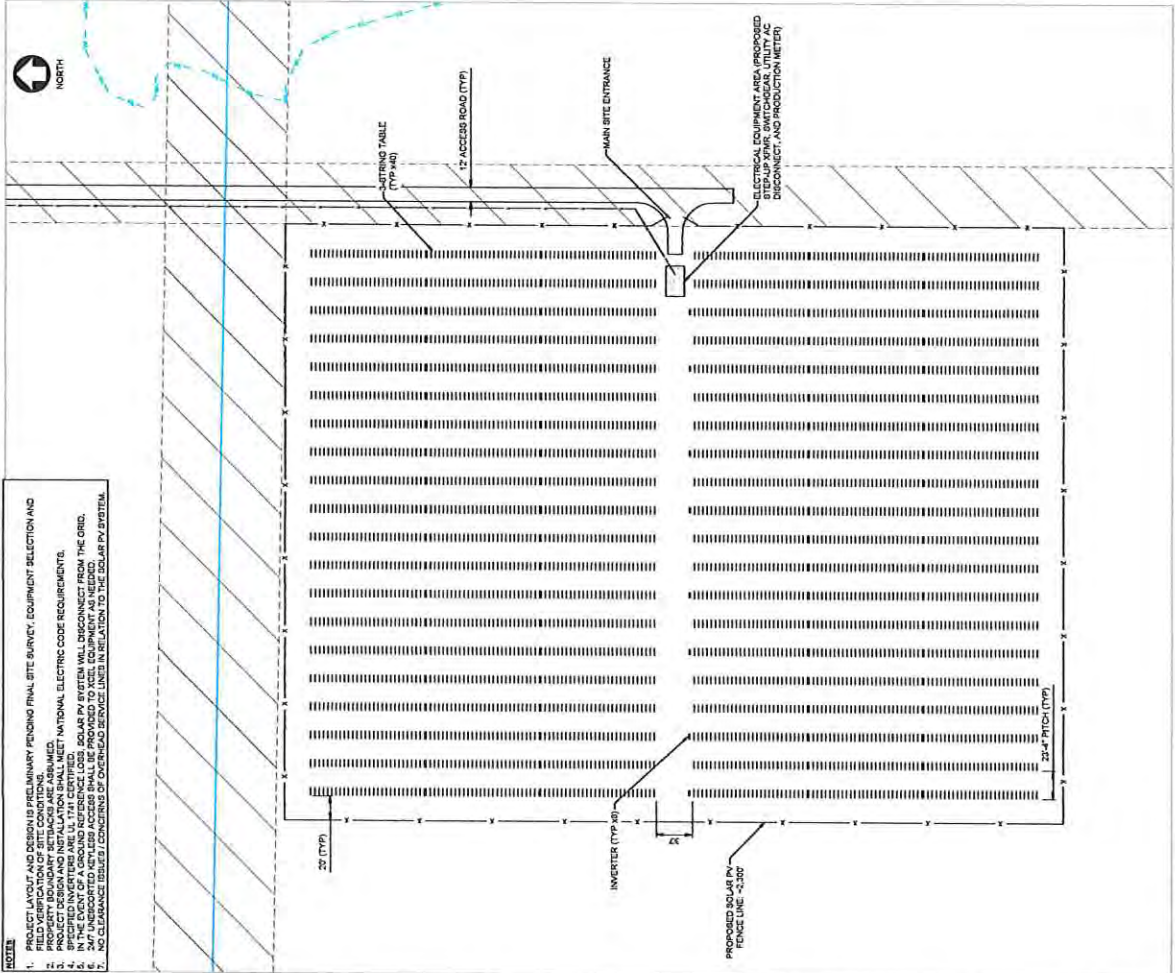
SHEET NAME
SITE LAYOUT

SHEET NUMBER
E-101-02

SYSTEM SUMMARY	
CUSTOMER NAME	QUARRYSUN LLC
CASE #	0312852
APPLICATION MGR	DAVID AMSTER-COLEMAN
INSTALLER	KNISTO COMPANIES LLC
INSTALLER CONTACT	(978) 404-7250
MODULE MFR	CANADIAN SOLAR
MODULE MODEL	CS-620M-410P-60 (BIFACIAL)
MODULE BTR RATING	410W
MODULE QUANTITY	3240
STRING SIZE	27
STRING QUANTITY	120
3-STR TABLE QTY	40
MAX DC SYSTEM VOLTAGE	1500 V
TOTAL DC SYSTEM SIZE	1.345 MW
INVERTER MFR	CHART POWER SYSTEMS
INVERTER MODEL	CPS-80K120TL-00000000
INVERTER OUTPUT VOLTAGE	600 V
INVERTER QUANTITY	120
AC SYSTEM SIZE (B POS)	1.200 MW _{ac}
POWER FACTOR (B POS)	1.000
DC/AC RATIO (B POS)	1.120
RACKING MFR	ATI
RACKING MODEL	DURA TRACK
RACK TYPE	BAT
MODULE ORIENTATION	10° PORTAIT
ARRAY TILT ANGLE	41.52°
ARRAY AZIMUTH	180°
ARRAY PITCH	22.4° - 35%
ADDITIONAL WEATHER STATION	RECORDER/INTERPOLATED AP
AIR/RAIL 2% AND HIGH TEMP	31.0°C
AIR/RAIL MIN EXTREME TEMP	-20.0°C

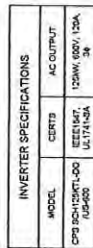


2 INTERCONNECTION AERIAL CIRCUIT
SCALE: 1/2" = 1'-0"

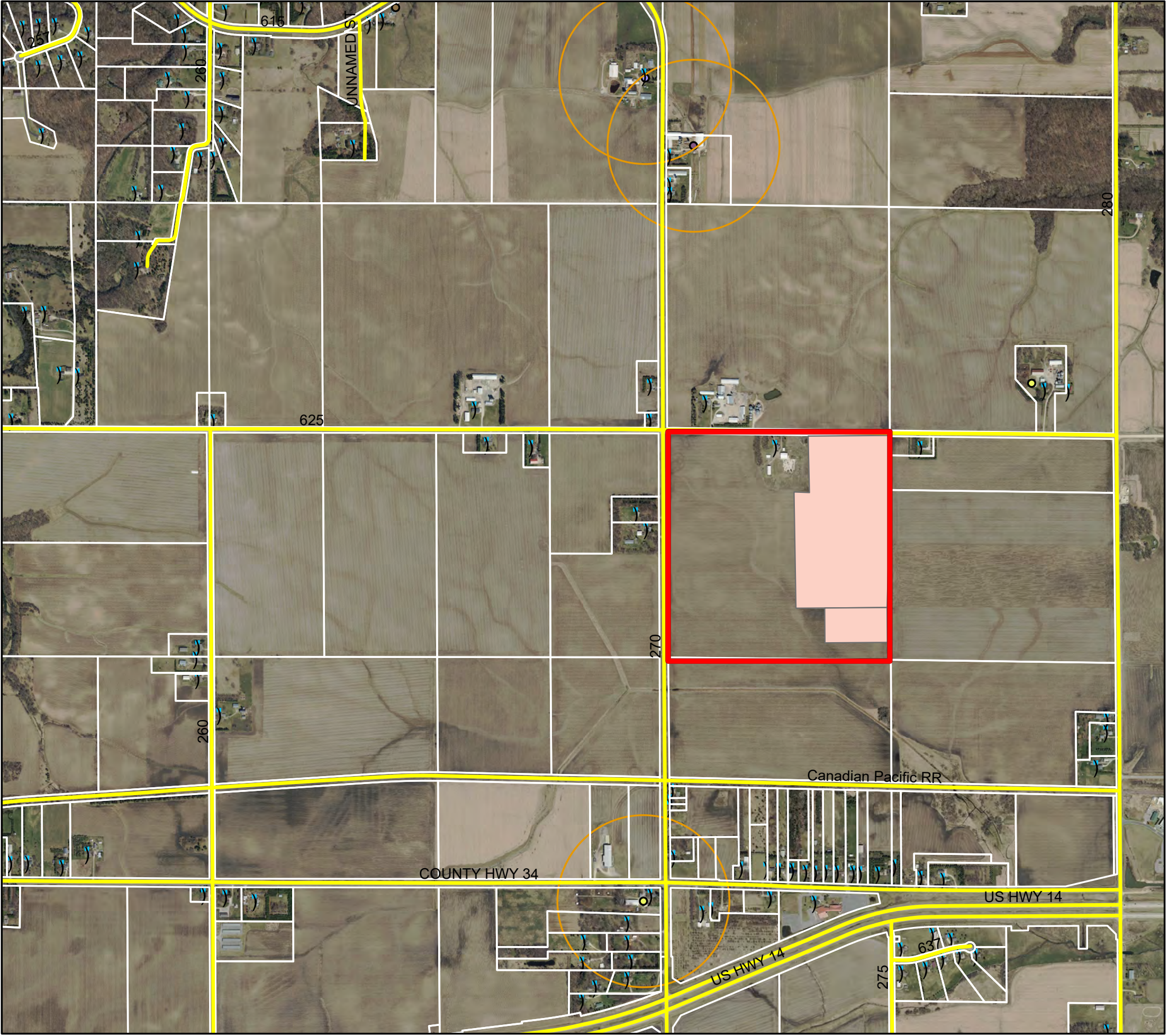


NOTE:
1. PROJECT LAYOUT AND DESIGN IS PRELIMINARY PENDING FINAL SITE SURVEY, EQUIPMENT SELECTION AND FIELD VERIFICATION OF SITE CONDITIONS.
2. THE DESIGN OF THIS PROJECT IS BASED ON THE INFORMATION PROVIDED BY THE CLIENT.
3. PROJECT DESIGN AND INSTALLATION SHALL MEET NATIONAL ELECTRIC CODE REQUIREMENTS.
4. THE DESIGN OF THIS PROJECT IS BASED ON THE INFORMATION PROVIDED BY THE CLIENT.
5. IN THE EVENT OF A LOSSING SITUATION, LOSS, SOLAR PV SYSTEM WILL DISCONNECT FROM THE GRID.
6. 347 UNDISCONNECTED RISES ACCESS SHALL BE PROVIDED TO XCEL EQUIPMENT AS NEEDED.
7. NO CLEARANCE ISSUES / CONFLICTS OF OVERHEAD SERVICE LINES IN RELATION TO THE SOLAR PV SYSTEM.

1 SITE LAYOUT
SCALE: 1" = 50'-0"







CUP 21-05 QuarrySun

- Roads
- Solar Farms
- Houses
- Feedlot 1000 FT buffer

Feedlots

- Beef Cattle
- Chickens
- Dairy Cattle
- Elk
- Goats
- Horses
- Mix
- None
- Sheep
- Swine
- Turkeys



700350 0 700 Feet

This map is neither a legally recorded map nor a survey and is not intended to be used as one. This map is a compilation of records, information and data located in various city, county, state and federal offices and other sources regarding the area shown, and is to be used for reference purposes only. Created From Goodhue Online Mapping Site. Sources: Dodge County, MN

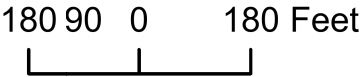
CUP 21-05 QuarrySun



FEMA Floodplain

Intermittent Stream

Hydric Soil



This map is neither a legally recorded map nor a survey and is not intended to be used as one. This map is a compilation of records, information and data located in various city, county, state and federal offices and other sources regarding the area shown, and is to be used for reference purposes only.
Created From Goodhue Online Mapping
Site. Sources: Dodge County, MN

CITY OF KASSON COMPREHENSIVE PLAN

CONTENTS

ISSUES AND OPPORTUNITIES.....	7-2
COMPLETE STREETS AND ACTIVE TRANSPORTATION	7-3
WAYFINDING	7-3
FUTURE ROADWAY SYSTEM	7-5
GOALS, POLICIES, ACTION STEPS	7-8

07. TRANSPORTATION

The growth and development of Kasson has been heavily shaped by regional transportation systems starting with the railroad corridor in the early stages of Kasson and ultimately Highways 14 and 57, which are the greatest influence on growth and land use patterns today.

The comprehensive plan recognizes the existing transportation system in place today and identifies key areas of attention relative to long term improvement.

ISSUES AND OPPORTUNITIES

Hwy. 57 at 16th St. NE



Hwy. 57 at CR 34



Hwy. 57 at Hwy. 14



During the engagement process, many indicated that various intersections along Hwy. 57 are unsafe.

Kasson became a city thanks in part to transportation investments. In 1865 the Winona & St. Peter Railroad was completed from the East (Winona) to Kasson. The railroad company built a freight house in December of 1866, which became the first building erected in Kasson.

Kasson has grown beyond a city dependent on the railroad and is now served by regional highways such as Highways 14 and 57. However, the regional systems are only one part of the community's transportation system. A variety of local streets ranging from Main St. to neighborhood streets are what serve the everyday transportation needs of the community. Kasson must continue to plan for our local system of streets and roadways to enhance mobility options and preserve quality of life.

EXISTING CONDITIONS TAKEAWAYS

The existing roadway network provides for one access point to Highway 14 (via Highway 57). By improving 16th Street NE, an additional access to Highway 14 will be provided (via Dodge County 15). This will help elevate traffic volumes along Highway 57 and provide an additional access point for emergency vehicles.

During times of high traffic volumes Highway 57/ Mantorville Avenue can become congested. Specifically, at the Highway 14 on/off ramps and the intersections of County 34, Main St and local streets north of Main St.

The intersection at Highway 57 and 16th Street is perceived to be unsafe, especially during school hours.

Main St. parking options can become limited during busy periods through-out the work day. The City municipal parking lot is well utilized.

Residential subdivisions have been developed adjacent to rural gravel township roadways. These gravel roadways are serving as collector streets for the city and are substandard.

The local trail system lacks connectivity and does not fully tie into the Dodge County regional trail system.

WHAT WE'VE HEARD

During the community engagement process community stakeholders had many things to say about Kasson's transportation network, particularly things that aren't working for their transportation needs. Most of the comments heard through the online mapping site were related to transportation. These comments touched on the subjects of traffic, traffic safety, and both vehicular and non-vehicular new connections. Some of the specific transportation issues pointed out by residents included:

- » A need for a secondary access point to Highway 14 (via 16th Street NE)
- » A desire to ease congestion on Highway 57, particularly during peak hours
- » Safer intersection at Highway 57 and 16th Street
- » Optimize parking on Main St.

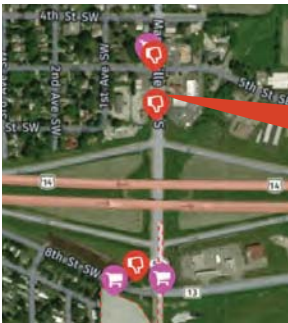
FIGURE 7.1 SOCIAL PINPOINT FEEDBACK

There should be stop light at this intersection by the schools. / There needs to be a round-a-bout to direct traffic. This area is dangerous and very congested, getting worse every year.





This road should be blacktopped all the way out to next black top so that Kasson can be accessed more from Hwy 14.



Traffic is a nightmare in the morning and evenings. More ways to get in and out of Kasson would be great. 260th Ave and connect the NE side and expand 235th Ave to connect the NW side.

COMPLETE STREETS AND ACTIVE TRANSPORTATION

Streets comprise more than 80% of public space in cities, but they often fail to provide their surrounding communities with a space where people can safely walk, bicycle, drive, take transit, and socialize. It is becoming more widely accepted that streets aren't just for moving cars - they're for moving people. Furthermore, any lively and vibrant city understands that streets are also for people to enjoy and linger, not just move through.

Complete Streets are streets that are designed to be safe for people of all ages. This includes pedestrians, bicyclists, motorists, and transit riders.

Complete streets;

- » Are easy to cross and travel along,
- » Increase opportunities for physical activity,
- » Safely accommodate multiple modes of transportation,
- » Allow users to enjoy the public life around them, and
- » Result in increased walkability, a characteristic of a livable, desirable community.

Active transportation is any self-propelled, human-powered mode of transportation, such as walking or bicycling. Public transportation is often included as well due to its dependence on walking and/or biking at the beginning and end of trip.

Chapter 6 - Parks, Recreation, and Active Living mentions trails and bikeways as an approach to accomplishing daily physical exercise that can be achieved without expensive gym memberships or rigorous workout routines designed for athletes. Strong connectivity within a well-designed grid street system with ample trail and sidewalk connections helps encourage walking and biking not only for recreation purposes but for trip purposes too.

WAYFINDING

Wayfinding can be defined as spatial problem solving; it is knowing where you are in the environment, where your desired location is, and how to get there. A good wayfinding system is a critical component of all cities and towns. Principles of wayfinding include:

- » Using landmarks to provide orientation cues and memorable locations
- » Providing well-structured paths
- » Creating individual identities at each location
- » Limiting users choices in navigation



16th St. NE is currently only paved to the edge of the developed portion of Kasson.

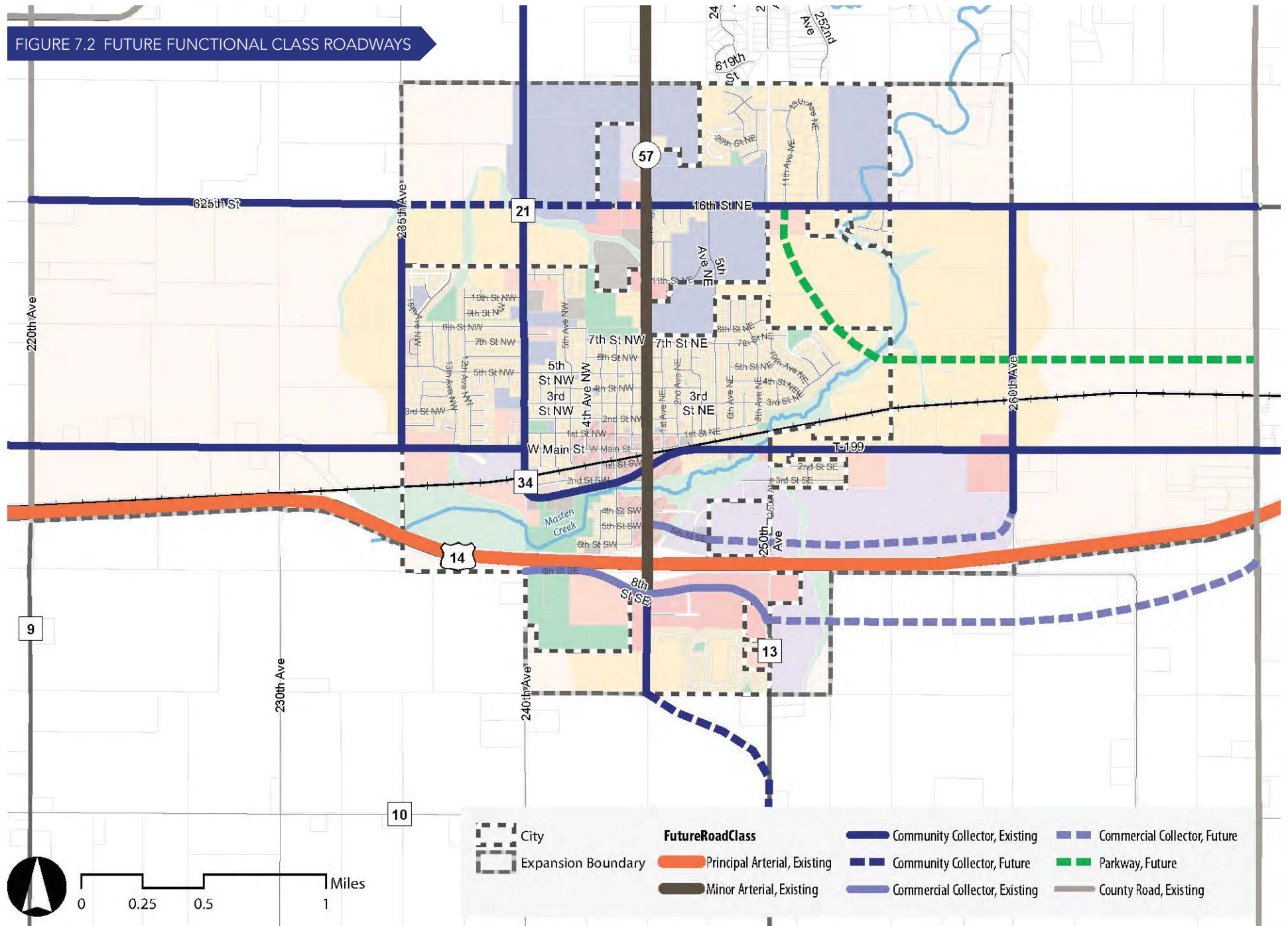


16th St. NE caters to a variety of roadway users.



Sidewalk riding is most common when bicyclists don't feel safe riding their bikes along the roadway. Sidewalks typically aren't built to handle safe and convenient bicycle movements.

FIGURE 7.2 FUTURE FUNCTIONAL CLASS ROADWAYS



- » Using survey views (give navigators a vista or map)
 - » Providing signs at decision points to help
- Wayfinding, when done properly, can also improve the safety of the transportation system. Heavy traffic can be directed towards the proper roadway corridors and roadway users can spend more time focusing on safely traveling along the street rather than looking for their destination.

Kasson currently lacks a comprehensive and effective wayfinding system to guide residents and visitors to community assets, including parks, trails, schools, downtown, historical assets, or businesses.

FUTURE ROADWAY SYSTEM

The plan includes a system of roadways that provide access to property and allow traffic to move through the community, connecting it to regional destinations. The plan is described through a roadway network system of principal arterials, minor arterials, community collectors, commercial collectors, parkways, and local streets.

FUNCTIONAL CLASSIFICATION

PRINCIPAL ARTERIALS

Principal Arterials are typically a 4 lane divided highway that serve a regional mobility function first and foremost, connecting Kasson to regional destinations such as to Rochester or Mankato. They will carry the highest traffic volume, are intended for longer trips and have the most strict access controls. Direct access is restricted to connections with other arterial and collector roadways. Highway 14 is the only principal arterial in Kasson.

MINOR ARTERIALS

Minor Arterials are typically 2-4 lane roadways that serve an inter-city mobility function, connecting

Kasson to nearby local destinations such as Mantorville and to principal arterials such as Highway 14 and Highway 52. These roads favor mobility over access. Unlike principal arterials, minor arterials can vary widely in configuration depending on the surrounding context such as rural vs developed. Highway 57/Mantorville Avenue is the only minor arterial in Kasson.

COLLECTORS

Collectors, both community and commercial, are typically a 2-3 lane roadways that may include a center turn lane or landscaped median that provide access from local nodes, commercial areas, and neighborhoods to minor arterials. These roads are generally county or state roads in Kasson but may sometimes be under the City's jurisdiction. These roads will carry a moderate level of traffic. Managing access on collector streets is an important objective due to the longer trip generating characteristics of these roads. 16th Street NE is an example of a collector in Kasson.

PARKWAYS

Parkways are a variation of a collector and serve the same travel purpose. These roadways feature a wide landscaped median as well as landscaped boulevards and walk/bike trails. They provide a greater focus on pedestrian and bicyclist comfort.

LOCAL

Local roadways provide access from private property to collector streets. These are Kasson's neighborhood streets.

ROADWAY JURISDICTION

Roadway jurisdiction identifies the responsible government agency. Roadways don't stop at corporate boundaries. They span the community



Wayfinding aimed at directing people to points of interest and various destinations via map.



An example of a parkway type roadway.



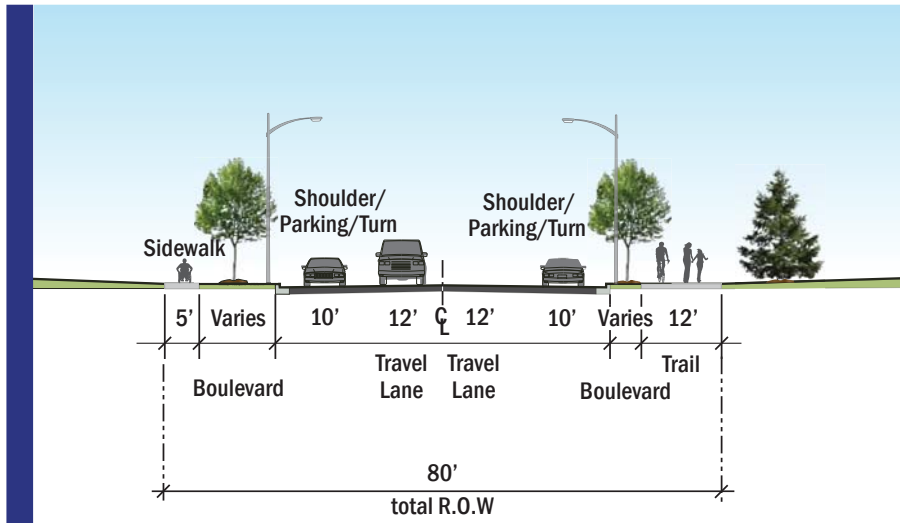
An example of a complete street with safety for all roadway users.

ROADWAY ELEVATIONS

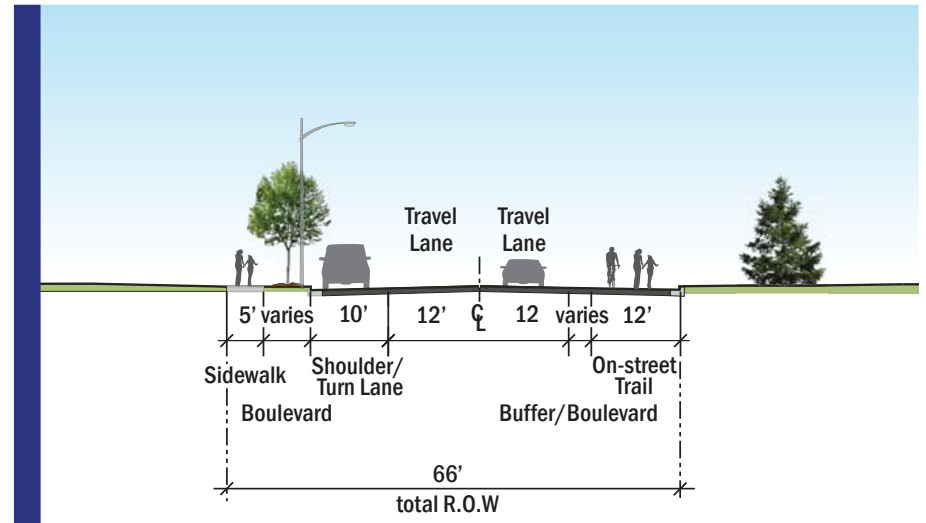
The following roadway elevations are conceptualized representations of potential roadway configurations that can be integrated into future road projects. These configurations improve the safety and mobility of all potential roadway users.

Multi-modal roadway best practices found in design manuals from National Association of City Transportation Officials (NACTO), the Federal Highway Administration (FHWA), and Minnesota Dept. of Transportation (MnDOT) should be considered in every roadway project.

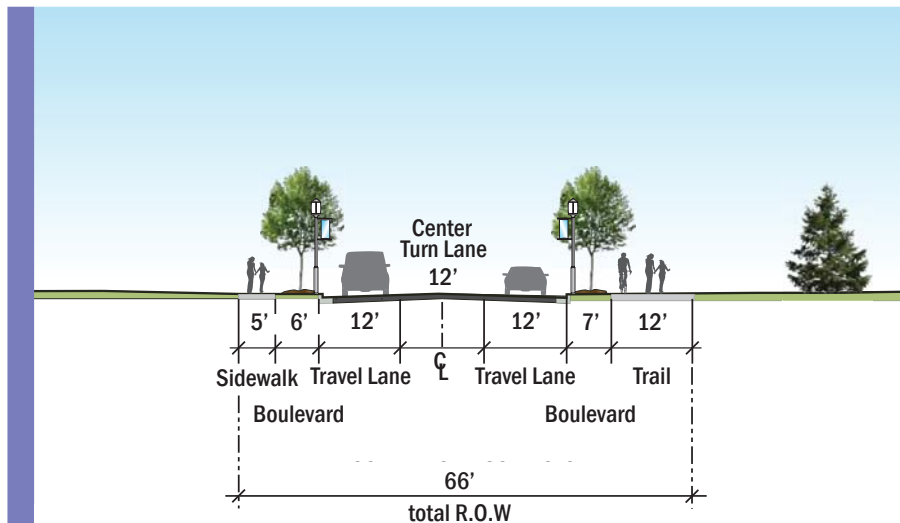
COMMUNITY COLLECTOR, TYPICAL



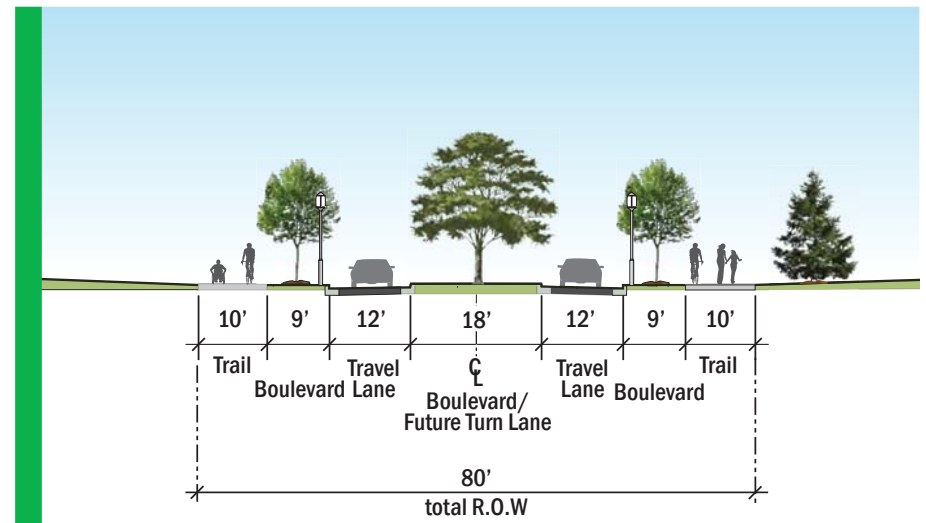
COMMUNITY COLLECTOR, CONSTRAINED



COMMERCIAL COLLECTOR



PARKWAY



extending into adjacent rural areas. They also serve more than local needs, providing access to the region and ultimately the nation. Jurisdictional classification determines what government entity is responsible for development, maintenance and access to the roadway. Jurisdiction includes City, Dodge County, State (MnDOT) and the Federal Highway Administration (FHWA).

LAND ACCESS

Access management is the planning, design, and implementation of land use and transportation strategies that maintain a safe flow of traffic while accommodating the access needs of adjacent development. Managing access points onto a road benefits the community in many ways. Consolidation of access at controlled intersections reduces delays. Fewer direct access points allow for less pavement and more landscaping or amenities and enhances the pedestrian experience. However, certain commercial land uses depend highly on convenient access to vehicular traffic.

Access and visibility is of great concern to businesses, but too many access points create conflict, accidents, congestion and visual clutter which is detriment to the success and vitality of a business and a community as a whole.

Figure 7.3 illustrates how access needs to roadways can vary depending on the functional classification of the roadway.

ROADWAY CONNECTIVITY

Connectivity refers to a system of roads that connect points of interest such as; neighborhoods to schools, business centers, or downtown; collector and local roads to arterial roads; and neighborhoods to other neighborhoods. Greater connectivity within the

transportation network enables a variety of travel choices along transportation corridors which move people through and within the community.

STORMWATER MANAGEMENT

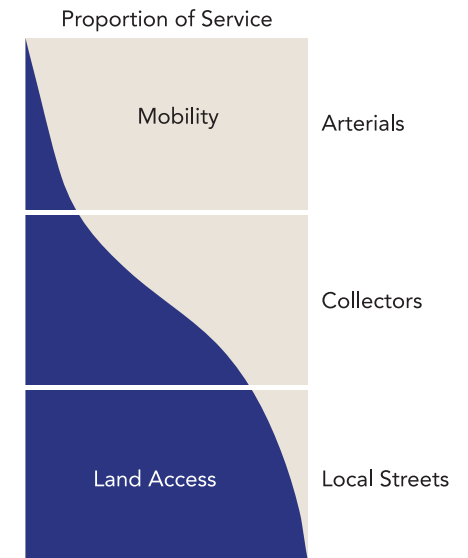
Stormwater management is an important aspect of street systems and street design. Streets are hard surfaces that generally increase stormwater volume and rates of run off. Integrating stormwater management strategies into the design and reconstruction of streets can help minimize flooding impacts, protect surface water resources, and beautify the public realm.

MAJOR MOVES

Kasson must continue to plan for its local system of streets and roadways to enhance mobility options and preserve quality of life. The following transportation improvements identified through the planning and engagement process have the potential to make impactful change within Kasson by both serving future transportation needs and spurring future community development.

- » Safe Routes To School implementation
- » TH 14 interchanges and improvements
- » 16th Street NE improvements
- » 16th Street NW Extension
- » TH 57 corridor and intersection improvements
- » Local, collector, and parkway roadway development.

FIGURE 7.3 MOBILITY AND LAND ACCESS RELATIONSHIP



Landscaped medians are some of the most effective means to regulate access and reduce crashes.

GOALS, POLICIES, ACTION STEPS



Streets like Main Street focus less on moving people around and more on getting people to stay and socialize and shop.



An example of a street with less focus on moving people around and more on getting people to stay and socialize and shop.

TRANSPORTATION GOALS AND POLICIES

Kasson seeks a transportation system that is sustainable which is defined through the following goals and policies.

GOAL 7.1

Offer a greater degree of connectivity for all roadway users in future developments.

Policy 7.1.1 Require new neighborhoods to have multiple ingress and egress points from local streets connecting to collector and arterial street systems.

Policy 7.1.2 Minimize the use of cul-de-sacs and dead end streets to places where such a street design protects or preserves significant natural resource elements or topographic features.

Policy 7.1.3 Explore new street/roadway improvements on a city wide basis that increase or enhance connectivity within the community as a solution to relieving traffic congestion on existing collector corridors.

Policy 7.1.4 Plan beyond a specific development projects boundaries. Roads and trails do not just end a particular project's edges. As development is proposed in new growth areas make sure that the circulation system considers how adjacent property might develop and how a circulation system works for the larger area and connects to the collector and arterial roadway system.

Policy 7.1.5 Work with the railroad companies to ensure adequate levels of railroad crossing are available to facilitate connectivity.

GOAL 7.2

Kasson's goal for mobility options is to offer a full range of travel modes as well as routes. This includes transit, walking, biking, and alternative vehicles that are energy efficient or that serve less mobile populations.

Policy 7.2.1 Encourage site design and building design that strengthens the connection between sidewalks and trails (both existing and planned) such that getting to a building from the public right-of-way is an easy and attractive route.

Policy 7.2.2 Incorporate parking areas for bicycles and other alternative vehicles in major public destination areas such as Downtown Kasson, major businesses, and local school campuses.

Policy 7.2.3 As roadway improvements are planned, incorporate off street multi-use trails and sidewalks along all major road corridors (collectors) that lead to key destinations such as downtown Kasson, schools, churches, or recreation destinations.

Policy 7.2.4 Require sidewalks to be built in new subdivisions on all roads and that provide connections between neighborhoods, to neighborhood or community parks, schools or other destinations. Sidewalks should be encouraged on both sides of the street. Support a policy of maintaining sidewalks that includes property owner responsibility for clearing sidewalks along local streets and city plowing along trail corridors, collector and arterial streets.

Policy 7.2.5 As local roadways get reconstructed or as roads are constructed in new growth areas evaluate design alternatives that include incorporating on-street accommodations for alternative vehicles that travel at lower speeds

than typical automobiles. This may include electric golf carts or vehicles, motorized scooters/wheel chairs, or other innovative technology.

Policy 7.2.6 As local roadways are re-stripped or resurfaced consider low cost bikeway/pedestrian facility retrofits within the existing roadway through reduced travel-lane widths, reduced travel lanes, or partially removing private vehicle storage (parking).

Policy 7.2.7 Sidewalk design in Downtown Kasson should support the needs of downtown merchants to occasionally bring the business out to the street, while preserving the ability for safe and convenient movement of people with various mobility challenges.

GOAL 7.3

Develop a safe roadway system that minimizes traffic collisions and minimizes property damage that results from unsafe roadway systems.

Policy 7.3.1 Work with State and County agencies in determining the optimal speed limits for major road corridors in conjunction with the stated function and desired design character of the roadway.

Policy 7.3.2 Support a way-finding system to clearly guide and direct travelers who are new to the community and are seeking a particular destination.

Policy 7.3.3 Ensure sign ordinances provide a balance between displaying appropriate business names and address information while minimizing distractions and clutter.

Policy 7.3.4 Monitor traffic patterns and incidents on a regular basis to be able to respond to changing travel behaviors and traffic

movements.

Policy 7.3.5 Support and enforce the policies related to access management, connectivity, mobility options, and traffic management as a means to enhance safety of the roadway system.

Policy 7.3.6 Continually work with major employers and the trucking industry to make sure that truck traffic is able to move through the community in a safe and efficient way.

GOAL 7.4

In a cost effective manner, invest in the maintenance and reconstruction of the existing roadway infrastructure and ensure that new road corridors and intersections are planned for both short term and long term needs.

Policy 7.4.1 Support dedication of funds for street maintenance and reconstruction on an annual basis, consistent with a street reconstruction plan and consistent with needs for upgrading existing infrastructure systems that can be aligned with street improvements.

Policy 7.4.2 Collaborate with regional agencies to secure regional and federal funding for roadway projects that have a regional benefit.

Policy 7.4.3 Institute a funding mechanism with new developments to offset costs to construct higher classification roadways needed due to new developments.

GOAL 7.5

Ensure the transportation system is consisted of attractive and memorable street corridors.

Policy 7.5.1 Establish a 'wayfinding' system that identifies key locations for unique signage that promotes community destinations (Downtown

GUIDING PRINCIPLES



SMALL TOWN IDENTITY



PROSPEROUS



WELCOMING



VIBRANT



HEALTHY



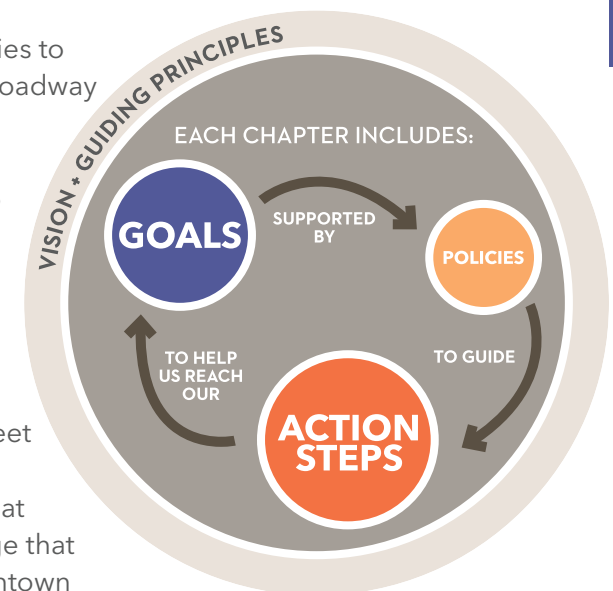
INNOVATIVE



CONNECTED

Guiding Principles: see Chapter 03 Vision and Guiding Principles for more information.

The icons next to each goal indicate the Guiding Principles that are demonstrated within the stated goal. Guiding Principles that are most pertinent are shown in full color.





Providing cross access to adjacent businesses reduces traffic and the potential for crashes on roadways.

Kasson–Schools –Regional Trail heads–historic land marks.)

Policy 7.5.2 Encourage commercial property along arterial and collector corridors to have an attractive and high amenity site design that address the corridor. This can be done through architectural enhancements and/or key site design amenities described in Chapter 4 - Land Use and Community Character.

Policy 7.5.3 Discourage vast blank parking areas between the street and the business. Where a parking configuration in the front of a structure is the most optimal site design pattern, require an orchard parking approach (heavily landscaped– parking area is broken up with tree islands).

Policy 7.5.4 Establish a landscape and streetscape palette for public and private streetscape/ landscaping. Such a palette can offer flexibility while ensuring consistency between public and private streetscape/landscape enhancements.

GOAL 7.6



Manage access to the existing and future roadway network.

Policy 7.6.1 Control and manage direct access to arterial and collector roadways in new growth areas.

Policy 7.6.2 Over time, correct access problems within existing developed areas as property intensifies in development, redevelops or as roadways are reconstructed.

Policy 7.6.3 Require individual properties to access the arterial roadway system via access to collector or local streets rather than direct access to arterial streets.

Policy 7.6.4 Support redevelopment of property along existing collector road corridors that seeks

to reduce individual direct access points.

Policy 7.6.5 Encourage consolidation of driveways along collector streets.

Policy 7.6.6 Restrict left turning movements and movements across the roadway, except at intersections.

Policy 7.6.7 Coordinate approvals of local development projects that have potential regional impacts in collaboration with appropriate Township, County and State road agencies.

Policy 7.6.8 Collaborate with Dodge County and MnDOT in establishing clear and concise access management standards, guidelines and policies that can be uniformly applied to major corridors that are within Kasson.

ACTION STEPS

ACTION STEP 7.1 Establish a Transportation Improvement District as a strategy to fund roadway projects.

ACTION STEP 7.2 Develop a wayfinding master plan that provides key guidance on the types of wayfinding, geographic location of signs, a preferred design theme, and funding resources.

ACTION STEP 7.3 Develop a bicycle and pedestrian plan to address connectivity within the city; use this plan to apply for state/regional trail and sidewalk funding and to guide future investment and priorities.

WHAT WE'VE HEARD:

"Make more trails for biking, running and walking. Cities that invest into trails seem to attract more people to live-in and visit the community."

REQUEST FOR PLANNING COMMISSION

Meeting

Date: May 6, 2021

AGENDA SECTION: Other	ORIGINATING DEPT: Admin
ITEM DESCRIPTION: Davidson Variance Request	PREPARED BY: Clerk Rappe

The original building permit came with the plot plan that was attached and said that the setbacks were 6.5 feet on the sides. We do not go out and measure. The original house could not be built with a basement so the owner decided to make it a slab and have footings for the modular home. While digging the footings they found out that they are too wide. The sections for the house are built and we have told him to hold off having them delivered until he sees where this variance goes.

The nature of this "Older Core" "Traditional" district has many oddities like this and this house would not be or look out of place.

It is replacing blight in the neighborhood.

This would be a variance of 2 feet on each side setback.

These are things that can be considered for a variance. There will be a special Planning Commission Meeting on May 24 at 6:00PM to hold the public hearing.

NOV 10 2020

Date Received: _____

Date Paid/Picked-up: _____

Permit # KA 20-553

**APPLICATION FOR BUILDING PERMIT
CITY OF KASSON, MINNESOTA**

Applicant: DAREK DAVIDSON Phone No: 507-258-0455
Address: 16 2nd St NW Proposed Project: SFD
Contractor: By Design Builders dba Hanson Phone No: 507-258-0455
State License No: BC 639522 Homes Rochester Plumber's Name/License # K&S
Building Site Location/New Address: 16 2nd St NW 64030 PM

TYPE OF CONSTRUCTION

☒ New ☐ Single Family ☐ Multi-Family ☐ Addition/Alteration ☐ Deck ☒ Demolition
☐ Move ☐ Sign ☐ Plumbing ☐ Mechanical ☐ Pool ☐ Commercial/Industrial

Proposed Project: Tear down existing / build new Currently Zoned: Res

Legal Description of Property: E 1/2 of lot 3-4 & S 15 Ft of W 1/2 of Lot 4 B1K 9

Size of Lot or Parcel: 9702 or 223 Water Service Line Size: _____

Building Size: 1961 (sq. ft.) Total sq. ft. of all accessory buildings & hard surface (driveway, etc.): 2408

SET BACKS: Front Property Line 25 ft. Rear Property Line 67 ft. Side Line 65 ft. Side Line 6.5 ft.

Year House was built: 1905 If pre-1978 - list name of qualifying contractor or company with certification for lead abatement. ASBESTOS, INC (MN Statute 144.9501-144)(Remodel Only)

UTILITIES REQUIRED: ☒ SEWER ☒ WATER ☒ ELECTRIC

**A SKETCH DRAWN TO SCALE SHOWING ALL DIMENSIONS AND DISTANCES FROM LOT LINES
MUST BE ATTACHED ALONG WITH TWO (2) COPIES OF PLANS.**

I hereby declare that I am the Owner, or authorized agent of the owner of the above described property and I agree to construct the building or use herein described in accordance with the regulations and ordinances that govern said improvement within the City of Kasson and that the foregoing information contained on this permit is a true and correct statement of my intentions.

Signed by Applicant: [Signature]

Date: 11-6-2020 Please Print Name: DAREK DAVIDSON

(TO BE COMPLETED BY CITY)

VALUATION: \$ 188,000

Building Permit Fee: \$ 1154.72 Plan Check Fee: \$ 750.31 Surcharge: \$ 94.00

BUILDING PERMIT APPROVED BY: [Signature] DATE: 11-23-20

Water Connect Fee: \$ 1200 Water Tap Fee: \$ _____ Water Meter Fee: \$ 325.00

Sewer Connect Fee: \$ 750 Sewer Tap Fee: \$ _____ Sump Pump Fee: \$ 100.00

Electric Meter Fee: \$ 65 Curb Top Fee: \$ _____ Other Fees: \$ 250.00

Electric Connect Fee: \$ 220 Plumbing: \$ 60.00 Mechanical: \$ 60.00

ZONING APPROVED BY: [Signature] DATE: 11/9/2020

Building Permit Fees: \$ 998.63 Zoning Fees: \$ 3030.00 Total Amount Due: \$ 5028.63

Zoning District: R-C Setbacks: Front 20 Rear 25 R. Side 6 1/2 L. Side 6 1/2

1998.63

1154.32 FEE

20.20-553

State of Minnesota,

750.31 PLAN CHECK

CITY of KASSON

County of DODGE

94.00 SURCHARGE

Office of CITY CLERK

Building Permit

IN CONSIDERATION OF The statements and representations made by

BY DESIGN BLDRS

in application therefore duly filed in this office, which application is hereby made a part hereof, PERMISSION IS HEREBY GRANTED To said

BY DESIGN BLDRS

as owner

to DEMO / BUILT

a building described as follows: kind of construction

(build, erect, install, add to, alter, repair, move, wreck, as the case may be)

DEMOLISH EXISTING BUILDING & BUILD TYPE V-B CONST IRC-1 SINGLE FAMILY DWELLING LOWER LEVEL FINISHED FRONT PORCH NO DECK 2018 IRC

front or width in feet 57'8"

side or length in feet 41'

height in feet

number of stories 1

contents

cubic feet 3364 TOTAL

square feet, upon that

tract of land described as follows: Lot

Block

plat or addition

16 2ND STREET NW

which tract is of the size and area specified in said application.

This permit is granted upon the express conditions that said owner and HIS

contractors, agents, workers and employees,

shall comply in all respects with the ordinances of the CITY

of KASSON

that it does not cover the use of public property, such as streets, sidewalks, alleys, etc., for which special permits must be secured, and that it does

not cover the following: ELECTRICAL WORK

(Electrical work, plumbing, heating, mechanical, carpentry, etc., if such there be.)

for which special permits must be secured.

Given under the hand of the BUILDING OFFICIAL

of said CITY

and its corporate seal and

attested by its

this

23RD

day of NOVEMBER

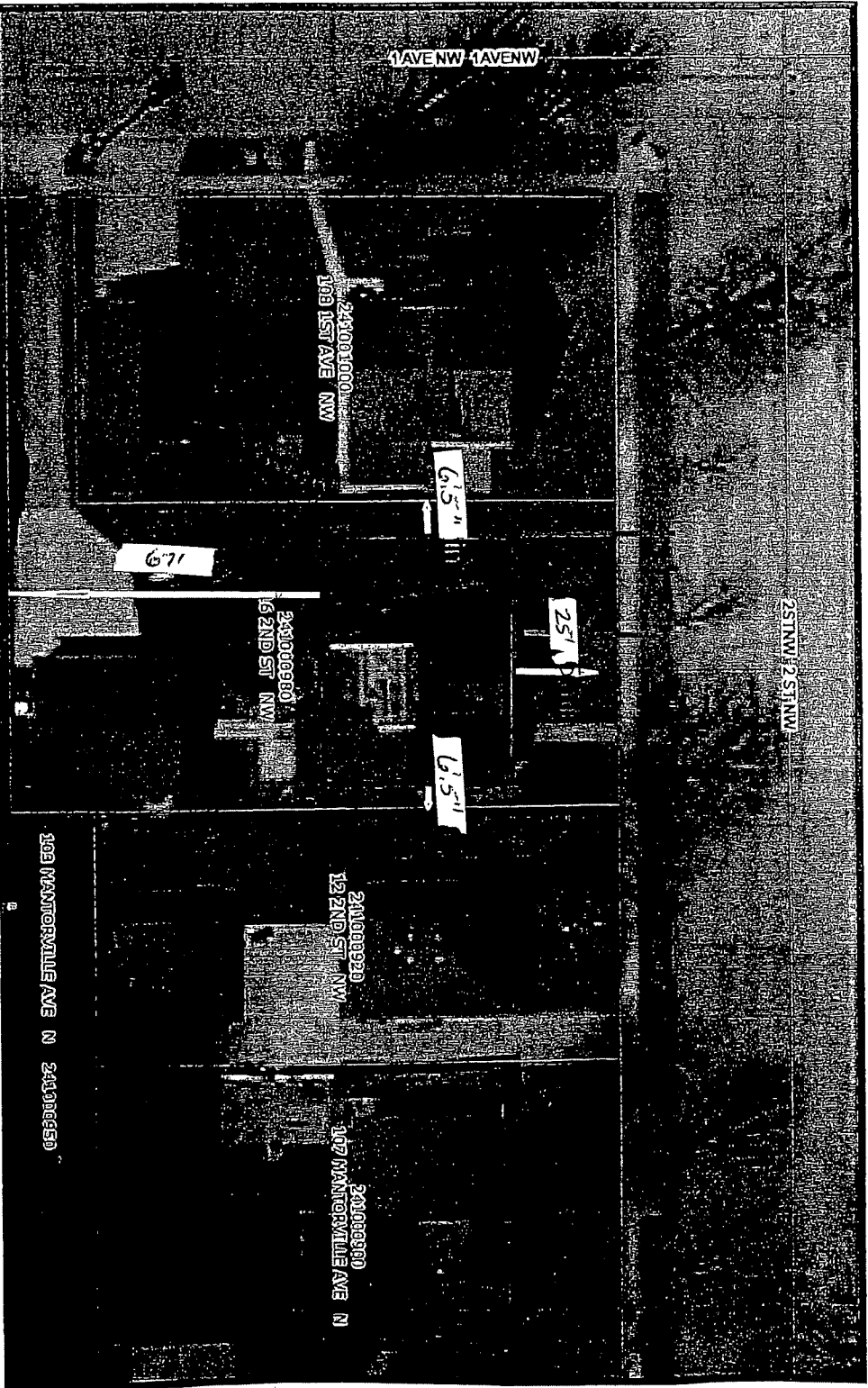
Year 2020

Attest:

BLDG OFFICIAL

KA20-553

ArcGIS WebMap



66
5-7
9-8

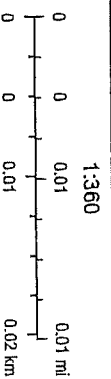
November 6, 2020

Roads Roads

CITY CITY

Address Parcels

PIN



NPGS, Goodhue County

ArcGIS WebApp Builder



City of Kasson
 401 Fifth Street S.E.
 Kasson, MN 55944-2204
 507.634.7071
 (Fax) 507.634.4737
www.cityofkasson.com

Land Use Application – Cover Sheet

Application Type (Check All that Apply)

- | | |
|---|--|
| <input type="checkbox"/> Site Plan Review (§ 154.066)
<input type="checkbox"/> Conditional Use Permit (§ 154.067)
<input checked="" type="checkbox"/> Variance (§ 154.068)
<input type="checkbox"/> Zoning Amendment (§ 154.069)
<input type="checkbox"/> Establishment of a Planned Unit Development (PUD) (§ 154.070) | <input type="checkbox"/> Minor Subdivision (§ 153.050-054)
<input type="checkbox"/> Concept Plan (§ 153.065-067)
<input type="checkbox"/> Preliminary Plat (§ 153.080-085)
<input type="checkbox"/> Final Plat (§ 153.095-098)
<input type="checkbox"/> Subdivision Variance (§ 153.110-114) |
|---|--|

Application Information

Date Submitted 5-5-21		Planning Case Number <i>(City will fill out)</i>	
Property Address 16 2nd Street NW		PID #	
Applicant DAREK Davidson	Phone # 507-258-0455 Email bydesign@buiideas.com	Address 305 3rd Ave NE Byron MN 55920	
Property Owner DAREK Davidson	Phone # Email	Address	
Engineer/Architect The Design Connection	Phone # Email	Address Rockester	
Use of Property Current: Proposed: single family home	Land Use Designation Current: Proposed:	Zoning District Current: RC Proposed:	
<i>Application must be signed by all owners of the subject property</i>			
Signature of Property Owner(s) 		Date 5-5-21	
<small>The undersigned applicant hereby represents upon all of the penalties of law that all statements herein are true and that all work herein mentioned will be done in accordance with the ordinances of the City of Kasson, the State of Minnesota, and any other applicable laws and regulations.</small>			
Signature of Applicant 		Date 5-5-21	

Variance Specifics

Zoning District: R.C

Zoning Standard	Required	Requested (or existing)	Variance
Lot Area	6700 sf.	sf.	sf.
Lot Width – Building Line	ft.	ft.	ft.
Lot Width – Street Line	ft.	ft.	ft.
Front Yard Setback	ft.	ft.	ft.
Side Yard Setback	6.5 ft.	4'10" ft.	10'2" ft.
Side Yard Setback	6.5 ft.	4'10" ft.	2' ft.
Rear Yard Setback	ft.	ft.	ft.
Building Height	ft.	ft.	ft.
Impervious Surface	% sf.	% sf.	% sf.

Practical Difficulty

- "Practical Difficulty" as used in connection with the granting of a Variance shall include all the following:
 - The property owner proposes to use the property in a reasonable manner that is not otherwise not permitted by an official control;
 - The plight of the property owner is due to circumstances unique to the property, not created by the property owner;
 - The Variance, if granted, will not alter the essential character of the locality;
 - The need for the Variance involves more than economic considerations.
- "Practical Difficulties" also means and includes, but is not limited to, inadequate access to direct sunlight for solar energy systems

Applicant Narrative:

Provide a written explanation as to why the situation of the subject property creates a practical difficulty and requires a variance from the provisions of Chapter 154 Zoning of the City Code

~~1000 sq ft~~ This was a oversight by All Associated with plan beginning with the draftsman. The house plan was to be to use maximum space in width of lot with the proper 6'6" side set back. Some how it got missed that the house was drawn wider than 53' to meet Reg. on a 66' lot. The house was originally drawn to have a basement but once existing house was demoed we hit the water table @ 6'6" so we had to change ~~plan~~ to slab on grade. So when we laid out for excavation we discovered the

Issue of being too wide. The Foundation and Home Framing is a panelized method of construction and has been built and purchased so it would be unable to be modified at this point. ~~that~~